Crisis Resolution and Private Sector Adaptation

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Efforts at crisis resolution that succeed in reducing potential inefficiencies and instability in the international financial system are in the interest of both the private and the public sectors. This paper focuses on how the private sector is likely to adapt to the recent initiatives by the official sector to further involve the private sector in the resolution of crises. The key conclusion is that recent experiences with payment suspensions and bond restructurings are limited as guides to determining the future success or failures of these initiatives, because the private sector most likely has adapted in order to minimize any unwanted involvement. [JEL F34]

Private sector involvement (PSI) has been an integral part of all crisis resolution efforts, and it is not new. At the time of the resolution of the Latin American debt crisis of the 1980s, for example, the official community had many of the same objectives it has today: limiting the size of official packages, reducing moral hazard in the private sector's lending decisions, and restoring the external viability of the country in crisis. Some academics (e.g., Dooley, 1994) see the lending preceding the debt crisis of the 1980s as raising charges of moral hazard.

By the late 1980s, however, the improved financial positions of major international banks (as measured by their developing country loan exposures relative to their capital) and the continuing poor economic performance of many emerging markets led to the adoption of the Brady plan, which involved substantial write-downs (measured in net present value terms) of developing country syndicated

loans. Indeed, the losses experienced by banks on medium-term syndicated lending to developing countries in the 1980s are regarded as a key factor in the decision of banks to shift away from syndicated lending to sovereigns toward shorter-term interbank lending in the 1990s. Large official financing packages in the 1990s, starting with Mexico (1994–95) and then in Asia (1997), were also seen by many observers as increasing the private sector's expectation of being rescued should it be confronted by an imminent credit event. This sentiment likely peaked in the run-up to the Russian default in August 1998 because Russia was widely viewed as "too big or too nuclear to fail" and would therefore receive the support of the official community no matter what.

Others have seen the crises of the 1980s and 1990s as arising out of a much more complex set of macroeconomic and financial factors and have argued that there needs to be a more nuanced view of the extent and potential sources of moral hazard. It has also been argued that moral hazard in the international financial system can potentially arise from a number of sources, including the official safety net that underpins all banking systems and the lending activities of international financial institutions (IFIs).

The official safety net underpinning the banking system is typically designed to ensure the overall stability of the domestic financial system and to protect the domestic payments system. It is widely recognized that the knowledge that a bank is "too big to fail" can lessen the incentives to impose both market and managerial discipline. Domestic bank bail-outs costing the sovereign the equivalent of 10–20 percent of GDP have not been uncommon, and they clearly have an impact on the expectations for future bail-outs by the domestic banks as well as the expectations of international banks providing financing to domestic banks.

While the moral hazard effects of the official safety net underpinning national banking systems are a constant feature of the global financial system, the potential moral hazard effects of lending by IFIs will be influenced by both the scale and the timing of such lending. As noted above, market participants regard such lending as having had its most significant effect on creditors' expectations during the run-up to the Russian default in August 1998. Nonetheless, there remains considerable disagreement between those who see lending by IFIs as having a "first-order" effect in creating moral hazard and those who view such lending as having a much smaller and episodic effect (Lane and Phillips, 2000). Whatever the conclusion on the likely significance of moral hazard arising from official international support to countries facing external financing difficulties, the fact is that the scale of such support is limited. When there is a meaningful risk that a country may be insolvent and therefore incapable of timely repayment of emergency official assistance, the official community typically refrains from providing such assistance except on the condition that other claims against the country be rescheduled and written down to an extent that ensures that emergency official assistance can be repaid. These are situations where, like it or not, the creditors of a country's debtors (its sovereign, its banking system, or its private sector) will unavoidably be "involved" in the resolution of the country's financial difficulties. More broadly, when a country faces a huge outflow of capital that threatens to swamp that country's own resources plus any plausible level of emergency assis-

tance from the official community, and when efforts to resolve the crisis through policy adjustments, limited official assistance, and a spontaneous restoration of confidence fail, the creditors of that country will also face "involvement" in the resolution of that country's financial difficulties on terms and conditions not contemplated in their credit instruments. In these situations, private sector involvement in crisis resolution is, and always has been, a fact of life.

In designing and implementing policies on private sector involvement, the official sector has—and is perceived in private markets to have—several, not necessarily consistent, objectives. One is burden sharing. Because of concerns about moral hazard and for other reasons, the official community wants to keep its emergency support limited. It also wants to ensure that private creditors play—and are seen to play—an appropriate role in resolving crises. When losses need to be absorbed—especially in situations of insolvency—the official sector wants to ensure that private creditors do not escape by imposing losses they should bear onto others. A second broad objective is limiting the damage done by the crisis, both to the country primarily involved and to the world economy more generally. Sometimes, especially in cases of insolvency, this may again mean that creditors should absorb losses (also part of burden sharing). It also means, especially in cases of illiquidity, seeking to restore external viability and market access as rapidly as possible following the resolution of a crisis—something that may not be facilitated by efforts to impose substantial losses on creditors. The third broad objective of the official community is to preserve integrity and reasonable efficiency in the functioning of international credit markets. This means that debtors should not be allowed to escape from servicing their obligations when they have the capacity to do so. It also means that creditors who undertake risks should expect to see those risks sometimes materialize into actual losses.

These policies also interact dynamically, as the private sector reacts to the policies of the official sector for future financing flows and the official sector, in turn, adapts its policies. Debt restructurings are repeated games, and while addressing the current crisis the official sector is already affecting the conditions of the next debt crisis. This phenomenon is clearly apparent in the evolution of international credit arrangements over the past two decades. Medium-term loans from large syndicates of commercial banks to developing country sovereigns and public sector entities were a dominant form of international capital flows before the debt crisis of the 1980s. An important part of the mechanism that the official sector used to deal with that crisis involved the concerted rollover and subsequent restructuring and write-down (in present value terms) of syndicated bank loans. Bonded debts of affected sovereigns generally escaped restructuring on the grounds that the amounts were small and that these instruments (held by widely diversified creditors) were difficult to restructure. The market adapted. Medium-term syndicated bank loans to developing country sovereigns largely disappeared in the 1990s. Banks shifted to interbank loans of much shorter maturity. International borrowing by sovereigns predominantly took the form of bonded debts. The shifts in the form of international credit flows posed new challenges in efforts to resolve the financial crises of the 1990s. Lenders to emerging markets

were either thousands of individual bondholders whose actions were difficult to concert or banks with short-term facilities that could easily "cut and run" in a crisis. Mechanisms for private sector involvement in the crises of the 1990s have adapted to these new realities.

The fact that the private sector will adapt, taking losses or gains on existing debt while changing the level or structure of its future lending, to the official sectors' policies and practices with respect to private sector involvement is not necessarily negative. For example, although unwelcome to potential debtors, policies that raise the cost and diminish the availability of international credits to some emerging market borrowers may be desirable if they reflect a more appropriate pricing of risks and serve properly as a deterrent to imprudent borrowing, that is, reduce debtor moral hazard. Policies that encourage longer-term securitized borrowing (which is presumably limited by available collateral) may contribute to the avoidance of more efficient resolution of crises because such loans are hard to restructure. Longer-term loans are likely to be less dangerous in a potential crisis than an equivalent volume of short-term loans, and creditors who believe they have secure collateral should be less prone to panic than those that do not. On the other hand, a country that has already encumbered most of its liquid assets and a good deal of its future export earnings may find itself in a very difficult situation in the event of a financial crisis.

The point is that in considering various policies and practices with respect to private sector involvement, it is critical to be aware of how the private sector is likely to adapt to these policies and practices and to the difficulties or opportunities that these reactions will generate. The analysis in this paper is based on some fairly simple observations and assumptions of the behavior of creditors and debtors in the international capital markets. It takes as given that debtor moral hazard is a key concern for a creditor's lending decision, and the analysis presented here tries to fill a gap in earlier papers' focus solely on creditor moral hazard.

