Bail-Ins, Bailouts, and Borrowing Costs

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1. Introduction

A variety of ideas for governing the flow of portfolio capital have been tabled in the course of discussions of how to strengthen the international financial architecture. The goal in each case is to reduce the frequency and severity of crises and limit investor moral hazard by creating alternatives to large-scale financial rescues, which are increasingly seen as ineffective in catalyzing private capital flows. While the ideas falling under this heading are diverse, one thing they have in common is their uncertain impact on borrowing costs. The argument is the same whether the proposal is to add collective-action clauses to loan contracts, to mandate the inclusion of universal-debt-rollover options in loan agreements, to empower the IMF to sanction a standstill on payments, or to have the Fund to lend into arrears to private creditors. Each of these practices, their critics warn, would weaken the bonding role of debt and raise the cost of funds for emerging markets.[1] The proponents of these ideas maintain, in contrast, that by preventing avoidable crises and more efficiently resolving those that still arise, these innovations may in fact reduce borrowing costs.

As is frequently the case in economics, models can be constructed supporting both points of view. Miller and Stiglitz (1999) and Dooley (2000) illustrate the point. While Dooley lays out a model of international lending and borrowing in which measures that weaken the bonding role of debt do not just raise borrowing costs but actually reduce lending to the vanishing point, Miller and Stiglitz show that easier restructuring may render foreign lending more attractive by minimizing interruptions of debt service and preventing avoidable losses. Both arguments are logically consistent. Unfortunately, they have opposing implications for the cost of market access. In the absence of evidence, it is impossible to

know which one dominates.

A precisely analogous debate surrounds the IMF programs that these measures are intended to replace. The IMF and the official sector generally are fond of referring to the "catalytic role" of the Fund. The news that the Fund is providing essential finance and that the government has agreed to pursue the reforms upon which that assistance is conditioned is supposed to restore investor confidence, catalyze an inflow of private capital, and reduce borrowing costs. Others are more critical of the effects of IMF programs on market conditions. The fact that a country has been forced to approach the Fund may be perceived as a signal of the depth of its difficulties that swamps any positive effect of prospective policy reforms. Moreover, governments have a decidedly mixed record of actually implementing the reforms on which IMF assistance is conditioned; if reform is unlikely to follow, then investors will use the provision of official finance as an opportunity to get out rather than getting in. And, in the wake of the Asian crisis, the long lists of structural conditions that the Fund has attached to its loans have been criticized for doing more to undermine investor confidence, by emphasizing the existence of problems that no government can solve in short order, than they do to support it. Again, all of these arguments are consistent, but they have quite different implications for the impact of IMF assistance on borrowing costs. In the absence of evidence, it is again impossible to know which one dominates.

This paper is a modest contribution to the evidence on this subject. After reviewing proposals for changing the way that capital flows are governed ex post and ex ante, we provide evidence on the effects on the terms of market access of two types of interventions:

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[1] Friedman (2000) has put the point forcefully.

IMF programs and the adoption of collective action clauses.[2]

In part our message is pedagogic. There is an imbalance in the literature between theory and evidence. More energy has been devoted to modeling these interventions analytically than to identifying their effects empirically. This is an imbalance that should be redressed.

In addition we have a substantive message, namely, that existing practices and prospective reforms have different effects on different types of borrowers. For example, the commitment effects associated with IMF loans appear to do little for either borrowers with very poor credit, who are least likely to be able to stick to the terms of their programs, or borrowers with very good credit, who are presumably able to commit to reform in their absence. In contrast, Fund programs do appear to enhance the market access of borrowers with "intermediate" credit, who as a result of the additional commitment that these mechanisms entail are able to borrow at lower cost. It follows that general statements about the effects of IMF programs run the risk of misleading if they are applied to emerging markets as a class.

Moreover, there is a suggestion that not all Fund programs are created equal. Those accompanied by limited structural conditions have the most favorable effects on investor confidence, while those accompanied by elaborate structural conditions of a sort that governments are unlikely to be able to deliver in short order have a negative effect and undermine confidence rather than inspiring it.

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[2] We also provide some evidence on the effects of official guarantees and credit enhancements, which have been suggested by Corrigan (2000) as a way of encouraging the private provision of new credit to crisis countries. That evidence is limited, however, by the relatively small number of such guarantees in our data set.

Similar messages emerge with regard to changes in the provisions of loan contracts like the more widespread adoption of collective action clauses. These clauses appear to raise the costs of market access for borrowers with low credit ratings but lower them for borrowers with high ratings. They support Dooley's prediction for the first group, in effect, but Miller and Stiglitz's for the second. The tendency for renegotiation-friendly contractual provisions to weaken the bonding role of debt and create moral hazard dominates for borrowers with poor credit, in other words, while for borrowers with good credit, who are less likely to act opportunistically, greater ease of restructuring dominates the increase in moral hazard. Again, it is likely to be misleading to apply statements about the impact on borrowing costs to emerging markets as a class.

2. A Review of the Proposals

In this section we summarize and critique the proposals under review.

Collective Action Clauses. Mechanisms to promote orderly restructuring are seen as opening up an alternative to large-scale financial rescues and the moral hazard they create. According to the advocates of collective-action clauses, restructuring is difficult and costly under present institutional arrangements, rendering it impossible for the International Financial Institutions to stand aside if the markets refuse to roll over maturing claims or provide new money. The International Financial Institutions are then placed in an untenable position of having to back down on their previous commitment not to provide resources that can be used to finance exit by foreign investors. And since investors are aware of these facts, their behavior is unlikely to be modified by the International Financial Institutions' less-than-credible statements of intent.

The crux of the matter is thus the difficulty of debt restructuring, sovereign debt restructuring in particular, under prevailing institutional arrangements. American-style instruments governed by State of New York law typically require the unanimous consent of the bondholders to the terms of a restructuring.[3] Many do not even provide for a bondholder assembly. This contrasts with bonds governed by UK law, which include provisions enabling the holders of debt securities to convene an assembly empowered to pass resolutions addressing issues relating to the settlement of defaults and other modifications to the original bond covenant, subject to the consent of bondholders holding a clear majority of the outstanding principal.[4] Their resolutions are binding on all bondholders so long as the requisite majority agrees. And in contrast to American-style bonds, which contain no prohibition on legal action by dissident bondholders, UK-style bonds shelter the issuer from lawsuits by "vultures" seeking to hold up the restructuring.[5]

Amending loan contracts to include sharing, majority voting, and collective-representation clauses is designed to address these problems and make restructuring a viable option. Majority voting and sharing clauses would discourage maverick creditors from resorting to lawsuits and erecting other obstacles to a settlement beneficial to the debtor and the majority of creditors. Clauses specifying who represents the bondholders and making

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[3] There are exceptions: a few US-style bonds provide for amendments of payment terms with the approval of a qualified majority of bondholders. And most do not require unanimous consent to changes in their nonfinancial terms, as the case of Ecuador has recently demonstrated. We return to this case below.

[4] Typically 75 per cent. Some covenants provide for lowering the necessary quorum to 25 per cent if 75 percent of the bondholders cannot be reached.

[5] UK bonds governed by Trustee Deed Agreements, but not those involving fiscal agents, generally prohibit individual bondholders from initiating litigation. The power to do so is vested with the trustee, acting on the instruction of creditors holding a specified fraction, typically, at least 25 per cent of the principal, who is required to distribute any funds recovered in proportion to the principal

provision for a bondholders committee or assembly would allow orderly solutions to be reached.[6] The restructuring of problem debts could then be left to the consenting adults involved and reduce the pressure on the IMF to extend bailout loans.[7] This mechanism for orderly restructurings could actually make emerging-market issues more attractive by minimizing acrimonious disputes, unproductive negotiations, and extended periods when no service is paid and growth is depressed by a suffocating debt overhang.[8]

The objection is that renegotiation-friendly provisions would make it too easy for countries to walk away from their debts. Collective-action clauses would weaken the bonding role of debt, create moral hazard, disrupt credit-market access, and raise borrowing costs.[9] By compounding the difficulties that low- and middle-income countries already face when attempting to access international capital markets, the more widespread use of collective action clauses could be welfare reducing, so the conclusion follows.

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amount.

[6] This was suggested in 1996 by the G-10 in its post-Mexico report (G10 1996) and echoed in a series of recent G-22 and G-7 reports and declarations. The G-7 then placed the issue on its work program for reforming the international financial system with the goal of reaching a consensus by the Cologne Summit in June of 1999. Two recent discussions of the operation of such provisions are Yanni (1999) and Drage and Mann (1999).

[7] Countries that attach a high value to maintaining market access would be free to take the extreme measures needed to keep current on their debts, while restructuring would now be viable for countries without the same capacity to adjust and which therefore attach priority to obtaining a reduction in debt-servicing costs. Countries that value a well-defined seniority structure could choose to restructure junior debts while leaving senior debts untouched. Limited IMF lending into arrears would become feasible if renegotiation-friendly provisions in loan contracts could be used to avert a major financial drain and extended loss of market access.

[8] As *The Economist* put it in a leader, "the prospect of an orderly renegotiation rather than a messy default might actually make some bonds more attractive." *Economist* (1999), p.21.

[9] As William Rhodes has put it, "Approaches by the official sector to force the insertion of bankruptcy clauses into sovereign bond issues could limit the demand for theses [sic] instruments, and generally inhibit market access for those emerging market countries implementing correct reform policies." Institute of International Finance (1999a), p.2.

This dispute is empirical, not analytical. There is no disagreement that the more widespread use of collective action clauses would have two offsetting effects. By weakening the bonding role of debt, they would raise borrowing costs, but by facilitating debt restructuring and limiting efficiency losses ex post, they would reduce the costs of market access. Disagreement centers not on these analytics but on the quantitative importance of the two effects.

In the wake of the exchange offers tabled by Pakistan, Ukraine and Ecuador, this debate has taken a different turn. It is now argued (by e.g. Roubini 2000) that collective action clauses are superfluous because what cannot be accomplished by restructuring under New York law is still possible via exchange offers. Pakistan restructured its debt by completing a voluntary exchange without utilizing the collective action clauses in its bonds. Ukraine restructured by completing a voluntary debt exchange without calling for a bondholders meeting. Ecuador restructured by completing a voluntary debt exchange of bonds that did not include collective action clauses, binding in reluctant bondholders through the use of "exit consents."[10]

Proponents of collective action clauses argue that this new view is too simple.[11] The mere existence of such clauses helps to concentrate the minds of investors. The mechanism is analogous to corporate debt restructuring in the shadow of the court. While firms prefer to work out problems with their creditors directly, voluntary settlements are facilitated by the knowledge that the debtor will seek the shelter of the bankruptcy court if the effort to achieve

[10] "Exit consents" involve changes in the nonfinancial terms of the bond to make it less attractive for maverick investors to hold out.

[11] See for example Kahn (2000).

an out-of-court settlement fails. In the international context, everyone similarly knows that if the voluntary exchange fails the debtor will invoke the collective action clauses in his debt instruments, which allow the majority to bind in rogue creditors (and, not incidentally, provide the issuer with shelter from legal action). This increases the likelihood of voluntary action.

In fact, this is precisely how collective action clauses have been used in recent restructurings. Pakistan warned that they might have to be invoked if a critical mass of investors did not accept its exchange offer. In Ukraine, where three of the four debt securities involved had collective action clauses, bondholders tendering their bonds for exchange were required to assign their voting rights to the trustee, who could then vote to bind in other bondholders if the need arose. In this view, collective action clauses are not the first recourse, nor should they be. But they are the final recourse, and a useful one.

