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HAS THE MARKET SOLVED THE
SOVEREIGN-DEBT CRISIS?

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AND

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INTERNATIONAL FINANCE SECTION

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IN INTERNATIONAL FINANCE

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CONTENTS

1	INTRODUCTION	1
2	SOVEREIGN-DEBT STRATEGY SINCE 1982	3
	The Problem	3
	The Baker Plan	6
	The Brady Plan	9
	Official Debt Relief	13
3	THE RATIONALE FOR RELIEF	17
	Liquidity Relief	18
	Debt Relief	21
	Combining Liquidity Relief and Debt Relief	24
	Illiquidity or Disincentive Effects? The Empirical Evidence	26
4	MARKET-BASED DEBT RELIEF OR AN INTERNATIONAL DEBT FACILITY?	28
	Buybacks, Exit Bonds, and Debt-Equity Swaps	29
	MDR and Appropriability	34
	MDR and Induced Investment	38
	Replacing the Market with an International Debt Facility	40
5	THE PERFORMANCE OF THE BRADY PLAN	45
	The Brady Plan and Heterogeneous Creditors	45
	Was the Brady Plan Successful?	50
	Burden Sharing	53
6	CONCLUDING REMARKS	56
	APPENDIX: CAN DEBT-EQUITY SWAPS BENEFIT DEBTORS AS WELL AS CREDITORS?	58
	REFERENCES	62

FIGURES

1	Debt Ratios by Region, 1980–1993	4
2	Net Transfers on Debt, 1986–1993	7
3	Real Aggregate Net Resource Flows to All Developing Countries, 1981–1993	8
4	The Debt Laffer Curve	24
5	Liquidity and the Debt Laffer Curve	25
6	Secondary-Market Debt Prices	53

TABLES

1	Exposure of U.S. Banks in the Debtor Countries, 1982–1988	6
2	The Brady Plan and Related Agreements, 1989–1996	13
3	Debt in Arrears in Developing Countries, 1988–1992	22
4	Debt Conversions, 1985–1994	30
A-1	Impact of Equity Conversions, 1988	60

1 INTRODUCTION

Since the beginning of the developing-country debt crisis in mid-1982, economists have puzzled over its origins. Why did market forces not deter creditors from lending and debtors from borrowing so very much more than could, in retrospect, be repaid? Moreover, once the crisis was under way, why were market forces apparently unable to resolve it on their own? Why was nonmarket intervention employed? Was such intervention rational on *ex ante* theoretical grounds? Was it justifiable on *ex post* empirical grounds?

By mid-1992, the crisis appeared to have been resolved, at least for the commercial banks and for most of the large, middle-income debtors in Latin America (“Until the Next Crash,” 1992). But matters were not resolved solely through an invisible hand coordinating the individually motivated interests of debtors and competitive commercial banks. Officialdom intervened at every turn: central banks exerted pressure; governments cajoled; and the international financial institutions (IFIs), the International Monetary Fund (IMF) and the World Bank, played increasingly central roles. Their actions culminated in the Brady Plan of 1989.¹

Association does not prove causation, of course, and it is possible that the crisis might have resolved itself without intervention. We believe otherwise, however, and shall present analytical arguments and empirical evidence to buttress our case. Because these arguments constitute a central theme of the last decade’s rather substantial literature on debt relief, this study might serve as a beginner’s guide to that inquiry. We stress, however, that it is not an exhaustive review of the literature.²

We have organized our study as follows. Chapter 2 reviews the history of the crisis and the main official strategies used to cope with it. Chapter 3 examines the rationale for liquidity and debt relief, as

We thank several anonymous referees for comments.

¹ For a tongue-in-cheek view of officialdom’s role, see Dean (1992).

² We make no attempt, for example, to cover topics relating to the interaction between debt and growth or to optimizing models of borrowing. Eaton (1993) surveys such dynamic issues, and his analysis may be viewed as complementary to this paper.

well as evidence regarding their effectiveness. Chapter 4 compares market-based debt relief (MDR) with an international debt facility (IDF).³ Chapter 5 assesses the performance of the Brady Plan and analyzes the conditions under which the burden of debt and liquidity relief is equitably shared between official and private creditors. Chapter 6 offers concluding remarks.

Our discussion considers the central themes or puzzles that have emerged as theory and practice have gradually formulated an agenda to deal with the crisis. These may be summarized as follows:

- (1) To what extent are debtors' repayment problems a result of illiquidity (manifested by credit rationing) as opposed to insolvency (manifested in a "debt overhang"), and is the distinction meaningful?
- (2) Should creditors and IFIs provide liquidity relief, debt relief, or both? Why throw good money after bad or forgive debt obligations? Can liquidity relief or debt relief ever benefit creditors?
- (3) Can MDR overcome the free-rider barrier to voluntary debt relief by individual creditors? If not, are there advantages to establishing an IDF to coordinate mandatory write-downs?
- (4) What explains the contrasting experiences of different MDR schemes? Why did debt-equity swaps flourish without official coordination, whereas buybacks and exit bonds did not?
- (5) Can a strategy like the Brady Plan, combining concerted action with MDR schemes, preserve the advantages and mitigate the disadvantages of the pure-market and purely concerted approaches to debt relief?
- (6) Do Brady and similar initiatives efficiently allocate the burden of debt relief between commercial and official creditors?

³ Throughout this study, we use the acronym MDR to mean "market-based debt relief." The reader should not confuse our usage with another that has recently come into vogue: MDR for "multilateral debt reduction."

2 SOVEREIGN-DEBT STRATEGY SINCE 1982

The Problem

The “debt crisis” began as a creditors’ crisis in August 1982, when Mexico declared its inability to service foreign debt. Similar announcements by Argentina, Brazil, and Chile soon followed, as did repayment problems in other Latin American countries, as well as in Southeast Asia (notably the Philippines), Africa, and Eastern Europe (especially Poland and Yugoslavia). The proximate cause for the crisis was a sharp rise in short-term interest rates, combined with a recession in the industrial world that caused export volumes to drop and commodity prices to plummet. Although several debtors—Jamaica, Peru, Poland, and Turkey—had experienced payments problems earlier, it was the 1981–82 recession induced by tight money that triggered the systemic difficulties and posed a threat to the world’s largest banks.

At that time, the major creditor banks were typically exposed to sovereign debt far in excess of their capital (Sachs and Huizinga, 1987). For example, total default by Argentina, Brazil, and Mexico alone would have bankrupted several of the nine money-center U.S. banks. On the rationale that sovereign debtors were temporarily illiquid but not permanently insolvent (Cline, 1983), the banks responded with a strategy that combined debt rescheduling (to preserve the contractual present value of the debt) and new money (to increase the present value of the debt). But banks also raised equity, and they concentrated their loan expansion on first-world corporate rather than third-world sovereign borrowers. Exposure ratios to third-world borrowers therefore fell. In 1985, the *New York Times* ran a headline trumpeting “The Debt Crisis is Over.” What this meant was that the world’s largest commercial banks were no longer imminently insolvent (Table 1).

The debtors’ problems, however, had just begun. Although some countries initially appeared to be growing out of their debt burdens, ratios of debt to gross national product (GNP) were rising in all indebted regions by late 1984 (Figure 1). And although the end of the recession in 1983 had reduced interest payments as a ratio to export earnings, commodity prices were softening again by 1985, and debt-service ratios were rising. Most serious of all, the banks’ initial flow of new lending had dried up, and the net financial transfer from debtors to creditors

FIGURE 1
DEBT RATIOS BY REGION, 1980-1993

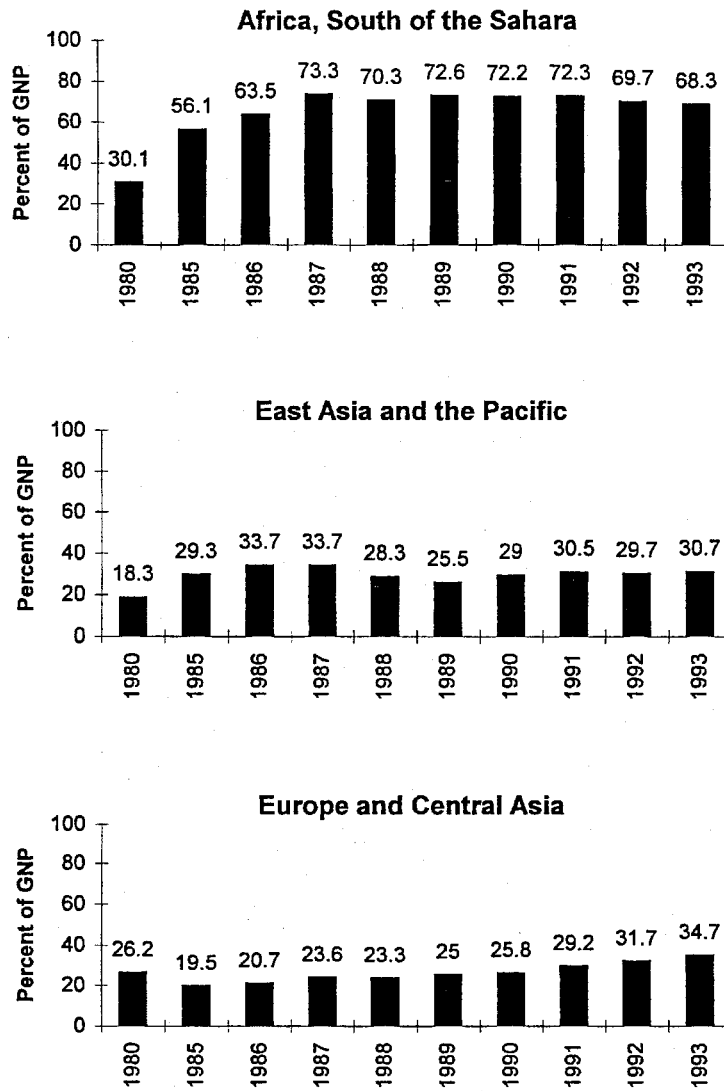
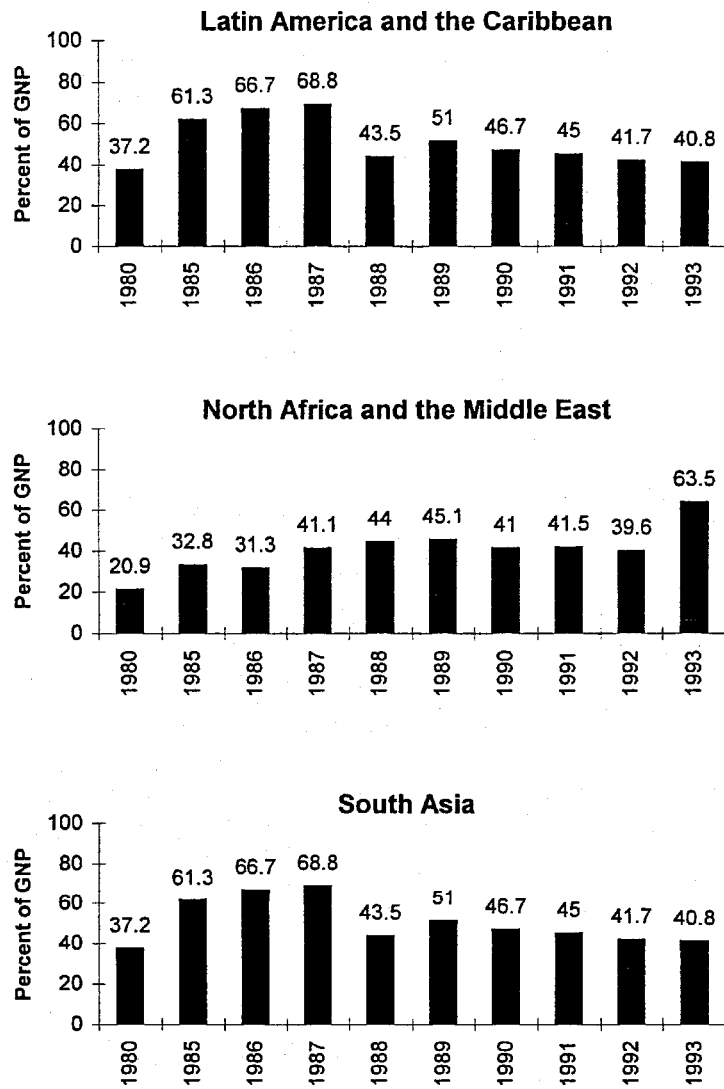


FIGURE 1 *continued*



SOURCE: World Bank, *World Debt Tables*, 1992–1994.

NOTE: Data for 1993 are based on World Bank predictions.

TABLE 1
EXPOSURE OF U.S. BANKS IN THE DEBTOR COUNTRIES, 1982–1988
(percentage of bank capital)

Region	End 1982	End 1986	End 1988
<i>All U.S. Banks</i>			
All developing countries	186.5	94.8	63.4
Latin America	118.8	68.0	47.3
<i>Nine Major Banks</i>			
All developing countries	287.7	153.9	108.0
Latin America	176.5	110.2	83.6
<i>All Other Banks</i>			
All developing countries	116.0	55.0	32.2
Latin America	78.6	39.7	21.8
<i>Total Bank Capital in Billions of U.S. Dollars</i>			
All U.S. banks	70.6	116.1	135.6
Nine major banks	29.0	46.7	55.8
All other banks	41.6	69.4	79.8

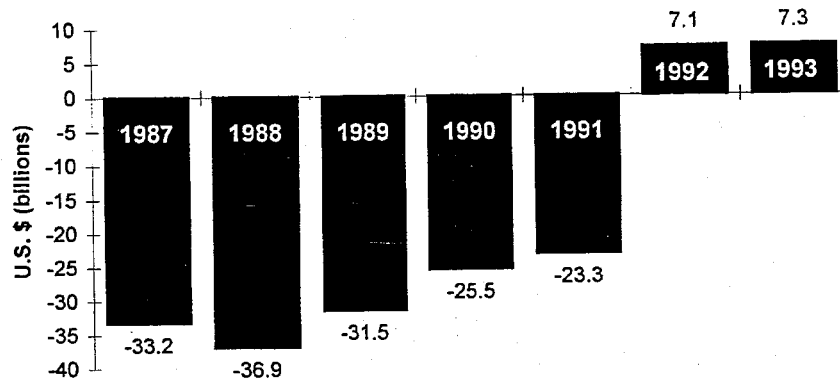
SOURCE: Federal Financial Institutions Examination Council, "Country Exposure Lending Survey," April 25, 1983, April 24, 1987, April 12, 1989; printed as table 22-11 in Sachs and Larraín, *Macroeconomics in the Global Economy*, 1993.

had turned seriously negative (Figure 2). Despite reschedulings and new money, the banks were receiving more interest and principal from developing countries than they were dispensing in new loans.

The Baker Plan

The official U.S. response was the initiative announced by James Baker, then Secretary of the Treasury, at a speech in Seoul, Korea, in October 1985. The Baker Plan called for increased bank and official lending to fifteen heavily indebted middle-income countries in return for commitments from them to adjust their economies in growth-oriented directions. This may have provided incentives for some countries to implement adjustment programs, but both official and private lending fell somewhat short of the Baker targets. By 1987, in fact, bank lending had slowed to a trickle, and official sources accounted for the bulk of new lending (Figure 3 [p. 8]).

FIGURE 2
NET TRANSFERS ON DEBT, 1986-1993



SOURCE: World Bank, *World Debt Tables*, 1990-1993.

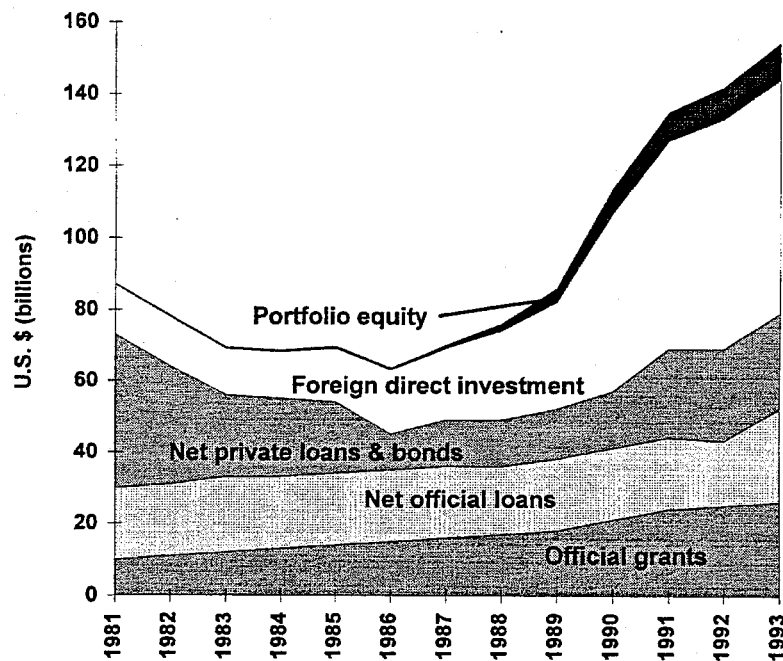
NOTE: Net transfers on debt are defined by the World Bank as new lending minus principal repayment minus interest payments.

Part of the banks' reluctance to lend stemmed from a growing divergence in interests. Regional U.S. banks had by and large eliminated their exposures and had no further "defensive" motive for new lending. European and Japanese banks were also reluctant to lend anew, in their case because they lacked the tax and reserve advantages available to American banks. Official lenders also often fell short of their Baker targets, because debtor countries had failed to meet IMF adjustment criteria. Official new-money packages for Mexico, for example, were delayed until March 1987; for Argentina, until August 1987; and for Brazil, until November 1988 (Cline, 1989).