Section I of this paper presents a framework that examines how a sovereign debtor and a private sector creditor value debt and therefore how they are likely to be affected when key variables change, such as the cost of default and the recovery value, as they may have done in the context of the recent official sector crisis resolution initiatives. Two forms of impact are discussed: first how future lending will be affected as the debtor and creditor adjust to a new equilibrium, and second how already existing debt will be affected in their price. Section II discusses how this framework can be used to analyze how private creditors will adapt to recent official community initiatives with regard to debt payment suspensions. Section III addresses how the private sector is likely to adapt to the recent string of successful bond exchanges. It is argued that the conclusion that bonds will be as easy to restructure in the future as they have been recently is premature, because it does not take into account the fact that private sector creditors will adjust their expectations and lending instruments going forward. Section IV ends the paper with some broad conclusions and raises the question whether the private sector is already adapting to the recent official sector crisis resolution initiatives.

I. Determinants of Debt Restructuring: A Model

Consider the simplest two-period sovereign borrowing model. A sovereign debtor has the choice to borrow an amount, D, from an international lender, in the form of either bonds or loans, and invests in a risky project with an uncertain return of r_p. If r_p exceeds the coupon, c, which is what the sovereign is obligated to pay on the debt, the sovereign can service his debt and avoid default. However, if the return on the risky project is less than the required debt service, the sovereign has to enter a default, which is costly to both the debtor and the creditor, and in default the creditor instead receives only the recovery value RV instead of c. The recovery value is commonly defined as the expected present value of the future debt service that the instrument in default is expected to generate for the creditor, for example, through the issuance of an exchange bond at some point in the future with a reprofiled or lower debt service schedule. Clearly, the recovery value following default will be affected not only by the debt servicing capacity of the debtor but also by the respective bargaining strength of the creditors of a particular instrument vis-à-vis the debtor as well as other creditors. The recovery value in default will vary from one debt instrument to another. Some debt instruments are collateralized with foreign assets and designed in such a way that should default occur, the recovery value is very high (an example would be bonds collateralized by future export revenue flows).

The Sovereign Debtor

If strategic default is allowed for, the debtor's decision function becomes slightly more complex. Now, even if the sovereign does have the money to repay, that is, the "ability to pay," he will only repay, that is, "willingness to pay," if by doing so he can avoid an excessively costly default. In other words, the net benefit of servicing his debt has to be larger than the benefit from a strategic default. If this is not the case, no lender will ever extend credit to a sovereign, because default is a certainty. In a model, one can express the sovereign's decision as, given that $r_p > c$, the sovereign will service his debt, $\Pi = 1$, if

$$r_p - c > r_p - RV - \lambda.$$

Therefore, a strategic default will be avoided as long as the cost, λ, which is instrument-specific, together with the recovery value, is larger than the interest rate on the loan, that is,

$$RV + \lambda > c. \tag{1}$$

Note that the suggested description in (1) breaks up the cost of default for a debtor in two parts: first the recovery value, which directly benefits the creditor, and second λ, which is a pure loss and benefits no one in particular. Many different motivations and specifications have been proposed with regard to λ (see Cline, 2000, or Dooley, 2000, for an overview). The costs of default could include lower reputation, loss of market access for both trade and long-term financing, the

potential to become a target of costly litigation, and output losses while in default because the debtor lacks foreign capital for investments. The output losses will naturally be greater the longer the country is in default, and this time period is under the control of the creditor and the debtor when the original loan contract is drawn up. For the creditor the importance of the ease of renegotiating the contract is a function of the value of other disciplining devices as well as whether the cost of renegotiating the contract is materially different from the cost of renegotiating other contracts. That is, when there is more than one debt contract, the debtor will default on the least costly debt first.[1]

In a world where strategic default is possible but there is an associated cost to default, the utility function of a sovereign borrower is denoted U_s and the probability of a good outcome and hence the ability to pay is denoted p:

$$U_s = p(r_p > c)\big[\Pi(r_p - c) + (1 - \Pi)(r_p - RV - \lambda)\big] + (1 - p(r_p > c))(r_p - RV - \lambda). \quad (2)$$

Unfortunately, in the real world as well as in many theoretical models (see Dooley, 2000), often a lender can observe only the default itself and not really the reasons behind the decision. Because in some states of the world the outcome of the investment may be low enough to actually infringe on the recovery value for the creditor,[2] it is in the creditor's interest to distinguish between "bad-luck" defaults, where preferably the default cost is zero to maintain as high a recovery value as possible, and strategic defaults, where the default cost should be very high to discourage them. Because a distinction is not possible, by assumption, a creditor would have to impose a default cost by, for example, making the debt contract hard to restructure, leading to large output losses, irrespective of whether the default occurred as a result of the inability to pay or the unwillingness to pay.[3]

The Creditor

For any risk-neutral creditor, any debt contract, irrespective of whether it is a loan or a bond, is valued ex ante, depending on (1) the probability of default by the debtor on that contract; (2) the recovery value if the default occurs; and (3) the maturity, principal, and coupon paid on the debt if the debtor does not default. This can be expressed, in a two-period model, as

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[1]See Nystedt (2001) for a more elaborate model involving two types of creditors extending credit through two different instruments: loans with a low cost of default and bonds with a high cost of default. A clear implication of the model is that if the cost of default is suddenly reduced for bonds, the borrower will shift to borrow relatively more through loans in the new equilibrium.

[2]This assumes that in a bad-luck default $r_p - \lambda - RV \geq 0$ and hence $RV = r_p - \lambda$, which may be equal to zero if λ is large enough and the outcome bad enough.

[3]Other authors have suggested that the IMF, or some other multilateral institution, could play the role of an outside monitor that could distinguish between bad-luck defaults and strategic defaults. The IMF could signal what type of default had occurred by lending-into-arrears and thereby, at least partly, offset the cost of default for the debtor, in that state of the world, and lead to a higher recovery value for the creditor ex post, leading to a lower coupon ex ante.

$$\left(1+r_f\right) = \frac{P_{t+1}}{P} = \frac{E\left(D_{t+1}\right)}{D} = \frac{p\left(r_p > c\right)(1+c)D + \left(1 - p\left(r_p > c\right)\right)(1+RV)D}{D} \quad (3)$$

$$r_f = p\left(r_p > c\right)c + \left(1 - p\left(r_p > c\right)\right)RV.$$

Here, r_f simply reflects that on a risk-adjusted basis a creditor, through a no arbitrage argument, expects to earn a yield of at least the risk-free rate. However, when (2) and (3) are compared, the interrelationship between the two expressions is through the coupon rate. If the coupon is high, the probability of nonpayment will increase and the creditor will have to charge an even higher coupon up front to compensate. Given some assumption about the probability distribution, an equilibrium coupon and probability of payment can easily be derived, but the resulting coupon has to be compatible with the strategic default constraint presented in equation (1) to represent a true achievable equilibrium.

The Equilibrium Coupon

To derive the equilibrium coupon rate, it is assumed that r_p is uniformly distributed between $r_{\min}$ and $r_{\max}$. Therefore, the probability that r_p is larger than the coupon rate is simply

$$p\left(r_p > c\right) = \frac{r_{\max} - c}{r_{\max} - r_{\min}}. \quad (4)$$

Given a certain probability, equation (4) can also be rearranged in terms of the coupon that is compatible with such a payment probability for the debtor:

$$c_{debtor} = r_{\max} - p(.)(r_{\max} - r_{\min}). \quad (5)$$

Similarly, by manipulating equation (3), for the creditor, the coupon compatible with a certain repayment probability is equal to:

$$c_{creditor} = RV + \frac{r_f - RV}{p}. \quad (6)$$

An equilibrium coupon is obtained when $c_{creditor} = c_{debtor}$. There is no guarantee of an equilibrium, however, because it depends on the parameter values chosen (see Figure 1).