These two views of collective action clauses have different empirical implications. If all the same things can be accomplished through exchange offers of debt securities lacking collective action clauses as through the restructuring of debt securities featuring them, then the contractual provisions in question will have no discernible impact on borrowing costs. Evidence of an impact, in contrast, is inconsistent with the view that collective action and representation provisions are superfluous.

Universal Debt Rollover Options. Willem Buiter and Anne Sibert (1999) propose that a clause providing for a "universal debt-rollover option with penalty" (UDROP) be added to all foreign-currency-denominated loans and credits as a way of dealing with the creditor panic problem. The borrower would then have the option of extending a maturing debt for a specified period (say, three months). While the regulatory authorities would

mandate the inclusion of this option in all debt instruments, its precise terms could be negotiated between the debtor and his creditors when the loan agreement was written.

To prevent the borrower from exercising the option under orderly market conditions and thereby avoid moral hazard, Buiter and Sibert propose requiring a debtor invoking the option to compensate the lender at a penalty rate and allowing the option to be invoked only once. Hence, a borrower who was insolvent would not be sheltered from the need to restructure his debts at the end of the rollover period.[12]

The effect on borrowing costs of mandating the inclusion of such options in international loan agreements is predictably ambiguous. On the one hand, there is the argument that, by making it more difficult for foreign investors to repatriate their funds, they will demand an additional premium before lending in the first place. On the other hand, if the presence of these provisions reduces the risk of bank-run-like liquidity crises, then that risk reduction will make lending to emerging markets more attractive, reducing rather than increasing spreads.[13]

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[12] UDROPs should probably be thought of as complements rather than substitutes for collective-action clauses. UDROPs are designed for liquidity crises whose resolution requires only a temporary breathing space until confidence returns, collective-action clauses for solvency problems that require write-downs and restructurings.

[13] Just as it may be in the collective interest of the depositors to sit tight but in their individual interest to queue up at the bank as soon as they see a line being formed, given the bank's rule of first-come-first-served, it can be in the collective interest of a country's creditors to roll over their maturing claims but in their individual interest to scramble for the exits if they see other creditors doing likewise, given that the limited availability of foreign reserves similarly creates a sequential service constraint. In the domestic bank-run context, deposit insurance and, historically, temporary suspensions of the convertibility of deposits into currency are designed to alter these incentives and attenuate their effects. Deposit insurance minimizes the incentive for depositors to run. Temporary suspensions of convertibility allowed banks to avoid having to close down as a result of depositor runs and therefore of having to incur the associated costs. UDROPs are designed to mimic this function in the international setting. They would give the debtor a breathing space of, say, three months, a period of time assumed to be sufficient for the restoration of investor confidence and the resumption of business as usual. They obviate the need to declare a costly default.

Standstills. Another proposal is for resort to a payments standstill endorsed or sanctioned by the IMF. Williamson (1992) and Sachs (1994) first mooted this idea in the context of broader proposals for an international bankruptcy court. Eichengreen and Portes (1995) (in a background paper to the Rey Report (G-10 1996), where the official community offered a discussion of the idea) appraised the proposal. Following the Asian crisis, Canadian Finance Minister Paul Martin put before the Interim Committee a proposal that would have compelled IMF member countries to enact legislation requiring all bonds and short-term borrowing instruments to carry a covenant allowing the IMF to declare and/or approve a debt moratorium.[14]

If the problem is panic, then a payments standstill, like a universal debt rollover, would allow investors to collect their wits. It would give them time to reflect and to agree on mutually beneficial actions. It would allow the authorities to contact the creditors and encourage them to recognize their collective interest. Even if there are problems with fundamentals, the imposition of a temporary standstill would provide the government a chance to signal its commitment to the policy reforms needed for the restoration of confidence.

In analogy to domestic bankruptcy procedures, a temporary stay could ensure that restructuring remains orderly—that it is not undermined by attempts to seize assets. By preventing the creditors from scrambling for the country's limited foreign exchange and from shutting off external finance for future economic activity (which would otherwise be unavailable for fear that this too will be garnished by the creditors), the country will then

[14] Canadian officials have subsequently elaborated somewhat more modest versions of the proposal (Murray 2000), as have their British counterparts.

have the finance to grow out of its temporary problem. Total payments to the creditors, in present-value terms, could be greater than if investors engaged in a grab race.

Moreover, standstills, according to their proponents, would reduce the moral hazard associated with IMF bailouts by creating a viable alternative. At present, the IMF finds the extension of rescue loans irresistible because it does not want to see a country with good growth prospects strangled by a creditor panic which strips it of its reserves and denies it access to new external credits. This creates investor moral hazard, however, which can be avoided if the country and the Fund can invoke a standstill instead.

Governments can already declare debt standstills unilaterally, and the IMF can already signal its approval verbally or by lending into arrears.[15] But governments imposing standstills are still vulnerable to legal action by disaffected creditors, who may resort to litigation to seize assets.[16] Legislation requiring all bonds and short-term borrowing instruments to carry a covenant allowing the IMF to declare and/or approve a debt moratorium IMF-sanctioned stay that was binding on the creditors, as suggested by Martin, would be shelter the government from such legal disruptions. Another option would be to amend the IMF Articles of Agreement to give the institution the power to officially "sanction" a stay on payments and to give that amendment effect in the relevant national

[15] In their 1999 report on strengthening the international financial architecture, G-7 governments argued that "in exceptional cases, countries may impose capital or exchange controls as part of payments suspensions or standstills, in conjunction with IMF support for their policies and programs, to provide time for an orderly debt restructuring" (G-7 1999, para. 50).

[16] The IMF has long suggested that fears of legal action may be exaggerated, both because it is costly and because the assets that can be seized are limited. But while the absence of legal action in connection with the recent debt exchanges of Ukraine, Pakistan and Ecuador confirms that litigation is not inevitable, the recent Elliott Case against Peru suggests neither the excessive-cost nor the inadequate-assets-to-seize arguments are necessarily correct.

courts (through national legislation or judicial precedent).[17] These are not high-probability events.

The most basic objection is that standstills would weaken creditor rights and raise borrowing costs.[18] As the Institute of International Finance has written, "the more investors perceive that institutional arrangements are trending towards 'no-fault default,' with minimal pain for the borrower and substantial risk of the politicization of debt, the less willing they will be to supply capital to the emerging markets."[19] It has made the point specifically in connection with IMF-approved stay-of-litigation proposals: "Far from contributing to "orderly" solutions, official statements [advocating IMF approval of stays of litigation by creditors]...are raising doubts among market participants about the official community's commitment to upholding private contracts."[20] It follows, as the Institute has put the point in another document: "Further consideration of stays is likely to have a significant dampening effect on the willingness of private creditors to provide cross-border financing..."[21]

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[17] Article VIII.2(b) presently provides that "exchange contracts which involve the currency of any member and which are contrary to the exchange control regulations of that member maintained or imposed consistently with this Agreement shall be unenforceable in the territories of any member." In other words, Article VIII.2(b) gives sanction to certain types of exchange controls. The shareholders in the Fund could agree to amend Article VIII.2(b) to make clear that it applies to capital as well as exchange controls, when the former were applied under extenuating circumstances. This would require approval by at least 50 per cent of the member countries, which together held 85 per cent of the total member countries. Alternatively, the Executive Board could give the article a new, definitive interpretation consistent with this broader coverage without taking a formal vote.

[18] Other objections include the danger of contagion, if the declaration of a standstill by one country raises fears of the imposition of a standstill by another, and that the prospect of a standstill might only incite creditors to run to the exits more quickly in anticipation of its imposition. See Frankel and Roubini (2000).

[19] Institute of International Finance (1996), Appendix A, p.29.

[20] Dallara (1999), p.7.

[21] Institute of International Finance (1999b), p.12.

These objections are telling. The IMF does not have powers of a bankruptcy judge who can replace the management of the company in receivership, reorganize its financial affairs, and impose a settlement on uncooperative creditors. That recourse to a standstill might discourage adjustment by the government of the crisis country is a serious objection. As Summers (1996, p.4) has put it, the analogy with corporate bankruptcy is flawed because "the safeguards against moral hazard built into domestic bankruptcy codes cannot be applied to sovereign debtors."

Miller and Zhang (2000) argue, in contrast, that the IMF could limit moral hazard by attaching conditions to its approval or activation of the measure. If the cooling-off period provided by the standstill prevented the creditors' panicked rush for the exits from compounding the country's financial crisis, its economic problems would be lessened and its ability to pay enhanced. In principle, borrowing costs could fall rather than rising.[22]

Guarantees and Other Enhancements. Official guarantees and similar credit enhancements have been suggested as another device for encouraging the private sector to provide new liquidity to crisis countries. The enhancements in question could range from plain-vanilla guarantees of interest payments for a fixed period on new loans or capital market placements, to structured, one-time capital market placements that might have a put feature for a limit period at a market price below the issue price.[23] As the IMF has explained,

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[22] This is most plausibly the case if the crisis is of the pure-liquidity variety, in which case the country's fundamental ability to pay would be unimpaired. Thus, Miller and Stiglitz (1999) and Miller and Zhang (2000) suggest that the existence of a "Super Chapter 11" which prevented creditors from engaging in a grab race in response to macroeconomic shocks might prevent adverse balance-sheet effects from transforming the disturbance into a full-blown crisis. And knowing that a crisis is less likely to result, investors will be less inclined to launch the grab race in the first place. Borrowing costs, rather than rising, may fall.

[23] That is, the (IFI) guarantor would agree to purchase the debt if the price fell to some set (strike) price

such guarantees would be "intended to 'leverage' official capital, allowing a limited amount of official capital to support a larger amount of financing, while lowering the costs of private financing for emerging market borrowers. In general, the proposals aim to encourage a renewal of relations between governments and their private creditors, enhance the creditworthiness of the borrower, allow a speedier restoration of market confidence, and help to address concerns about burden sharing among official and private creditors."[24] Corrigan (2000) motivates the case similarly: enhancements could be used to get critically needed private money into the crisis country and limit the need for official financing. They would "provide incentives for private participation and incentives for reasonably rapid turn-around in the troubled country such as we have seen in Mexico in 1995 and Brazil, Korea and Thailand in 1998-99."

Analytically, it is not clear that plain-vanilla interest guarantees and more complex enhancements are really any different from IMF standby loans. In one case the Fund lends to the government, which then uses its monies to pay off investors if the latter choose to exit. In the other case the Fund provides resources directly to investors if the borrower halts payments or the market price of the security falls to the strike price. While the funds pass through the accounts of the government in one case but not in the other, their ultimate disposition is the same. Investors have the same incentive to purchase claims on the crisis country in the expectation that multilateral resources will be made available if further financial difficulties arise. The pressure for adjustment by the crisis country is not obviously different in the two cases. Nothing else having changed, it is not clear that the magnitude of

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below the issue price.

[24] IMF (1999), p.63.

the official finance needed to aid the crisis country will be any different, that fewer investors will panic, or that more contrarians will bottom fish. It does not obviously follow that official enhancements "help to address concerns about burden sharing among official and private creditors" (to repeat the quotation above).