Lending under the Baker Plan was nevertheless substantial. Over the three years from 1986 to 1988, almost \$16 billion came from official lenders (both multilateral and bilateral), and \$13 billion came from the banks.¹ In the judgment of some (notably, Cline, 1995), the official strategy of liquidity relief, as embodied in the Baker Plan, might well have sufficed to restore the principal troubled debtors to creditworthiness without resort to debt relief had two exogenous events not intervened. The first was a 50 percent fall in oil prices in the last half of 1986. This derailed the Baker strategy, premised as it was on export growth as a route toward liquidity. In particular, the debt-servicing capacities of Ecuador, Mexico, Nigeria, and Venezuela were severely curtailed. The second event was Brazil's moratorium on debt service,

¹ Here and throughout, billion equals a thousand million.

FIGURE 3
 REAL AGGREGATE NET RESOURCE FLOWS TO ALL DEVELOPING COUNTRIES, 1981-1993



SOURCE: World Bank, debt reporting system.

announced largely for political reasons by the Sarney government in early 1987. This, in turn, prompted Citibank to set aside some \$3 billion in reserves against its developing-country debt claims, an action that triggered comparable provisioning by other money-center banks, regional banks, and Canadian and overseas banks.

Reserve provisioning lay the groundwork for the market-based debt relief that was ultimately embodied in the Brady Plan. First, the banks were now able to sell debt at discount without affecting current profits. (Indeed it is remarkable that after dipping into their profits to set aside reserves in 1987, the money-center banks rang up record profits in 1988.) Second, provisioning had the (unintended) effect of driving down secondary-market debt prices. These dropped from a weighted average of 67 cents on the dollar in early 1987, to 45 to 50 cents by midyear, to a low of 32 cents in late 1989, when the Brady Plan was finally under way. According to Cline (1995, p. 214), "without the wave

of bank provisioning, the secondary-market prices would have been unlikely to fall as far as they did, and the secondary market would have been less well developed. Brazil's 1987 moratorium thus indirectly set the stage for the Brady Plan." Cline adds that "the shift in Brazil reflected primarily a downgrading in the willingness to pay, rather than any change in the underlying capacity to service external debt," a distinction to which we shall return, because we also believe the difference between ability and willingness to pay underlies both the need for the Brady Plan and the plan's apparent success.

Although several countries were reentering a period of growth by 1989, it was clear that new lending tied to structural adjustment (the Baker Plan) was not working on its own. Indeed, IFIs were reducing their disbursements, and adjustment programs were failing for lack of funding. In mid-1989, the IMF and World Bank endorsed the U.S. Treasury's Brady initiative, and official strategy broadened to emphasize debt relief by private creditors.² The Brady Plan was explicit official recognition that new lending and adjustment policies alone were insufficient to reduce the "debt overhang."

The Brady Plan

Although the collapse in oil prices, and then debt prices, may have made debt reduction necessary and affordable, political pressures, particularly in the United States were critical to prompting official endorsement of a shift in strategy. The fact that 55 percent of new lending under the Baker Plan came from official sources, and only 45 percent from the banks, was interpreted by prominent U.S. Congressmen to mean that the official debt strategy was defending the interests of the banks with public money. Much of the official lending was implicitly used to finance interest and principal payments to the banks, as evidenced by the

² We define debt relief in this study as a reduction in the present value of the stock of contractual debt-service obligations. We use the terms "debt relief" and "debt reduction" interchangeably. Other definitions of debt reduction are also used in the literature. Three examples are reduction in the expected present value of debt-service payments, reduction in external-plus-internal government-debt payments, and reduction in external payments on debt plus equity.

Official multilateral lenders had been providing modest debt relief on concessionary claims for some time. More recently, bilateral official creditors, Western and Japanese governments, have begun to endorse increasingly generous write-offs coordinated by the "Paris Club," (see the last section of Chapter 2). By 1988, official institutions had endorsed a menu approach to the debt strategy. This included debt relief (see Kenen's [1990] discussion of the IMF's 1988 Interim Committee communiqué), but official orchestration of reduced commercial-bank claims has occurred only since 1989.

enormous negative net financial transfers from debtors to creditors (Figure 2). The latter (financed as they were with large trade deficits by the industrial countries) were also interpreted as evidence that U.S. exports and U.S. jobs were being sacrificed to the officially sanctioned debt strategy. Finally, Congressional leaders worried that the debt crisis could stifle Latin America's return to democracy.

One outcome of political pressure was a clause in the Omnibus Trade and Competitiveness Act of 1988 requiring the U.S. Treasury to initiate discussions toward establishment of an "International Debt Management Facility" that would buy bank debt at a discount and collect reduced amounts from the debtors, an idea originally tendered by Kenen (1983).³ The pros and cons of such a facility are discussed at the end of Chapter 4. Suffice it to say that by late 1988, plans at the Treasury for such a facility had been scrapped in favor of debt reduction. This occurred for two reasons. First, it was judged that the facility would shift risk from the private to the public sector. Second, it was judged that the Brady Plan (which the Treasury had crafted and now favored) would "avoid mandatory prices for debt exchanges . . . and . . . [would] maintain a market-oriented approach to debt restructurings" (U.S. Treasury, 1989, p. 7), thereby avoiding a likely legal challenge from banks and facilitating the eventual restoration of normal capital-market conditions.

How a Brady deal works. The Brady Plan was announced on March 10, 1989, in a speech at the Brookings Institution by U.S. Treasury Secretary Nicholas Brady. The thrust of the initiative was to shift official strategy from coordinated lending to debt reduction. The new strategy would eschew mandatory write-downs in favor of a voluntary, market-based approach. Public-sector funding for debt buybacks or for the collateralization of exit bonds (customarily with U.S. Treasury bonds) was to be the chief official involvement. Nevertheless, the banks would be expected to provide a significant amount of debt reduction. The Brady Plan was thus designed to walk a fine line between public-sector bailouts and mandatory bank write-downs. By providing funds to facilitate buybacks and guarantees, the plan meant to persuade banks to exchange a relatively high-risk, high-return asset for a low-risk, low-return asset.

³ The Act (Public Law 110-418, August 23, 1988), included a provision for the Secretary of the Treasury to "initiate discussions . . . with the intent to negotiate the establishment of the International Debt Management Authority," an agency that would restructure developing-country debt. The secretary was obligated to pursue such negotiations unless he determined, in a study presented to Congress, that they would worsen the overall debt situation.

This debt-reduction strategy had been advocated by Williamson (1989) and is termed “risk-compensated forgiveness” by Cline (1995).

By June 1989, official institutions had earmarked \$34 billion for buybacks and collateralization, \$12 billion each from the IMF and the World Bank, and \$10 billion from the Japanese Export Import Bank. To this carrot for the banks was added a stick: the IMF agreed for the first time to “lend into arrears,” that is, to lend to a troubled debtor before it had made all interest payments due to the banks and come to a rescheduling or other agreement with them to regularize future payments. The banks could therefore not expect the kind of help with delinquent payments that the IMF had afforded them in the past; rather, they should look to the plan for any further comfort from the official institutions.

By July 1989, the first Brady deal was ready for negotiation. About 600 banks met in New York with Mexican officials as well as with representatives from key official institutions such as the IMF and the U.S. Treasury. The banks themselves, or rather the biggest fifteen or so “core” claimants having the most at stake, were then persuaded to add a second stick to the package, one that would ensure universal cooperation by Mexico’s many bank creditors. The core lenders had typically been lead banks in the original syndicated loan contracts and, as such, had extended the protection of “cross default” clauses to the smaller participating lenders. These clauses deemed a debtor to be in default to the lead banks if it ceased paying the participating banks, a condition that deterred the debtor from selectively defaulting on its debts to smaller lenders. Without this provision, such default would have imposed little or no penalty on a debtor, because its access to large amounts of future credit from large lenders would have remained unimpaired. In 1989, however, the lead banks managed to “novate” existing syndicated loan contracts and replace them with new contracts in which cross-default protection for all participants was no longer guaranteed. Banks that opted out of the Brady deal would therefore become the most junior among creditors in terms of their ability to collect from a debtor. Universal participation in the Brady deal was thus ensured.

Mexico’s creditor banks were thus invited to a Mexican “meal” at which it was compulsory to eat (by virtue of the novation procedure just described) but at which only two choices were available on the menu: “exit” or “nonexit.” The exit choice offered a collateralized Brady bond with a market value just above the secondary-market price of Mexico’s commercial-bank debt in effect when negotiations began

(about 42 cents). The nonexit choice carried the expected benefit of a free ride on the rise in the secondary-market price of Mexican debt that would probably follow from substantial exit by banks that opted for the first choice on the menu. In order to eliminate expected rents from such free riding, the deal required nonexit banks to lend more money: they had to subscribe to a “new-money” call that was expressed as a percentage of their outstanding exposure. In Mexico’s case, the new-money call was 21 percent. Further details of the Mexican deal are given in Chapter 5.

The most popular choice by far from the Brady menu has been exit. By the end of 1994, when the bulk of Brady deals had been completed, only about 2 percent of exposure had been lent under new-money calls, whereas a weighted average of 32 percent of eligible bank debt had been forgiven (Cline, 1995, chap. 5). The plan thus unambiguously embodied a shift in official strategy from liquidity relief to debt relief.

A final, essential feature of Brady agreements was that the provision of “enhancement funds” by the IMF and World Bank was conditional on satisfactory macroeconomic adjustment, typically an IMF stabilization agreement. Because IMF and World Bank loans enjoy senior status over all others and are, in practice, inevitably repaid, criticism that risk had been shifted to the public sector was thereby deflected. The burden of Brady Plan relief is analyzed more rigorously in the last section of Chapter 5.

The Mexican Brady deal was a prototype for most of the twenty-six other officially supported debt-reduction operations that followed over the next seven years (Table 2). Strictly speaking, nine of those deals, for Albania, Ethiopia, Guyana, Mauritania, Mozambique, Niger, Senegal, Sierra Leone, and Uganda, were not Brady deals but, rather, International Development Association (IDA) agreements. In 1989, the World Bank provided \$100 million to the Debt Reduction Facility of the IDA for buybacks or conversions of commercial-bank debt on behalf of severely indebted low-income countries (SILICs). The Brady Plan, narrowly defined, was designed for severely indebted middle-income countries, but the SILIC deals were very much in the Brady spirit and were prompted by the same official initiative. Strictly speaking, the Brazilian agreement of 1994 was not a Brady deal either, in that Brazil was able to obtain a bank waiver and proceed with the conversion of debt into discounted exit bonds without IMF endorsement; Brazil quietly bought up U.S. zero-coupon Treasury bonds for collateral without waiting for a special Treasury issue. It is inconceivable, however, that the Brazilian operation would have transpired without the

TABLE 2
THE BRADY PLAN AND RELATED AGREEMENTS, 1989–1996
(in billions of U.S. dollars)

Country	Date of Final Agreement	Eligible Debt	Reduction Equivalent	Percent Reduced	Average Exit Price
Mexico	2/90	47.17	14.15	30.0	0.41
Philippines	1/90	6.60	2.38	36.1	0.50
Costa Rica	5/90	1.61	0.98	60.9	0.24
Venezuela	12/90	19.01	3.76	19.8	0.50
Uruguay	12/91	1.60	0.50	31.3	0.60
Niger	3/91	0.11	0.09	82.0	0.18
Mozambique	12/91	0.19	0.11	57.9	0.10
Nigeria	1/92	5.34	2.60	48.7	0.40
Guyana	11/92	0.07	0.06	86.0	0.14
Argentina	4/93	29.34	8.43	28.7	0.50
Brazil	4/94	50.00	14.00	28.0	n.a.
Uganda	2/93	0.17	0.13	76.5	0.12
Dominican Republic	2/94	0.80	0.40	50.0	0.25
Bolivia	5/93	0.18	0.14	77.8	0.16
Jordan	12/93	0.80	0.26	32.5	0.39
Bulgaria	6/93	6.80	3.40	50.0	n.a.
Poland	10/94	14.35	8.40	58.5	0.41
Ecuador	2/95	7.80	3.50	44.9	n.a.
Peru	7/96	8.60	n.a.	n.a.	n.a.
Nicaragua	11/95	1.4	1.13	80.7	0.08
Sierra Leone	7/95	0.6	0.50	83.3	0.21
Albania	7/95	0.50	0.37	74.0	0.26
Total		203.04	65.29		

SOURCES: World Bank, *World Debt Tables*, 1996, appendix 4; Cline, *International Debt Reexamined*, 1995, table 5.3.

precedents already set by major Brady agreements. Collectively, these deals involved a reduction in the net present value of debt-service obligations by about one-third (about \$63 billion), at a total collateral cost of about \$20 billion, of which about one-third came from the IFIs.

Official Debt Relief

Reductions in debt owed to official institutions have until now come entirely from bilateral lenders, because the IFIs have maintained a strict sanction against debt write-offs. Until recently, bilateral write-offs almost exclusively involved forgiveness of concessional loans, or what the World Bank calls “official development assistance” (ODA) loans. Nearly all

these loans are to debt-distressed countries in Sub-Saharan Africa. Between 1975 and 1987, bilateral donors unilaterally converted \$1.9 billion of ODA loans into grants, accounting for about 6 percent of concessional debt outstanding. At the end of 1987, assistance for African debtors was formalized by the World Bank and various other donors as the Special Program of Assistance, which includes a 50 percent increase in disbursements from the IDA, concessional cofinancing from bilateral agencies, concessional rescheduling and conversion of ODA loans to grants, and concessional assistance for servicing World Bank loans, which are always nonconcessional.

This last feature of the Special Program for Assistance paved the way for relief on bilateral nonconcessionary debt claims, which were generally export credits extended by industrial-country governments. Until 1988, official bilateral lenders had consistently resisted restructuring their claims on nonmarket terms, but at the June 1988 Toronto economic summit, the Group of Seven (G-7) creditor countries agreed to change the rules. The “Toronto terms” for Paris Club creditors were adopted at the IMF-World Bank meeting in Berlin in October 1988. Creditors could choose from a menu of three options. Under Option A, creditors could cancel one-third of the principal due them during the consolidation period and reschedule the remainder at market interest rates, to be repaid with an eight-year grace period and fourteen-year maturities. Under Option B, creditors could reschedule the entire principal but charge below-market rates of interest, with grace and maturity periods as in Option A. Under option C, creditors could reschedule the entire principal at market rates of interest, but with a fourteen-year grace period and twenty-five-year maturities.

The Toronto terms applied only to low-income countries, nearly all in Africa, and only to selected maturities of debt. For 1992, “low income” was defined by the World Bank as a 1990 per capita GNP at or below \$610. By June 1991, twenty countries had rescheduled \$6 billion of their debt, or about one-quarter of the moneys they owed to Paris Club creditors prior to the cutoff date. The impact of reschedulings under Toronto terms, although limited in near-term cash flows, has been to reduce scheduled debt service by nearly \$1 billion on a present-value basis. This reduction is equivalent to about 7.5 percent of the 1990 exports of the countries concerned.

In early 1991, the Paris Club set another precedent, by which bilateral creditors forgave about one-third of Egypt’s official debt and about one-third of Poland’s (Dean and Xu, 1991). Both countries were “middle-income” by World Bank definitions (per capita GNP of between

\$610 and \$7,621 for 1990). This controversial precedent was strengthened in March 1991, when the United States unilaterally announced a 70 percent write-off of Polish debt. Most of the other G-7 creditors followed suit with write-offs of about 50 percent. In December 1991, the Paris Club adopted “enhanced Toronto terms,” that offer a full 50 percent reduction of debt service on a present-value basis. By October 1993, a total of sixteen countries had reached agreements under these terms. In December 1994, following a July G-7 summit in Naples, the Paris Club extended the terms by announcing that it would write off 67 percent of the maturing debt of twenty-seven of the poorest debtors (mainly in Sub-Saharan Africa), debt with a face value of close to \$24 billion. The novelty of the Naples proposals is that for the first time, the Paris Club was prepared to grant relief on a country’s total stock of debt, provided its restructuring programs were sufficiently advanced. In 1995, agreements were reached with Bolivia, Cambodia, Cameroon, Chad, Haiti, Guinea, Guinea-Bissau, Togo, and Uganda, and in 1996, arrangements were made with Benin, Burkina Faso, Guyana, and Mali. Notably, 1996 saw the Paris Club’s largest-ever rescheduling operation, by which repayment of \$40 billion in bilateral claims on Russia was extended over twenty-five years, with a rising payments profile.

The achievements of the Paris Club with regard to bilateral debt reduction can be contrasted with the reluctance until recently of the IFIs to modify a sacrosanct principle against write-downs of their claims. In April 1995, such claims accounted for 24 percent of the external debt burden of SILIC countries, a proportion that will increase significantly once the Naples agreements have reduced bilateral claims. The IFIs’ intransigence has now abated, however. The World Bank’s IDA affiliate has allowed concessional refinancing of old debts at below-market interest rates, and the IMF has developed the Rights Accumulation Program, which allows countries in arrears to build up a credit entitlement that will pay off their overdue debts, subject to satisfactory economic performance.

Most significantly, agreement between official creditors was reached in the fall of 1996 on the Debt Initiative for Heavily Indebted Poor Countries (HIPC). Forty-one countries are potentially eligible, thirty-two SILIC countries, seven countries that have received concessional treatment from the Paris Club, and two lower-middle-income countries (Angola and Congo) that have recently become eligible to borrow from the IDA. The initiative explicitly permits debt reduction by multilateral creditors as long as “their financial integrity and preferred creditor status” is preserved (World Bank, 1997, p. 44). The World Bank has

allocated \$500 million to an HIPC trust fund, the IMF will participate through its Enhanced Structural Adjustment Facility, and the other multilateral creditors have also agreed to participate. The Paris Club has agreed to go beyond Naples terms, offering debt reduction of up to 80 percent. World Bank and IMF staff estimate that the initiative may lead to debt relief of \$5.5 billion, with more than \$3 billion coming from the multilaterals.