At the point(s) where the coupon demanded by the creditor (supply) intersects the line that is compatible with the debtor's fundamental coupon paying ability (demand), an equilibrium is reached. However, if the repayment probability is reduced, for example, by a reduction in the maximum return to 15 from 21 percent of the original amount borrowed, as shown in Figure 1, no equilibrium is possible and no lending would occur. Algebraically the equilibrium coupon solves the following equation:

Figure 1. Thailand: Interest Rate and Exchange Rate

Exchange rate (Baht/U.S. dollar)

Interest rate (percent a year)
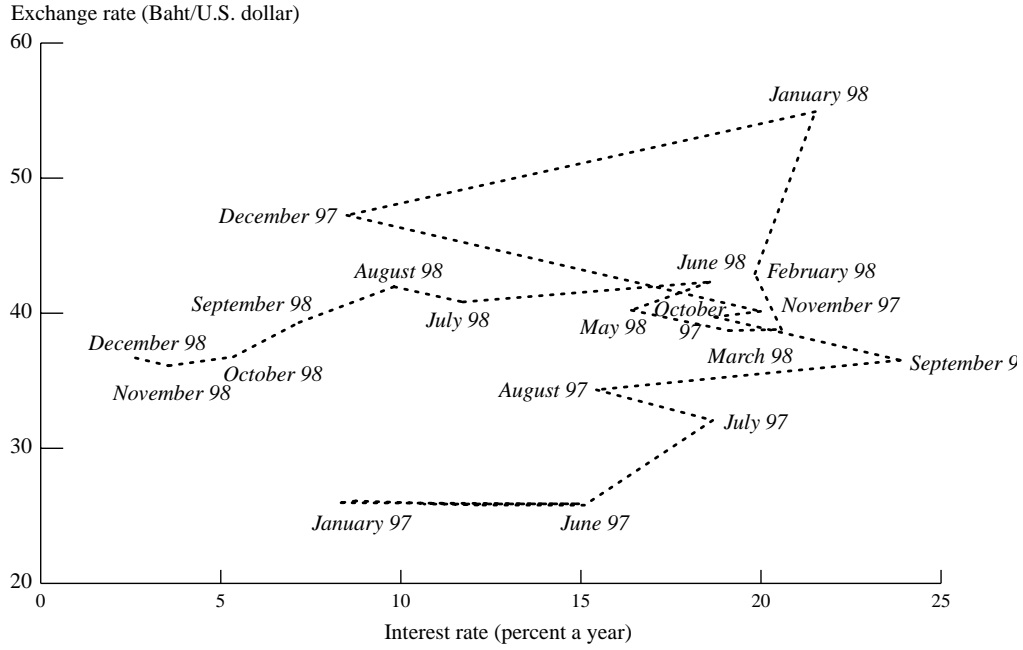
$$c_{eq}^2 - \left(r_{max} + RV\right)c_{eq} + r_f\left(r_{max} - r_{min}\right) + RVr_{min} = 0 \ \text{ where} \qquad (7)$$

$$c_{eq} = \frac{\left(r_{max} + RV\right)}{2} \pm \sqrt{\frac{\left(r_{max} + RV\right)^2}{4} - r_f\left(r_{max} - r_{min}\right) - RVr_{min}} \ .$$

As depicted in Figures 1 and 2, for some parameter values there may be two equilibrium coupons. In those cases it is clear that for the debtor the lower coupon dominates the higher coupon outcome, to maximize the debtor's utility and minimize the probability of an actual default (the lower path in Figure 2).

Cost of Default and the Equilibrium Coupon

Any equilibrium outcome will have to satisfy the no-strategic-default condition, which depends on λ and *RV*, as shown in Figure 2. A "true" equilibrium, to avoid a strategic default, has to be below the line described by the sum of the recovery value and the cost of default.

Figure 2 indicates that there is a non-negative cost of default that is a necessary requirement for any equilibrium with risky lending to occur. A zero cost of default, that is, $\lambda = 0$ percent, would be compatible only with a 10 percent coupon and a constant recovery valve that is equal to the risk-free rate—that is, the creditor would recover 10 percent return whether there was a strategic default or not.

195

Figure 2. Equilibrium Probability of Payment, and the Maximum Return
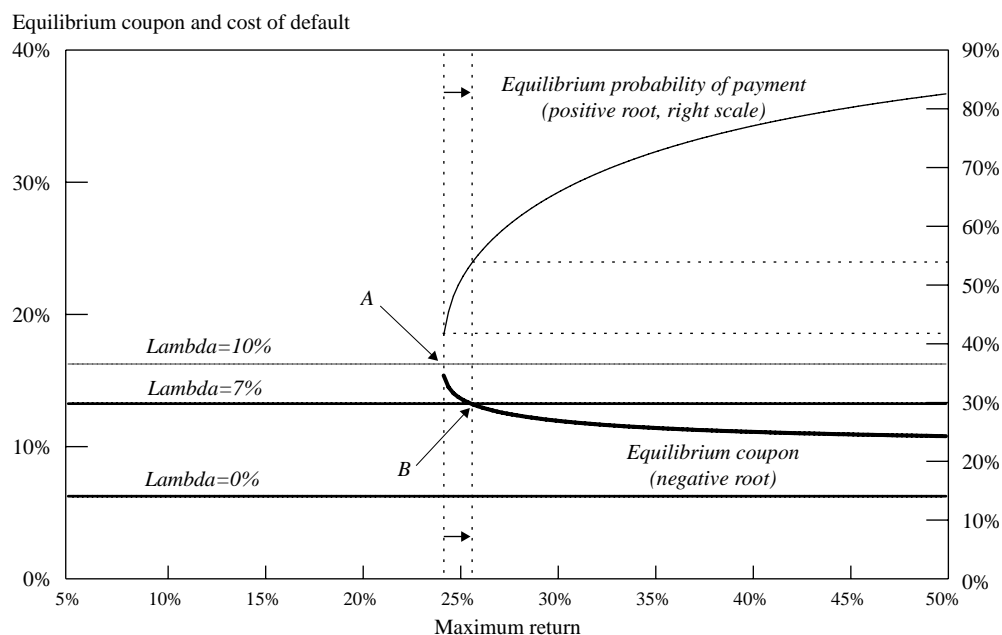
Hence, if the cost of default is low, only the relatively "safe" projects—that is, high-quality sovereign debtors—would in equilibrium receive financing. Projects that are risky would not receive any funding, because the coupon that the creditor would need to charge the debtor, to cover the creditor's risk, would encourage the debtor to enter into a strategic default. However, as the cost of default increases, for example with $\lambda = 7$ percent, and the equilibrium shifts to B, riskier projects are able to receive some funding. Their equilibrium repayment probability will have to be at least 53 percent or greater in this equilibrium for financing to occur. If the cost of default is increased even further to $\lambda = 10$ percent and hence equilibrium A, the riskiness of the projects that can now be financed in equilibrium is increased and the required probability of repayment reaches its global minimum of 41 percent. Because all risky projects are positive net present value projects, the increased availability of financing is welfare enhancing.[4]

Moreover, as Figure 2 shows, not only is there a minimum cost of default, to allow risky projects, there is also a maximum cost of default. When λ is larger than 10 percent, as in this example, no benefit is gained from opening up the opportunity of financing additional risky projects. Instead welfare is lost, to the detriment of both the debtor and in some states the creditor, because if there is a bad-luck default a larger socially inefficient cost is incurred.

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[4]See Nystedt (2001) for a more elaborate discussion on the welfare effects.

Probability of Payment and the Recovery Value

A remaining question is how the equilibrium probability of payment relates to the recovery value. As shown in Figure 3, using the negative root in equation 7, the equilibrium coupon is strictly decreasing with the recovery value on a particular debt instrument.

In much the same way the equilibrium coupon was derived, the equilibrium payment probability can be derived from

$$(r_{\max} - r_{\min})p_{eq}^2 - (r_{\max} - RV)p_{eq} + r_f - RV = 0,$$

solving for p where

$$p_{eq} = \frac{(r_{\max} - RV)}{2(r_{\max} - r_{\min})} \pm \sqrt{\frac{(r_{\max} - RV)^2}{4(r_{\max} - r_{\min})^2} - \frac{r_f + RV}{r_{\max} - r_{\min}}}. \qquad (8)$$

Plotting the equilibrium payment probability in a figure (see Figure 4), it is clear that the higher the recovery value, the higher the probability of payment, because the coupon the creditor demands in equilibrium can be lowered. If default would occur, abstracting from the possibility of a strategic default, a debt instrument with a higher recovery value would be preferable to the creditor and he would feel more comfortable with extending credit to risky projects. For example, in this model the use of collateral to back a new loan to a sovereign would actually increase the probability that the sovereign remains solvent, because the sovereign's debt service burden would decrease.

Effect on Secondary Market Price of Already Existing Debt

While the equilibriums derived and discussed above reflect the effects of changes in key variables on newly contracted debt, already existing debt will also post significant price changes with changes in RV and λ. If, for example, the debt instrument under consideration is near the strategic default frontier and the cost of default is reduced, that particular debt instrument would see its price fall from its par value to RV, even though the fundamental repayment probability of the sovereign remains unchanged.