It has been suggested that official enhancements of claims on the crisis country may encourage investors to coordinate on a cooperative equilibrium when providing new money is in their collective but not their individual interest.[25] But, again, it is not clear that guarantees are superior to conventional IMF loans for encouraging investors to coordinate on the more efficient equilibrium. This argument for enhancements is the same as that made for IMF standby loans, in other words, and it is subject to the same objections. In particular, just as with an IMF program, it is possible that the provision of an enhancement will be perceived as an adverse signal. If taken as a sign that the borrower is in dire straits, it may damage rather than enhancing credit market access. It is not certain that the availability of external finance will rise and that its cost will fall, rather than the other way around.

Recapitulation. There is no shortage of ideas for changing the arrangements governing international capital flows and providing alternatives to IMF rescue loans. One of the few things all such proposals have in common is that there is no consensus regarding their impact on the cost and availability of private credit to emerging markets, one of the key criteria used by diverse observers to judge their efficacy. This lack of consensus is symptomatic of a lack of evidence. It is to the development of such evidence that we now turn.

A caveat is important before proceeding. Evidence that a particular reform is likely to

raise or reduce borrowing costs does not, by itself, tell us whether that reform is desirable. To put the point another way, while everyone agrees that the cost of emerging-market finance is distorted, they don't agree on the direction. The dominant presumption in low- and middle-income countries is probably that asymmetric information and inadequate contract enforcement inflate the cost of capital for emerging markets, so that anything that reduces those costs is efficiency and welfare enhancing. But observers situated in high-income countries argue that expectations of official bailouts have created spread compression and encouraged overlending to emerging markets.[26] If this effect dominates, then higher spreads will indicate a more efficient allocation of resources. In this paper we do not attempt to determine whether higher or lower spreads are better (whether an increase or reduction moves the cost of borrowing toward its efficient, first-best level) but focus on the prior question of whether spreads are likely to go up or down.

3. Data and Methods

Our data set is essentially the universe of international bonds issued by emerging markets in the course of the 1990s.[27] We assembled information on bonds issued between 1991-I and 1999-IV from *Capital Bondware.*[28] Hence, the evidence developed here is

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[25] That is, when there is an "After you, Alphonse" problem.

[26] See Dooley (1997) and McKinnon and Pill (1997).

[27] Where information on characteristics of the issue or the issuing country was missing, we were forced to drop the bond in question. Out of an initial sample of 2,913 bonds, we were forced to drop 408 bonds because spreads are not reported (generally, these are bonds issued very early in the sample period), and 114 bonds because complementary information is not available.

[28] Among the variables thereby obtained are the spread, maturity, and amount of each issue, whether it was privately placed, whether it was subject to a guarantee, whether the issuer was a private or governmental entity, whether the issue was denominated in dollars, yen or deutsche marks, the

exclusively for the bond market; we do not analyze the transactions in the international bank market.[29]

Throughout this paper, the basis for our empirical analysis is a two-equation model of the supply and demand for international debt—equivalently, a probit for the issue decision (the supply-of-debt decision) and a spreads equation (which indicates investor demand). The spreads equation is a linear relationship of the form:

$$\log (spread) = B\mathrm{X} + u_1 \qquad (1)$$

where the dependent variable is the logarithm of the spread, X is a vector of issue, issuer, and period characteristics, and u_1 is a random error.

The spread (and its relationship to issuer and issuer characteristics) will be observed only when the decision to borrow and lend is made. Assume that spreads are observed when a latent variable B crosses a threshold B' defined by:

$$B' = g\mathrm{X}' + u_2 \qquad (2)$$

where X' is the vector of variables that determines the desire of borrowers to borrow and the willingness of lenders to lend, and u_2 is a second error term. If the error terms in equations (1) and (2) are bivariate normal with standard deviations s_1 and s_2 and covariance s_{12}^2/s_1s_2, this is a sample selection model, and equations (1) and (2) can be estimated simultaneously.

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industry of origin, whether the issuer was a sovereign, (other) public entity, or private-sector issuer, and whether the interest rate was fixed or floating. We supplemented this with information on national and global macroeconomic variables drawn from the IMF's *International Financial Statistics,* The World Bank's *World Development Indicators,* and national sources.

[29] In an earlier paper (Eichengreen and Mody 2000a) we analyzed the determinants of spreads in the international market for syndicated loans. One could imagine extending the analysis here to those instruments as well. Early critiques of proposals to bail in the private sector by, inter alia, pushing for the inclusion of collective-action provisions in bond covenants (e.g. Institute of International Finance 1996), were critical on the grounds that bank loans remained the principal vehicle for portfolio capital flows to emerging markets. With the subsequent decline of syndicated bank lending and the continued

They can be identified by the nonlinearity of the fitted probabilities in the selection equation or by the inclusion of elements in X' that are not also in X.

Throughout, we focus on primary-market (launch) spreads. We include the following variables as measures of credit worthiness in the spreads equation: external debt relative to GNP, debt service relative to exports, whether a debt restructuring agreement has been concluded within the previous year with either private or official creditors, the growth rate of real GDP, the variance of export growth, the ratio of reserves to short-term debt, and the ratio of domestic private credit to GDP. We also utilize a subjective measure of political risk constructed from country credit ratings provided by *Institutional Investor*.[30] We include the log of the ten-year U.S. treasury rate (to capture the opportunity cost of lending to emerging markets), the swap rate (the market measure commonly used to measure investor risk tolerance), and the difference between the 10 and 1 year U.S. treasury rates (to represent the slope of the yield curve and hence the appetite for difference maturities).[31]

We estimate the determinants of spreads and the probit for the borrowing decision as a system, by maximum likelihood. Estimating the determinants of market access requires

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progress of securitization, this objection has clearly lost some of its force.

[30] The advantage of the *Institutional Investor* data over the Moody's/S&P ratings used by most previous authors is more complete country coverage and more regular publication (the data are biannual). Since *Institutional Investor's* country credit rating is correlated with other issuer characteristics, including it in the spreads equation, where many of these other issuer characteristics also appear, complicates interpretation. We therefore substituted the residual from a first-stage regression in which the credit rating was regressed on the ratio of debt to GNP, the debt rescheduling dummy, the ratio of reserves to GNP, the rate of GDP growth, and the variance of export growth. In addition to entering these variables in levels, we interacted them with a dummy variable for Latin America. Representative results are reported in Eichengreen and Mody 2000; we suppress them here in the interest of space.

[31] Ten-year rates are appropriate insofar the term to maturity of the underlying asset is broadly similar to that on the bonds in our sample

information on those who did not issue bonds. For each country we consider three categories of issuers: sovereign, (other) public, and private. For each quarter and country where one of these issuers did not come to the market, we record a zero, and where they did we record a one.[32]

4. Bailouts

IMF programs are the benchmark against which reform proposals should be judged. We therefore start by analyzing the association of Fund programs with the cost and availability of finance. Do countries approaching the IMF for assistance find it easier or harder to access financial markets subsequently? Do they pay higher or lower spreads?

We address these questions by including indicator variables for IMF programs in the issue and spreads equations specified above, which allows us to consider the impact on both quantities and prices. There is a large literature on the effects of IMF programs, much of which is rendered inconclusive by methodological problems.[33] For example, there is the potential endogeneity of IMF programs. Fortunately, this problem is less serious in our context than others. Our dependent variable is the individual bond issue, not a macroeconomic aggregate like the growth rate of aggregate capital flows. It is less likely that

[32] To conserve space, we do not discuss the estimator, the results of estimating the probit, or other coefficients in the spreads equation. See Eichengreen and Mody (2000b,c) for details.

[33] Among the prominent contributions to this literature are the following. Hajivassiliou (1987) finds a negative relationship between IMF involvement and the subsequent supply of new loans for a cross section of developing countries in the period 1970-1982. Faini et al. (1991) and Killick (1995) find the same for the 1980s. Rowlands (1994) disaggregates public and private flows and finds that private flows respond negatively, public flows positively. A recent study by Bird and Rowlands (1997) finds that the effect is unstable but, when significant, strongly negative. The one study of which we are aware of the impact of IMF programs not on gross or net capital flows but on spreads, by Ozler (1993), finds a consistent positive impact, again inconsistent with the idea of a catalytic role. But Ozler's analysis is of syndicated bank loans, not bonds, and it is for an earlier period.

the decision to approach the IMF and the Fund's decision to help are affected by the success of an individual bond issue (given that a number of the program countries in our sample floated multiple issues in periods when they were involved with the Fund) than they are by the growth rate or the overall level of capital flows. Hausman tests do not allow us to reject the null that IMF programs are exogenous with respect to individual security issues.

Other problems remain. For example, if one finds a certain association between IMF programs and subsequent economic performance or market outcomes, it is not possible to say whether that association reflects the impact of Fund programs per se or the implications of other unobservable characteristics of the country that both prompt it to approach the Fund and shape the performance of its economy and the reaction of the markets. These alternatives are sometimes referred to as the "commitment" and "signaling" interpretations—that Fund programs are a commitment device that enhances the government's dedication to reform, on the one hand, and that they send a signal of the depth of the country's problems, on the other. Fancy econometric fixes for this problem are no more convincing than the restrictive assumptions on which they are based.

Our presumption is that the commitment and signaling effects operate to different degrees on different borrowers. Specifically, we are interested in the differential impact of IMF programs across countries with different credit ratings—in the hypothesis that the market will view Fund programs differently depending on the credit quality of the government. We are also interested in the differential effects of different types of conditionality.

In column (1) of Table 1, we show the results of the probit relating the decision to issue a bond to a vector of country characteristics (the growth rate, the level of indebtedness,

etc.), a vector of market conditions (the U.S. Treasury bond rate, the yield curve, and the log swap rate), and whether or not the country has negotiated an IMF program. The estimated probit includes interaction terms for Latin America. As such, the estimated coefficients for Latin America, when the dummy for Latin America takes on the value 1, are sum of the coefficients in columns (1a) and (1b).

In the columns headed (2) through (6) we relate many of these same variables to the determination of spreads.[34] It appears that IMF programs have a positive impact on market access, other things equal, and a negative impact on spreads, although the first effect is more robust than the second.[35] In contrast to most of their predecessors, these results are more readily reconciled with the (positive) commitment interpretation than the (negative) signaling effect. They also provide some evidence of the catalytic role of IMF programs—or of the moral hazard created by IMF lending if one prefers to interpret them that way.

[TABLE 1]

There are some interesting differences by program type and history. We distinguish Standby Arrangements, support through the Extended Fund Facility (EFF), and Structural Adjustment and Enhanced Structural Arrangements (ESAF), in contrast to previous

[34] As explained in Section 3, the probit equation for borrowing and the spreads equation are estimated simultaneously. We identify the borrowing equation by omitting the size of the issue, its maturity, and whether it is privately placed. The probit has variables not in the spreads equation: debt service/exports, short-term/total debt, and reserves/imports. Note that identification is also provided by the nonlinearity in the probit. These equations can be thought of as part of a larger system in which the decision to borrow, the amount borrowed, the maturity of the obligation and its price are simultaneously determined. We have taken a step toward estimating that larger model in Eichengreen, Mody and Hale (2000), where we analyze the determinants of issuance, maturity and spreads as a system. As shown there, the other results reported in Tables 1 and 2 are largely unaffected by this extension.