3 THE RATIONALE FOR RELIEF

The rationale for official intervention in the debt crisis of the 1980s was that the crisis was a manifestation of market failure. Although the judicious official intervention that occurred helped to overcome that failure, injudicious official intervention, had it happened, could well have compounded it. The official institutions judged, at least implicitly, that the sources of market failure were a combination of myopia and free-rider barriers to collective lending and forgiveness. To overcome both of these, intervention had to compel, or at least cajole, private-sector participation in liquidity and debt relief. To overcome free-rider barriers, moreover, participation had also to be collective (or “concerted,” to use the official jargon). But intervention strategy had to avoid encouraging moral hazard by debtors and discouraging new money from lenders. It therefore had to be market based. Concerted market-based debt relief (CMDR), as embodied in the Brady Plan, was officialdom’s answer to overcoming market failure without unnecessarily displacing those aspects of the market that were still functioning efficiently.

The essence of the international debt crisis was credit rationing. It is simply a fact that voluntary private lending to large numbers of severely indebted countries ceased abruptly in mid-1982. What is conjectural (and will perhaps always remain so) is that more lending could, in principle, have been profitable: that is, that net returns on new loans to debtors, even after allowing for a suitable risk premium, would have been above the average returns available in world capital markets. If so, the credit rationing represented market failure, in the sense that international financial markets failed to mobilize sufficient funds to exploit available investment opportunities. This is the fundamental inefficiency that official intervention set out to remedy.

In the belief that this inefficiency existed, official institutions—in essence the IMF, World Bank, and a few creditor-country central banks and treasuries—mobilized liquidity relief and then debt relief. The initial provision of liquidity relief was based on the belief that the inability or unwillingness of countries to service their debts was a result of temporary bad luck, that these countries were illiquid but not insolvent. The provision of debt relief was, in turn, based on the belief that debtor countries were not able to borrow and invest because they were burdened by too large a debt overhang and by the corresponding

debt-service payments. The officials implicitly made the judgment that there was a market failure, that private lenders, in particular the banks, were not being induced by self-interest to lend anew and to write off old debt so that profitable investment could be made.

A great deal of careful analysis underlay the officials' faith in the wisdom of liquidity and debt relief, and much of that analysis was undertaken by academic economists. Indeed, the interaction between events, analysis, and policy over the decade following the beginning of the debt crisis in August 1982 is a revealing example of the important effect economists can have on the real world. That is the story the remainder of this study will tell.

Liquidity Relief

The tone of much of the debate during the 1980s was set by Cline (1983), who argued that troubled debtors were temporarily illiquid, in the sense that their current payment obligations exceeded their apparent ability (or willingness?) to pay. Less plausibly, Cline argued that these debtors were solvent in the long run, because the present value of their debt obligations was less than the present value of what he conjectured to be their ability to pay. The policy implication was that creditors should either reschedule payments or lend more, or both, rather than forgive existing debt. Both official and commercial lenders did this until 1984, although their new lending was effectively a substitute for the rescheduling of interest payments. After 1984, however, banks sharply reduced new lending (Figure 3), a cutback suggesting that the judgment of the banks had shifted toward insolvency and suggesting, as well, that official lenders, which continued to lend, might be bearing a burden on the banks' behalf.¹ Whatever the privately held views of the banks, the strategy of coordinated lending was reinforced by the Baker Plan, which set a goal of \$20 billion in new private bank lending for the 1986–88 period. The strategy Baker inaugurated persisted until 1989.

Influential commentators have suggested that such an approach may have been misdirected. Krugman (1989) disputes not only the judgment that troubled debtors were illiquid but nevertheless solvent, but also the analytical distinction itself. He argues that if countries were perceived to be solvent, commercial loans would still be available at a

¹ As Dooley, Haas, and Symansky (1993) point out, however, official lenders bear no burden if they are certain to be fully repaid or, more generally, to the extent that debtors treat their claims as senior to all others. For further discussion of burden sharing, see Chapter 5.

sufficiently high risk premium.² Credit rationing arises because countries appear to be unable to service their debts fully, even in the long run. By this logic, the analytical distinction between illiquidity and insolvency is rendered meaningless, because countries are illiquid because they are insolvent. We believe this conclusion may be overly strong. The more appropriate qualification to the distinction between illiquidity and insolvency is that perhaps we can never know to which category a debtor actually belongs. When this is the case, an argument can still be made for continuing to lend to a debtor in arrears, an argument that in effect rests on transforming expected insolvency into expected solvency.

Liquidity relief is defined as a reduction in the gap between a country's flow of principal and interest obligations, and the flow of debt-service payments that it is able or willing to make per period of time. Liquidity relief can be provided by postponing principal repayment or interest payments, that is, by rescheduling or by new lending.³ Because the incentives of individual creditors to reschedule or lend anew are greatly dulled by free-rider barriers, rescheduling has had to be orchestrated collectively. Similarly, new lending has been "concerted," really a euphemism for collective lending that is involuntary when viewed from the perspective of an individual creditor.⁴

Consider a country that, without liquidity relief, is expected to default on a fraction, d , of its inherited debt, D . Purely "defensive" liquidity relief, L_{\min} , could be defined as new lending sufficient to keep debt-payment obligations on principal and interest current. Equivalently, it could be thought of as capitalized interest plus rescheduled principal. That is, if the country is willing or able to pay only $V < (r^*D + \Delta D)$ currently, it must capitalize, reschedule, or borrow $L_{\min} = (r^*D + \Delta D - V)$, where V is current debt service, r^* is the world interest rate, and D is debt obligations.

If new lending is not forthcoming, the country will default on part of its current obligations. Clearly, creditors are better off by rescheduling

² This neglects a central result of the credit-rationing literature, in which the willingness to pay a high risk premium acts as a signal that a would-be borrower is a bad risk, thereby deterring potential creditors from extending a loan.

³ In practice, principal has been rescheduled, but interest payments very rarely have. Of course, interest arrears have accumulated, but arrears, by definition, consist of debt service that a debtor has withheld unilaterally, rather than by agreement with creditors.

⁴ The potential gains from concerted lending were first argued forcefully in Cline (1983) and have since been demonstrated in more formal models, notably by Sachs (1984) and Krugman (1985).

or lending L_{\min} with a positive probability of repayment than by losing L_{\min} with certainty. The current default rate is thereby reduced. Moreover, if induced investment increases the debtor's future V , liquidity relief may reduce the expected default rate on payments due in future as well. Thus, creditors may well set $L > L_{\min}$. Any reduction in the default rate from d to, say, d^* results in part from lowering the default rate on L_{\min} , the “defensive” portion of L , below unity, and also from lowering the expected default rate on future obligations. Essentially, the provision of liquidity represents a strategy of playing for time and for more favorable circumstances.

Creditors' expected gains from liquidity relief exceed their expected losses if $(d - d^*)D > d^*L$ or $L/D < (d - d^*)/d^*$ (Krugman, 1989, Claessens et al., 1991). As an exaggerated example, suppose creditors expect new lending to lower the default rate from 0.6 to 0.3. They can then rationalize increasing their exposure until $L/D = 1$, that is, until their existing exposure doubles. Thus, lending to problem debtors is not necessarily illogical. It is not true that the existence of a secondary-market discount on existing debt means that new money should not be provided. It implies only that such loans will not be made voluntarily. It also follows that the reticence of lenders other than existing creditors to provide funds is not an argument against provision of new money by existing creditors.

This logic and optimism goes a long way toward explaining the eagerness of commercial banks to “throw good money after bad” when debtors' liquidity problems became serious after mid-1982. The banks were prepared to reschedule unpaid amounts of principal, D , but would not capitalize unpaid interest amounts, r^*D . Given this bias, logic dictated defensive lending equal to r^*D . In practice, this was economically equivalent to capitalizing interest payments, but it was apparently preferred because accounting and regulatory practices rewarded the fiction that interest payments were not in arrears. In fact, U.S. regulations require nonperforming loans to be publicly disclosed at the end of each fiscal quarter, putting explicit pressure on the banks to lend more in order to render loans “performing.”

From 1982 to 1985, optimism ran high enough that liquidity relief actually exceeded defensive levels. That is, total liquidity relief, new lending plus rescheduling, was $L > r^*D + \Delta D$. Indeed, from 1982 to 1985, commercial banks increased their long-term exposure to developing countries by \$126 billion. Although the banks had more or less given up on defensive lending by 1985, the IFIs effectively adopted the practice. This lending became the subject of heated controversy, based

as it was on the implicit assumption that the IFIs will outperform the banks in distinguishing between illiquidity and insolvency.

The logic whereby creditors benefit from new lending is subject to several caveats that were important enough in combination to dry up private lending after 1985. These were that (1) only existing creditors benefit from L ; for new creditors, debt outstanding is zero, implying no expected benefits from provision of L ; (2) creditors must lend in concert; otherwise, individual creditors will try to free-ride on the reduction in future expected defaults and the consequent increase in the expected present value of existing debt outstanding, which is a result of new lending by others; and (3) although new lending reduces d by forestalling current default, and perhaps also by encouraging current investment that increases future resources available for debt payments, it may also increase d by increasing the total stock of debt outstanding, D . Similarly, rescheduling preserves D intact and thus may merely postpone default.

The first and second caveats were originally overcome by effectively grouping existing creditors into cartels. The IMF enforced adjustment programs, “conditionality,” in return for collective participation by existing creditors in rescheduling and new lending packages. Central banks and governments in creditor countries also applied pressure, as did the big commercial banks. A core-bank “advisory” committee representing major creditors typically negotiated on behalf of several hundred banks. The committee enforced the cooperation of smaller banks with implied threats such as nonenforcement of sharing and cross-default clauses, the result of which would be to give cooperating banks *de facto* seniority on loan payments. Essentially, “new-money calls” on individual banks were enforced in proportion to outstanding exposures. Finally, the debtors themselves helped reinforce the banks’ resolve to provide liquidity relief by accumulating arrears that threatened to classify loans as “nonperforming,” with dire implications for equity prices, especially in the United States.

Fear that increased debt would increase default rates was at least implicit in the banks’ decisions to back off from new lending in the late 1980s. As arrears accumulated (Table 3) and countries’ debt burdens rose (Figure 1), it did not take genius to connect the two. The logical next step was debt relief.

Debt Relief

Following Krugman (1988), we define a debt overhang as the difference between the present value of a country’s contractual debt obligations, D ,

TABLE 3
DEBT IN ARREARS IN DEVELOPING COUNTRIES, 1988–1992
(in billions of U.S. dollars)

Type of Debt	1988		1990		1992	
	Interest on Debt	Total Debt	Interest on Debt	Total Debt	Interest on Debt	Total Debt
All debt	26.1	71.7	52.7	112.3	46.7	116.4
Official debt	15.5	37.9	20.0	47.2	17.4	48.3
Private debt	10.6	33.8	32.7	65.1	29.1	68.1

SOURCE: World Bank, *World Debt Tables*, 1993.

and the expected resource transfers that will be made to service that debt, $E(V)$. We define debt relief as a reduction, $x = D_0 - D_1$, in the contractual value of the stock of debt, D . Creditors benefit from debt relief if it increases the expected value of their debt claims, $E(V)$. There are two channels through which this can occur.

First, there is the so-called “illiquidity effect” that results from credit rationing. Debt overhangs imply that many countries are shut out of international credit markets and cannot borrow. Many high-yielding investments in such debtor countries therefore remain unexploited. Investment, in this context, must be viewed in the broadest possible terms, referring to human-capital accumulation, investment in technology and physical infrastructure, and many types of structural policy reforms. Had such investments been undertaken, expected debt-service transfers would have increased. Any credit rationing arising from a debt overhang crowds out many such desirable investments.

Second, there is the so-called “disincentive” effect of the debt overhang (Sachs, 1986, 1989a, 1989b; Krugman, 1988). It arises from the possibility that an increase in the output of a country with a debt overhang also leads to an increase in its debt-service transfers to foreigners. A debt overhang reduces investment on two fronts. It discourages debtor governments from undertaking adjustments and reform, because the accruing benefits may be appropriated by foreign creditors in the form of augmented debt-service transfers. It may also inhibit private investment, because the requirement to service debt in the future raises taxes, thereby reducing the after-tax return to investment. It is questionable whether this “tax” translates directly into lower private, as opposed to social, returns, because from the point of view of an individual private investor, an increase in debt-service payments to foreigners leaves the investor’s rate of return unaffected, except insofar

as business taxes rise to finance them. Moreover, the size of the transfer for the period in question, on the order of 2 to 5 percent of gross domestic product (GDP), was in practice too small to constitute a serious disincentive. We elaborate on these reservations at the end of this chapter, but because the Sachs-Krugman argument looms large in the debate over the merits of debt relief, it deserves discussion here.

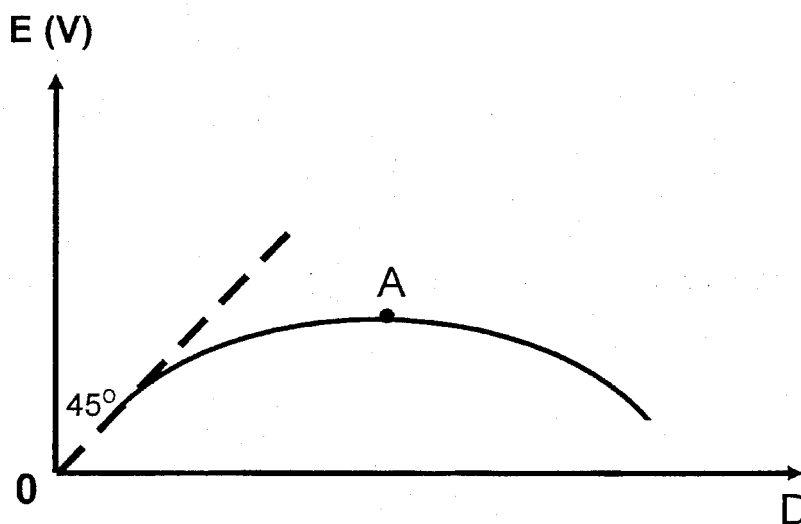
The size of the disincentive effect depends upon the ability of creditors to “tax” output increases by channeling them to meet debt-service obligations. A debt overhang may thus reduce a country’s incentives to undertake costly adjustments that would increase its ability to pay. Conversely, debt relief, by reducing the debt overhang, may induce productive adjustment. If debt relief does induce positive adjustment, the secondary-market price of the country’s debt, p , will increase. But for the price increase to be sufficient to increase expected resource transfers to creditors, $E(V)$, despite the decline in D to $D - x$, it must be powerful enough to outweigh creditors’ loss of the option to benefit from *ex post* states of the world that are sufficiently favorable that creditors would have received full repayment had no debt relief been granted. Formally, the marginal condition for debt relief, x , to benefit creditors is

$$dE(V)/dx = -\pi + (1 - \pi)(dI/dx)[f'(I)] > 0 , \quad (1)$$

where π is the probability of full payment on the debt prior to relief, I is investment, and $f'(I)$ is the marginal product of investment in terms of increased debt payments (Froot, 1989, Krugman, 1989). The first term, $-\pi$, represents creditors’ foregone option on good states, whereas the second is their expected payoff following positive adjustment.

The effect of debt relief on the expected value of a debtor’s claims can be summarized graphically as a debt Laffer curve (DLC; Krugman, 1989). Figure 4 shows the country’s stock of nominal debt obligations, D , on the horizontal axis and the repayments that various levels of debt are expected to generate, $E(V)$, on the vertical axis. When the level of debt is low, expected repayments increase one for one with D , along a 45° line. As D increases, however, the probability of repayment falls below unity. When $E(V)$ passes its peak (at A) and begins to decline, levels of debt are so high that they are counterproductive. New loans contaminate old, so that an extra dollar of debt actually lowers total expected debt service. To the right of A , a debtor is said to be on the “wrong side” of its DLC: $E(V)$ then decreases with D or increases with x , that is, $dE(V)/dD < 0$, or $dE(V)/dx > 0$.

FIGURE 4
THE DEBT LAFFER CURVE



Combining Liquidity Relief and Debt Relief

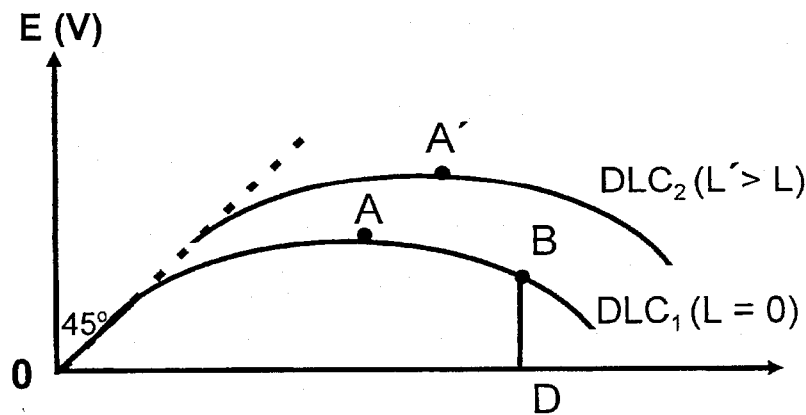
In theory, either liquidity relief or debt relief might reduce a debtor's default rate. But are they perfect substitutes? Clearly not, because liquidity relief increases the supply of current resources, whereas debt relief promises to decrease demands on future resources. Liquidity relief operates to relieve the current constraints on investment imposed by credit rationing. However, new lending cumulates over time to higher debt stocks, which *ceteris paribus* may raise expected default rates. Debt relief, by contrast, reduces debt stocks. This is likely to lower default rates on remaining debt, but it removes creditors' options to collect on the debt that has been written off.