In the case of changes in RV, it would affect the price of the debt instrument by rearranging equation (3) to

$$P_t = \frac{E(\hat{D}_{t+1})}{(1+r_f)} = \frac{p(r_p > c)(1+c)D + [1 - p(r_p > c)](1 + RV_0 + \Delta RV)D}{(1+r_f)},$$

where RV_0 represents the old equilibrium recovery value and ΔRV the change in recovery value. The impact on the price of the existing debt instrument by changing the recovery value can then be simply expressed as

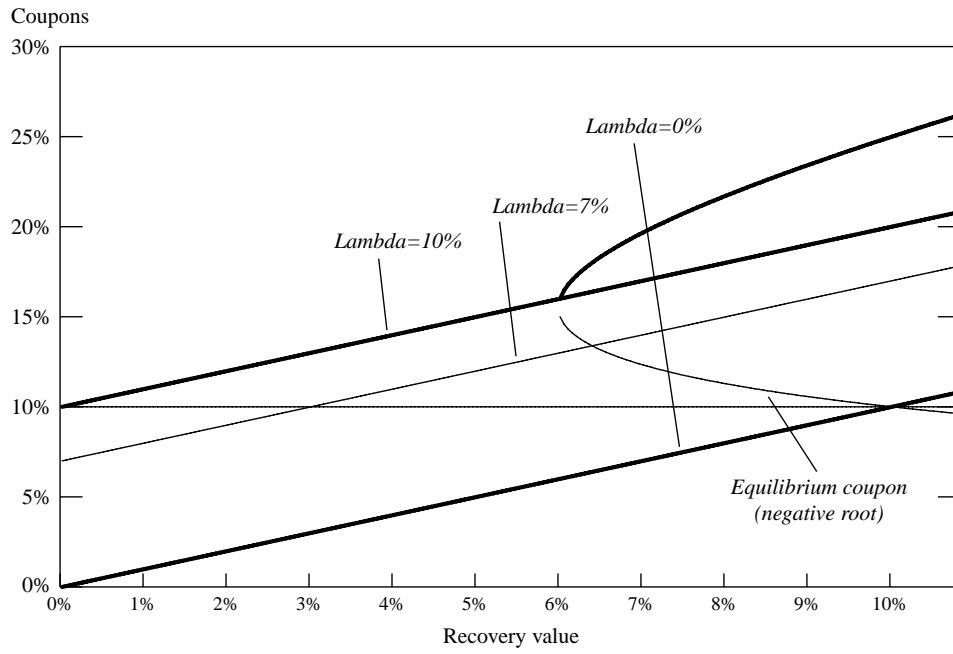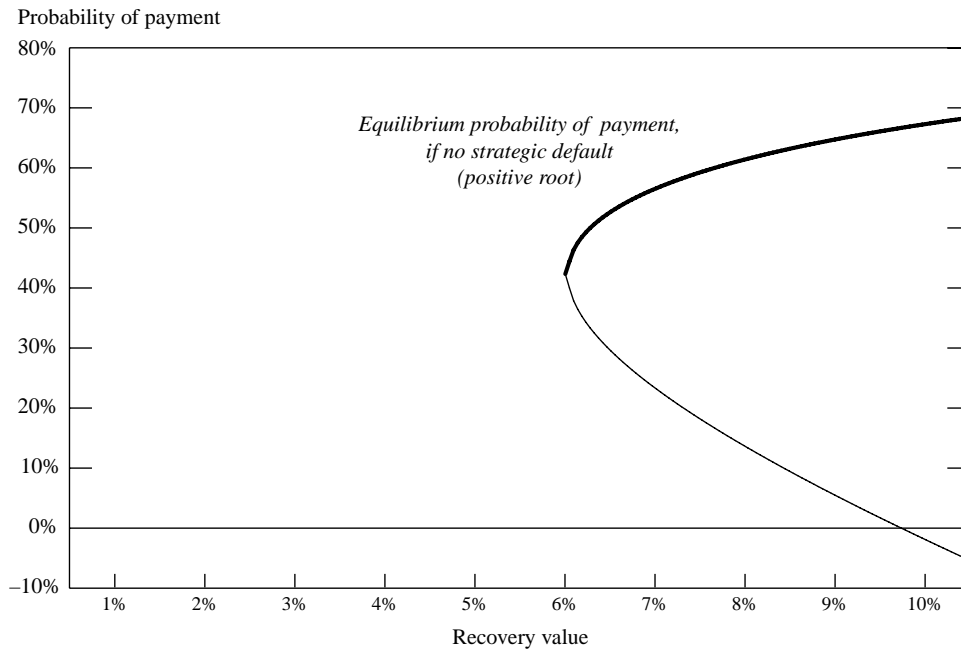Figure 3. Equilibrium Coupon, Strategic Default Costs, and Recovery Value

Coupons

Figure 4. Equilibrium Probability of Payment and Recovery Value

Probability of payment

$$\Delta P = \frac{\left(1 - p\left(r_p > c\right)\right)\Delta RV}{\left(1 + r_f\right)}, \tag{9}$$

with a positive price change if the recovery value increases and a negative price change (a loss to the creditor) if the recovery value is reduced.

Implications

When considering recent initiatives to enhance PSI in crisis resolution, it could be worthwhile to consider how these initiatives affect the debt instrument specific recovery value and cost of default. For creditors, being able to discipline debtors is a crucial aspect of international debt flows. If the cost of default is lowered, there may be an effect on the availability and structure of the future financing provided by creditors—that is, they will adapt. Moreover, it would cause sharp price falls for those debt instruments and debtors for which the cost of default frontier was binding.

As Figure 2 shows, the decision on whether, for example, to make a debt contract easier to restructure, and hence reduce the cost of default, depends on whether the cost of default is already seen as too high and hence a reduction would on net reduce welfare losses, or whether the cost of default is in an intermediate area (in the above example between 0 and 10 percent) where it is binding and actually reduces the amount of risky lending. A reduction in the cost of default in the latter case would actually reduce the lending to risky borrowers, while less risky debtors would be unaffected by small enough changes.

Moreover, if default costs are very high, only countries that suffer from extreme bad luck and are in very bad shape will default. By definition this means that the average recovery value for all creditors will be very low. If, on the other hand, default costs are low, such that debtors with plenty of spare debt servicing resources choose to default, recovery values for a while will be higher, because the debtor and creditor can agree on a debt service profile that could be serviced at a higher level than in the case of a truly bankrupt debtor. An implication, therefore, from the framework presented here is that if enhanced PSI in crisis resolution means the net lowering of the costs of default, and lending occurs with the cost of default in the intermediate area, recovery values following an increase in sovereign defaults should be expected to go up, not down.

It should also be noted at the outset that if creditor moral hazard plays an important role in world capital markets, it will also affect the key parameters for the debtor. Multilateral financing packages that include no private sector involvement, and hence maintain creditor moral hazard in the system, will lower the cost of default for the country (by mitigating output losses), lower the probability of default (an up-front lower interest can be charged by the creditor because the creditor has some "insurance"), and increase the recovery value if default still occurs. Interestingly, therefore, initiatives that increase the cost of default and reduce the recovery value may be optimal in a world where the level and structure of financing flows has already been affected by creditor moral hazard. However, if

the creditor moral hazard inherent in the global financial system is believed to be limited, there is less room to make the argument that the creditor's position needs to be weakened, because most likely the current state already reflects an equilibrium outcome with debtor moral hazard but no creditor moral hazard. What the model shows, therefore, is that the balance between creditor and debtor "rights" is a subtle one, and great care needs to be taken to not shift the balance too far in either direction. Moreover, whether the current cost of default in the international capital markets is in the intermediate area or too high would critically determine whether efforts to reduce a debtor's default costs would increase or decrease global welfare.