[35] The positive effect on access appears to hold whether we assume that the determinants of borrowing are the same across regions (as in the left-hand side of column 1) or allow them to differ between Latin America and other parts of the world (as on the right).

quantitative analyses which club all Fund programs together. Standby Arrangements and EFF loans have a negative impact on spreads, although only for the latter does that effect approach significance at the standard 5 percent level (i.e., when the absolute value of the t-statistic is 2 or more) when each type of arrangement is included in the model by itself. For ESAF loans, there is no evidence of lower spreads: the coefficient in question is positive (although it is again indistinguishable from zero at conventional confidence levels). When we include measures of all three types of arrangements at the same time, these findings are reinforced: now the negative impact of Standby and Extended Fund Facility loans is significantly less than zero at conventional confidence levels, and EFF loans have roughly twice the impact of Standbys on borrowing costs. The effect of Enhanced Structural Adjustment loans on spreads continues to be positive but insignificantly different from zero. Interestingly, we also find that the impact on spreads weakens with the length of IMF involvement.[36]

The magnitudes are not insignificant. The coefficient on Standby Arrangements when all three types of Fund programs are entered simultaneously (in the column headed "6") implies that their presence reduces spreads by 24 basis points, which is 8.5 per cent (relative to a sample average of 280 basis points). For Extended Fund Facilities, spreads fall by 15.3 per cent, which is 43 basis points. These benefits are eliminated once a country has been in Standby for ten quarters and in an Extended Fund Facility for 18 quarters.

It is tempting to interpret these patterns in terms of differences in policy conditionality and in the perceived probability of country compliance. Goldstein (2000) identifies three

[36] We attempt to pick up the effects of serial borrowing by continuing to count previous quarters of IMF involvement if a country drops out and back into an IMF program.

types of conditionality: macro, macro with a light emphasis on structural reform, and macro with a heavy structural emphasis. Standby Arrangements tend to be of the first type—that is, they are accompanied mainly by macroeconomic conditions. EFF programs tend to have more structural conditions but a somewhat lower compliance rate. ESAF Loans have the most structural conditions and, again, a mixed record of compliance.

This suggests the following interpretation of the patterns in Tables 1. The conditions associated with Standby Arrangements enhance market access by strengthening the commitment of the government to removing the (mainly) macroeconomic imbalances that led it to approach the Fund. The conditions associated with Extended Fund Facilities, which are in the nature of "first generation reforms," further enhance market access by strengthening the commitment of the authorities to addressing not just macroeconomic imbalances but also some of the structural causes of the crisis. That these effects weaken with program length suggests that the markets see chronic involvement with the Fund as indicative of compliance problems.

The fact that ESAF loans do not appear to have a favorable impact on terms of market access may reflect doubts that the authorities can effectively push through by executive fiat the more ambitious "second generation reforms" demanded by the Fund. The lack of an effect (and perhaps even an unfavorable effect) on borrowing costs is not obviously consistent with the official view that more comprehensive and ambitious conditionality of the sort that the Fund has attached to some of its recent programs is necessary or desirable for restoring market access. All that these extensive requirements may do is to alert the markets to the existence of structural problems (accounting for the positive coefficient on ESAF loans on our spreads equations). These results can be read as supporting the view that second-

generation reforms that take more time and are more difficult to implement are best left until the crisis passes.

In Table 2, we disaggregate by *Institutional Investor* credit rating, placing countries into four groups—0-30, 30-50, 50-70 and 70-100.[37] Not surprisingly, we observe no bond issuer from a country with a rating of 70 or higher with an IMF program, and no country in the 50-70 range with an EEF or ESAF loan. For countries in the lowest rating category (0-30), the coefficients on IMF programs are small and insignificantly statistically (column 1). It would appear that the country's economic problems and difficulty in making a credible commitment to policy reform are already factored into spreads and that the arrival of the IMF is not seen as making a difference in this regard. For borrowers in the next rating category (30-50), in contrast, IMF programs tend to be associated with a reduction in spreads, other things equal (column 2), especially if they are provided through the Extended Fund Facility. An interpretation is that the bad news about these countries is already known, but the arrival of IMF support has a commitment-strengthening effect.[38] The opposite is true for countries in the next rating category (50-70), where IMF programs tend to be associated with an increase in spreads (column 3). The main effect of approaching the Fund in this case would

[37] The countries that fall into the four grops are listed in the appendix, for four different years. Many of the lowest rated countries (0-30) are not associated with "emerging market" status, though some notable ones, such as Russia and Ukraine, are important borrowers in international markets. We distinguish these four rating groups because disaggregating in this way shed lights on the effects of the other initiatives we consider below and because we used this disaggregation in previous work (Eichengreen and Mody 2000b,c), which facilitates comparisons with the results of this paper. We do not report the associated probit for the decision to borrow, although, as implied by the presence of the Inverse Mills Ratio, we again estimate the decision to borrow and pricing equations as a system.

[38] Again, prolonged involvement with the Fund causes this benefit to evaporate, but at a slower pace for this category of borrowers than for the same as a whole.

appear to be to send bad news to the market about these otherwise creditworthy countries.[39]

[TABLE 2]

Thus, there is some evidence in the reaction of financial markets to the news of IMF programs that Fund loans enhance market access. They do so mainly when they have macroeconomic and modest structural conditions attached, but not when they require more far-reaching and difficult-to-implement structural reforms. They do so mainly for countries of intermediate creditworthiness, for whom involvement with the Fund can be seen as strengthening the commitment to reform, and not for countries with poor credit (where program compliance is viewed as unlikely) and good credit (where the commitment to reform is already strong). These results will hearten official observers concerned to document the "catalytic effect" of IMF programs, although they also suggest cautions about the type of IMF programs that exercise this effect. To the extent that investors rush in and spreads are compressed following the announcement of IMF programs, these results can also be interpreted as evidence of moral hazard, although the differential pattern of effects is not easily reconciled with the moral-hazard view.

5. Bail-ins

In a previous paper (Eichengreen and Mody 2000b), we analyzed the impact on spreads of collective-representation clauses, comparing bonds issued under UK governing

[39] We also examined whether these effects differed by the dollar value of the IMF commitment, normalized by the amount of debt service due in that year. The results, in columns 4-6, do not show consistent impact of Fund programs on borrowing costs. We interpret this as suggesting that it is the news of the program, and its implication for prospective policy reform, rather than the exact amount of financial assistance associated with it that matters for the majority of countries.

law with comparable bonds subject to U.S. law in the period 1991-1998.[40] Earlier contributions had failed to find an impact on borrowing costs.[41] We suggested that this resulted from their failure to control for other characteristics of the issue and the issuer, to adjust for the selectivity associated with the decision to borrow, to allow for the endogeneity of the choice of governing law, and to permit different effects for more and less credit-worthy borrowers. Upon doing so, we found that opting for collective action clauses raised spreads for borrowers with low credit ratings (below 50 on the *Institutional Investor* scale) but reduced them for borrowers with high credit ratings (above 50 by this measure). The impact was particularly strong at the extremes – for countries with *Institutional Investor* ratings below 30 and above 70.

The obvious interpretation is as follows. More credit-worthy borrowers value their capital-market access and are unlikely to walk away from their debts. Including collective-action clauses in their loan contracts does not significantly aggravate moral hazard. In the exceptional circumstance that such borrowers have difficulties in servicing their debts, the fact that investors can avail themselves of provisions that allow them to restructure their claims in an orderly way is viewed positively by the markets. For less credit-worthy borrowers, in contrast, the presence of collective-action clauses aggravates moral hazard and increases borrowing costs. The two effects work in opposite directions, resulting in a small and insignificant overall impact on borrowing costs, but in noticeable net effects, opposite in sign, for different credit rating classes. The existence of these effects is hard to reconcile

[40] Where the latter typically means State of New York law. Note that we also have some bonds subject to other, mainly German and Japanese, governing laws.

[41] See for example Deutsche Bundesbank (1999), Tsatsaronis (1999) and Griffith-Jones, Ocampo and Cailloux (1999).

with the new conventional wisdom that the same things can be accomplished through exchange offers under U.S. law, at the same cost, as can be accomplished in the presence of collective action clauses.

This analysis covered the period through 1998, ending before collective action clauses became the subject of debate and scrutiny, making it worthwhile to ask whether the results carry over when we update the data. In addition, we did not ask whether the results were different for sovereign and other borrowers. The argument for collective-action clauses on efficiency-of-resolution grounds is strongest for sovereign borrowers, since, unlike corporations, sovereigns cannot resort to court proceedings to resolve their financial difficulties in an orderly way. The argument against them on moral-hazard grounds is also strongest, since there is no court to reach into governments' financial affairs and impose sanctions for opportunism. Finally, we did not analyze the determinants of choice of governing law in detail. We relax these limitations in what follows.

As before, we control for selectivity and for the endogeneity of the governing law. We now include bonds subject to Luxembourg law under the "UK law" heading, since the former also include collective action provisions.[42] We instrument the choice of governing law, since there is good reason to think that it should be regarded as a choice variable.[43] And,

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[42] See Dixon and Wall (2000). This is not something we did in our previous study.

[43] In addition, the possibility of measurement error makes it important to instrument our measure of the presence or absence of collective action clauses. Recall that we have information on the governing law (U.S., UK or other) but not the presence or absence of these clauses. In fact, there are a few instances where provisions for collective representation of the bondholders are included in bonds governed by U.S. law and where no such provisions are included in bonds governed by UK law. The appropriate treatment for this kind of measurement error is to instrument the variable in question, which is what we do in the empirical analysis above. If the governing law measures the presence of collective action clauses with random error, then the use of instrumental variables will provide a reliable indication of the magnitude and significance of the impact of the latter.

as noted above, we now use data through the end of 1999.

If our interpretation is appropriate, then the advantages of bonding (which should attract borrowers to U.S. law) and easy recontracting (which should attract them to UK law) should be reflected in their choice of contracting terms. Table 3 shows the number of bonds issued under the provisions of UK law, U.S. law and other governing laws for each of our four credit-rating categories.[44] The bulk of issuance by borrowers with the lowest credit ratings (0-30 on the *Institutional Investor* scale) is subject to UK law. This plausibly reflects the value to borrowers and lenders of having renegotiation-friendly procedures in place on loans for which restructuring is in any case a relatively high-probability event. Borrowers in the next higher rating category (30-50) do more than half their borrowing under U.S. law. For this class of borrowers there is a lower probability of having to restructure, and issuers are apparently willing to accept greater difficulty of restructuring in return for the greater commitment provided by U.S. law. Finally, the bulk of issuance by borrowers with high credit ratings (50 and above on the *Institutional Investor* scale) is again subject to the provisions of UK law, presumably reflecting the ability of these borrowers to commit to repay without the addition of inflexible contract terms, something that allows them the option value of easy renegotiability. Who borrows under what kind of governing law is thus explicable in terms of our conceptual framework. These patterns are harder to rationalize if one believes that governing law is irrelevant (because restructuring can be accomplished as easily in the presence and absence of collective action clauses) or that borrowers and lenders have historically failed to pay close attention to these provisions.

[TABLE 3]

Conceivably, these patterns reflect technical characteristics of the market on which the issuer borrows, correlated with the choice of governing law but omitted from these bivariate comparisons in Table 3. In other words, the market that borrowers approach is determined by the level of interest rates and other conditions that make borrowing there attractive, and the governing law is an incidental product of that choice.[45] This is a testable proposition: if the choice of governing law depends on characteristics of the borrower and not merely characteristics of the market, then this is evidence for our interpretation and against the view of governing laws as a purely incidental characteristic of the choice of market.