As pointed out initially by Froot (1989), debt relief increases the expected output surplus, $E[f(I) - (D - x)]$, obtained by undertaking I . Thus I is induced to rise, but only until the expected value of debt transfers, $E(V)$, rises to equal D , and thus the price of debt rises to unity, with the debt overhang eliminated. Liquidity relief, in turn, injects current resources and lowers the marginal utility of current consumption, thus lowering the domestic interest rate and encouraging investment. The country will no longer be credit constrained when the marginal utility of domestic consumption has fallen to the competitive international level.

This result is illustrated in Figure 5. Let the debtor have an original debt equal to D and liquidity relief equal to L . The expected value of the creditors' claims to output is shown at point B , and the debt will be trading on the secondary market at a price $p = BD/OD$. Pure debt relief can move the country to point A at the top of DLC_1 . The consequent improvement in adjustment effort raises investment and debtor residents' welfare, at the same time reducing current consumption. This raises the marginal utility of current consumption, which implies that in equilibrium, the return on investment in the debtor country will not have fallen by as much as the improved incentives merit.

Debtor residents will still be unwilling to undertake all of the investment that becomes profitable at world interest rates, r^* , and $f'(I) > (1 + r^*)$. Creditors who can borrow at world interest rates can capture the consequent surplus in additional investment by increasing liquidity from L to L' , while reducing (by more) the amount of debt relief. This takes the equilibrium from point A to A' on DLC_2 . Note that the new lending and debt relief cannot be negotiated separately (Froot, 1989). If this were done, the new lending would be competitive and the available surplus would be dissipated.⁵ In the context of the Brady Plan, this is another way of saying that nonexit banks would have been

FIGURE 5
LIQUIDITY AND THE DEBT LAFFER CURVE



⁵ The optimal combination of debt relief and liquidity relief from the creditors' perspective is derived by Froot (1989, p. 66, eqs. 28 and 29).

able to free-ride on exit banks had new lending not been made a condition of nonexit.⁶

Illiquidity or Disincentive Effects? The Empirical Evidence

There is no definitive evidence to determine whether the illiquidity effect or the disincentive effect inhibits investment more. The importance of the latter, however, can be questioned on both theoretical and empirical grounds.

Diwan and Rodrik (1992) question whether the disincentive or “foreign creditor tax” effect of the debt overhang will be internalized in private investment behavior. From an individual investor’s perspective, the total debt-service transfer to foreign creditors is an exogenous parameter, unaffected by the investor’s own individual decision. Consequently, even if the social disincentive is large, the private disincentive may be small.

The empirical importance of the disincentive effect is also not well established. It is true that single-country regression equations (Schmidt-Hebbel, 1990, for Brazil; Borensztein, 1990, for the Philippines; Morisset, 1991, for Argentina) and panel regressions (Ozler and Rodrik, 1992) often find a negative relationship between debt levels and investment. Both Bulow and Rogoff (1990), however, as well as Warner (1993), question the validity of attributing investment declines in heavily indebted countries to the debt crisis. Warner’s panel estimates for a sample of thirteen countries show that shocks arising from falling export prices and high world real-interest rates in the early 1980s can explain the decline in investment these countries experienced without any need to invoke debt overhangs. At the very least, these results suggest that the direct influence of world supply shocks on indebted country investment has received insufficient analysis.

Evidence from cross-sectional estimates of DLCs also fails to support the view that a tax on transfers to commercial creditors is attached to the adjustment effort. Claessens (1990) estimates a DLC for twenty-nine

⁶ We have not attempted to review the considerable literature on contract enforcement between a sovereign debtor and its creditors (for a brief introduction, see Eaton, 1990). Suffice it to note that some of this literature emphasizes the need to organize debt restructuring as a “package.” Boot and Kanatas (1995), for example, show that a package incorporating debt forgiveness, new money, and sovereign precommitment of production (Pareto) dominates pure debt relief. Note that certain post-Brady-bond issues have included precommitted payments contingent on export prices, notably Mexico’s bond issues with coupon payments contingent on the price of oil.

countries with the following logistic equation, using 1986–88 data pooled across countries:

$$\ln[p_{it}/(1 - p_{it})] = a_0 - a_1 \ln(D/EX)_{it} + a_2 Z_{it} + e_{it} ,$$

where p_{it} is the secondary-market debt price of the i th country at time t , $(D/EX)_{it}$ is its debt-to-export ratio, and Z is a vector of other independent variables (such as measures of arrears and reschedulings). Claessens concludes that in 1987, only six countries (Argentina, Bolivia, Madagascar, Nicaragua, Sudan, and Zambia) were on the wrong side of their DLCs. Similar estimates by Dean and Xu (1991) on 1987–89 data add Poland to Claessens’ list. Debt relief can thus increase the value of debt claims in only a few, severely indebted countries. The empirical studies also find that the DLC becomes flat at relatively low levels of D/EX and remains flat over a wide range. Although creditors would therefore not gain from collective debt reduction, they would lose little or nothing and thus could be “bribed” by a small monetary inducement to write off debt. The lesson for official strategy is that a little official money can be leveraged to provide a large amount of debt reduction, especially within a concerted framework (see Chapter 5).

Using numerical simulations, Borensztein (1990) concludes that the wrong side of the DLC does not start until the ratio of annual debt-service obligations to GDP, a measure of the “tax” imposed by foreign debt, reaches 50 to 60 percent. This is not very supportive of the Sachs-Krugman hypothesis, because most countries’ debt-service obligations are not nearly that high. Net transfers to creditors rarely exceed 4.5 percent of GNP, and a simple regression on 1983–88 data suggests that creditors can capture only about 2 percent of any increase in income (Eaton, 1990, pp. 47–48). Borensztein’s results suggest that new lending affects the investment-to-GDP ratio more than debt relief does: in other words, liquidity relief is more effective than debt relief.⁷

⁷ The investment-disincentive effects may, in practice, have been underestimated by the simulation model, as Borensztein recognizes. First, the relevant investment criterion may be the ratio of debt payments to the excess of GDP or exports over a minimum level, so that values of the ratio of about 50 percent may not be unrealistically high. Second, the debt overhang may impose costs on the debtor economy that are not captured by the model, such as bargaining costs or default penalties. Third, sovereign debt may impose rather explicit taxes on investment. If all foreign debt is owed by the government, it must tax the private sector to finance repayment. In many developing countries, household income taxes are virtually uncollectible, leaving taxes on business income and investments as the main debt-service vehicles. In support of the Sachs-Krugman disincentive effect, Fernandez-Ruiz (1996) shows that when long-run credit relationships are incorporated, the positive effects of debt reduction on incentives to adjust are strengthened.

4 MARKET-BASED DEBT RELIEF OR AN INTERNATIONAL DEBT FACILITY?

If lack of liquidity does more to discourage investment than the debt overhang does, one should not necessarily conclude that renewed lending and new money are likely to materialize to resolve the problem. Advocates of relief argue that the free-rider incentives associated with the debt overhang make attracting voluntary loans from new creditors virtually impossible. Absent seniority, new loans are treated exactly the same as outstanding loans, and the benefits deriving from any consequent increase in debt-service transfers must be shared with older creditors. The corresponding reduction in the return to new creditors diminishes their incentive to put up new money. If the country has a fully convertible currency and no capital controls, there is no barrier to granting private debtors seniority over the sovereign. In practice, however, the sovereign debtor is unlikely to relinquish capital controls until its debt overhang is resolved. This may help explain why it apparently took the Brady deals of the early 1990s to induce new creditors to lend to Latin America despite the fact that much of the new lending was to private borrowers; private borrowers could not credibly be granted seniority over the sovereign borrower until the sovereign relinquished capital controls.

In any case, relief advocates maintain that prior to new creditors' providing funds, existing creditors must provide debt relief, and the IFIs (whom they presume to enjoy seniority) must provide liquidity relief. Moreover, the IFIs are assumed to enjoy a comparative advantage in inducing debtors to undertake desired adjustments. The combined relief efforts will therefore prove beneficial to the existing creditors. On this basis, Froot (1989) and Diwan and Rodrik (1992) maintain that in the presence of a debt overhang, an approach combining liquidity and debt relief, such as the Brady Plan, is needed to elicit new investment.

Others, notably Bulow and Rogoff (1990) argue the opposite: that liquidity and debt relief delay resolution of debtor countries' payment problems and thereby delay their access to sustained, voluntary capital inflows. Official relief, they maintain, ossifies negotiations with private-sector creditors and transfers gains to them at taxpayers' expense. They further argue that the IFIs enjoy no comparative advantage in inducing countries to adjust, through conditionality or other means. On the

contrary, given that private creditors are much tougher bargainers than IFIs, debtors will endeavor to postpone adjustment in anticipation of a lower debt price and more debt relief.

This controversy, over whether relief is indeed in the debtors' interest, is a major part of the broad question asked in this study. The other issue underlying that question is the extent of the free-rider barrier to MDR. Only if relief is both in the debtors' interests and is suboptimally provided by the market can official relief efforts be justified.

Insights into the ability of the market to provide debt relief efficiently can be determined from an analysis and evaluation of the experience with pure (unconcerted) MDR prior to the Brady Plan. A central question is whether MDR is capable of breaking the free-rider barrier, at least at a price that is acceptable to debtors as well as creditors. Of course, even if the answer is affirmative, it may well be possible through a concerted strategy to effect outcomes that benefit debtors relatively more yet are still acceptable to creditors.

Buybacks, Exit Bonds, and Debt-Equity Swaps

Market-based debt relief takes three generic forms: buybacks, exit bonds, and debt-equity swaps.¹ Table 4 documents MDR from 1985 through 1994. Buybacks, as the name suggests, consist of purchases by the debtor of its own debt on the secondary market using either its own or donated resources. Simply put, if a debtor buys \$1 of its debt at a price, p , it realizes debt reduction of $$(1 - p)$. Because the "sharing," prepayment, and related clauses typical of syndicated sovereign-loan contracts can be waived only by the agreement of all or most creditors, buybacks were rare until the Brady Plan began to orchestrate them in 1989. Nevertheless, considerable Brazilian debt was bought back in 1988, mostly by the parastatals and often outside Brazil's official debt-conversion program. This informal buyback process involved the firm's paying local currency to its creditor at a discount. The creditor then converted the payment into dollars at a further discount (evidence suggests up to 30 percent) on the parallel foreign-exchange market. It appears that private firms in Mexico also took advantage of opportunities to strengthen their balance sheet through discounted buybacks. Buybacks of sovereign (as opposed to firm) debt took off only after 1989, when the coordination provided by the Brady framework was in place.

¹ For an early explication of market-based debt relief, see Bowe and Dean (1990).

TABLE 4
DEBT CONVERSIONS, 1985-1994
(in millions of U.S. dollars)

Instrument	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	Total (and %)
Debt-equity swaps	570	882	3,578	7,567	6,981	9,624	2,823	8,148	4,586	248	45,007 (34)
Debt buyback or exchange	0	0	0	1,830	1,011	12,347	1,006	9,026	7,106	20,033	52,359 (40)
Local-currency payments	0	63	87	3,580	2,269	5,242	800	342	0	2	12,385 (9)
Local-currency conversions	156	438	796	1,535	1,512	1,540	1,443	1,217	127	3	8,767 (7)
Private-sector restructuring	89	279	3,454	4,341	3,113	337	788	371	293	0	13,065 (10)
Total	815	1,662	7,915	18,853	14,886	29,090	6,860	19,104	12,112	20,286	131,583 (100)

SOURCES: World Bank, *World Debt Tables*, vol. 1, 1996, table A5.1; Institute of International Finance and World Bank.

“Exit bonds” are new bonds issued at discount in exchange for old debt. Exit bonds, like buybacks, were rare before Brady, because of similar coordination challenges reinforced by legal clauses in syndicated loan agreements. Because exit bonds are generally either collateralized or made senior to the remaining old debt, they can be exchanged for old debt at a fraction of its value. If the bonds are fully collateralized, for example, they are as good as cash, and $\$p$, the old debt’s secondary-market value, can be swapped for every \$1 of new debt, providing $\$(1 - p)$ of debt relief. The first issues of exit bonds were made by Argentina and Ecuador in 1987. These were followed by issues from Brazil, the Ivory Coast, Mexico, and Yugoslavia in 1988. Argentina’s 1987 offer had no buyers because it was too deeply discounted, and Mexico’s 1988 auction of collateralized 20-year bonds was undersubscribed because interest (as opposed to principal) payments on the exit bonds were not collateralized.² Nevertheless, the Mexican and Brazilian offerings, in particular, set important precedents for the Brady Plan, the former because of its experience with collateralization, and the latter because it pioneered the “menu” approach, including as it did such options as new-money bonds in addition to exit bonds. Since 1989, exit bonds have been part of most (but not all) Brady settlements, and during the first half of the 1990s, these “Brady bonds” became the primary vehicle for emerging market debt. Recently, however, several developing-country issuers have become creditworthy enough to swap Brady bonds for uncollateralized Eurobonds on favorable terms. Mexico and the Philippines did this in 1996, and Spiegel (1996) reports that Argentina, Brazil, and Venezuela are considering repurchase schemes of their own.³

It would be misleading to end this short discussion of pre-Brady MDR without mentioning debt-equity swaps. Whereas total reduction in bank debt through buybacks and exit-bond exchanges between 1985 and 1989 was only \$4.7 billion (compared with almost \$50 billion from 1990 to 1994, after the Brady Plan), debt-equity and related local-currency conversions cut bank debt by about \$41 billion before the Brady Plan (compared with about \$37 billion from 1990 to 1994; see

² The Mexican government had been prepared to purchase \$10 billion in U.S. Treasury “zeros” as collateral but was able to issue only \$2.7 billion worth of claims in exchange for \$3.7 billion in bank-held debt.

³ According to knowledgeable sources at the respective London embassies, no repurchases had been undertaken by these three countries as of March 1997, although the Brazilian senate had recently authorized a \$5 billion repurchase scheme.

Table 4). Debt-equity swaps are exchanges of bonds or, in this context, bank loans, for ownership rights to equity.⁴ Typically, a third-party investor is involved: the original creditor sells debt at its secondary-market price (perhaps indirectly, through a series of interbank trades) to an investor (usually nonbank), who then swaps the debt through the debtor country's debt-conversion program for local currency that must be dedicated to the equity investment. To induce the investor to swap, the debtor-country central bank (which typically runs the debt-conversion program) offers equity with a higher value than the secondary-market value of the debt that the investor purchased from the creditor bank. Thus, a debt-equity swap is basically a buyback linked to equity investment at a subsidized exchange rate.

In the context of our inquiry, the puzzle is why one form of MDR, debt-equity swaps, flourished without nonmarket intervention, whereas buybacks and exit bonds floundered before Brady. A short answer is that debt-equity swaps, unlike buybacks, required no outlay of foreign exchange by debtors. Liquidity strapped as they were, they could nevertheless generate local currency to redeem the debt. The benefit to debtors was liquidity relief: they were no longer obligated to debt-service payments. Rather, their foreign liabilities—dividend and profit remittances on the equity—were now contingent on the underlying performance of the investment. As detailed in Appendix 1, debt-equity swaps could benefit debtors if they were sufficiently liquidity constrained (or, equivalently, sufficiently risk averse relative to creditor investors [Helpman, 1989a]), or alternatively, if the swap were to

⁴ Sovereign debt-equity swaps have customarily taken one of two forms. Creditor banks may simply negotiate with the debtor country to trade their U.S. dollar loans for local currency and then invest the currency in local capital markets or perhaps directly in local enterprises. A favorite investment has been to extend the banks' own local subsidiaries. Such swaps may take place at or below the debt's face value, and the exchange into local currency may take place either at or below its official (controlled) price or at or below its free-market price. The second form of sovereign debt-equity swap is initiated by banks selling sovereign loans to a third-party investor on the "secondary market." The investor then negotiates with the debtor country's central bank to swap the debt for local currency and makes an investment in local capital markets or local enterprises by way of share purchase, subscription, or other forms of capitalization. Again, the prices at each stage of the swap are negotiable. The investor typically buys the debt for U.S. dollars at a substantial discount from its face value. He may then negotiate conversion into local currency at or below the debt's face value and at or below the official or market price of local currency. More recent swap programs have established swap prices in competitive auctions. Debt-equity swaps are analyzed in more detail in Appendix 1.

improve incentives sufficiently to generate net investment (Bowe and Dean, 1993).

A second reason that debt-equity swaps flourished while buybacks did not may simply have been that the sale of debt by a bank to an investor (and only indirectly to the debtor) was a less blatant and less transparent violation of syndicated loan clauses prohibiting prepayment to an individual creditor than was sale directly to the debtor (as in the case of buybacks). As for exit bonds, although they share the advantage of debt-equity swaps in that they require no outlay of current resources, they must either be collateralized or deemed credibly senior to old debt in order to be acceptable at a discount from the face value of old debt. In practice, collateralization was difficult to engineer. Mexico's 1988 exit-bond offering, guided by Morgan Guaranty, set a precedent but, for reasons mentioned earlier, was not as successful as had been hoped. In the context of syndicated loan-sharing clauses, credible assurance of seniority for new bond issues proved even more problematic, although a limited number of exit bonds were successfully sold to smaller banks that wished to eliminate their loan exposure and thereby to rid themselves of further calls for concerted rescheduling and new lending.

