Is Aggregation a Problem for Sovereign Debt Restructuring?[*]

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Reform of the mechanisms and procedures through which problems of sovereign debt sustainability are resolved is at the center of the effort to make the international financial system more resilient and less crisis prone. Governments that default on their debts must embark on lengthy and difficult negotiations. Lenders and borrowers, uncertain of one another's willingness to compromise, may engage in costly wars of attrition, delaying agreement on restructuring terms. Even if disagreements about the debtor's willingness and ability to pay are put to rest, dissenting creditors may continue to block agreement until they are bought out on favorable terms.

In the interim, the creditors receive no interest, and the borrowing country loses access to international capital markets. The exchange rate may collapse, and banks with foreign-currency-denominated liabilities may suffer runs. To avert or delay this costly and disruptive crisis, the International Monetary Fund will come under intense pressure to intervene, provoking all the controversy that IMF intervention typically entails. Officials of the borrowing country, for their part, will go to great lengths to avoid seeing the country placed in this difficult situation. They may raise interest rates, run down their reserves, and put their economy through a deflationary wringer, all at considerable cost to society.

These costs could be reduced, the implication follows, if countries with unsustainable

debt reorganized sooner and if debtors and creditors could agree more easily on restructuring terms. But a necessary condition for this is a more efficient mechanism for debt workouts that addressed the information asymmetries and coordination problems that stand in the way of prompt debt reorganization.

Debt restructuring involves two conceptually similar but procedurally different problems, those of intra-issue and inter-issue coordination. The first problem -- restructuring a single debt instrument with multiple holders – can be facilitated by writing into each of those instruments provisions known as collective action clauses. John Taylor (2002a,b) has recommended adding to all international loan agreements an engagement clause that would designate a trustee to represent the holders of that instrument at the outset of the restructuring, a representation clause that would provide for the creation of a creditors committee to serve as a communications channel and coordinate relations with the sovereign during restructuring negotiations, an initiation clause that would give only that trustee the power to initiate litigation on the instruction of a specified fraction of the bondholders, and a majority action clause under which a qualified majority vote of the bondholders accepting changes in the financial terms of the issue would become binding on all its holders. A combination of moral suasion and regulatory and financial incentives would be used to encourage lenders and borrowers to adopt these provisions.

But collective action clauses, which are specific to the individual debt contract, might not suffice to deal with the broader problems of information sharing and creditor coordination that arise when the government in default has multiple debt obligations, as is typically the case. Collective action clauses provide for a bondholder assembly and qualified majority voting, debt instrument by debt instrument, on whether to accept a restructuring offer, but they do not specify

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a way of aggregating the preferences of creditors holding different issues. If the holders of some issues refuse the government's offer, they may have to be paid in full or bought out at par. The government will have fewer resources to share with other issue holders, who may then reject its restructuring offer. This may create a first-mover problem.

To address these additional complications, Anne Kruger (2001, 2002) has a proposed a sovereign debt restructuring mechanism (SDRM) that would supplement the operation of private debt contracts in the event of default and involuntary restructuring. Under the SDRM, a super-majority of the creditors, regardless of the bond issue or loan obligation they held, could vote to accept new terms of payment under a restructuring agreement. Minority creditors would be bound by the decision of the majority, again regardless of the particular debt instrument that they held, and a dispute resolution forum would be created to verify claims, guarantee the integrity of the voting process, and adjudicate disputes. In addition, the creditors could agree to assign seniority and protection from restructuring to new private lending, including the provision of trade credit, providing a country with the equivalent of debtor-in-possession financing. And, in at least some versions of the plan, the sovereign would be protected from disruptive legal action by creditors while negotiations are underway. The most straightforward way of creating a mechanism with these features would be by a treaty obligation that bound all countries, which could be established through an amendment to the IMF's Articles of Agreement.

1. Evidence on Aggregation Costs

If aggregation is costly, then investors will presumably demand a premium in order to hold claims on an issuer who has many separate debt instruments in the market, especially when

there is a significant likelihood that their obligations may have to be restructured. It should

therefore be possible to test for the presence of a significant aggregation problem with evidence

on the pricing of international bonds.