As reported in Table 4, where we relate the choice of governing law to the state of the market, technical characteristics of the loan and the same credit rating measure as before, we continue to find that the characteristics of the issuer are important, inconsistent with the aforementioned critique. Issuers from countries with the highest and lowest ratings continue to be most inclined to issue under UK law.[46] The probability of issuing under US law peaks at a rating of approximately 50. Again, it appears that for issuers with the lowest ratings and highest probability of having to restructure, borrowers and lenders prefer having in place a contractual mechanism for restructuring, while for issuers with the highest ratings and no need for the additional bonding that U.S. law provides, having recourse to renegotiation-friendly provisions in the event of an extraordinary contingency has option value.

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[44] Recall that Luxembourg law is included under the UK heading, here and in what follows.

[45] See Becker, Richards and Thaicharoen (2000).

[46] This parsimonious specification is designed to highlight the importance of credit quality for choice of governing law. In Eichengreen and Mody (2000b,c) we show that in more elaborate specifications a number of other economic characteristics of the country and the borrower also have a significant impact on the choice of governing law.

[TABLE 4]

Again, the key point is that this association between borrower credit quality and choice of governing law is consistent with our emphasis on the tradeoff between commitment and ease of renegotiation. It is hard to imagine an explanation for these patterns grounded purely in the technical characteristics of the relevant markets.[47]

Finally, Table 5 reports the results for spreads, separately for countries in different *Institutional Investor* rating categories. Many of the coefficients are less precisely estimated than on the full set of bonds (as shown in Eichengreen and Mody 2000b), reflecting the now smaller sample size.[48] But the results of particular interest, on UK governing law, are relatively robust. The presence of collective-action clauses, so measured, raises borrowing costs for countries with poor credit while reducing costs for countries with relatively good ratings. The coefficients on UK governing law shift smoothly from large positive to small positive, to small negative, to large negative, as we move up the credit rating gradient (columns 1-4).

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[47] We experimented with a variety of other variables in efforts to probe further whether the governing law should really be regarded as a purely technical characteristic of the market on which debtors choose to borrow (for reasons unrelated to extent of commitment or ease of restructuring). For example, we added UK, German, and U.S. interest rates to the multinominal logit as determinants of the preference for British as opposed to German and U.S. markets. None of these changes significantly reduced the importance of credit quality on the choice of law (or eliminated the impact of governing law on borrowing costs, as we will see below). It is always possible, of course, that other characteristics of borrowers that we find difficult to observe and measure determine the choice of market (for example, South Africa has issued very few bonds in the United States because borrowers there have long-standing ties to issuing banks in London, while Latin American countries issue bonds in New York because they have long-standing ties with U.S. banks and the ultimate buyers are disproportionately American). Again, however, if this is the dominant factor, it is hard to imagine how we would find such a consistent and intuitive association between credit quality (and other borrower characteristics) on the one hand and the choice of market (and borrowing costs) on the other.

[48] We have 356 sovereign bonds for countries with credit ratings below 50, but only 37 bonds for sovereigns with ratings above 50.

[TABLE 5]

Figure 1 presents a diagrammatic representation of the results. Spreads decline with improved credit rating at a higher rate for UK law bonds than for US law bonds. When we do not instrument for the choice of law (and for the measurement error that exists on account of these laws not perfectly representing the presence or absence of collective action clauses), the UK law bonds are seen to have somewhat higher spreads than US law bonds at low ratings but the differences are not statistically significant. However, when replace the dummy variable for law by the probability of issuance under the law, the US law line, in effect, swivels, creating a larger positive difference at the lower end and a larger negative difference at the higher end. The implication at the lower end of the rating spectrum is that unobserved factors that lead to higher spreads also lead to choice of the US law. The opposite is the case at the higher end of the rating scale.

[FIGURE 1]

In columns 5-6 we report similar equations for sovereigns alone. The effects are similar—higher spreads for borrowers with poor credit ratings, lower spreads for more creditworthy borrowers. Levels of statistical significance are lower, however, reflecting the still smaller sample size.[49] We can raise the precision of the estimates if we impose the additional assumption that the other determinants of emerging market spreads are the same for sovereigns and other borrowers—that is, by estimating the model on the full sample but add interaction terms for sovereign status and governing laws.[50] The interaction terms then

[49] This is so especially for sovereign borrowers with relatively high credit ratings, where we have a very limited number of observations.

[50] Note, as before, that the governing law variables may also be interacted with credit-rating category.

tell us whether there are significantly different effects for sovereigns than for other borrowers. It turns out that this is not the case: none of the interaction terms enters with a coefficient that differs significantly from zero, while the dummy for UK governing law continues to enter positively for borrowers with low credit ratings and negatively for borrowers with high credit ratings. It would appear that the market's pricing of these provisions is no different for sovereigns than for other borrowers.[51]

Again, the results are robust to a number of additional checks.[52] For example, to check that we are picking up the characteristics of the bond rather than the market in which it is issued, we added interest rates in additional financial centers (London and Tokyo) to our spreads equation.[53] There is a slight reduction in the size of the positive coefficient on UK law for borrowers with high credit ratings but no discernible change in the point estimate for less credit-worthy borrowers, and there are no changes in statistical significance.

A further check is whether IMF programs affect the connection between governing laws and spreads. Recall that above we found that Fund programs had the strongest tendency

[51] These results are reported in Eichengreen and Mody (2000d).

[52] In addition to the sensitivity analysis discussed in the text, we estimated the model using Heckman's two-stage procedure rather than maximum likelihood to test the sensitivity of the results to the specification of the selectivity correction, since specification errors affecting one equation are more likely to contaminate the other equation when the model is estimated by maximum likelihood. We dropped the variables with insignificant coefficients from the first-stage probit to further test the sensitivity of the results to implementation of the selectivity correction. We substituted the raw credit rating for the credit rating residual in the spreads equation, on the grounds that any misspecification in the equation we estimate to derive the credit rating residual would contaminate the other results. We entered the explanatory variables in levels rather than logs. We respecified the dependent variable as the spread as a proportion of the riskless rate. We eliminated influential observations, such as Panama, which has a low credit rating but apparently enjoys a "halo" effect as a result of its special relationship to the United States, and countries that had undergone Brady Plan restructurings. In all cases the results for the effect of choice of governing law were basically unchanged.

[53] Recall that U.S. interest rates were already included. Given its high correlation with U.S. rates, we entered the variable as the difference between U.S. and foreign rates.

to enhance creditworthiness, presumably by buttressing the borrower's commitment to reform, in countries with credit ratings in the 30-50 range. If IMF programs serve as commitment-enhancing mechanisms for these countries, then we should expect those that opt for UK law (which would otherwise have to trade commitment for ability to restructure) to now suffer less of a penalty in terms of higher spreads. This is what we find when we interact the existence of Fund programs with UK governing law. The story is different, in plausible ways, for countries with in the 0-30 range. Recall that Fund programs do less to enhance the commitment of these countries to meet their commercial obligations. It follows that we should find less of a change in the effect of governing law on spreads when we interact IMF programs with choice of law. This is what we find. Again, it is hard to imagine an explanation for these patterns grounded in the technical characteristics of the relevant markets, while it is straightforward to interpret them in terms of the ability of alternative contractual provisions to facilitate bonding and restructuring.

Before concluding, we can also present a little bit of evidence on proposals to use official enhancements and guarantees to encourage the private sector to extend new credits in periods of shaky investor confidence.[54] Among the objections to this idea, as noted above, is that guarantees may do more to signal problems than to reassure investors. Table 5 shows that guarantees reduce spreads on issues from low-rated countries (0-30 on the *Institutional Investor* scale), as if the bad news about these countries is already known and the main effect of guarantees is to reduce risk. This is the same group of countries, it will be recalled, for which IMF programs have no discernible impact on spreads. Thus, it would appear that

[54] This evidence is indirect in that private guarantors provide the majority of guarantees in the sample, although we also have nine multilateral guarantees (five of which are for a series of issues by the Republic of Argentina).

guarantees can do what IMF programs cannot in reducing risk for investors in these sub-investment-grade issues.[55] The impact on spreads is of the same order of magnitude as the premium paid by UK law issuers relative to U.S. law issuers, as if the guarantee offsets the risk to investors due to any additional borrower moral hazard under this contractual arrangement. The magnitude of the effect declines as one moves up the credit-rating scale and even turns positive, in some cases, for borrowers with good credit. For these borrowers, if not others, guarantees may do more to signal problems than to solve them.

6. **Conclusion**

This paper has considered the impact of IMF involvement and of some alternative approaches to crisis management and resolution on the cost of borrowing for emerging markets. While the official community has held out hope that both Fund programs and these alternatives can reduce the cost of borrowing and improve the availability of private credit, both have been accused of doing more to damage than enhance market access.

How can sensible people subscribe to such different views? The answer, in part, is that different borrowers are affected differently by these interventions. Where one stands on these issues consequently depends on where one sits. A further implication is that, in discussions of new approaches to governing capital flows and managing crises, it unlikely to be helpful to speak of the impact on emerging markets as a class.

Table 6 summarizes our findings and indicates how they lead us to think about the world. For countries with poor credit, including many whose institutions of financial and

[55] Whether this is efficiency enhancing or merely redistribution to creditors is a separate question, as explained in Section 2.

economic governance remain underdeveloped, there is only limited evidence that IMF programs enhance private market access. In many of these countries, it would appear, the commitments entailed by IMF conditionality are simply not credible. The same is true of provisions in private contracts that imply a strong commitment to service debts on an inflexible schedule (in other words, we do not see these countries borrowing under U.S. law). If the official community is serious about enhancing the market access of these countries in the short run, then there may be no alternative to official guarantees as a mechanism to reassure investors. More generally, the role of the multilaterals in these countries should be thought of as supporting the kind of structural and developmental changes that can only be accomplished in the long run, not as somehow using their resources to immediately catalyze private finance.[56]

[TABLE 6]

For countries with a somewhat stronger capacity for reform, both IMF programs and relatively inflexible private contracts are ways for borrowers to send a credible signal of commitment to the market. Fund programs can play something of a catalytic role, or it would appear, which supports the case for IMF lending in times of crisis.

Countries with superior credit ratings have a greater capacity to commit without outside intervention. Multilateral intervention—whether it takes the form of IMF programs or official guarantees—runs the risk of raising questions about that capacity. It is no surprise that we see such countries hesitate to approach the Fund. For such countries, a preferable solution to financial difficulties may be to approach their creditors on a bilateral basis,

[56] There may also be a role for debt reduction for such countries, but this is not the subject or the paper, nor is it something on which we have evidence.

assuming that they have in place the institutional mechanisms necessary for negotiations to succeed.

Our findings also may have implications for the design of Fund programs, although here we move beyond what explicit in our results. There is a suggestion that the most effective Fund programs are conditioned on a combination of macroeconomic adjustments and limited structural reforms. Programs of this character do more to enhance investor confidence and improve the crisis country's terms of market access than programs which pay little heed to structural problems, but they also have more positive effects than programs conditioned on very extensive structural reforms. The first comparison is consistent with the view that policy reforms beyond the narrowly macroeconomic are essential for credibility and stability in today's financially integrated world and that the Fund ignores them at its peril. At the same time, demanding deep, ambitious structural reforms at the height of a crisis is unlikely to be productive. Conditionality needs to strike a balance.