Buybacks and exit bonds thus enjoyed limited success before the Brady Plan. Debt-equity swaps also thrived both before and after the plan, although in somewhat different guises. In the late 1980s, it was difficult to sustain debt-equity-swap programs, because they were inflationary: most central banks (with the notable exception of the Bank of Chile) simply printed money to pay for the swap. In addition, there was considerable and probably justified suspicion by debtor-country politicians and officials that they were paying too high a price for immediate liquidity, that is, that banks and investors were the primary beneficiaries. By late 1988, all official swap programs except Chile's were effectively dead. They reemerged in the early 1990s, however, because they were typically linked to privatization initiatives, following a precedent established by Chile's successful swap scheme in the mid-1980s. This scheme allowed governments to swap their debt for their real assets, state enterprises, rather than for paper assets created by bond or money issues. Since 1993, debt-equity swaps have again tapered off, not for macroeconomic reasons this time, but rather because of the rapid increase in secondary-market debt prices and the consequent erosion of room for debtors and investors to share the benefits from a substantial discount on face values (Bowe and Dean 1997).

An analytical explanation for the failure of MDR before Brady can be identified by reference to Krugman (1989), who shows that under

any MDR scheme, creditors' collective net benefits are identical to those obtained under a strategy of collective forgiveness; see equation (1). A corollary of this result is that MDR offers no opportunities for breaking the free-rider barrier to voluntary debt relief. This "Krugman corollary" rests on three assumptions that are rather more implicit than explicit in Krugman's exposition: (1) the inability of creditors to "appropriate" any benefits from MDR beyond those they would receive from pure forgiveness, (2) the existence of identical investment incentives irrespective of the form of debt reduction, and (3) homogeneous creditors. As we shall see, each of these three assumptions was sufficiently unrealistic by 1989 that MDR did, indeed, offer efficiency gains unavailable under a nonmarket-based strategy.

MDR and Appropriability

The role of appropriability in assessing the viability of MDR can be clarified in a simple model based on Claessens et al. (1991). Because investment incentives do not bear on appropriability, and consistent with the empirical evidence for developing countries in Claessens (1990), Cohen (1990), and Dean and Xu (1991), we depart from the model by assuming that induced investment is zero ($dI/dx = 0$ in equation [1]).⁵ Assume, consistent with the payments distribution underlying equation (1), that the probability of the "good" state in which all debt, D , is repaid, is π . Assume that debt payments in the bad state are Y . For example, Y might be the country's output in the bad state available for debt-service transfers, or it might be its stock of foreign-exchange reserves. The debt's expected value, $E(V)$, then equals the expected flow of debt-service transfers:

$$E(V) = \pi D + (1 - \pi)Y . \quad (2)$$

The average value of debt is its price, p :

$$p = E(V)/D = \pi + (1 - \pi)Y/D . \quad (3)$$

Note the crucial distinction between the marginal and average value of debt, which must be made in evaluating any MDR schemes.

The change in the debt's market value as its nominal value increases can be split into average and inframarginal components:

⁵ When $dI/dx = 0$, equation (1) implies that $dE(V)/dx = -dE(V)/dD = -\pi$. We also exclude the "indirect" benefits from debt relief that are likely to derive from its role in reducing the deadweight costs of default, negotiation, and enforcement of penalties. Inclusion of induced investment adds to creditors' benefits, and inclusion of indirect benefits generally benefits all parties.

$$dE(V)/dD = p + D(dp/dD) = p - (1 - \pi)Y/D = \pi . \quad (4)$$

The first term is the market price of debt, and the second, which is negative, is minus the share of payments expected to come from bad states. If $Y = 0$, $p = \pi$; the average and marginal benefits (and costs) of debt are equal.

We are now in a position to analyze the gains and losses to debtors and creditors under pure collective forgiveness as compared to those under MDR.

Pure forgiveness. An extra dollar of debt increases the expected value of creditors' claims by π and simultaneously imposes an equivalent cost, C , on debtors.

$$dE(V)/dD = -dC/dD = \pi \quad (5)$$

Alternatively, with each dollar they forgive, creditors lose an amount equal to the probability π that they would have been paid, and the debtor realizes an equal gain. Notice that over the range where the DLC is flat, the marginal benefit and cost of debt relief, π , is 0.

Debtor-financed buybacks. Now consider self-financed buybacks in which the debtor uses p dollars of its current output or reserves to repurchase one dollar of debt from its creditors. Superficially, it would seem that the debtor gives up p dollars and gains π dollars, whereas creditors receive p dollars and give up π dollars. This implicitly assumes, however, that creditors are able to "appropriate" the p dollars paid out by the debtor. Krugman's analysis proceeds on the assumption that before the buyback, the debtor's ability to pay in the "bad" or default state of the world was strictly limited to Y dollars, and that after the buyback, it is therefore reduced by p dollars. In other words, Krugman implicitly assumes that the creditors' ability to "appropriate" p , the cost of the buyback, is zero.

In terms of our model, this amounts to the assumption that $dY/dD = p$. Creditors' gains are reduced from $p - \pi$ to $(p - \pi - dY/dD) = -\pi$. That is, the creditors' collective loss and the debtor's gain is just π , exactly as it would have been with pure collective forgiveness.

It is readily shown that, as long as investment incentives are ignored, this "Krugman equivalence" between collective forgiveness and MDR applies equally to exit bonds, which are financed out of the debtor's future revenues rather than its current revenues. Consider a debtor borrowing $\$p$ to buy back $\$1$ of its debt, with repayment of existing debt unambiguously junior to the absolutely certain repayment of the $\$p$. This scheme is exactly equivalent to a buyback costing $\$p$ financed out of current resources with zero appropriability, or to the exchange

of a senior exit bond worth $\$p$ for $\$1$ of old debt. As we shall see at the end of Chapter 5, the way in which the burden of debt reduction under the Brady Plan is shared between the banks that sell off or swap their debt and the official lenders that finance the sale or the collateralization hinges on how much seniority the official lenders enjoy with respect to the banks. In this context, we now see that “seniority” could as well be termed “appropriability.”

For both buybacks and exit bonds, the crucial assumption for “Krugman equivalence” to collective forgiveness is that creditors have zero ability to appropriate the cost of the buyback from the debtor. This may or may not be a realistic assumption for debtor-financed buybacks and exit bonds. It amounts to the assumption that there are “default” states of the world in which the debtor’s ability and willingness to pay are unambiguously fixed. Note that in the case of uncollateralized exit bonds, a credible pledge of complete appropriability to creditors (not just to senior creditors) would, in our version of the Krugman-Claessens model, require 100 percent probability of the “good” state, or $\pi = 1$.

If buybacks or exit bonds are financed by an external donor, however, creditors are able to “appropriate” their cost, even if the debtor’s ability to pay is fixed. This was the case in 1987, when Bolivia bought back commercial-bank debt using externally donated funds, a case that prompted Bulow and Rogoff (1988, 1991) to coin the term “buyback boondoggle.” They applied this term more generally, in fact, to debtor-financed buybacks, implicitly invoking an assumption of complete appropriability by creditors to suggest that contrary to the Krugman corollary, debtors stand to lose $(p - \pi)$ dollars per dollar of debt reduction if they are foolish enough to self-finance a buyback.

In short, the debtor will lose maximally if neither its ability nor willingness to pay is reduced by paying for the buyback, and if it therefore does not or cannot reduce its default-state payments. In that case, appropriability by creditors is complete, and $dY/dD = 0$. The debtor pays the average cost of debt reduction, p , but gains only the marginal reduction in debt payments, π . In this case, it will be the debtor rather than the creditors who blocks voluntary MDR.

What is clear in retrospect but was not clear at the time is that resolution of the “buyback” controversy rests on which appropriability assumption is made. The following section describes the controversy in more detail with specific reference to the Bolivian experience.

The Bolivian buyback debate. The Bolivian externally funded buyback was engineered in 1987, partly under advice from Jeffrey Sachs. Bolivia’s bank creditors agreed to sell almost half of Bolivia’s \$670 million debt

for funds donated by third parties. Unfortunately, Bolivia's DLC turned out to be virtually flat, with π close to zero. Bolivia's benefactors bought back debt that Bolivia was not going to repay anyway. Although its marginal value was almost unchanged (at zero), the price or average value of the debt rose from 6 to 11 cents because its face value was cut nearly in half. The expected value of Bolivia's debt payments remained virtually unchanged (falling from \$40.2 million to \$39.8 million), and Bolivia therefore seemed to gain almost nothing from the buyback. Bulow and Rogoff (1988) analyzed this "buyback boondoggle" to explode the myth that buybacks necessarily benefit debtors.

The crucial analytical difference between Sachs and Bulow and Rogoff is that the latter assume that both the debtor's ability to pay and its willingness to pay will be unaffected by debt reduction. Undiminished willingness to pay by a debtor corresponds to what we earlier termed 100 percent "appropriability" by creditors. Indeed, Bulow and Rogoff explicitly recognize that their result rests on their appropriability assumption: whatever sovereign borrowers prepay (as in a buyback) is not deducted from their future payments. This is a much more plausible assumption for sovereign than for private borrowers. Bulow and Rogoff point out that the "ability" of sovereign borrowers is ill defined. Certainly, debt payments are a small fraction of GNP, less than 5 percent for most problem debtors in the 1980s (Bulow and Rogoff, 1991). Bulow's and Rogoff's judgment is that the debtor's ability to pay, or more accurately, the creditors' ability to collect, is not likely to be reduced as the result of a self-financed buyback.

Beyond their appropriability assumption under fixed ability to pay, Bulow and Rogoff further, and crucially, assume that any efficiency gains from marginal debt reduction must accrue to creditors. This brings us to a second distinction between their views and those of Sachs. Bulow's and Rogoff's critique is directed toward small, marginal, and voluntary MDR, what they call "open market buybacks." Sachs's enthusiasm is directed toward large, involuntary debt reduction, either market based (CMDR) or mandatory. Indeed, Sachs argues that marginal MDR is no panacea, and Bulow and Rogoff (1988) agree that buybacks can be justified if the debtor country negotiates substantial concessions or compensations for undertaking the repurchase, or if it "repurchases debt at an effective price that is sufficiently below market" (Bulow and Rogoff, 1991, p. 227).

But Sachs (1988) argues that even without such concessions, the benefits to debtors of debt reduction are likely to extend well beyond any reduction in expected payments. If the write-down is total, the

benefits will at least equal the average cost of a buyback, $\$p$. But even when debt reduction is small, Sachs argues that the benefits to a debtor are likely to exceed the marginal reduction in expected debt payments. Debtors in arrears are typically subject to costly harassment from their private creditors and from the IFIs. Harassment shades gradually into sanctions. Exports and imports are hard to finance without trade credit, and even if debtors agree to pay with cash in advance, the major banks are quite capable of blocking funds-transfer mechanisms (Fafchamps, 1992). Sachs (1988, p. 707) further argues that a country with debt overhang faces a “major internal disincentive to economic reforms that increase [its] debt service capacity.”

In the end, the much-publicized differences between Sachs and Bulow and Rogoff are judgmental rather than analytical. Sachs judges the debt overhang to have large long-run disincentive effects and to operate through political as well as economic channels. Bulow and Rogoff are less sure. In Bulow’s and Rogoff’s defense is recent evidence that slow growth in the 1980s led to debt difficulties rather than vice versa (Cohen, 1993; Warner, 1993). In Sachs’s defense, the recent turnarounds in Argentina, Chile, and Mexico seem to have had something to do with large-scale debt reduction.

An independent analytical answer to Bulow’s and Rogoff’s case against buybacks is provided by Kenen (1991), who employs a model in which the benefits from debt reduction do not depend exclusively on the inefficiencies associated with a debt overhang. This results from his assumption that valuations by creditors and debtors differ: the costs of repudiation borne by debtors do not directly raise the value of creditors’ claims. Using this framework, Kenen shows that a buyback at the market price can be mutually beneficial: that is, it “can raise the debtor’s income even when the opportunity costs of using scarce resources to buy back debt are larger at the margin than the costs of being in debt” (Kenen, 1990, n. 5).

MDR and Induced Investment

If the IMF and World Bank funding of Brady deals carries implicit seniority over outstanding commercial debt, do Brady deals offer creditors any advantage over the self-funded buyback possibilities that previously existed? The model just outlined suggests that *a priori*, the ability of creditors to appropriate is as likely to be zero in either case. One clue to Brady’s appeal is implicit in Froot (1989), who distinguishes sharply between current- and future-funded MDR.

The second implicit assumption of the Krugman “equivalence” corollary is that debt reduction through MDR of whatever form induces identical investment to that induced through simple forgiveness. By distinguishing between their respective investment effects, however, Froot (1989) demonstrates that debt reduction self-financed out of future cash flows increases a debtor’s welfare more than does debt reduction self-financed out of current resources. Buybacks out of current resources reduce current liquidity, raise the marginal utility of current consumption, and thus result in lower induced investment than do future-financed exit bonds. It is because of this effect, not of any difference in appropriability,⁶ that Froot finds debtor welfare higher with future-financed MDR. Part of the Brady Plan’s appeal, therefore, is that it funds debt relief without impairing current liquidity: funds for buybacks or collateralization of exit bonds are lent to the debtor rather than being drawn out of its current resources.⁷

In short, Froot’s model moves beyond Krugman’s by distinguishing between the investment-incentive effects from currently funded, as compared to future-funded, MDR. Although this distinction does not in and of itself break the free-rider barrier, it offers more scope for doing so, that is, more scope for simultaneous appropriation of benefits by creditors and debtors.

Krugman’s third assumption is that creditors are homogeneous. If this assumption is dropped, MDR can assuredly break the free-rider

⁶ Like Krugman, Froot effectively assumes zero appropriability by creditors. Unlike Krugman, he buries the assumption: “gunboat-technology” means that the debt-service transfers creditors obtain are exactly equal to the debtor’s ability to pay. This, in turn, is reduced by precisely the cost of debt reduction, whether self-financing comes from current or future resources.

⁷ Froot’s result depends on the illiquidity effect discussed in Chapter 3. Note that because our model assumes $dI/dx = 0$, it abstracts from Froot’s distinction. A referee of this paper commented that this result could be reversed by public-finance considerations, because a buyback out of current resources (even if they are raised by current taxes) reduces the expected future tax burden, which could encourage investment. However, Froot’s model rules out this possibility. A buyback out of current resources (whether raised by taxes or not) reduces investment by more than the prospect of lower future taxes raises investment, because the current marginal utility of consumption is above the discounted future marginal utility of consumption. This will be true as long as the debtor is credit constrained by being unable to borrow at world interest rates, r^* . In other words, the Froot result—that the “liquidity effects” of credit rationing discourage investment more than the disincentive effects of the debt overhang—holds, whether the disincentive of the overhang derives from the prospect of taxation to pay foreign creditors or from the prospect that creditors may extract future resources by some other means.

barrier. The implications of creditor heterogeneity are discussed in Chapter 5.

In summary, the 1980s closed in a mood of pessimism about the feasibility of MDR. Unless mutual benefits from a DLC rising in debt relief are very strong, buybacks or exit bonds offered to uncoordinated, competitive creditors either (1) harm the debtor and will therefore be blocked by rational debtors (if self-financed and nondeductible from debt payments—that is, if their financing is “appropriable” by creditors); this is the Bulow and Rogoff case; or (2) harm individual, uncoordinated creditors and will therefore be blocked by creditors (if their financing is not appropriable); this is the Krugman case in which free-rider barriers block voluntary MDR; or (3) impose a cost on an external donor that is entirely appropriated by creditors and that could be largely avoided by coordinating creditors (that is, by making MDR for individual creditors in some sense “involuntary”); this is the Bulow and Rogoff case applied to the Bolivian buyback “boondoggle” of 1988.

Before we examine how the Brady Plan confronted these difficulties, we consider another strategy that was advocated to overcome the perceived failures of MDR, namely, coordinated forgiveness, orchestrated through an IDF.

Replacing the Market with an International Debt Facility

Thus far, we have determined that, collectively, creditors benefit from debt relief if and only if sufficient investment is induced so that increased expected payments on the remaining debt exceed the option value of payments lost on the debt that has been written off. Equation (1), however, shows that debt forgiveness will not usually be in an individual creditor’s self-interest because the creditor stands to lose π but gain only $[(1 - \pi)(dI/dx)f'(I)]/n$, if there are n creditors, each with an equal share in the debt. Unless n is sufficiently small, self-interest induces each creditor to free-ride on debt relief provided by others, and thus no debt relief will occur unless it is orchestrated collectively.⁸ We have also determined that MDR can break the free-rider barrier only if both individual creditors and the debtor can simultaneously “appropriate” part of any efficiency gain that results from debt reduction.

Because of such barriers, the post-1982 strategy of rescheduling with new lending required considerable coordination between lenders. This led at various times during the 1980s to calls for the establishment of an

⁸ If creditors interact, however, even noncooperatively, individual creditors will in fact provide some debt relief, although not as much as they would if they were to act collectively (see Helpman, 1989b).

international debt facility. Numerous proposals were advanced, beginning with those by Rohatyn (1983) and Kenen (1983), which share the same fundamental approach although they differ somewhat in their details. The IDF would purchase a given proportion of a debtor country's existing debt for cash from its commercial-bank creditors. The IDF would obtain cash for this purpose by issuing riskless bonds guaranteed by creditor governments, the taxpayers of which would then effectively own the IDF. The debtor countries would henceforth make service payments directly to the IDF on the fraction of their debt it held. The IDF would provide conditional debt relief on the contractual value of the debt purchased, through some combination of reduced interest and principal repayments. The debt-service payments received by the IDF from the debtor nations would be used to service the bonds.

Sachs and Huizinga (1987), Sachs (1990), and Kenen (1983, 1988, 1990) have all forcefully argued the advantages of an IDF. These would derive from two sources, its ability to subject the granting of relief to conditionality and its access to superior information. An IDF, it is argued, could make debt and liquidity relief conditional on specified structural adjustments by the debtor. Because of its supranational status (it would probably be run by the IFIs), an IDF would be more politically acceptable than a cartel of private creditors as a designer and monitor of conditionality. The IFIs, moreover, have a weightier arsenal of carrots and sticks at their disposal.