We use data from Capital Bondware on bonds placed internationally by the governments

of emerging market economies between 1991 and 2000. In principal, this is the universe of new

sovereign issues in the period since the developing-country bond market started up again in the

wake of the Brady Plan, although in practice the number of observations is slightly smaller than

that universe, reflecting problems of missing data.

Our dependent variable is the launch spread, defined as the yield to maturity at time of

issue minus the yield on a low-risk bond of comparable maturity. (The definition of the latter

depends on the currency in which the emerging-market bond is issued; it is a U.S. treasury bond

for U.S. dollar-denominated bonds, a UK government bond for sterling-denominated issues, a

Japanese government bond for yen-denominated issues, and so forth.) The key explanatory

variable for purposes of the present hypothesis is the number of separate issues that the sovereign

already has in the market at the time a new bond is launched. We calculate this by cumulating

new issues and removing earlier issues as they are retired.

As controls we use the standard vector of explanatory variables utilized in previous

studies of emerging-market bonds. (See Sebastian Edwards 1986, Richard Cantor and Frank

Packer 1995, William Cline and Kevin Barnes 1997, and Steven Kamin and Karsten van Kleist

1997). These control variables include characteristics of the issue (its amount, its maturity,

whether it bears a fixed or floating rate), characteristics of the issuer (the continent on which it is

located, its credit rating, its recent growth rate, the volatility of its exports, its reserves to short-

term debt ratio, and its ratio of domestic credit to GDP), and characteristics of the global financial environment (the ten-year U.S. Treasury rate, the U.S. high-yield spread, and the volatility of the Emerging Market Bond Index during the quarter the bond was issued). Critically, they include the country's debt/GNP ratio, which reassures us that our measure of the number of separate sovereign issues is not simply picking up the level of indebtedness of the country.

The coefficient on the number of separate sovereign issues is reported in the first column of Table 1. These estimates correct for sample selectivity, reflecting the fact that not all potential borrowers will be in the market at all times, by estimating a two-equation system of the decision to borrow and the spread, using maximum likelihood. (The methodology and its implementation follow closely those of Barry Eichengreen and Ashoka Mody 2000a and are described in detail there.) Reassuringly, equations for the spread estimated by ordinary least squares are essentially identical for present purposes. The full results are available from the authors on request.

We do see evidence of an aggregation problem. The coefficient on number of bonds is positive and statistically significant at standard confidence levels. The point estimate of 0.002 suggests that distributing the same amount of debt among an additional ten bonds would raise spreads on the tenth bond by about 2 per cent, which translates into slightly less than 8 basis points. This is not a large number, but the impact is quite a bit larger for countries with low credit ratings, as we show in the next section.

To emphasize, the point is not that countries that borrow more are charged more; we are controlling for the level of the debt, so what we are picking up when we analyze the effect of separate bond issues are presumably the costs of aggregation in restructuring negotiations. Neither does it appear that our results are picking up any tendency for sovereigns with more

issues to be charged more because they also have smaller issues, other things equal -- smaller issues tending to be less liquid. Adding the average size of the individual bond issues that a sovereign has in the market changes neither these results nor the additional results presented below.

It has been argued (see e.g. Michael Dooley 2000) that anything that makes debt restructuring more difficult, by making default more costly, should increase the attractiveness of lending to emerging markets. Our results are prima facie evidence against this view. This is not surprising; as Patrick Bolton (2002) observes, a restructuring procedure that is too creditor friendly or costly may discourage lending as much as a procedure that is too debtor friendly.

2. Does This Effect Reflect Additional Costs of Restructuring?

If this variable is really picking up costs of aggregation which come into play during restructuring negotiations, then it should have the largest effect on the obligations of countries whose perceived probability of having to restructure is high. It should have the largest effect, in other words, on countries with poor credit ratings. Measuring credit quality using the *Institutional Investor* country rating, which ranges from 0 (worst credit) to 100 (best credit), we now allow the effect of the number of outstanding bonds to differ by rating, distinguishing three credit-rating groups: 0-35, 36-50, and 51-100.