References

Becker, Torbjorn, Anthony J. Richards and Yungong Thaicharoen (2000), "Collective Action Clauses for Emerging Market Bonds: Good News for Lower Rated Borrowers Too," unpublished manuscript, IMF.

Bird, Graham and Dane Rowlands (1997), "The Catalytic Effects of Lending by the International Financial Institutions," *World Economy*, pp.967-991.

Buiter, Willem H. and Anne C. Sibert (1999), "UDROP: A Small Contribution to the New International Financial Architecture," *International Finance* 2, pp.227-248.

Corrigan, E. Gerald (2000), "Two International Financial Stability Issues: Asset Price Inflation and Private Sector participation in Financial Crisis Stabilisation," *Financial Stability Review* (June), pp.136-141.

Dallara, Charles (1999), "Letter to the Chairman of the Interim Committee," 16 September, http://www.iif.com.

Deutsche Bundesbank (1999), "Recent Approaches to Involving the Private Sector in the Resolution of International Debt Crises," *Monthly Report* (December), pp.3348.

Dixon, Liz and David Wall (2000), "Collective Action Problems and Collective Action Clauses," *Financial Stability Review* (June), pp.142-151.

Dooley Michael (1997), "A Model of Crises in Emerging Markets," NBER Working Paper no. 6300 (December).

Dooley, Michael (2000), "Can Output Losses Following International Financial Crises Be Avoided?" NBER Working Paper no. 7531 (February).

Drage, J. and F. Mann (1999), "Improving the Stability of the International Financial Sector," *Financial Stability Review* (June), pp.40-77.

Economist (1999), "Sovereign Policy," *Economist Magazine*, February 13, p. 21.

Eichengreen, Barry and Ashoka Mody (2000a), "Lending Booms, Reserves, and the Sustainability of Short-Term Debt: Inferences from the Pricing of Syndicated Bank Loans," *Journal of Development Economics* 63, pp.5-44.

Eichengreen, Barry and Ashoka Mody (2000b), "Would Collective Action Clauses Raise Borrowing Costs?" NBER Working Paper no.7458 (January).

Eichengreen, Barry and Ashoka Mody (2000c), "What Explains the Changing Spreads on Emerging Market Debt? Fundamentals or Market Sentiment?" in Sebastian Edwards (ed.),

Capital Flows and the Emerging Economies, Chicago: University of Chicago Press, pp.107-136.

Eichengreen, Barry and Ashoka Mody (2000d), "Would Collective Action Clauses Raise Borrowing Costs? An Update and Additional Results," Policy Research Working Paper no. 2363, Washington, D.C.: The World Bank (June).

Eichengreen, Barry, Galina Hale and Ashoka Mody (2000), "Flight to Quality: Investor Risk Tolerance and the Spread of Emerging Market Crises," in Stijn Claessens and Kristen Forbes (eds), *International Financial Contagion: How it Spreads and How it Can Be Stopped*, Boston: Kluwer (forthcoming).

Eichengreen, Barry and Richard Portes (1995), *Crisis? What Crisis? Orderly Workouts for Sovereign Debtors*, London: CEPR.

Faini, Ricardo, Jaime de Melo, A. Senhadji-Semlali and J. Stanton (1991), "Macro Performance Under Adjustment lending," in V. Thomas, A Chibber, M. Dailami and J. de Melo (eds), *Restructuring Economies in Distress: Policy Reform and the World Bank*, Washington, D.C.: The World Bank, pp.222-242.

Fischer, Stanley (1999), "Learning the Lessons of Financial Crises: The Roles of the Public and Private Sectors,' Speech to the Emerging Market Traders' Association Annual Meeting, New York (December 9), http://www.imf.org/external/np/speeches/1999/120999.HTM.

Frankel, Jeffrey and Nouriel Roubini (2000), "The Role of Industrial Country Policies in Emerging Market Crises," paper prepared for the NBER Conference on Economic and Financial Crises in Emerging Market Economies, Woodstock, Vermont (September).

Friedman, Benjamin (2000), "How Easy Should Debt Restructuring Be?" in Charles Adams, Robert Litan and Michael Pomerleano (eds), *Managing Financial and Coporate Distress: Lessons from Asia*, Washington, D.C.: The Brookings Institution, pp.21-46.

Goldstein, Morris (2000), "IMF Structural Programs," unpublished paper, Institute for International Economics (October).

Griffith-Jones, Stephany, Jose Antonio Ocampo and Jacques Cailloux (1999), "The Poorest Countries and the Emerging International Financial Architecture," unpublished manuscript, Swedish Ministry of Foreign Affairs.

Group of Seven (1999), *Strengthening the International Financial Architecture*, Washington, D.C.: Group of Seven.

Group of Ten (1996), *Resolving Sovereign Liquidity Crises*, London: Group of Ten.

Group of Twenty Two (1998), *Report of the Working Group on International Financial*

Crises, Washington, D.C.: Group of Twenty Two.

Hajivassiliou, V. (1987), "The External Debt Repayment Problems of LDCs: An Econometric Model Based on Panel Data," *Journal of Econometrics* 36, pp.205-230.

Institute of International Finance (1996), *Resolving Sovereign Financial Crises*, Washington, D.C.: Institute of International Finance.

Institute of International Finance (1999a), "Global Private Finance Leaders Stress the Importance of Voluntary Approaches to Crisis Resolution in Emerging Markets," 24 June, http://www.iif.com/PressRel/1999pr9.html.

Institute of International Finance (1999b), "Summary Report on the Work of the IIF Steering Committee on Emerging Markets Finance," Washington, D.C.: Institute of International Finance.

International Monetary Fund (1999), *Involving the Private Sector in Forestalling and Resolving Financial Crises*, Washington, D.C.: IMF.

Kahn, Robert (2000), "The Role of the Private Sector in the Prevention and Resolution of International Financial Crises," presentation to the Conference on the Governance of the Global Capital Market, Montreal, 23 October.

Killick, Tony (1995), *IMF Programmes in Developing Countries: Design and Impact*, London: Routledge/ODI.

McKinnon, Ronald and Huw Pill (1997), "Credible Economic Libeeralizations and Overborrowing," *American Economic Review Papers and Proceedings* 87, pp.189-193.

Miller, Marcus and Joseph Stiglitz (1999), "Bankruptcy Protection Against Macroeconomic Shocks: The Case for a 'Super Chapter 11'," unpublished manuscript, the World Bank.

Miller, Marcus and Lei Zhang (2000), "Sovereign Liquidity Crisis: The Strategic Case for Payments Standstill," *Economic Journal* 110, pp.309-334.

Murray, John (2000), "The Role of the Private Sector in the Prevention and Resolution of International Financial Crises," presentation to the Conference on the Governance of the Global Capital Market, Montreal, 23 October.

Ozler, Sule (1993), "Have Commercial Banks Ignored History?" *American Economic Review* 83, pp.608-620.

Roubini, Nouriel (2000), "Bail-In, Burden Sharing, and Private Sector Involvement in Crisis Resolution," unpublished manuscript, New York University.

Rowlands, Dane (1994), "The Response of new Lending to the IMF," Developing Studies Working Paper 7, Norman Paterson School of International Affairs.

Sachs, Jeffrey (1994), "Do We Need an International Lender of Last Resort?" unpublished manuscript, Harvard University.

Summers, Lawrence (1996), "The Right Kind of IMF for a Stable Global Financial System," Text as Prepared for Delivery to the London School of Business, 13 December, http://www.ustreas.gov/press/releases/ps294.htm.

Tsatsaronis, Costas (1999), "The Effects of Collective Action Clauses on Sovereign Bond Spreads," *BIS Quarterly Review* (November), pp.22-23.

Williamson, John (1992), "International Monetary Reform and Prospects for Economic Development," in J. J. Teunissen (ed.), *Fragile Finance: Rethinking the International Monetary System*, The Hague: FONDAD.

Yanni, A. (1999), "Resolution of Sovereign Financial Crisis—Evolution of the Private Sector Restructuring Process," *Financial Stability Review* (June), pp.78-84.

Appendix: Country Classification by Credit Rating Category

1991	1994	1997	1999
Rating Less than 30			
Angola	Algeria	Algeria	Algeria
Argentina	Angola	Angola	Angola
Bangladesh	Bangladesh	Bangladesh	Bangladesh
Bolivia	Bolivia	Bolivia	Bolivia
Brazil	Brazil	Bulgaria	Bulgaria
Bulgaria	Bulgaria	Croatia	Dominican Republic
Costa Rica	Costa Rica	Dominican Republic	Ecuador
Dominican Republic	Croatia	Ecuador	El Salvador
Ecuador	Dominican Republic	El Salvador	Ethiopia
Egypt, Arab Rep	Ecuador	Ethiopia	Ghana
El Salvador	Egypt, Arab Rep.	Ghana	Guatemala
Ethiopia	El Salvador	Guatemala	Iran, Islamic Rep.
Guatemala	Estonia	Iran, Islamic Rep.	Jamaica
Indonesia	Ethiopia	Jamaica	Kazakhstan
Iran, Islamic Rep.	Ghana	Kazakhstan	Kenya
Jamaica	Guatemala	Kenya	Liberia
Kenya	Iran, Islamic Rep.	Latvia	Nigeria
Lebanon	Jamaica	Lebanon	Pakistan
Liberia	Kazakhstan	Liberia	Romania
Morocco	Kenya	Lithuania	Russian Federation
Nigeria	Lebanon	Nigeria	Senegal
Pakistan	Liberia	Pakistan	Seychelles
Panama	Lithuania	Panama	Ukraine
Paraguay	Nigeria	Russian Federation	Vietnam
Peru	Pakistan	Senegal	Zambia
Philippines	Panama	Seychelles	Zimbabwe
Poland	Paraguay	Ukraine	
Romania	Peru	Zambia	
Senegal	Philippines		
Seychelles	Poland		
Sri Lanka	Romania		
Trinidad and Tobago	Russian Federation		
Uruguay	Senegal		
Zambia	Seychelles		
Zimbabwe	Slovak Republic		
	Slovenia		
	Sri Lanka		
	Trinidad and Tobago		
	Ukraine		
	Vietnam		
	Zambia		
	Zimbabwe		
Rating between 30 and 50			
1991	1994	1997	1999
Argentina	Algeria	Argentina	Argentina
Barbados	Bahrain	Barbados	Bahrain