It is sometimes argued that the IFIs are better informed than private creditors, that they are more likely to be familiar with a debtor's problems and have a better sense of the costs of adjustment and the uses to which new loans will be directed. But why cannot private creditors simply hire consultants? One answer is that the IFIs enjoy scale economies in information gathering. Moreover, although private creditors could in principle share the IFIs' expertise, the IFIs are notoriously secretive. The IFIs typically rationalize their secrecy by claiming that countries release information only on the promise that it will not be publicized. An additional argument is that the IFIs' political acceptability and arsenal of carrots and sticks gives them a crucial edge in accessing information.

On grounds of both conditionality and information, therefore, an IDF might be an efficient and feasible way to engineer debt relief. The benefits of such relief, deriving from enhanced investment and growth, would flow to all parties concerned: debtor governments, creditor-country commercial banks, and creditor-country taxpayers funding the facility.

Opponents of the establishment of an IDF are skeptical not just about the IDF's alleged comparative advantage in imposing conditionality, but of the virtues of conditionality itself. Their criticisms apply to all officially orchestrated conditional debt-relief proposals, including the Brady Plan (Bulow and Rogoff, 1990). Wells (1993) considers the distribution of gains between debtors and creditors from IDF-mediated debt relief assuming that the IDF can impose conditionality by providing debt relief if and only if a debtor has reached agreement with its creditors (no lending into arrears). He argues that the imposition of conditionality, relative to a situation in which relief is unconditional, (1) hardens the bargaining stance of creditors, because they now have enhanced ability to hold up disbursement of relief, (2) increases the expected price debtors pay to obtain relief, and (3) reduces the efficiency of relief by increasing the negotiating time prior to reaching an agreement. Indeed, unless the IDF possesses superior information, conditional lending according to this line of reasoning benefits creditors at the expense of debtors. The Bulow and Rogoff and Wells arguments echo Corden (1988) in suggesting that the most efficient way to provide debt relief is to institute a policy of unconditional lending combined with market-based debt relief. The IMF did just that, however, when, as part of the Brady Plan, it began lending into arrears, rendering the above lines of criticism somewhat obsolete.

Corden (1988) also argues that if debt relief is officially funded or underwritten, it exposes the creditor-country taxpayers who effectively own the IDF to at least some contingent liabilities. Advocates of an IDF have argued that a "bank bailout" at taxpayers' expense is avoided by simply subordinating the payments on retained commercial holdings to those on IDF-held debt. Both Corden (1988) and Bulow and Rogoff (1990) argue that this is misleading, for if banks expect subordination, they will demand higher prices for the debt they sell. If they do not expect subordination, they will nevertheless demand the expected post-buyback price (Dooley, 1988a, 1988b), which will necessarily be higher than the price prior to the announcement of the buyback, because an essential feature of an IDF is that it writes off part of the debtor's contractual obligation.

We are not fully persuaded by the arguments of Corden, Bulow and Rogoff, and Wells against the merits of officially orchestrated concerted debt relief. First, they underestimate the IFIs' comparative advantage in imposing conditionality. Claims that private-sector banks could, in principle, orchestrate the disbursement of lending so as to induce debtor countries to engage in economic adjustment ignores the reality that the

IFIs specialize in such orchestration, whereas commercial banks do not. Second, it is implausible to argue that even a cartel of very large banks would have more influence with the Paris Club of bilateral lenders, or with the debtor governments themselves, than does the IMF. This assumes that such a bank cartel, with unanimity of purpose, could be formed at sufficiently low cost whenever adjustment is called for in a particular debtor country. Third, the anticonditionality argument implicitly assumes that self-interest is sufficient to induce debtor countries to adjust optimally in the absence of conditionality. The reality is different, however. Many indebted countries, particularly the most severely indebted, have very limited political or technical capacity to pursue their own long-run self-interest without judicious prodding and guidance from the IFIs; in practice, beleaguered developing-country politicians can often blame the need for arduous adjustment on the IMF or the World Bank. Fourth, evidence that IFI-sponsored structural adjustment does, indeed, ultimately benefit such countries is beginning to accumulate.

For reasons similar to those above, we also question the assumption that private creditors can become as cost-effectively well informed as an IDF that can draw on the substantial information-gathering and processing capabilities of the IFIs. Furthermore, the arguments of Dooley and Corden that banks will demand an enhanced price to refrain from free-riding, and an additional enhancement if their retained claims are to be subordinated, are perfectly valid under competitive conditions; but if the IDF enjoys a comparative advantage in imposing conditionality, it can demand a *quid pro quo* from the banks. After all, the banks enjoy a positive externality from IDF-imposed conditionality. If the IDF is simply an agent of the IFIs, it also enjoys, unlike the banks, access to massive resources for liquidity relief. This increases its leverage over the banks still further. Moreover, as Kenen (1990, p. 16) argues, “sponsors of [the IDF] can limit the free-rider problem by offering incentives for banks to participate and penalizing those that don’t.” Such carrots and sticks, which Kenen suggests might be regulatory and tax based, could, in effect, limit free-riding by substituting nonprice incentives and disincentives for the “Dooley” expected post-buyback price that the banks would otherwise demand.⁹ Indeed, as we described at the end of Chapter 2, the Brady Plan has

⁹ Prokop (1995) questions Kenen’s proposition on theoretical grounds by showing that there are equilibria in which organized buybacks can be blocked by free-riding among banks. This does not necessarily deny the workability of the proposition in practice, as the success of the Brady-organized buybacks and exchanges demonstrates.

successfully limited free-riding by employing nonprice disincentives to nonparticipation, notably the threat to abrogate cross-default clauses. As we shall see in Chapter 5, the IFIs have proved able to help debtors negotiate relief from the banks at prices much closer to pre-deal rather than post-deal levels.

Whatever their merits, IDF proposals were usurped in 1989 by the Brady Plan, a strategy that attempted to harness the price-signaling properties of the market while simultaneously imposing enough non-market coercion to overcome the free-rider barrier. The Brady Plan deployed the IFIs' comparative advantage in implementing debtor adjustment and in providing liquidity relief, in order to induce the banks to participate collectively rather than to free-ride and in order to induce them to offer debt relief at lower (buyback and exit-bond) prices than would be necessary under competitive market conditions. We characterize the Brady Plan as a generic strategy of concerted market-based debt relief (CMDR). We now argue that the intriguing feature of CMDR is its ability to lower the price of debt relief without reducing the welfare gains to creditors. In other words, CMDR is a Pareto improvement over both MDR and a strictly nonmarket, concerted strategy.

5 THE PERFORMANCE OF THE BRADY PLAN

The Brady Plan and Heterogeneous Creditors

Under Brady's CMDR approach to debt reduction, all bank creditors were, in effect, forced to participate, either by providing debt relief (that is, exiting) or by injecting new funds. Thus, the approach was "concerted." It was nevertheless market based in two senses. First, it offered the banks a buyback or exit bonds priced at or slightly above current secondary-market value. Second, having forced their participation, it offered the banks a choice across a menu of options. The two basic choices were between debt relief or liquidity relief, that is, between "exit" or "nonexit subject to a new-money call." In addition, many Brady menus offered several choices within the "exit" option, between buybacks and exit bonds, or among various types of exit bonds. As we shall see, this approach exploited the different preferences of banks and the different regulatory circumstances facing them, with the outcome that the cost of debt relief was lowered, or, equivalently, that more debt relief was obtained for a given outlay.¹

Heterogeneous creditors under CMDR. The menu approach harnesses a fundamental economic reality, differences between commercial creditors, to reduce the costs of buying out creditors through buybacks or exit bonds (Diwan and Speigel, 1994). Bouchet and Hay (1989) argue that commercial creditors' evaluations of the debt-relief or new-money options available under the Brady Plan will vary in response to differences in the incentives created by the regulatory and tax environment in which they operate. Importantly, Diwan and Kletzer (1992) and Demirguc-Kunt and Diwan (1990) demonstrate that this heterogeneity can persist in equilibrium, even in the presence of a secondary debt market, an argument we now clarify.

In the absence of regulatory and tax differences, and assuming risk neutrality, a bank will select the option from the Brady menu that has greatest present value. Alternative choices from the menu may be motivated by differences in expectations (Williamson, 1989), alternative business opportunities, and size. The last is important in the presence

¹ More precisely, when price discrimination across creditors is greater, that is, when the elasticity of bank exit prices with respect to buyback quantities is higher, the optimal quantity of exit (from the debtor's viewpoint) is higher.

of the fixed costs associated with monitoring and recontracting (Fernandez and Ozler, 1991). The existence of a secondary debt market, however, means that “optimistic” banks, those with more favorable expectations about a debtor’s prospects, can directly buy out “pessimistic” banks without the need for a menu. A reason must thus be provided for the fact that even in equilibrium, valuations of homogeneous debt differ across holders.

It is well known that the regulatory regime, combined with a bank’s balance-sheet structure, may exacerbate risk taking. One argument to this effect is that banks that are “too big to fail” enjoy more favorable regulatory treatment than do small banks. This subsidizes the risk taking of large banks. Given a Brady-type menu, big banks with exposure to troubled assets will be biased toward the nonexit option because debt reduction imposes book losses that are costly relative to the subsidies against failure provided by regulation. There are two difficulties with this argument. First, it assumes that the risk profile of a sovereign-debt portfolio cannot be replicated by other traded assets. If it could, small banks might attain the same risk profile by buying these substitute assets. Second, it has the empirical implication that certain banks should specialize in certain risk segments and that sovereign-debt exposure and bank size should be negatively correlated to choice of the exit option, neither of which are observed empirically (for evidence, see Demirguc-Kunt and Diwan, 1990).

A more promising explanation of the influence of regulatory differences on heterogeneous bank menu choices is suggested by the existence of “excess leverage rights.” These occur if the book-value application of capital requirements permits banks to overrepresent their capital by entering impaired-debt claims at a premium over their true (market) value.² Owning sovereign-debt claims with a market value below their book value thereby generates “excess leverage rights.” These rights are forfeited once the debt claims are traded.

Excess leverage rights are nontraded assets and are more valuable to “weak” banks, that is, banks having high proportions of assets the value of which has depreciated subsequent to being booked. These banks will require higher exit prices to be induced to sell. This leads to heterogeneity in the valuation of debt by banks, with the observed secondary-market price equaling the valuation of debt by the marginal bank. Thus, different creditors will select different options from the Brady menu.

² See Demirguc-Kunt and Diwan (1990). The effects of book-value accounting on exit incentives was first discussed by Sachs and Huizinga (1987) and Bouchet and Hay (1989).

The banks with low valuation of excess rights will sell, whereas the banks that place a greater value on such rights will provide new money. In this example, the difference between creditors is attributable to differences in their capital positions. Clearly, valuable but nontradable leverage rights also accrue to banks in favorable regulatory jurisdictions such as the United States, where underpriced deposit insurance effectively subsidizes banks' cost of funds, in jurisdictions where statutory capital requirements are lower, or in jurisdictions where tax benefits serve to differentiate banks along the exit/new-money spectrum.³ Whatever the cause, heterogeneity among creditors is established and the Krugman corollary breaks down.

To illustrate the mechanics of the menu approach and to clarify its impact on secondary-market debt prices, we now provide a simple formal analysis of the way in which a Brady menu operates. At the outset of a Brady deal, all creditors agree with the debtor country on a menu of options, represented by (p, K) . For each unit of outstanding claims, a creditor may choose between exiting at a price, p , or providing new money. The amount of new money required is expressed as a fraction, K , of outstanding debt, known as the "new-money call." This fraction is prenegotiated as part of the deal and is therefore predetermined once individual creditors make their choice between exiting or not. The total amount of new money is L , and debt relief is x . Let D_1 denote the outstanding debt stock one period after implementation of CMDR. It follows that

$$D_1 = (1 + r^*) (D - x + L) , \quad (6)$$

and

$$K = L / (D - x) . \quad (7)$$

We assume that the liquidity provided by the CMDR facilitates efficiency-enhancing (often conditional) adjustments by the debtor and

³ In some countries, the bias toward retaining sovereign debt at book value is partly offset by tax benefits tied to losses. Moreover, these benefits sometimes accrue when losses are recognized through reserve provisioning rather than actual market sales. This is true of Canada, France, Germany, Switzerland, and the United Kingdom. But France, Japan, and the United States provide tax benefits only after actual sales or exchanges. Provisioning per se produces no benefits. Moreover, most countries of the Organization for Economic Cooperation and Development (OECD) do not allow loan-loss reserves to count as part of capital, thereby making provisioning costly. France, Japan, and the United States considered loan-loss reserves to be part of capital until their inclusion was disallowed in 1992 by the homogeneous capital requirements imposed by the Basle Accord.

is expected to increase resources available for debt service by $(1 + w)$ percent. Note that at this level of abstraction, we do not distinguish between ability and willingness to pay. In practice, over medium to long periods of time, say one year or more, $w > 0$ is likely to result from increased availability of foreign exchange resulting from investment and structural adjustment. In the short term, however, it more typically results from increased payments out of fixed resources, because liquidity relief is often made conditional on settlement of arrears and resumption of scheduled debt service.

The recent literature on debt relief (for example, Diwan and Rodrik, 1992, on whom we draw here) seems largely to ignore the early sovereign-debt literature, which emphasized the importance of incentives to repay. Similarly, the gunboat assumption that permeates recent literature assumes that when debtors are in default, creditors can attach 100 percent, or at least a fixed percentage, of any increase in resources. This is an assumption that is more appropriate to corporate finance, from which most of the recent literature has evolved. Indeed, a defining feature of sovereign finance is that creditors have no automatic lien on assets.

This deficiency noted, we proceed in the spirit of the recent literature. The expected post-CMDR price of debt is

$$p_1 = V(1 + w)/D_1 , \tag{8}$$

where V is the expected present value of debt payments pre-CMDR. Creditors choose from a menu between exit and new lending options to maximize their expected returns. As exit proceeds, the expected price of debt rises relative to its current price, both because of expected adjustment, w , and because of a shrinking base of obligations, from D to D_1 :

$$p_1 = V(1 + w)/D_1 > p_0 = V/(1 + r^*)D .$$

A creditor that does not exit will see his old claims increase in value. Given that a nonexiting creditor is required to lend K for each unit of the debtor's claims in his portfolio, he will end up holding $(1 + K)$ worth p_1 and will have been required to part with K in the form of a new loan (on which he suffers an immediate capital loss of $(1 - p_1)K$). The creditor compares his expected post-deal, nonexit portfolio, worth $\$[p_1(1 + K) - K]$, with the $\$p$ he could have received by simply exiting. When the value of the expected post-deal portfolio rises to equal the value of the exit portfolio, p , exit will cease. In equilibrium,

$$p = [p_1(1 + K) - K] . \tag{9}$$

By combining concerted and voluntary components, CMDR retains the advantages and mitigates the disadvantages of purely concerted and purely voluntary MDR. Moreover, for a menu of options to allow creditors to select their strategy voluntarily, the value of all options must be comparable. This problem is resolved in the Brady menu because each option becomes more valuable as the other is chosen by larger numbers of participants. Solving equation (9) for p_1 shows that in equilibrium, all creditors, whether they exit or provide liquidity relief, value the marginal unit of debt at p_1 . The two options have the same value.⁴

This simple logic has proved remarkably predictive of reality. For example, the 1990 Philippine deal offered a two-way choice between simply selling out for cash or providing new money. In September 1989, the Philippines offered to repurchase its own debt at $p = 0.5$, which was the average trading price over the previous year. Nonexiting banks were subjected to a new-money call of 7 percent. The creditor banks chose exit in the amount of \$1.3 billion. Because outstanding commercial debt eligible for rescheduling was \$11 billion, this implied that nonexiting banks were required to provide \$715 million in new money: $K = 0.715/(11 - 1.3) = 0.07$. The buyback was effected on January 3, 1990, and in the months following, Philippine debt traded at about $p_1 = 0.53$. Thus, the nonexiting banks came out with $p_1(1 + K) - K = 0.53(1.07) - 0.07$ or 50 cents for each dollar of pre-deal debt, which is exactly what the exiting banks obtained!

The Mexican deal, consummated in 1990, was more complex, because the exit option was not a simple buyback but rather two types of exit bonds: a 30-year par bond carrying a below-market interest rate, and a 30-year discount bond carrying a market interest rate but only 65 cents of principal for each dollar of old debt swapped. The new-money call was $K = 0.21$. After the deal, the discount bond traded at 65 cents. Thus, the implicit buyback price was ($\$0.65 \times \$0.65 =$) 42 cents. Applying equation (9) would predict a post-deal debt price of 52 cents, which is indeed what debt was trading for in early 1990.

⁴ For the Brady menu to support an adjustments program, (p, K) must be set so that sufficient new liquidity relief is forthcoming to finance the adjustments (costing A). The menu price that raises exactly $A = L - px$ is found by substituting (6) and (8) into (9) and using (7): $p = [V(1 + w) - (1 + r^*)A]/(1 + r^*)D = s$. The exit price that supports the adjustments program is equal to the expected future payoff per unit of debt, if the country adjusts, net of the present value of the required new loans. This exit price, s , has been termed the fair-exit price. When p is set equal to the fair-exit price, any K will produce a Brady menu that raises A on a net basis. The only effect of varying K is to increase the equilibrium amount of debt relief and liquidity relief in equal amounts.

Because Mexican debt was trading at about 38 cents before the Brady negotiations, the buyback price of 42 cents was 4 cents too high. With an outstanding debt stock of \$48.9 billion, the banks realized a capital gain of \$48.9 billion (x \$0.04), or \$1.95 billion, of the \$5.8 billion lent by the IFIs and Japan. This does not necessarily imply a miscalculation by the designers of the deal. Because of the existence of excess leverage rights, it may have been necessary to give banks this capital gain to induce a sufficient number to exit, even though some would have accepted less. One lesson from this experience is that CMDR can be made cheaper by offering a wider menu.