II. Debt Payment Suspensions: Private Sector Reaction and Adaptation

During a financial crisis the capital outflows from a country may be so overwhelming and broad-based, reducing the country's foreign exchange reserves, that there is no time to enter into negotiations on how to restructure the debt, and a suspension on debt payments and other capital transactions, including the freezing of domestic bank deposits, may have to be announced. While the outflows can originate in the corporate sector, a massive outflow may lead to the socialization of the debt in order to salvage the local financial system and also avoid the wholesale bankruptcy of a country's corporate sector. In such a situation a sovereign will be faced with the decision of which debt payments to suspend first, a pecking order of debt, and for what amount of time. As discussed in the previous section, this default decision will depend on the relative costs of defaulting on some debts and not others. Moreover, the sovereign needs to consider how comprehensive the suspension should be, which asset classes will be affected (bonds, loans, equity, domestic or external, etc.), whether the suspension will be voluntary or coercive, whether it is intended to be done with the implicit sanctioning of the official community, and what the implications of the suspension are for future market access. Therefore, the coverage and the magnitude of debt payments suspended can vary between delaying one payment on Paris Club debt, leaving the external private sector debt intact, full-scale imposition of capital controls, declaration of a corporate and sovereign standstill, and the freezing of bank deposits. The private sector creditors will react and adapt to all of these decisions for which debt payments are suspended, both ex ante and ex post.

Unilateral suspensions of domestic or foreign debt payments form a natural, but unwanted, part of all debt restructuring. They are and have been a fact of life for debt instruments. Frequently, the actual time it takes for a sovereign or a corporate to launch a restructuring offer for either its bonds or its loans means it may have to actually enter default and risk collateral damage in so doing, before a successful restructuring has been completed. Collateral damage in this case could result in an inability to borrow internationally and domestically, the triggering of cross-default clauses with the debtor losing control over the debt restructuring process, a grab race for assets prompting a fire sale, loss of investor and domestic confidence,

collapse in the secondary market value of the debt, disruptive litigation, and a broad-based rush to the exit, triggering large capital outflows by both domestics and foreigners. These potential side effects of entering into default by declaring unilateral suspension have led a number of observers in both the official and academic communities (see Eichengreen, 2000, for an overview) to suggest a more predictable framework to manage suspensions, taking as an example the U.S. corporate bankruptcy context (how a sovereign can be forced to accept the court's decision, unlike in the corporate context, is a nearly insurmountable problem). There have been many suggestions (see IMF, 2000c, for a brief overview). Among them are setting up an international bankruptcy court replicating U.S. Chapter 11 bankruptcy protection for sovereign debtors; giving the IMF the right to declare a stay on litigation and declare temporary payment suspensions; or officially, explicitly or implicitly, sanctioning debt payment suspensions by allowing the IMF to lend into private sector arrears.

While all of these proposals take the current state of play with potentially damaging ad hoc payment suspensions as given, few of the recent studies consider that for some types of creditors there is an advantage in having an unpredictable and uncontrolled payment suspension procedure in place, because it increases the debtor's cost of default. Furthermore, few observers have considered what is the potential impact on the structure and level of international capital in a world where the official sector is increasingly willing to sanction debt payment suspensions.[5] As indicated in Section I, a more orderly framework for payment suspensions may have a similar effect on private sector adaptation, such as that of reducing the cost of default in Figure 2. Whether a more orderly framework will be welfare increasing or welfare reducing clearly depends on whether one believes that the current cost of default imposed on debtors is beyond the range where more risky projects can receive new financing if the cost of default is increased.

Issues Regarding Orderly Payment Suspensions

The advantage of payment suspensions for the debtor in crisis, at least in theory, is that they can lock in both foreign and domestic private sector capital in a given country for a limited time period by restricting net capital outflows. From the official community's point of view, the main policy challenge has been viewed as whether and how payment suspensions should be officially sanctioned and whether a predictable framework for their imposition is needed. There are several variables that will affect the impact of more frequent payment suspensions. Four are described here.

Can Payment Suspensions Be Voluntary?

It is likely that payment suspensions will have the least effect on the future structure of international capital flows if they are voluntary—that is, forbearance by a certain creditor group in return for some "sweetener." The inherent problem with the voluntary approach is that it is similar to raising new money. If a country suffers from only

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[5]Some exceptions are IMF (2000b) and IMF (2000c).

a temporary debt service hump and asks some creditors to forgo debt service payments during that hump in return for a larger debt service payment later, the debtor could decide to issue a new bond rather than declare a payment suspension for a certain creditor. Hence, sovereign debtors will not declare a payment suspension in cases where they are facing a pure liquidity problem, because raising new debt is a realistic option and a better choice. For example, there would be no reputational loss and no risk that the debtor opens itself up to, say, litigation threats.

If market access has been lost, and a payment suspension may be the only option, it is hard to see how it can be completely voluntary. At a minimum there is at least a need for a credible threat of default to encourage some creditors to agree to a payment suspension. In a situation when solvency concerns as well as liquidity concerns are important, the value a debtor can offer a creditor in a voluntary payment suspension negotiation would be through arbitrarily making that creditor's claim de facto senior to that of other creditors.[6] Hence, in this scenario the sweetener needed to reach a voluntary agreement with one creditor group will occur at the expense of another creditor group. However, this is analogous to issuing either secured debt or very short-term debt. Voluntary payment suspensions also allow for the asymmetric treatment of creditors with limited potential ramifications down the road. Partially voluntary or coercive payment suspensions may have to be comprehensive across at least all foreign currency creditors, whether domestic or senior, in order to avoid the creation of new seniority structures.

Coordination Problem?

In the cross-border emerging corporate borrowing context, voluntary payment suspensions have been quite common for both bonded debt and syndicated lending. The presence of a well-established bankruptcy procedure and creditor protection, in order to avoid asset stripping, makes voluntary payment suspensions more credible and easier to negotiate. In the sovereign context there is no bankruptcy court, and therefore it is natural to expect that voluntary payment suspensions will be harder and costlier to negotiate. The direct costs of reaching a payment suspension agreement with a group of creditors will depend on both the maturity of their claims and how other creditors are being dealt with.

- Longer-term creditors will be unwilling to agree to a payment suspension if their forbearance is being used to bail out shorter-term creditors. Unlike the situation in the 1980s, when the long-term and short-term creditors were the same group of banks and could be more easily coordinated, the current creditor dispersion will make coordination much harder. Moreover, the very nature of the causes of the crisis will have an effect on the feasibility of reaching a payment suspension agreement. For example, longer-term creditors may be more willing to accept a pause in debt service if they believe that the pause will be used to enact reforms that increase the likelihood of better debt service performance in the future.

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[6]For example, in return for its forbearance, a creditor will either receive ancillary business if it is a bank or have its claim's obligor status be upgraded to that of the sovereign rather than that of a corporate (see, for example, the description of the Korean crisis experience in IMF 2000b).

However, to agree, these longer-term creditors will ask for some sort of sweetener. The attractiveness of the sweetener, however, will be a function of whether the country is illiquid or insolvent—that is, it will depend on the magnitude of the creditor concession required. In cases where the size of the sweetener demanded by creditors to agree to a voluntary payment suspension is larger than the country's medium-term debt servicing capacity, a voluntary payment suspension could not be arranged unless it is expected that the "residual," the gap between the sweetener and the debt service capacity not covered, is supplied by a third party—for example, the official community.

- Furthermore, the size of the sweetener is likely to be affected by the comprehensiveness of the payment suspension. If only long-term investors are asked to participate, for the implicit benefit of the short-term investor, then the sweetener will most likely be upsized to reflect this.

- Shorter-term creditors will be costlier to persuade to participate voluntarily in a payment suspension. In situations where this group of investors is fairly small, they will face the decision of either running now and receiving the full par value of their claims, or running later and receiving either a recovery value (because a possibility exists that the sovereign will be in default even after the agreed upon payment suspension period ends) or the par value plus some sweetener. Hence, short-term creditors could potentially agree to a payment suspension if the sweetener is large enough, and in contrast to longer-term creditors, for them the present value of the sweetener offered has to exceed the par value of the short-term credit.

What If Payment Suspensions Are Not Voluntary?

Partially voluntary or coerced noncomprehensive payment suspensions are more likely to have an impact on the structure and level of international debt flows because, by definition, various groups of creditors are more or less likely to be amenable to moral suasion or coordination. If, for example, one group of creditors is more likely to be successfully subject to moral suasion and hence persuaded to participate in a payment suspension for a nonvoluntary sweetener, that creditor group is likely to adapt and in the future make sure to reduce its vulnerability by either charging a higher fee up front—that is, incorporating the moral suasion risk in its initial lending decision—or reducing the amount of capital it actually lends and thereby its exposure (similar to the analysis behind Figure 2). Hence, a partially voluntary payment suspension may be successful in resolving one particular crisis, but it may soon lose its usefulness as an instrument because credit flows are likely to be increasingly channeled through the creditor groups that are less amenable to moral suasion.