Brazil	Barbados	Brazil	Barbados
Bulgaria	Bulgaria	Colombia	Brazil
Chile	Costa Rica	Costa Rica	Colombia
Colombia	Czech Republic	Croatia	Costa Rica
Czech Republic	Egypt, Arab Rep.	Egypt, Arab Rep.	Croatia
Former Czech	Hungary	Estonia	Dominican Republic
Hungary	India	Ghana	Ecuador
India	Kuwait	Hungary	Egypt, Arab Rep.
Indonesia	Mauritius	India	El Salvador
Kenya	Mexico	Latvia	Estonia
Kuwait	Morocco	Lebanon	Ghana
Mauritius	Papua New Guinea	Lithuania	India
Mexico	Paraguay	Mexico	Indonesia
Oman	Philippines	Morocco	Latvia
Pakistan	Poland	Panama	Lebanon
Papua New Guinea	Slovak Republic	Papua New Guinea	Lithuania
Qatar	Slovenia	Paraguay	Mexico
Romania	South Africa	Peru	Morocco
Russian Federation	Sri Lanka	Philippines	Panama
South Africa	Trinidad and Tobago	Poland	Papua New Guinea
Trinidad and Tobago	Tunisia	Romania	Paraguay
Tunisia	Turkey	Slovak Republic	Peru
Turkey	Uruguay	Slovenia	Philippines
Uruguay	Venezuela	South Africa	Romania
Venezuela		Sri Lanka	Russian Federation
		Trinidad and Tobago	Slovak Republic
		Tunisia	South Africa
		Turkey	Sri Lanka
		Uruguay	Thailand
		Venezuela	Trinidad and Tobago
		Vietnam	Tunisia
		Zimbabwe	Turkey
			Uruguay
			Venezuela
			Vietnam
			Zimbabwe
Rating between 50 and 70			
1991	1994	1997	1999
Bahrain	Bahrain	Chile	Bahrain
China	Chile	China	Chile
Czech Republic	China	Czech Republic	China
Former Czechoslovakia	Czech Republic	Hong Kong, China	Czech Republic
Hong Kong, China	Hong Kong, China	Indonesia	Hong Kong, China
Indonesia	Indonesia	Korea, Rep.	Hungary
Korea, Rep.	Korea, Rep.	Kuwait	Korea, Rep.
Kuwait	Kuwait	Malaysia	Kuwait
Malaysia	Malaysia	Mauritius	Malaysia
Oman	Oman	Oman	Oman
Qatar	Qatar	Poland	Poland
Russian Federation	Saudi Arabia	Qatar	Qatar
Saudi Arabia	Thailand	Saudi Arabia	Saudi Arabia
Thailand	United Arab Emirates	Slovenia	Slovenia
United Arab Emirates		Thailand	United Arab Emirates

Tunisia			
Rating more than 70			
1991	1994	1997	1999
Singapore Taiwan, China	Korea, Rep. Singapore Taiwan, China	Korea, Rep. Singapore Taiwan, China	Singapore Taiwan, China

Source: *Institutional Investor*

Table 1. Full-Sample Estimates of Impact of IMF Programs on Market Access

	Probability of bond issuance*		Log of spread at the time of issue				
	(1a)	(1b)	(2)	(3)	(4)	(5)	(6)
	Non-Latin America issuers	Latin American interactions	All issuers				
Log amount			-0.006 (-0.36)	-0.005 (-0.32)	-0.005 (-0.34)	-0.004 (-0.22)	-0.008 (-0.47)
Maturity			0.003 (1.24)	0.003 (1.28)	0.003 (1.28)	0.003 (1.28)	0.002 (0.97)
Private Placement			0.073 (2.87)	0.073 (2.87)	0.075 (2.95)	0.074 (2.91)	0.068 (2.70)
Log of 10 year US Treasury rate	0.032 (0.43)	-0.504 (-3.55)	-0.356 (-2.40)	-0.351 (-2.38)	-0.347 (-2.35)	-0.359 (-2.42)	-0.324 (-2.19)
Log (10 year-1 year) Treasury rate	-0.097 (-7.83)	0.061 (2.53)	0.030 (1.24)	0.026 (1.08)	0.028 (1.17)	0.031 (1.29)	0.056 (2.24)
Log swap rate	-0.221 (-7.42)	-0.273 (-4.72)	0.668 (9.68)	0.654 (9.56)	0.670 (9.71)	0.677 (9.79)	0.657 (9.52)
Credit rating residual	0.015 (18.50)	0.002 (0.002)	-0.050 (-27.86)	-0.050 (-27.86)	-0.050 (-27.99)	-0.050 (-27.92)	-0.050 (-27.88)
Debt/GNP	-0.411 (-8.20)	-0.991 (-9.43)	1.325 (14.41)	1.303 (14.24)	1.305 (14.40)	1.304 (14.14)	1.276 (13.83)
Debt rescheduled in previous year	-0.010 (-0.30)	-0.024 (-0.51)	0.195 (4.27)	0.181 (4.05)	0.204 (4.39)	0.205 (4.39)	0.213 (4.58)
GDP growth	5.405 (8.97)	-4.961 (-2.70)	-9.022 (-4.86)	-8.68 (-4.71)	-9.024 (-4.87)	-9.199 (-4.95)	-9.717 (-5.23)
Standard deviation of export growth	-0.909 (-10.22)	-0.412 (-2.48)	2.271 (11.16)	2.223 (10.84)	2.226 (11.10)	2.265 (10.98)	2.209 (10.73)
Reserves/short-term debt	-0.033 (-6.60)	-0.107 (-5.40)	-0.038 (-3.12)	-0.036 (-3.03)	-0.038 (-3.15)	-0.038 (-3.16)	-0.042 (-3.51)
Ratio of domestic credit to GDP	0.029 (4.34)	-0.058 (-2.81)	-0.035 (-2.61)	-0.033 (-2.48)	-0.034 (-2.59)	-0.036 (-2.67)	-0.024 (-1.76)
IMF program	0.103 (4.63)	0.093 (2.53)	-0.055 (-1.53)				
Standby Arrangement				-0.004 (-0.11)		-0.030 (-0.75)	-0.085 (-1.99)
Extended Fund Facility					-0.069 (-1.75)	-0.080 (-1.90)	-0.153 (-3.34)
Enhanced structural adjustment						0.449 (1.53)	0.379 (1.30)
Number of quarters in an IMF program							0.009 (4.03)
Constant	1.000 (7.69)		3.465 (8.39)	3.483 (8.45)	3.440 (8.33)	3.439 (8.32)	3.427 (8.32)
Lambda			-0.618 (-26.35)	-0.613 (-25.87)	-0.615 (-26.29)	-0.620 (-26.54)	-0.611 (-26.13)
Number of observations/bonds	7355	7355	2381	2381	2381	2381	2381
Pseudo R-squared	0.400	0.400					
Log of likelihood	-2916.16	-2916.16	-4861.86	-4863.04	-4861.51	-4859.93	-4851.81

* The coefficients for the probit are normalized to the partial derivative of the probability distribution function with respect to a small change in the independent variable, evaluated at the average values of the independent variables. Additional variables in the probit include: debt-service/exports, short-term/total debt, and reserves/imports. Note that column (1b) lists only additional interaction effects for Latin borrowers.

Notes: (1) Dummy variables for private and public issuers, industrial sectors, currency of issue, and whether the bond was issued at a fixed or floating rate were included in the regressions but are not reported here. (2) Figures in parentheses are t-statistics. (3) Number of observations reported for probits and number of bonds for spreads equation.

Table 2. Subsample Estimates of Impact of IMF Programs on Spreads

	Log of spread at the time of issue					
	Credit rating less than 30 (1)	Credit rating 30 or more but less than 50 (2)	Credit rating 50 or more but less than 70 (3)	Credit rating less than 30 (4)	Credit rating 30 or more but less than 50 (5)	Credit rating 50 or more but less than 70 (6)
Log amount	-0.141 (-2.90)	-0.043 (-2.39)	0.035 (1.06)	-0.144 (-3.01)	-0.041 (-2.28)	-0.001 (-0.02)
Maturity	0.001 (0.08)	0.001 (0.66)	0.012 (2.72)	0.005 (0.38)	0.002 (0.80)	0.009 (2.02)
Private Placement	-0.051 (-0.81)	0.065 (2.40)	0.090 (1.62)	-0.058 (-0.93)	0.067 (2.49)	0.067 (1.12)
Log of 10 year US Treasury rate	-0.930 (-2.17)	-0.089 (-0.55)	-0.205 (-0.66)	-0.974 (-2.31)	-0.055 (-0.34)	0.075 (0.18)
Log (10 year-1 year) Treasury rate	0.075 (0.67)	-0.002 (-0.08)	0.014 (0.22)	0.012 (0.12)	-0.037 (-1.45)	0.004 (0.05)
Log swap rate	0.466 (2.02)	0.448 (6.42)	0.813 (5.12)	0.414 (2.06)	0.426 (6.20)	1.25 (6.40)
Credit Rating Residual	-0.025 (-1.84)	-0.030 (-9.20)	-0.093 (-13.74)	-0.022 (-1.92)	-0.027 (-8.52)	-0.092 (-9.40)
Debt/GNP	0.260 (0.73)	0.659 (4.61)	1.287 (7.26)	0.282 (0.81)	0.590 (4.14)	0.881 (2.14)
Debt rescheduled in previous year	0.171 (1.34)	0.120 (2.49)	-0.093 (-13.74)	0.160 (1.27)	0.054 (1.08)	0.881 (2.14)
GDP growth	-12.361 (-2.63)	-3.797 (-1.84)	-27.696 (-5.23)	-14.05 (-3.12)	-1.775 (-0.88)	-27.82 (-4.30)
Standard deviation of export growth	-0.145 (-0.21)	1.355 (6.36)	3.764 (5.71)	-0.312 (-0.51)	1.184 (5.66)	3.327 (4.51)
Reserves/short-term debt	-0.056 (-2.10)	-0.127 (-7.39)	-0.017 (-0.69)	-0.056 (-2.15)	-0.115 (-6.60)	-0.042 (-1.23)
Ratio of domestic credit to GDP	-0.157 (-3.45)	-0.148 (-6.14)	-0.102 (-3.78)	-0.148 (-3.71)	-0.152 (-6.37)	-0.096 (-2.46)
Standby Arrangement	-0.087 (-0.96)	-0.065 (-1.49)	0.364 (2.12)			
Extended Fund Facility	-0.189 (-1.55)	-0.114 (-2.61)				
Enhanced Structural Adjustment	0.261 (0.71)	-0.010 (-0.03)				
Standby amount				-0.001 (-1.55)	0.0002 (0.83)	-0.00002 (-0.03)
Extended Fund Facility amount				-0.0001 (-1.24)	0.0001 (1.61)	
Enhanced Structural Adjustment amount				-0.0001 (-0.20)	0.0002 (0.30)	
Number of quarters in an IMF program	0.010 (0.81)	0.005 (2.10)	0.027 (3.32)			
Constant	5.793 (1.12)	4.317 (9.34)	3.343 (3.92)	6.238 (6.47)	4.313 (9.34)	1.458 (1.22)
Lambda	-0.034 (-0.49)	-0.465 (-17.62)	-0.695 (-16.98)	-0.022 (-0.34)	-0.452 (-16.11)	-0.725 (0.06)
Number of bonds	275	1245	588	275	1245	385
Log of likelihood	-515.11	-2057.45	-1084.63	-514.65	-2059.91	-768.50

Notes: (1) Dummy variables for private and public issuers, industrial sectors, currency of issue, and whether the bond was issued at a fixed or floating rate were included in the regressions but are not reported here. (2) Figures in parentheses are t-statistics.