In the Mexican deal, banks had two exit options: par bonds or discount bonds. If a bank enjoys excess leverage rights because its regulator accounts for its original debt at book value, and if swapping old debt for a par bond partly preserves those rights, the bank can be persuaded to exit at a lower price than if offered only a discount bond or a buyback.⁵ Nevertheless, the need to offer a 4 cent premium over the current debt price suggests that an even wider menu might have helped.

A second lesson, given that a disappointingly small number of banks chose nonexit, is that small buybacks may be more effective at inducing new money than large ones, because large buybacks decrease the deposit-insurance subsidy and excess leverage rights of banks and therefore diminish the incentive to banks to hang on and provide new money.

More choices appeared on menus as experience with the Brady Plan accumulated. The Venezuelan agreement, concluded August 21, 1990, offered creditors new money, discount bonds, par bonds with reduced fixed-interest rates, bonds with temporarily lower interest rates (“step-down, step-up” bonds) and buybacks. Wider choices allow the debtor to discriminate more finely between banks attaching different value to their sovereign-debt claims, with the result that the average purchase price is closer to the minimum at which the debt trades.

Was the Brady Plan Successful?

The Brady Plan can be evaluated according to several criteria. We examine, first, criteria relevant to the debtor countries, that is, whether the plan met its initial targets, whether it led to higher secondary-market prices for developing-country debt, whether access to interna-

⁵ Swapping for a par bond only partly preserves excess leverage rights, because the par bond carries lower interest rates; the regulator is likely to force the bank to mark the debt claim to market gradually over time, rather than all at once.

tional capital markets was restored, and whether growth in GDP and exports resumed. These criteria are listed roughly in order of ease of evaluation but in reverse order of fundamental importance. We then examine whether the plan helped or hurt the banks, and whether it is likely to impose costs on the taxpayer.

The Brady Plan was intended for thirty-nine severely indebted middle-income countries that in 1989 owed a total of \$279 billion to foreign banks, the bulk of it long-term debt and therefore eligible for forgiveness (Sachs, 1989b). By May 1994, Brady deals had been negotiated for eighteen countries, accounting for \$191 billion in eligible debt, and deals were in process for another six or so small countries, accounting for \$20 billion in debt. This meant that about two-thirds of “target” countries had received agreements covering nearly 90 percent of eligible debt. In terms of forgiveness, the original Treasury briefings had mentioned \$70 billion, of which about \$60 billion or 86 percent was agreed to by May 1994. The plan thus more or less met its initial targets.

By the fourth quarter of 1993, secondary-market prices for representative Brady countries had risen dramatically relative to the fourth quarter of 1989: by 109 percent for Argentina and Brazil, 370 percent for Costa Rica, 128 percent for Mexico, and 65 percent for the Philippines (Cline, 1995). Again, by this criterion, the plan must be judged a success.

The resumption of voluntary private lending to Brady countries was dramatic. Moreover, it typically occurred during the year in which the agreement was made in principle, evidence that the new lending was triggered specifically by a Brady deal rather than by a systemic confluence of factors. Lending resumed in 1989 for Mexico, 1990 for Venezuela, and 1992 for Argentina and Brazil. The new lending, however, was primarily in portfolio form, through bonds and equities, rather than from the banks. In short, although the banks understandably felt burnt by their recent experience, debt reduction nevertheless raised confidence in the capital markets. The capital markets were encouraged partly by the voluntary and market-oriented nature of the Brady settlements but partly, also, by the psychological and political boost debt reduction gave to countries’ willingness to pay. Cline (1995, pp. 250–252) has labeled this latter phenomenon “catalytic” debt relief. From a historical perspective, the rapid resumption of debtor creditworthiness was truly remarkable. According to Eichengreen and Portes (1989), countries they classify as “heavy” defaulters in the 1930s had not reentered the market until forty years later, in the 1970s. By

contrast, most of the troubled debtors of the 1980s had their capital-market access restored within ten years.

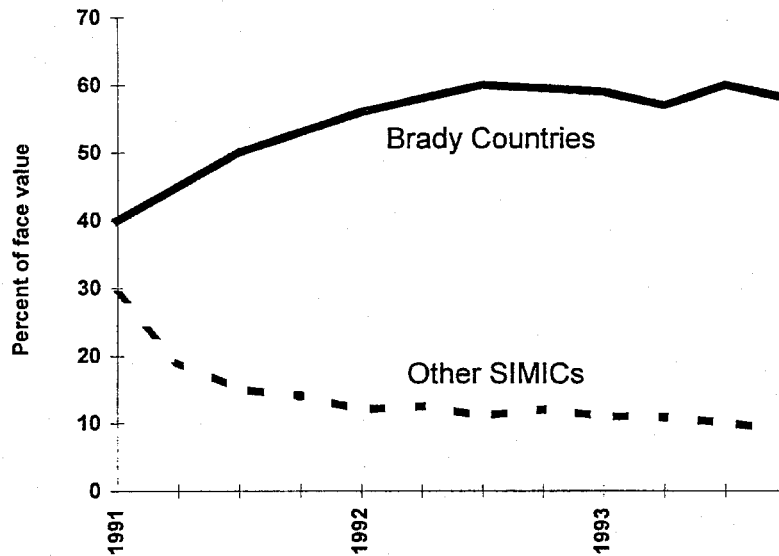
The most fundamental measure of the plan's success has been its effect on growth. Cause and effect are difficult to disentangle in this regard, because IMF conditionality required that the "Washington consensus" preconditions for growth be put in place before a Brady deal could be initiated. Nevertheless, the figures are hard to ignore. Average GDP growth for three large and relatively early Brady countries, Argentina, Mexico, and Venezuela, was 5.3 percent by 1991–93, as opposed to -0.7 percent in 1988–89.

A careful early study of the Brady Plan's impact on growth is the Mexican study by Claessens, Oks, and van Wijnbergen (1993). These authors conclude that Mexico's Brady deal was a "spectacular success" in restoring investment and growth. It is notable, however, that their results do not attribute this success to removal of the debt overhang per se, but rather to the reduction of uncertainty, in particular, uncertainty about the future exchange rate. It is ironic, in this regard, that of all the Brady countries, Mexico proved to be, in late 1994, the least able to avoid such uncertainty.

Debtors are better off since Brady, but what about the banks? Although the banks ultimately wrote off one-third of the amount they had originally lent, there are good grounds for arguing that the Brady Plan left them substantially better off than they were in 1989, when the expected value of their claims had hit bottom. The Brady Plan marked (most would say "triggered") a recovery in secondary-market debt prices. According to Claessens and Diwan (1994), by late 1991, the banks' remaining claims were already worth about \$5.3 billion more than in early 1989. From 1990 to 1993, the debt prices of Brady countries increased by an average of about 50 percent, whereas the debt prices of other severely indebted middle-income countries decreased by about 66 percent (Figure 6). A 33 percent debt reduction followed by a 50 percent increase in debt prices implies a 17 percent increase in the value of remaining debt. Thus, within four years of the first Brady deal, the minority of the banks that hung on rather than exited were 50 percent better off on their Brady-eligible claims (gross of their expected losses on new lending), whereas the banks in aggregate were only 17 percent better off.

More problematic is whether taxpayers stand to lose. For example, of the \$7 billion used to collateralize Mexico's exit bonds, Mexico provided only \$1.25 billion out of current resources; the remainder was lent by the IMF (\$1.7 billion), the World Bank (\$2.0 billion), and the Japanese

FIGURE 6
SECONDARY-MARKET DEBT PRICES



SOURCES: Salomon Brothers and World Bank data.

government (\$2.05 billion). Shareholders of IFIs or Japanese taxpayers could well lose if Mexico fails to repay. Although it is tempting to cite the *de jure* seniority status of official debt and its low *de facto* default rate, it is sobering to contemplate that in practice, year after year, the IFIs have averted default by lending more than they are owed. According to a World Bank estimate, between 1982 and 1987, multilateral official creditors re-lent to the "highly indebted countries" \$1.29 for every \$1 repaid (Bulow and Rogoff, 1990).

Burden Sharing

Dividing the burden of debt relief between banks and official lenders is equally problematic. Not surprisingly, interested parties disagree diametrically on what division of the burden would have been fair. Representatives of banks have tended to argue that the burden of debt reduction in the 1982 debt crisis fell unfairly on the banks, which after all forgave, under duress, some one-third of their claims. The multilateral lending institutions, by contrast, such as the IMF and World Bank, forgave nothing (although of course bilateral lenders forgave substantial

amounts during the first half of the 1990s). The multilaterals, on their part, argue that their role has been to provide new lending when the banks were relatively unwilling to do so. A counterargument provided by Cline (1995, chap. 5) is that the official multilateral institutions bear no burden at all, because their claims enjoy seniority and are always repaid in full.

By the early 1990s, arrears on official bilateral debt were mounting (Table 3), and, as noted above, creditor governments were beginning to provide considerable debt reduction. Moreover, Brady reduction of commercial-bank debt was being financed by the IMF and the World Bank, and the banks were overwhelmingly choosing to exit rather than provide new money. The IFIs became concerned that the reluctance of the commercial banks to provide new money was a failure to share the “burden” of the debt overhang, whereas the banks argued that they were already sharing through debt relief.

Dooley, Haas, and Symansky (1993) suggest that despite having provided the bulk of new lending since 1983, IFIs have not borne a significant share of the burden. This is because payments on IFI loans have *de facto* been senior to those on bank loans, if only because the IFIs continue to disburse enough new money to ensure that their previous claims are fully serviced and repaid. Arrears to the IFIs (except on concessional debt) have been rare, and the Paris Club of bilateral government lenders usually insists on settlement of any arrears before rescheduling. This is, in turn, typically a precondition for any commercial restructuring. IFIs bear no burden if their seniority is assured and if their claims are consistently below each debtor’s total payments.

If lending by IFIs is senior to that by commercial banks, arguments for bank provision of debt relief cannot invoke considerations of burden sharing; they must appeal, instead, to benefits banks stand to gain from incentive effects on debtors (Diwan and Rodrik, 1992). To analyze burden sharing, we therefore adopt the Diwan-Rodrik model and consider a proportional-distribution rule (PDR), according to which the net gains from debt and liquidity relief (the increase in total debt-service transfers minus the loss on loans that are provided to support adjustments) are divided between creditors in proportion to their initial exposures. The present value of net gains from the plan is given by the difference between capital gains on the original stock of debt, $D(p_1 - p)$, and capital losses on liquidity relief, $L(1 - p_1)$, and on debt relief, xp_1 ; if x is the amount of nominal debt reduction, xp_1 is the opportunity cost of that reduction. Because IFIs do not provide debt relief, their share, IFI_s , of these net gains equals the difference between capital gains on

their share, k , of the debt and capital losses on their share, c , of liquidity relief, this difference being expressed as a proportion of total (IFI plus bank) relief:

$$IFI_s = [kD(p_1 - p) - cL(1 - p_1)]/[D(p_1 - p) - L(1 - p_1) - xp_1] \quad (10)$$

A PDR rule says that the IFIs' share of the gains from relief is equal to their initial exposure; that is, $IFI_s = k$. Applying this rule to (10) yields

$$x/L = [(c - k)/k] [(1 - p_1)/p_1] . \quad (11)$$

Under a PDR, IFIs and commercial banks share proportionally in the net financial gain, so that they obtain an equal payoff per unit of exposure.

Diwan and Rodrik use (11) to analyze the implications of the PDR for burden sharing. If new loans were provided by the IFIs simply in proportion to their initial exposure, that is, if c were equal to k , equation (11) states that x would equal zero; debt relief would be unnecessary. Intuitively, under a PDR, commercial banks should not be asked to provide debt relief if the IFIs provide neither debt relief nor a 'disproportionate share of liquidity relief.

When IFIs do provide more than their *pro rata* share of liquidity relief, c will be greater than k , and equation (11) shows that under PDR, x will be greater than zero. Banks must bear the additional burden of debt relief to compensate for their smaller share of new loans. As a corollary, when banks, but not IFIs, provide debt relief, PDR implies that they provide a smaller-than-proportionate share of liquidity relief.

Finally, if $c > k$, as is the case in practice, the paradox emerges that with fair burden sharing, the debt overhang is never eliminated, and the country is never returned to full creditworthiness. If the IFIs have previous exposure ($k > 0$) but do not provide debt relief, eliminating the overhang so that $p_1 = 1$ will mean that the IFIs will obtain a normal return on their new and existing loans, but that commercial creditors will derive a normal return only on the unforgiven part of their debt. This can be seen from (10). As p_1 increases toward 1, the right-hand side of (10) tends toward $kD(1 - p_0)/D(1 - p_0) - x > k$. In short, if the IFIs provide more than their share of liquidity relief, PDR interferes with returning debtors to creditworthiness.

The persistence of secondary-market discounts following a Brady deal is consistent with the above argument if the IFIs have previous exposure to the debtor. It is also consistent with other explanations. For example, the IFIs may be subsidizing the commercial banks by not asking them for sufficient debt relief.

6 CONCLUDING REMARKS

We conclude that concerted market-based debt relief does, indeed, hold considerable potential to benefit sovereign debtors. As argued in Chapter 5, the success of the Brady Plan is evidence of this. For debtors, CMDR appears to offer the following advantages over voluntary MDR:

- (1) The buyback price, p , can be negotiated to a level below the market level, p_1 , expected to prevail after the buyback.
- (2) The amount of debt reduction is likely to be large enough to have substantial incentive effects on both investment and structural adjustment, especially in the medium to long run (after, say, one or more years).
- (3) Typically, structural adjustment is further encouraged by an IMF-World Bank program that is tied to the CMDR.
- (4) The amount, and perceived finality, of major CMDR deals is likely to discourage further harassment by IFIs and quasi sanctions by private creditors, such as the interruption of trade credit or funds-transfer facilities.
- (5) In contrast to self-financed buybacks, resources for CMDR are likely to be future financed (for example, through long-term borrowing from the IFIs). Thus, current liquidity is not reduced.
- (6) In contrast to MDR, CMDR opens the potential for prenegotiated transfers from creditors to debtors of all or most gains that would otherwise accrue to creditors.

Under the Brady Plan, which employed CMDR, debtors appear to have obtained considerable benefits that they would not have received by relying simply on voluntary MDR. Claessens and Diwan (1994) estimate these benefits by comparing the average cost of a dollar of repurchased debt under CMDR (expressed as a percentage of the old face value of debt) to the uncollateralized post-deal price of traded instruments immediately after CMDR occurred. They find that the former is always significantly below the latter, implying that CMDR did better than an equivalent pure MDR operation.¹ The savings average

¹ The difference is greatest for Costa Rica and smallest for the Philippines. See Claessens and Diwan (1994, table 2, p. 16).

about 25 percent. Claessens and Diwan also estimate that by 1991, commercial banks had increased the aggregate value of their loan portfolio by \$5.3 billion compared to its pre-Brady value.

By forcing creditor banks to participate but otherwise leaving them free to choose between a variety of MDR instruments, Brady operations have induced banks to provide market signals of their preferences and constraints. They have also provided banks with important gains relative to their expectations immediately before the initiatives were announced. One should realize, however, that these gains to the banks represent a real cost to debtors unless liquidity and debt relief induces efficiency-enhancing adjustments. Only then can CMDR provide Pareto gains. It is still too early to extract the effects of debt relief from other exogenous changes, such as reductions in world interest rates, and therefore, too early to calculate the impact of CMDR per se on debtors' economies.

APPENDIX: CAN DEBT-EQUITY SWAPS BENEFIT DEBTORS AS WELL AS CREDITORS?

The potential benefits of a swap program are customarily believed to derive from several sources. First and most obviously, the debtor usually captures some of the secondary-market discount on its debt obligations, given that \$1 of the debt is redeemed in return for less than \$1 of equity. With a few exceptions, debtors in the 1980s were prevented from capturing this discount through buybacks because of prepayment clauses in the original loan covenants. The “benefit” of such capture is misleading, however, because debtors’ expected payments already capture the discount. In fact, in existing debt-equity-swap programs, debtors have generally “paid” investors with equity valued at a premium above the secondary-market value of the redeemed debt (although at a discount to the contractual value). Thus, the present value of debtors’ expected payments does not fall as a result of debt-equity swaps; rather, it typically rises (Boehmer and Megginson, 1990).

It might seem that for investors to accept equity valued at a discount from debt, they must somehow be persuaded that payments on equity are to be senior to payments on the remaining, unswapped, debt. As Krugman (1989, p. 272) remarks, the notion that equity might be senior to debt is “itself a fairly weird idea.” In fact, this notion is simply incorrect. Debt is swapped for equity that is marked to current market; that is, its current value is its expected value and is validly compared to the current, discounted, market value of the debt, not the original, undiscounted, contractual value. There is no need to promise seniority on equity payments, although as mentioned above, the current value of equity is typically higher than the debt for which it is swapped.

The only unambiguous and reliable benefit to debtors from debt-equity swaps derives from the fact that unlike debt-service obligations, payments linked to equity are contingent on performance, that is, geared to the borrower’s ability to pay. Helpman (1989a) shows that a sufficient condition for the respective parties to benefit from swaps is that investors must be less risk averse than debtors. In other words, investors must be relatively more willing to forego payment on equity when times are hard for debtors than the debtors are willing to risk the penalties or loss of creditworthiness that would result from defaulting on contractual debt obligations. Any premium in equity values that

creditors obtain under a debt-equity swap reflects this relative incidence of risk aversion. In a similar vein, because debt-equity-swap programs have been inaugurated when debtors have fallen upon hard economic times, their benefits take the form of liquidity relief, for debtors are not expected to make dividend remittances until conditions improve. Indeed, the majority of debt-equity-swap schemes apply a moratorium on dividend and profit remittances lasting several years.¹

Additional, although by no means guaranteed, benefits from debt-equity swaps may derive from efficiency gains: swaps may augment the debtor's ability to pay; they may induce a debtor to select superior investment projects and to allocate risk better (Chang, 1989; Helpman, 1989a; Bowe and Dean, 1993); and they may provide a self-enforcing contractual constraint that reduces the debtor's incentive to default (Bowe and Dean, 1997).