In a worst-case scenario, where a sovereign debtor is insolvent and broad-based capital flight is occurring, the debtor may have no choice but to resort to declaring a unilateral payment suspension. Extending the scope of payment suspensions to most private creditor groups, as well as freezing, in this example, bank deposits, may give some breathing space to the sovereign debtor and also avoid an asymmetric treatment of creditors. Thus, making the payment suspension

comprehensive would close all potential capital outflow channels and treat all private creditors symmetrically. By not favoring one asset class over another, this approach limits the incentives for the private creditors affected by the payment suspension to create senior debt farther down the road.

Should Some Private Creditors Be Treated as Senior?

Arguments have been made that some private sector creditors should receive preferential treatment when a payment suspension is imposed. Notably this discussion has focused on trade credits or new money extended to the sovereign during a crisis. However, the experience of the 1980s provides some useful examples on how the private sector will adapt if certain debts are treated preferentially. The example of the impact of the 1980s restructuring experiences on sovereign syndicated lending was mentioned earlier. Another lesson from the 1980s was that in many cases trade financing was excluded from loan renegotiations, giving creditors and debtors a natural incentive to structure future general purpose credits in the form of trade credits (Buchheit, 1991). With respect to new money, the motivation for treating it as senior is often said to be that it is in all creditors' interest to make sure that the country can still get access to capital in order to limit the output losses that occur during the crisis. This is not necessarily true. As mentioned in Section I, output losses may be the only effective disciplining device creditors have available to ensure repayment. New money shifts the bargaining strength somewhat toward the debtor. Hence, it is not clear whether all private creditors necessarily favor the approach of making new money senior.

Payment Suspensions and the Composition of Cross-Border Debt Flows

As mentioned above, partially voluntary or coercive payment suspensions that are not comprehensive—that is, one creditor group is treated more favorably than another—are very likely to lead to a change in the composition and level of debt financing flows to emerging markets in the future. While this primarily affects the recovery value of debt instruments, some have argued that a benefit of more frequent imposition and official sanctioning of payment suspensions is to make short-term debt less attractive and long-term debt more attractive. This line of reasoning assumes that the incentives of longer-maturity debt are more similar to those of the sovereign debtor and of the official community. For example, temporary payment suspensions on only short-term debt could perhaps still allow the sovereign to service its long-term debt. Unfortunately, however, when a country starts moving toward a crisis situation, the maturity of its debt stock will most likely shorten, for three reasons.

- One reason is that foreign creditors will almost by definition be unwilling to take long-term exposure toward the country as previously long-term debt falls due.
- Second, this unwillingness by foreign creditors to extend new long-term credit will lead to an upward sloping yield curve, making long-term borrowing for

the country very costly. This would encourage a shift by the debtor to borrow through shorter-term instruments. As more and more creditors offer shorter-term loans at increasingly higher interest rates, the yield curve of the sovereign is likely to widen as well as flatten. Eventually, when a debt service interruption becomes imminent, the yield curve of the sovereign debtor will invert, with markets pricing in a very high risk of default in the short end.

- The third reason is that a payment suspension on debt amortizations, where the sovereign still makes interest payments, may lead to default on longer-term bonds or loans that are amortizing or to the nonpayment of principal of initially long-term debt that matures within the payment suspension period. In such cases, the payment suspension could trigger cross-default clauses on other longer-term debt as well. Longer-term creditors will then have to decide whether they want to accelerate their debt and be treated the way the short-term creditors in the resolution are treated, or whether they want to keep their acceleration option open as long as their debt is still being serviced. Shorter-term creditors may also demand, as a condition to agree to a restructuring, that longer-term creditors be brought to the negotiation table.

Implications

The higher likelihood of a payment suspension, and thereby the reduction in both the cost of default and perhaps also the recovery value, may encourage a shift in the maturity structure of debt toward the shorter end of the spectrum, as creditors move to protect themselves. This can be done, for example, by providing financing only in the overnight market, to ensure a withdrawal before a payment suspension becomes operational. Hence, if the main benefit of having more orderly and officially sanctioned payment suspensions is to reduce the reliance on short-term debt, it is worth noting that it may create the reverse result, encouraging creditors to lend at even shorter maturities to ensure that they get their money out. Indeed, one interpretation of the 1980s debt crisis resolution is that a similar dynamic was at work when bank lending shifted, following the resolution of the crisis, from mainly medium- and long-term maturities to short-term interbank debt. Maturities shorter than that of interbank lines would severely restrict the effectiveness of a payment suspension.

III. Bond Exchanges and Private Sector Adaptation

Facing a situation where a payment suspension, whether comprehensive or not, looks likely, a sovereign debtor could try to approach its bondholders to discuss reprofiling the bond payments to avoid the actual imposition of a payment suspension and a subsequent default. As discussed before, truly voluntary agreements will be uncommon because true liquidity crisis situations will be hard to distinguish from solvency ones, and the outcome of any bond restructuring or reprofiling discussion after market access has been lost will be determined by the

credibility of the sovereign's default threat. During the past year or so there have been defaults on both sovereign eurobonds and Brady bonds,[7] and bond exchanges of defaulted or nearly defaulted bonds have been completed by Pakistan, Ukraine, Ecuador, and Russia (IMF, 2000b).

The ease and success of the recent bond exchanges have surprised many observers. The reason for the surprise was that eurobonds and Brady bonds were believed to be technically hard to restructure, both for legal reasons (for example, it requires unanimity and it raises the threat of litigation) and for practical reasons (for example, restructuring requires the identification and coordination of thousands of bondholders). It may, however, be too early to draw conclusions about the applicability of recent bond exchanges for future bond restructurings because the cost of default, λ, may have been lower than previously expected and creditors will seek new forms of debt instruments with a higher λ and/or RV, shifting emerging market borrowing and lending decisions to a new equilibrium where financing may be reduced or more costly. Moreover, the impact on already issued bonds will also reflect a certain adaptation to the new circumstances of lower or higher λ or RV. The following are three examples.

- Private creditors will adjust upward the price at which they are willing to participate in future bond exchanges if they view recent experience as indicating that emerging market bond recovery value estimates were too low. As shown in equation (9), a higher RV would increase the price of existing debt, making it harder to offer large sweeteners. For future lending decisions, according to the model, a higher recovery value will reduce in equilibrium the probability of default, for the same debtor, and would be beneficial for both debtors and creditors because more risky sovereign debtors would receive financing.

- While the success of recent bond exchanges has put into question creditors' cost of default estimates—that is, the cost of default may be lower than previously anticipated—a more broad-based introduction of collective action clauses or the use of exit amendments may reduce the cost of default even further. However, recent successful litigation (e.g., Elliott Associates against Peru) could indicate that the threat of litigation has been underestimated. It may actually make bond exchanges more costly in the future and work in the opposite direction from the initiatives of making bonded debt easier to restructure.

- Private creditors are likely to adapt the structure of their lending vehicles in ways such that restructuring and creditor coordination may be more difficult in the future.

The next subsection discusses the impact on existing sovereign bondholders of the recent experiences of easier than expected bond exchanges. Changes in recovery value and cost of default estimates by these bondholders will have a key bearing on whether bond restructurings will be as easy to complete in the future. After this discussion, and using the basic model as a background, the second subsection will discuss the impact of collective action clauses, exit amendments, and the renewed

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[7]As several authors have pointed out, for example Eichengreen (1999) and Petas and Rahman (1999), defaults on international bonds have been frequent, historically speaking, especially in the 1930s. In 1999, Ecuador was the first sovereign to default on both eurobonds and Brady bonds.

litigation threat on both existing bonds and the future lending/borrowing equilibrium. The last subsection will go further toward reflecting over how the bondholders could adapt in a new equilibrium by changing the structure or terms of their lending.