Table 3: Characteristics of Borrowers by Rating Category and Type of Governing Law

Governing Laws	Credit Rating				
	Credit rating less than 30 (1)	Credit rating 30 or more but less than 50 (2)	Credit rating 50 or more but less than 70 (3)	Credit rating more than 70 but less than 100 (4)	Total (5)
United Kingdom					
Number of bonds issued	176.00	549.00	379.00	197.00	1301.00
Average spread paid	484.22	340.02	122.71	55.66	253.15
Log of amount	4.44	4.70	4.33	4.42	4.52
Maturity in years	4.04	5.42	4.79	4.55	4.92
Share of private issuers	0.62	0.53	0.72	0.68	0.62
United States					
Number of bonds issued	85.00	633.00	198.00	39.00	955.00
Average spread paid	449.34	367.65	225.78	76.35	335.89
Log of amount	4.27	5.06	5.28	5.44	5.05
Maturity in years	3.79	8.13	11.89	11.13	8.65
Share of private issuers	0.75	0.63	0.64	0.54	0.64
Other					
Number of bonds issued	45.00	352.00	198.00	55.00	650.00
Average spread paid	384.81	306.26	119.39	86.07	235.18
Log of amount	3.75	5.00	4.57	4.74	4.76
Maturity in years	3.44	5.81	6.38	5.20	5.77
Share of private issuers	0.73	0.21	0.41	0.47	0.33
Total					
Number of bonds issued	306.00	1534.00	775.00	291.00	2906.00
Average spread paid	462.89	346.22	150.22	63.43	278.98
Log of amount	4.29	4.92	4.64	4.62	4.75
Maturity in years	3.89	6.63	7.01	5.55	6.33
Share of private issuers	0.67	0.50	0.62	0.62	0.56

Source: see text.

Table 4. Determinants of Choice of Governing Law

	U.K. governing law*	Other governing laws*
Log amount	-0.438 (-6.02)	-0.649 (-6.90)
Maturity	-0.122 (-7.74)	-0.136 (-6.53)
Private Placement	-0.536 (-5.07)	-1.214 (-7.38)
Log of 10 year US Treasury rate	-0.081 (-0.15)	0.142 (0.19)
Log (10 year-1 year) Treasury rate	0.227 (2.44)	0.921 (7.05)
Log swap rate	-0.469 (-1.95)	0.761 (2.38)
Credit rating	-0.148 (-4.36)	0.113 (2.18)
Credit rating squared	0.001 (3.66)	-0.001 (-1.96)
IMF program interactions with:		
Rating less than 30	-0.870 (-3.29)	0.458 (1.13)
Rating 30-50	-0.198 (-1.41)	-0.089 (-0.46)
Rating 50-70	-0.033 (-0.09)	-0.777 (-1.46)
Foreign guarantee	-0.228 (-0.71)	-1.574 (-2.39)
Domestic guarantee	0.130 (0.82)	-0.509 (-2.14)
Number of bonds	2893	2893
Psuedo R-squared	0.3497	0.3497
Log of likelihood	-1992.53	-1992.53

*The base category is the U.S. governing law

Notes: (1) Dummy variables for private and public issuers, industrial sectors, currency of issue, and whether the bond was issued at a fixed or floating rate were included in the regressions but are not reported here. (2) Figures in parentheses are t-statistics.

Table 5. Impact of Governing Laws by Credit Rating Category

	Log of spread at the time of issue					
	All issuers				Sovereign issuers	
	Credit rating less than 30 (1)	Credit rating 30 or more but less than 50 (2)	Credit rating 50 or more but less than 70 (3)	Credit rating 70 or more (4)	Credit rating 30 or more but less than 50 (5)	Credit rating 50 or more (6)
Log amount	-0.069 (-1.04)	-0.050 (-2.42)	-0.066 (-1.68)	-0.114 (-1.46)	0.005 (0.17)	0.084 (0.61)
Maturity	0.015 (0.98)	0.004 (1.39)	0.003 (0.726)	-0.025 (-1.25)	0.006 (1.97)	0.021 (1.40)
Private Placement	-0.019 (-0.20)	0.046 (1.49)	-0.063 (-0.99)	-0.118 (-0.83)	-0.035 (-0.66)	-0.300 (-1.19)
Log of 10 year US Treasury rate	-0.839 (-1.99)	-0.063 (-0.40)	-0.115 (-0.38)	0.560 (0.43)	-0.370 (-1.69)	0.306 (0.33)
Log (10 year-1 year) Treasury rate	0.093 (0.82)	0.036 (1.26)	0.057 (0.875)	-0.761 (-2.15)	0.008 (0.19)	-0.124 (-1.13)
Log swap rate	0.426 (1.89)	0.561 (7.82)	0.929 (5.58)	0.681 (1.04)	0.511 (5.84)	0.186 (0.59)
Credit rating residual	-0.016 (-1.10)	-0.027 (-7.66)	-0.093 (-13.86)	-0.092 (-1.32)	-0.036 (-8.97)	-0.082 (-3.41)
Debt/GNP	-0.118 (-0.32)	0.880 (6.30)	1.194 (6.91)	1.121 (0.35)	0.683 (4.21)	0.482 (0.65)
Debt rescheduled in previous year	0.174 (1.35)	0.064 (1.35)			-0.048 (-0.69)	
GDP growth	-18.471 (-3.79)	-4.871 (-2.43)	-25.809 (-4.93)	-165.67 (-2.10)	-7.571 (-3.32)	-9.650 (-0.67)
Standard deviation of export growth	-0.248 (-0.36)	1.081 (5.07)	3.970 (6.17)	6.460 (1.61)	0.626 (2.80)	6.451 (6.06)
Reserves/short-term debt	-0.045 (-1.74)	-0.121 (-7.12)	-0.027 (-1.11)	0.142 (0.61)	-0.111 (-6.02)	
Ratio of domestic credit to GDP	-0.164 (-3.57)	-0.153 (-6.58)	-0.096 (-3.60)	-0.402 (-1.07)	-0.059 (-1.72)	
Standby Arrangement	0.099 (0.54)	-0.012 (-0.19)	0.282 (1.67)		0.034 (0.41)	
Extended Fund Facility	-0.048 (-0.24)	-0.058 (-0.91)			-0.049 (-0.59)	
Enhanced Structural Adjustment	0.434 (1.15)	0.077 (0.20)			0.150 (0.44)	
Number of quarters in an IMF program	0.008 (0.66)	0.006 (2.70)	0.018 (2.15)		0.004 (1.47)	
U.K. governing law	1.054 (1.98)	0.602 (3.70)	-0.829 (-2.99)	-1.667 (-1.98)	0.520 (2.74)	-0.937 (-0.83)
Other governing laws	-0.039 (-0.04)	-0.613 (-2.70)	-1.415 (-3.72)	-0.526 (-0.55)	0.066 (0.30)	0.307 (0.47)
U.K. governing law*IMF program	-0.105 (-0.36)	-0.296 (-2.56)			-0.120 (-1.39)	
Other governing laws*IMF program	0.127 (0.28)	0.083 (0.85)			0.077 (0.73)	
Foreign guarantee	-1.080 (-3.39)	-0.456 (-5.09)	-0.264 (-2.57)	0.587 (1.06)	-0.516 (-3.25)	
Domestic guarantee	-0.086 (-0.82)	-0.094 (-2.14)	0.167 (2.23)	0.107 (0.56)	-0.057 (-0.26)	
Constant	4.680 (3.48)	3.446 (6.66)	4.048 (4.30)	7.032 (1.35)	4.075 (6.44)	2.783 (1.22)
Lambda	-0.007 (-0.11)	-0.418 (-16.03)	-0.659 (-15.39)	-0.070 (-0.37)	-0.349 (-6.41)	0.159 (0.68)

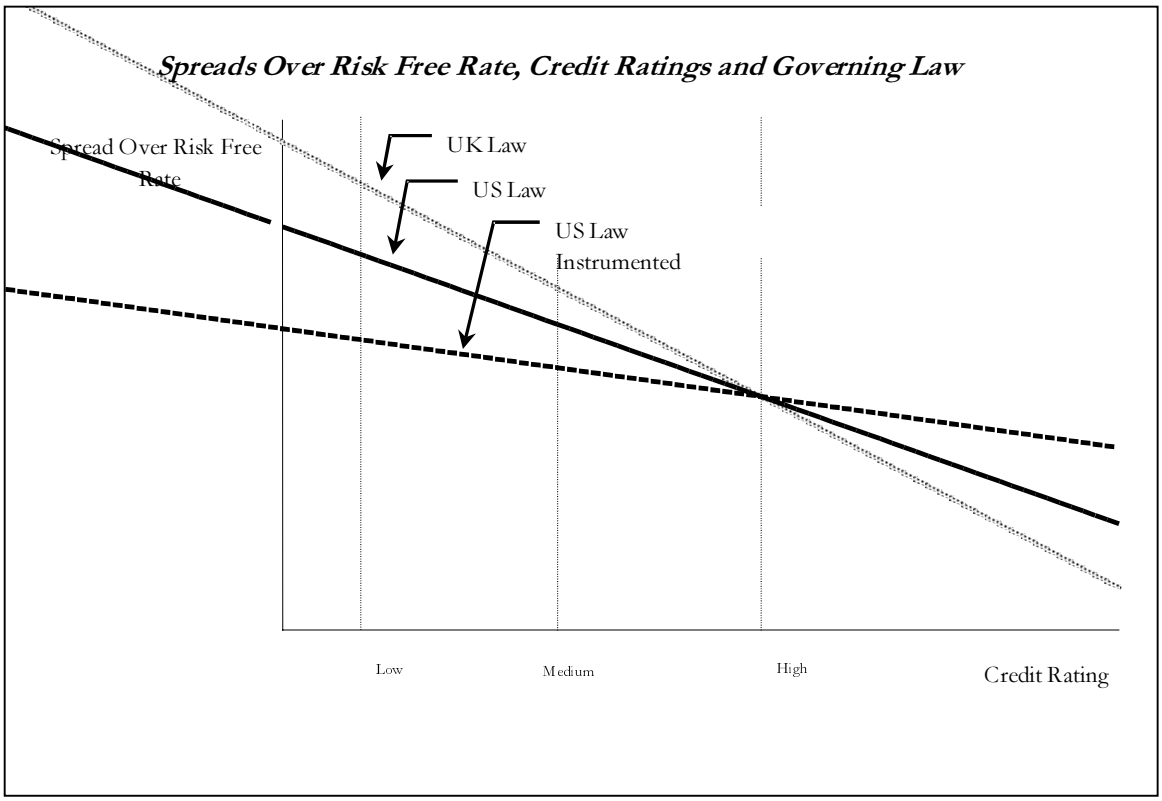
Number of bonds	275	1245	588	273	431	43
Log of likelihood	-506.80	-1996.44	-1067.49	-387.45	-770.88	-118.55

Notes: (1) Dummy variables for private and public issuers, industrial sectors, currency of issue, and whether the bond was issued at a fixed or floating rate were included in the regressions but are not reported here. (2) Figures in parentheses are t-statistics.

Table 6. Broader Implications of the Results

Credit	Role of multilaterals	Bail out	Bail in	Guarantee
Poor	Little ability to exercise catalytic effects. Role of multilaterals mainly long term and developmental.	Only weak evidence that EFF reduces borrowing costs.	Measures that ease rescheduling raise borrowing costs. IMF presence does little to mitigate these costs.	Strong effect.
Middling	Stronger ability to play catalytic role. Crisis intervention may have significant effects on terms of private market access.	EFF reduces borrowing costs.	Measures that ease rescheduling again raise borrowing costs, but to a lesser extent when IMF is present.	Modest effect.
Good	While short-term, targeted crisis management can be useful, execution may be problematic. Own commitment and voluntary restructuring work best.	IMF intervention signals trouble and appears to raise borrowing costs.	Measures that ease rescheduling do not raise borrowing costs. IMF role superfluous.	Possibly perverse effect.

FIGURE 1


Spreads Over Risk Free Rate, Credit Ratings and Governing Law
Spread Over Risk Free Rate
UK Law
US Law
US Law Instrumented
Low
Medium
High
Credit Rating