Finally, swaps may generate net capital formation as well as attract foreign technology. Capital formation may arise indirectly, from the investment incentive effect of debt reduction, or more directly, if the investor complements his acquisition of existing capital with an injection of new capital. Indeed, a requirement to inject "new money" has typically been a rider to sovereign debt-equity-swap programs.

Two related problems, commonly called "round-tripping" and lack of "additionality," may serve to offset these benefits. Round-tripping occurs when an investor sells the equity acquired through the swap and withdraws the proceeds from the country. The swap then becomes a cash buyback financed by the debtor's foreign-exchange reserves (see Blackwell and Nocera, 1988; Krugman, 1988, 1989; and Claessens et al., 1991). Swaps can also offset what would otherwise be an inflow of foreign-exchange reserves if the swap investment is not "additional" to one that would have taken place in the program's absence. Without the swap, a foreign-exchange inflow occurs. With the swap, the capital inflow fails to occur, and the transaction effectively becomes a debt buyback financed by the debtor's own resources.

Concern about the inflationary impact of swap financing was the main reason cited for suspension of many countries' swap programs in 1988–89. Local currency for a swap is usually obtained by printing money or by issuing domestic bonds; taxation is normally not an option. Printing money adds to inflation rates that are typically already excessive.

¹ Increasing debtors' current liquidity following the 1982 crisis was likely to be beneficial, given the 5.5 percent decline in GNP per capita during the 1980s and the 5 percent fall in investment as a percentage of GNP experienced by the largest debtors. See Velasco and Larraín (1993) for further discussion of this issue.

Issuing domestic bonds is difficult in thin local securities markets—it raises interest rates, crowds out funds from other sources, and often ends up merely replacing foreign-currency debt with local-currency debt.² Debtors may be further constrained by commitments under IMF adjustment programs to monetary-growth targets and balanced budgets, by the possibility of discouraging foreign investment with the prospect of inflation that may lead to future devaluations, and by concerns over foreign ownership.

Table 4, above, shows that the volume of debt-equity swaps rose continuously from 1985 to 1988. Because swaps merely replaced foreign debt with foreign-equity obligations, however, and because they were often financed by issuing domestic securities, their impact on total (internal plus external) contractual indebtedness was much less than Table 4 might imply. In many debtor countries, in fact, domestic government debt increased dramatically as foreign debt was reduced, not just because of swaps but because domestic fiscal deficits were created to finance foreign-debt payments (Guidotti and Kumar, 1991). DiLeo and Remolona (1989a, 1989b) adjust the data for 1988 accordingly. As Table A–1 shows, debt-equity swaps in 1988 reduced the face value of foreign debt by \$7 billion, but foreign liabilities (debt plus equity) by only \$2.1 billion and total public debt (foreign plus domestic) by only \$1.7 billion. Dooley and Stone (1993), in fact, suggest that the seniority of domestic debt improved at the expense of foreign bank debt during the late 1980s, and they argue that this was the revenue-maximizing response of governments to capital flight, which drained

TABLE A–1
IMPACT OF EQUITY CONVERSIONS, 1988
(in millions of U.S. dollars)

	Reduction in \$ Million	Reduction as % of Conversions
Foreign debt	7,010	100
Foreign liability	2,057	29
Total public debt	1,711	24

SOURCE: DiLeo and Remolona, “Voluntary Conversions of LDC Debt,” 1989a; 1989b.

² For more on the macroeconomic effects of a debt-equity-swap program, see Velasco and Larraín (1993).

the domestic financial tax base. In early 1990, swaps returned to the debt-reduction agenda. This followed the March 1989 Brady initiative and the contemporaneous removal of political opposition to privatization in many debtor countries. The consolidation and private-sector expansion that followed finally began substantially to reduce public-sector demands on financial markets.

REFERENCES

- Blackwell, Michael, and Simon Nocera, "The Impact of Debt to Equity Conversion," *Finance and Development*, 25 (June 1988), pp. 15–17.
- Boehmer, Ekkehart, and William L. Megginson, "Determinants of Secondary Market Prices for Developing Country Syndicated Loans," *Journal of Finance*, 45 (December 1990), pp. 517–540.
- Boot, Arnoud W. A., and George Kanatas, "Rescheduling of Sovereign Debt: Forgiveness, Precommitment, and New Money," *Journal of Money, Credit and Banking*, 27 (May 1995), pp. 363–377.
- Borensztein, Eduardo, "Debt Overhang, Credit Rationing and Investment," *Journal of Development Economics*, 32 (April 1990), pp. 315–335.
- Bouchet, Michael, and Jonathan Hay, "The Rise of the Market-Based 'Menu' Approach and Its Limitations," in Ishrat Husain and Ishac Diwan, eds., *Dealing with the Debt Crisis*, Washington, D.C., World Bank, 1989, pp. 149–159.
- Bowe, Michael, and James W. Dean, "Voluntary Debt Relief and the Philippines," *ASEAN Economic Bulletin*, 7 (July 1990), pp. 11–38.
- , "Debt-Equity Swaps: Investment Incentive Effects and Secondary Market Prices," *Oxford Economic Papers*, 45 (January 1993), pp. 30–47.
- , "Debt-Equity Swaps and the Enforcement of Sovereign Loan Contracts," *Journal of International Development*, 9 (January 1997), pp. 59–83.
- Bulow, Jeremy, and Kenneth Rogoff, "The Buyback Boondoggle," *Brookings Papers on Economic Activity*, No. 2 (1988), pp. 675–798.
- , "Cleaning up Third World Debt Without Getting Taken to the Cleaners," *Journal of Economic Perspectives*, 4 (Winter 1990), pp. 31–42.
- , "Sovereign Buybacks: No Cure for Overhang," *Quarterly Journal of Economics*, 96 (June 1991), pp. 219–235.
- Chang, P.H. Kevin, "Debt Restructuring and Investment Incentives in LDC's," New York University School of Business, November 1989, processed.
- Claessens, Stijn, "The Debt Laffer Curve: Some Estimates," *World Development*, 18 (December 1990), pp. 1671–1677.
- Claessens, Stijn, and Ishac Diwan, "Recent Experience with Commercial Debt Reduction: Has the Menu Outdone the Market?" *World Development*, 22 (February 1994), pp. 201–213.
- Claessens, Stijn, Ishac Diwan, Kenneth A. Froot, and Paul R. Krugman, "Market-Based Debt Reduction for Developing Countries: Principles and Prospects," Policy and Research Series No. 16, Washington, D.C., World Bank, 1990.
- Claessens, Stijn, Daniel Oks, and Sweder van Wijnbergen, "Interest Rates, Growth, and External Debt: The Macroeconomic Impact of Mexico's Brady

- Deal,” PRE Working Paper No. 1147, International Economics Department, Washington, D.C., World Bank, 1993.
- Cline, William, *International Debt and the Stability of the World Economy*, Washington, D.C., Institute for International Economics, 1983.
- , “The Baker Plan and Brady Reformulation: An Evaluation,” in Ishrat Husain and Ishac Diwan, eds., *Dealing with the Debt Crisis*, Washington, D.C., World Bank, 1989, pp. 53–68.
- , *International Debt Reexamined*, Washington, D.C., Institute for International Economics, 1995.
- Cohen, Daniel, “Debt Relief Implications of Secondary Market Discounts and Debt Overhangs,” *World Bank Economic Review*, 4 (January 1990), pp. 43–53.
- , “Low Investment and Large LDC Debt in the 1980s,” *American Economic Review*, 83 (June 1993), pp. 437–449.
- Corden, Max, “An International Debt Facility,” *International Monetary Fund Staff Papers*, 35 (June 1988), pp. 401–421.
- Dean, James W., “The Debt Confessional,” *World Competition*, 15 (March 1992), pp. 99–113.
- Dean, James W., and Aihua Xu, “Debt Relief for Eastern Europe: Why Poland is a Special Case,” *Rivista di Politica Economica*, 81 (June 1991), pp. 189–230; reprinted in Mario Baldassarri and Robert Mundell, eds., *Building the New Europe, Vol. 2: Eastern Europe’s Transition to a Market Economy*, New York, St. Martin’s, and London, Macmillan, in association with *Rivista di Politica Economica*, 1993, pp. 189–230.
- Demirguc-Kunt, Asli, and Ishac Diwan, “The Menu Approach to Developing Country External Debt,” PRE Working Paper No. 530, International Economics Department, Washington, D.C., World Bank, November 1990.
- DiLeo, Paul, and Eli M. Remolona, “Voluntary Conversions of LDC Debt,” Research Paper No. 8903, Federal Reserve Bank of New York, April 1989a, processed.
- , “On Voluntary Conversions of LDC Debt,” (nontechnical version of 1989a), New York, Federal Reserve Bank of New York, July 1989b, processed.
- Diwan, Ishac, and Kenneth Kletzer, “Voluntary Choices in Concerted Deals: The Menu Approach to Debt Reduction in Developing Countries,” *World Bank Economic Review*, 6 (January 1992), pp. 91–108.
- Diwan, Ishac, and Dani Rodrik, *External Debt, Adjustment, and Burden Sharing: A Unified Framework*, Princeton Studies in International Finance No. 73, Princeton, N.J., Princeton University, International Finance Section, November 1992.
- Diwan, Ishac, and Mark M. Spiegel, “Are Buybacks Back? Menu-Driven Debt Reduction Schemes with Heterogeneous Creditors,” *Journal of Monetary Economics*, 34 (October 1994), pp. 239–293.
- Dooley, Michael, “Buy-Backs and Market Valuation of External Debt,” *International Monetary Fund Staff Papers*, 35 (June 1988a), pp. 215–229.

- , “Self-Financed Buy-Backs and Asset Exchanges,” *International Monetary Fund Staff Papers*, 35 (December 1988b), pp. 714–722.
- Dooley, Michael, Richard Haas, and Steven Symansky, “A Note on Burden Sharing Among Creditors,” *International Monetary Fund Staff Papers*, 40 (March 1993), pp. 226–232.
- Dooley, Michael, and Mark R. Stone, “Endogenous Creditor Seniority and External Debt Values,” *International Monetary Fund Staff Papers*, 40 (June 1993), pp. 395–413.
- Eaton, Jonathan, “Debt Relief and the International Enforcement of Loan Contracts,” *Journal of Economic Perspectives*, 4 (Winter 1990), pp. 43–56.
- , “Sovereign Debt: A Primer,” *World Bank Economic Review*, 7 (May 1993), pp. 137–172.
- Eichengreen, Barry, and Richard Portes, “Dealing with Debt: The 1930s and the 1980s.” in Ishrat Husain and Ishac Diwan, eds., *Dealing with the Debt Crisis*, Washington, D.C., World Bank, 1989, pp. 69–86.
- Fafchamps, Marcel, “Debt Overhang, Structural Adjustment, and Conditionality,” Working Paper, Department of Economics, Stanford University, Stanford, Calif., 1992.
- Federal Financial Institutions Examination Council, “Country Exposure Lending Survey,” April 25, 1983, April 24, 1987, April 12, 1989.
- Fernandez, Raquel, and Sule Ozler, “Debt Concentration and Secondary Market Prices,” PRE Working Paper No. 570, International Economics Department, Washington, D.C., World Bank, 1991.
- Fernandez-Ruiz, Jorge, “Debt and Incentives in a Dynamic Context,” *Journal of International Economics*, 41 (August 1996), pp. 139–152.
- Froot, Kenneth, “Buybacks, Exit Bonds, and the Optimality of Debt Relief,” *International Economic Review*, 30 (February 1989), pp. 49–70.
- Froot, Kenneth, David Scharfstein, and Jeremy Stein, “LDC Debt: Forgiveness, Indexation, and Investment Incentives,” *Journal of Finance*, 44 (December 1989), pp. 1335–1350.
- Guidotti, Pablo E., and Manmohan S. Kumar, *Domestic Public Debt of Externally Indebted Countries*, Occasional Paper No. 80, Washington, D.C., International Monetary Fund, June 1991.
- Helpman, Elhanan, “The Simple Analytics of Debt-Equity Swaps,” *American Economic Review*, 79 (June 1989a), pp. 440–451.
- , “Voluntary Debt Reduction: Incentives and Welfare,” *International Monetary Fund Staff Papers*, 36 (September 1989b), pp. 580–611.
- Kenen, Peter, “A Bailout for the Banks,” *New York Times*, March 6, 1983.
- , “A Proposal for Reducing Debt Burdens for Developing Countries,” in David B.H. Denoon, ed. *Changing Capital Markets and the Global Economy*, Philadelphia, Global Interdependence Center, 1988, pp. 83–90.
- , “Organizing Debt Relief: The Need for a New Institution,” *Journal of Economic Perspectives*, 4 (Winter 1990), pp. 7–18; reprinted in Dilip K. Das, ed., *International Finance: Contemporary Issues*, London and New York, Routledge, 1993, pp. 471–800.

- , “Debt Buybacks and Forgiveness in a Model with Voluntary Repudiation,” *International Economic Journal*, 5 (Spring, 1991), pp. 1–13.
- Krugman, Paul, “International Debt Strategies in an Uncertain World” in Gordon Smith and John Coddington, eds., *International Debt and the Developing Countries*, Washington, D.C., World Bank, 1985, pp. 79–100.
- , “Financing vs. Forgiving a Debt Overhang,” *Journal of Development Economics*, 29 (November 1988), pp. 253–268.
- , “Market-Based Debt-Reduction Schemes,” in Jacob Frenkel, Michael Dooley, and Peter Wickham, eds., *Analytic Issues in Debt*, Washington, D.C., International Monetary Fund, 1989, pp. 258–278.
- Morisset, Jacques, “Can Debt Reduction Policies Restore Investment? Macro Framework Applied to Argentina’s World Bank Debt,” *Revue d’Economie-Politique*, 101 (July/August 1991), pp. 639–666.
- Ozler, Sule, and Dani Rodrik, “External Shocks, Politics, and Private Investment: Some Theory and Empirical Evidence,” *Journal of Development Economics*, 39 (July 1992), pp. 141–162.
- Prokop, Jacek, “Organized Debt Buybacks: No Cure for Free Riding?” *Journal of Development Economics*, 47 (August 1995), pp. 481–496.
- Rohatyn, Felix, “A Plan for Stretching Out Global Debt,” *Business Week*, February 28, 1983.
- Sachs, Jeffrey, *Theoretical Issues in International Borrowing*, Princeton Studies in International Finance No. 54, Princeton, N.J., Princeton University, International Finance Section, July 1984.
- , “Managing the LDC Debt Crisis,” *Brookings Papers on Economic Activity*, No. 2 (1986), pp. 397–440.
- , “Comprehensive Debt Retirement: The Bolivian Example,” *Brookings Papers on Economic Activity*, No. 2 (1988), pp. 705–713.
- , “The Debt Overhang of Developing Countries,” in Guillermo A. Calvo, Ronald Findlay, Pentti Kouri, and Jorge Braga de Macedo, eds., *Debt, Stabilization and Development: Essays in Memory of Carlos Díaz-Alejandro*, Oxford and Cambridge, Mass., Blackwell, 1989a, pp. 80–102.
- , “Making the Brady Plan Work,” *Foreign Affairs*, 68 (Summer 1989b), pp. 87–104.
- , *New Approaches to the Latin American Debt Crisis*, Essays in International Finance No. 174, Princeton University, Princeton, N.J., Princeton University, International Finance Section, July 1989c.
- , “A Strategy for Efficient Debt Reduction,” *Journal of Economic Perspectives*, 4 (Winter 1990), pp. 19–29.
- Sachs, Jeffrey, and Harry Huizinga, “U.S. Commercial Banks and the Developing Country Debt Crisis,” *Brookings Papers on Economic Activity*, No. 2 (1987), pp. 555–606.
- Sachs, Jeffrey, and Felipe Larraín, *Macroeconomics in the Global Economy*, Englewood Cliffs, N.J., Prentice Hall, 1993.
- Schmidt-Hebbel, Klaus, “Foreign Debt, Macro Adjustment and Growth: Brazil 1970–1988,” Washington, D.C., World Bank, June 1990, processed.

- Spiegel, Mark M., "Why is the Philippines Repurchasing Its Brady Bonds?" *Federal Reserve Bank of San Francisco Economic Letter*, No. 96-32, November 1, 1996.
- U.S. Department of the Treasury, "Final Report to Congress Concerning World Bank Strategy and Lending Programs in Debtor Countries," Washington, D.C., U.S. Treasury Department, March 1989.
- "Until the Next Crash," *The Economist*, September 19-25, 1992, pp. 41-46.
- Velasco, Andrés, and Felipe Larraín, "The Basic Macroeconomics of Debt Swaps," *Oxford Economic Papers*, 45 (April 1993), pp. 207-228.
- Warner, Andrew, "Did the Debt Crisis Cause the Investment Crisis?" *Quarterly Journal of Economics*, 98 (June 1993), pp. 1161-1186.
- Wells, Robin, "Tolerance of Arrearages: How IMF Loan Policy Can Effect Debt Reduction," *American Economic Review*, 83 (June 1993), pp. 621-633.
- Williamson, John, *Voluntary Approaches to Debt Relief*, rev. ed., Washington, D.C., Institute for International Economics, 1989.
- World Bank, *Global Development Finance*, Vol. 1, Washington, D.C., World Bank, 1997.
- , *World Debt Tables*, Washington, D.C., World Bank, 1990-1996.

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