Impact on Outstanding Bonds and Bond Restructurings

In evaluating bond exchanges, different investor groups will have different reaction functions. Mark-to-market investors, having borne the full brunt of the fall in secondary market price of the to-be-exchanged bonds, tend generally to compare the net present value (NPV) value of the exchange offered (at some discount rate) with the current market price of the to-be-exchanged bonds and with the recovery value of not participating in the exchange. In the simplest case, if the NPV of the exchange bond is higher, taking into account the likelihood that the exchange will succeed and the haircut in terms of a potential debt write-off, then the holder of the to-be-exchanged bond has an incentive to tender its bonds in the exchange. This is the way most fund managers would rationally respond. For commercial banks a similar response function is less likely because they generally do not mark-to-market all of their investment portfolios, but make a reasonable approximation. The response function of retail investors is much more uncertain; their tender decision may be based less on an NPV comparison than on whether they have to participate in a debt write-off.

The recent successful bond exchanges have involved some form of sweetener (see Table 1). For example, the post-announcement price has been 10–30 percent higher than the pre-announcement price, with the exception of Pakistan. In Russia, the sweetener was enhanced with the upgrade in the obligor to that of the sovereign. Large sweeteners have also reduced the incentive in many cases for at least mark-to-market bondholders to litigate, because capturing the sweetener provides an immediate gain, while the outcome from litigation is uncertain and time-consuming.

The limited experience to date with external bond exchanges required that several key parameters of the debt pricing equation presented in equation (3) and the cost of default were "guesstimated." For example, without much empirical basis the recovery value had consistently been estimated at 18–20 cents on the dollar for sovereign eurobonds. If the recovery value is actually much higher—for example, close to the average recovery value in the U.S. high-yield sector (47 cents on the dollar with an average 2.1 years for collection)[8]—market prices of bonds that were in default would shoot up, as reflected in equation (9), to reflect the new revised estimate of recovery values. It may be that low recovery value estimates were one reason that prices post-announcement could credibly be substantially higher than prices pre-announcement in all of the recent bond exchanges with the exception of Pakistan. In Pakistan, the actual number of bondholders was limited and fairly well known in advance, and the high share of locally connected investors reduced the necessary size of the sweetener.

In addition to the size of the sweetener, enhancing recovery values further is the speed of curing the default (this would also reduce the cost of default to the debtor,

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[8]See Rappoport (2000) and Rappoport and Xu (2000) for a much more detailed discussion on the sensitivity of emerging market and U.S. high-yield bonds to default probability, recovery value, and other assumptions.

Table 1. Market Reactions to Recent Bond Exchanges

(in percent)

	Date of Default	Exchange Announced	Exchange Completed	Listing Price	Price Day After Default	Price Week Before Announcement	Price Week After Announcement	Price at Completion	Face Value Write-off	Completion/ Listing Price	Post-Announcement/ Pre-Announcement Price	Completion/ Pre-Announcement Price
Pakistan												
6% USD 2002 eurobond	no default	11/15/99	12/6/99	100.0	...	58.3	60.4	63.6	0	−36	4	9
Ukraine												
16% DEM 2001 eurobond	1/20/00	2/4/00	4/7/00	100.0	50.0	55.5	67.0	81.5	0	−19	21	47
Russia												
Prins	12/2/98	2/11/00	8/17/00	57.8	6.5	18.5	24.4	32.0	−38	−45	32	73
Ians	6/2/99	2/11/00	8/17/00	67.2	10.0	21.1	25.0	32.8	−33	−51	19	55
Ecuador												
Brady Par Bond	11/28/99	7/27/00	8/11/00	27.4	35.8	35.5	39.5	39.5	−60	44	11	11
Brady Discount Bond	8/28/99	7/27/00	8/11/00	47.0	34.4	37.0	46.7	46.7	−42	−1	26	26
Brady PDI Bond	2/28/00	7/27/00	8/11/00	27.0	23.5	25.3	30.5	30.5	−22	13	21	21

Note: Bonds presented are not all of those restructured. Prices are ask and include accrued interest, when bond is in default. For Pakistan accrued interest is estimated. Default is the date of the first missed coupon payment, except in the case of Ukraine, where the default reflects the missed amortization on its October 2000 eurobond.

so the net effect in equilibrium may be ambiguous). The experience from recent bond exchanges suggests that they were completed much faster than expected (one to two years compared with the lost decade of the 1980s debt restructurings), and in one case the exchange was even completed before the actual default occurred (Pakistan). Bond exchanges are not guaranteed to succeed, however, and significant deal risk may remain even after they are announced, but overall the probabilities of success for the recent exchanges once announced have been very high,[9] in part reflecting the large mark-to-market gains inherent in the offers for tendering bondholders (see Table 1).

Recent exchanges, such as the one in Ecuador and Ukraine, have taken a "carrot and stick" approach to encourage bondholders to tender into the exchange. The adaptation of private creditors' expectations of recovery will make it more difficult to offer similar carrots (i.e., large mark-to-market gains) in the future. For example, if the recovery value following default is now believed to be consistently higher than before, secondary market prices will actually not fall as low as they did, for example, in the Russian case, and hence offering as attractive a sweetener may not be credible from a debt-service capacity point of view. Therefore, it remains to be seen whether the experience with recent bond exchanges is useful in determining whether future bond exchanges will be equally successful. These bond exchanges have managed to address very successfully some of the issues with regard to the technical aspects of how to restructure sovereign bonds that were unknown before. By doing so, these exchanges have firmly pierced the "halo" that was previously believed to surround eurobonds and Brady bonds. It remains to be seen whether the private sector adapts by switching to harder-to-restructure lending instruments.

Cost of Default, Legal Innovations, and the Threat of Litigation

The recent bond exchanges by Ecuador, Pakistan, Russia, and Ukraine are generally regarded as successful in terms of having obtained a high degree of investor participation while avoiding creditor litigation. The keys to success of the voluntary exchanges have been the sweeteners provided. As discussed above, when the market adjusts its expectations for recovery values it will become more difficult to offer such sweeteners in the future, and the threat of litigation may increase. The experience of recent bond exchanges and their success, together with the official community initiatives to increase the prevalence of collective action clauses[10] (CACs), raises the ques-

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[9]This can be determined by looking at the differential between the price of the new exchange bond when issued (basically forward contracts on the new bond) and the price of the old to-be-exchanged bond. A small differential implies that investors believe the exchange will succeed. When-issued markets existed in all four bond exchanges.

[10]The clauses commonly referred to as CACs are as follows: a majority action clause (allowing a qualified majority of bondholders to bind a minority); a sharing clause (stating that any funds received through, for example, litigation by one bondholder have to be shared with the other bondholders based on their share of the outstanding bond); and a collective representation clause (allowing a trustee, for example, to represent bondholders, facilitating majority actions). CACs can facilitate creditor-debtor negotiations because they reduce both the threshold needed for achieving a restructuring agreement (the majority action clause) and the potential threat of litigation from "holdout" creditors (reducing their incentive to litigate through the sharing clause). Bonds issued under English law typically include CACs. These clauses are not regularly contained in bonds issued under New York law.

tion of whether these events have an impact on the cost of default and how it will affect the future emerging market borrowing/lending equilibrium.

Collective Action Clauses and Exit Consents

As discussed in IMF (2000b), the actual usefulness of CACs in bond exchanges has been limited.[11] For example, it appears to have been less difficult than anticipated to organize and locate individual bondholders and to offer them an exchange. Moreover, the value of CACs as a threat to encourage bondholders to tender in an exchange seems secondary. As discussed earlier, it was the large carrot (sweetener), rather than the stick, that clinched the exchange deals. However, there is at least one example of CACs being used as a stick. Ukraine dealt with potential holdout creditors within the context of its voluntary exchange offer by making use of the CACs embedded in three of the four affected bonds, after a substantial majority had agreed to the exchange. Experience would therefore suggest that the main usefulness of CACs is that they effectively limit litigation, while exit consents[12] can be used to increase the success and ease of any bond restructuring.