The estimated effects, in the second column of Table 1, confirm that the largest premium to compensate for potential costs of aggregation is demanded, plausibly enough, of countries with the lowest credit ratings (0-35 on the *Institutional Investor* scale). For countries with intermediate ratings (36-50), in contrast, the effect is very much smaller, of the same order as the

full-sample estimates reported before. For countries with relatively high credit ratings (above 50), the coefficient for the number of separate bond issues turns negative.

Arithmetically, the relatively small positive coefficient on number of issues for the sample as a whole is thus an average of a large positive effect for the lowest rated countries, a small positive effect for countries with intermediate ratings, and a negative effect for the highest rated countries. Economically, this reflects the interaction of two offsetting forces. Having an additional debt instrument in the market further complicates any future restructuring negotiations; this is the dominant factor for low-rated issuers, for whom the likelihood of future restructuring is high, and for whom this factor consequently carries considerable weight. At the same time, continuing interaction with the market builds reputation and can be taken as a sign of a country's commitment to maintain its good credit; this effect dominates for high-rated issuers.

To place these results in context, recall that prior to its default the government of Argentina had upwards of 80 bonds in the market. When most of those issues were placed, the country had a rating in the 36-50 category, where, our results suggest, investors demanded only a small additional premium to compensate them for the potential costs of aggregation, reflecting the fact that the perceived the probability of default, while not negligible, was still limited, and where the government's continued interaction with the market was taken as a reassuring indication of its commitment to the maintenance of its credit. However, when Argentina's creditworthiness deteriorated subsequently, the fact that the government already had many separate issues in the market, raising the specter of exceedingly complex restructuring negotiations, became a significant concern. This concern increased the costs to the Argentine authorities of attempting to meet their immediate financial needs by floating another new issue,

quite independently of standard debt-sustainability considerations.

3. Do Mechanisms for Intra-Issue Coordination Help with Inter-Issue Coordination?

We can also ask whether aggregation costs vary as a function of whether or not an issue includes collective action clauses. Insofar as CACs help to solve problems of intra-issue coordination, might they also create a simpler setting for inter-issue coordination? In the presence of CACs, the holders of an issue might be more likely to speak with one voice in negotiations with other classes of creditors. Alternatively, the choice of governing law might make no difference for ease of aggregation since none of the bonds in question carry explicit provisions for cross-issue coordination.

Of the sovereign bonds issued in the 1990s, roughly a third was placed in the London market and was subject to English governing law; virtually without exception, these bonds included CACs. Another third was placed in the United States and was subject to State of New York law; virtually without exception, these bonds excluded CACs. (The remaining third was subject to other governing laws, some of which led to the inclusion of CACs, but others of which did not; see Barry Eichengreen and Ashoka Mody 2000b.) This allows us to implement the relevant test, estimating separate equations for bonds disaggregated by governing law.

The key results, shown in Table 2, differ little across columns. There is little evidence, in other words, that the presence or absence of CACs significantly conditions the perceived costs of aggregation.

3. Conclusion

Whether the difficulties of coordinating the creditors holding different bond issues is a serious obstacle to sovereign debt workouts is one consideration that should guide the design of new mechanisms for sovereign restructuring. Our evidence suggests that investors do perceive that aggregation has costs. Plausibly, they worry most about difficulties of information sharing and coordination across issues when the debt in question is an obligation of a country with a significant perceived probability of having to restructure. Evidently, the markets do not solve all problems of aggregation on their own, at zero cost. The difficulty and costliness of coordinating the holders of different debt instruments is thus one advantage of the "statutory approach" to sovereign debt restructuring championed by Krueger (2001, 2002).

Although the impact for borrowing costs of having the same debt distributed among additional issues is substantial for sovereign borrowers with low credit ratings, it is much smaller for borrowers with intermediate ratings and nonexistent for investment-grade countries, for whom repeated contact with the markets appears to build reputation and is taken as a signal of commitment. This is not to say that aggregation costs will be absent in the unlikely event that these borrowers have to restructure, only that the impact on spreads is swamped by other factors ex ante. This may not be entirely good news. If market discipline, in the form of escalating spreads, does nothing to deter borrowers with good credit from placing multiple issues, then in the case of a negative credit event they could suffer the double whammy of facing sharply rising funding costs if they attempt to borrow their way out of their financial difficulties and extremely complex and difficult negotiations if forced to default. Again, the recent experience of Argentina springs to mind as a graphic illustration of the problem.