The more widespread use of both CACs and exit consents has the potential of reducing the cost of default for the debtor, increasing the possibility of a strategic default, with a subsequent shift in the lending/borrowing equilibrium (from A to B in Figure 2). Again, as was the case with the payments suspension discussed earlier, the actual outcome on the level of financing flows will depend on whether the preceding cost of default was binding. For example, if creditor moral hazard is ignored, and if the cost of default would be binding and allow for the maximum amount of financing to emerging market sovereign in equilibrium (in Figure 2 this would be consistent with a $\lambda = 10$ percent), any reduction in the cost of default would lead to a reduction in financing available to more risky emerging market sovereigns, thereby reducing welfare. Because more than 60 percent of the J.P. Morgan EMBI+ benchmark index is compromised by issuers below investment grade, it is likely that these are also the debtors most sensitive to changes in the cost of default. The impact on flows to emerging markets could be substantial. Note, however, that this effect, according to the simple model, would not show up in the spreads or coupons the debtors have to pay. If strategic default is becoming increasingly likely for a debtor, no creditor would extend financing at any realistic interest rate. Moreover, higher quality debtors would be unaffected. In terms of empirical evidence (see IMF, 2000a), there is some evidence that bond financing

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[11]Empirical work, however, suggests that collective action clauses tend to reduce the cost of borrowing for some borrowers. See, for example, Eichengreen and Mody (2000), and for a more critical assessment Becker, Richards, and Thaicharoen (2000).

[12]The use of exit consents is a strategy that, similar to CACs, can be employed to provide the stick in a bond exchange and induce bondholders to participate in the exchange by changing key nonpayment terms and thereby reducing the value of the old bond after the exchange has been completed. The main advantage of exit consents is that they can be used in bonds that otherwise would require unanimity to change any of their payment terms, and they can thereby replicate some of the features of CACs. Exit consents in a sovereign New York law bond were first used in Ecuador. See Buchheit and Gulati (2000) for an insightful discussion.

to emerging market sovereigns remains ample, and only the lowest, such as single-B minus creditors, are shut out of the market.

The Litigation Threat

One of the major deterrents to creditor litigation has been the difficulty of attaching sovereign assets. First, many assets can quickly be hidden if the sovereign believes them to be at risk. Second, U.S. case law suggests it may be difficult to attach significant assets even in the case of a favorable ruling. However, the prevailing belief that litigation remained a rather limited threat may change because of the recent success of Elliott Associates in its case against Peru (see Lindenbaum and Duran, 2000).

If sovereign litigation as an alternative becomes feasible and economical for creditors, they will have a further tool to counteract any reduction in the cost of default. Surprisingly, as shown in Figure 2, the subsequent increase in the cost of default may be welfare enhancing for some parameter values. Some litigation may therefore be a good thing, depending on what the overall cost of default is, and may put a limit to other forms of creditor adaptation by changing the form of the lending instrument.

Changing the Structure of the Eurobond Market

In the same way creditors adapted to the restructuring experiences of the 1980s by changing the structure of their lending vehicles through increasing the cost of default or reducing their lending by charging a higher interest rate up front, following the recent bond exchanges there may be incentives for private sector creditors to again adapt so as to avoid the shift to a low financing equilibrium (B). Increasing the seniority of the lending instruments by increasing λ or RV also has value to avoid default or to have an improved claim in a restructuring situation. A creditor can increase the seniority of its claim in a number of ways—through requesting up-front collateral, seeking private or public sector guarantees, or changing the ownership and voting structure of the creditor (many more are possible).

- As mentioned in the introduction, there may be an increased demand among creditors for lending vehicles that are collateralized by the borrower with cash flows or real assets that can be captured outside the debtor country's borders and hence could easily be transferred into the control of the creditors in the event of a default. The two main types of collateral that a sovereign could pledge would be its foreign exchange reserves or future export revenues[13] of its state-owned companies, such as oil or telecom. By definition the amount of collateral available to be easily pledged limits the use of collateralized borrowing for the debtor. While there are significant amounts of quasi-sovereign collateralized bonds outstanding, none of these collateralized bonds has yet been restructured. Specifically, it is not certain how one would actually

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[13]Rating agencies assign future flow securitizations substantially higher ratings (up to four notches in some cases; see Standard & Poor's, 1999) as the political and transfer risk of these types of debt is mitigated by their structure. In emerging markets, major examples of issuers using future flow securitizations are PdVSA and PEMEX (Venezuela's and Mexico's oil companies).

go about restructuring these bonds and asking the creditor to take a significant haircut. In the case of Pakistan, one eurobond that was not involved in the restructuring was a government-guaranteed Pakistani Telecom bond, which was collateralized by the future export earnings on incoming international telephone calls. According to Standard & Poor's (1999), the structure of the Pakistani Telecom bond showed the resiliencies of these types of transactions, and if default occurs, recovery values will be very high because creditors can access the collateral, which is usually placed in an offshore trust.

- An alternative would be lending guaranteed by either official or private insurance entities. For example, by making its lending conditional on the presence of a World Bank "policy-based guarantee," a lender should be able to make itself more immune to risks of unwanted PSI. Argentina, for example, issued policy-based guarantee bonds in October 1999, and Colombia is considering raising part of its financing in 2001 through the use of such World Bank–guaranteed bonds. Other public guarantee programs such as the International Finance Corporation's B-loan program, and that of other international finance institutions, effectively extend the preferred creditor status of these institutions to private creditors. In such cases, it is not clear how these bonds would be restructured.

- By definition the use of collateralized borrowing is limited to corporations and could be relevant to the sovereign in the case of large export-oriented state-owned companies, which the sovereign can use for its borrowing purposes. Hence, there would be incentives to find additional ways of lending money where the security from trying to avoid PSI stems from how the lending transaction is structured. It would be possible, for example, to repackage bonds and loans through the use of collateralized bond obligations (CBOs) or collateralized loan obligations (CLOs) and separate the legal ownership of the debt instrument, and hence the power to vote to participate in a debt exchange, from the stream of payments accruing in such a way that it would be extremely difficult to find a representative of the actual creditor lender with the right to decide on participation in the exchange on behalf of the CBO/CLO. The point is not that it would be impossible to restructure a CBO and CLO, but that it is more difficult, adding to the cost of default for the debtor if it decided to default on debt instruments that are predominantly held by CBOs and CLOs.

These are some of the potential adaptations that bondholders could opt for. The simplest one, of course, is to increase the borrowing cost for the debtor. But it may be in both the creditors' and sovereign debtors' interest to race up the seniority ladder in order for more debtors to find cheaper financing and for the creditors to protect themselves. It is not clear whether such a seniority race is in the interest of official creditors, both bilateral and multilateral.

IV. Implications and Conclusions

Efforts at crisis resolution that succeed in reducing potential inefficiencies and instability in the international financial system are in the interest of both the private and the public sectors. In the absence of clearly established rules of the game, the approaches adopted toward crisis resolution, and the extent to which

they are interpreted by market participants as setting a precedent, can have profound implications for the workings of the international financial system and the nature and structure of international capital flows.

A key lesson from the 1980s is that as particular lending instruments are involved in restructurings, the private sector will seek out new instruments that increase the probability of repayment and are insulated from restructurings. The large-scale restructuring of syndicated bank loans in the aftermath of the 1980s debt crisis, while leaving eurobonds untouched, provided an important impetus to the use of the international bond market for emerging market borrowers. The experience with concerted interbank rollovers in Korea, Indonesia, and Brazil has shed some light on how the private sector will adapt to an increase in the frequency of payment suspensions. The expectation by the market that this will be the case will likely lead at least some international banks to cut their lines and run early in the face of an imminent crisis.

Experience following the most recent string of crises has firmly pierced the halo surrounding international bonds. This experience with bond restructurings will likely lead bondholders to update their estimates of key variables, such as the cost of default and the recovery value, making recently successful bond exchanges less useful as predictors of the success or failure of future bond exchanges. A key question about the welfare effects of recent official sector crisis resolution initiatives is whether the current cost of default is too high, and whether welfare can be gained by reducing it, or whether it is in the intermediate region where a reduction would lead to a loss in welfare. Moreover, it is natural to expect that, as bond restructurings become more common, private sector creditors will increasingly try to structure debt so that it is harder to restructure, for example, by issuing securitized or guaranteed debt or adopting investor holding structures that are difficult to negotiate with.

Such private sector adaptation to official sector crisis resolution initiatives, as discussed above, may not be costless, and they will lead either to increased borrowing costs for the debtor or to more short-term and rigid debt structures, as the sovereign debtor tries to offset increases in borrowing costs by agreeing to borrow through ever more advanced and renegotiation-proof structures. Either way, the net effect on emerging market capital flow may be negative, especially for the lowest quality sovereign borrowers.

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