References

Bolton, Patrick. "Towards a Statutory Approach to Sovereign Debt Restructuring: Lessons from Corporate Bankruptcy Practice Around the World." mimeo, Princeton University (2002).

Cantor, Richard and Frank Packer. "Determinants and Impact of Sovereign Credit Ratings," *Federal Reserve Bank of New York Policy Review,* October 1995, 2(2)*,* pp.37-53.

Cline, William and Kevin Barnes. "Spreads and Risk in Emerging Market Lending." Institute of International Finance (Washington, DC) Research Paper no. 97-1, December 1997.

Dooley, Michael. "Can Output Losses Following International Financial Crises Be Avoided?" National Bureau of Economic Research (Cambridge, MA) Working Paper no.7531, February 2000.

Edwards, Sebastian. "The Pricing of Bonds and Bank Loans in International Markets," *European Economic Review,* June 1986, 30(3), pp.565-589.

Eichengreen, Barry and Ashoka Mody. "What Explains the Changing Spreads on Emerging Market Debt? Fundamentals or Market Sentiment?" in Sebastian Edwards, ed., *Capital Flows and the Emerging Economies: Theory, Evidence and Controversies.* Chicago: University of Chicago Press, 2002a, pp.107-136.

Eichengreen, Barry and Ashoka Mody. "Would Collective Action Clauses Raise Borrowing Costs?" National Bureau of Economic Research (Cambridge, MA) Working Paper no.7458, January 2000b.

Eichengreen, Barry and Ashoka Mody. "Would Collective Action Clauses Raise Borrowing Costs? An Update and Additional Results." World Bank (Washington, D.C.) Policy

Research Working Paper no. 2363, June 2001.

Kamin, Steven and Karsten van Kleist. "The Evolution and Determinants of Emerging Market Credit Spreads in the 1990s." mimeo, Federal Reserve Board and Bank for International Settlements, 1997.

Krueger, Anne. "International Financial Architecture for 2002: A New Approach to Sovereign Debt Restructuring." Address by Anne Krueger, First Deputy Managing Director, International Monetary Fund, Given at the National Economists' Club Annual Members' Dinner, American Enterprise Institute, Washington, D.C., 2001.

Krueger, Anne. "New Approaches to Sovereign Debt Restructuring: An Update on Our Thinking." Address by Anne Krueger, First Deputy Managing Director, International Monetary Fund, Given at the Institute for International Economics Conference on Sovereign Debt Workouts, Washington, D.C., 2002.

Taylor, John. "Sovereign Debt Restructuring: A U.S. Perspective." *Treasury News,* www.treas.gov/press/releases/po2056.htm, 2002a.

Taylor, John. "Using Clauses to Reform the Process for Sovereign Debt Workouts: Progress and Next Steps." Office of Public Affairs, U.S. Treasury, PO-3672 (2002b).

Table 1: The Aggregation Effect: All Bonds and Bonds Differentiated by Credit Quality

Rating Category	Coefficient on Number of Bonds	
	Without Interactions	With Interactions
All Bonds	0.002 (2.53)	
0-35		0.052 (5.93)
35-50		0.003 (3.85)
50+		-0.019 (-7.39)
Number of Bonds	564	564
Rho (ρ)	-0.317	-0.051
Residual standard error (σ)	0.437	0.417

Source: see text.

Table 2: The Aggregation Effect Differentiated By Governing Laws

Rating Category	UK Law	US Law	All Other Laws
	Coefficient on Number of Bonds		
0-35	0.040 (2.81)	0.037 (2.92)	0.067 (2.96)
36-50	-0.000 (-0.06)	0.002 (0.94)	0.004 (2.98)
50+	-0.014 (-3.59)	-0.015 (-3.17)	-0.011 (-2.72)
Number of bonds	182	171	211
Rho (ρ)	-0.100	0.051	-0.363
Residual standard error (σ)	0.339	0.364	0.382

Source: see text.