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Dealing with the Debt Crisis

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edited by
Ishrat Husain and
Ishac Diwan

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Foreword

As part of its ongoing research effort to help deal with the consequences of the debt crisis, the World Bank organized a conference in January 1989 at which academics and Bank researchers presented papers on selected aspects of the debt problem. Rather than attempt in this foreword to summarize the fine introduction to the volume by the editors, Ishrat Husain and Ishac Diwan, I will take the opportunity to discuss the role of public and academic debate in the debt crisis (and by extension more widely in public policy formulation), before concluding with brief comments on the post-Brady world.

First, a preliminary question: is material presented at this pre-Brady conference still useful after the radical change in the debt strategy that began to take shape in 1989? The answer is of course yes: analyses of the fiscal impact of the debt crisis on the debtors, of the bargaining situation among the debtors, creditors, and the international financial institutions (IFIs), of the impact of the tax and regulatory environment on the position of the banks and the bargaining, of the impact of the debt overhang, of the effects of conditionality, and of the lessons of interwar and recent history, all bear directly on what will happen in the next few years.

The debt crisis is likely to end with a whimper and not a bang. But however it ends, several lessons of recent experience deserve to be emphasized. First, the record shows that frank and open debate does not take place in official and banking circles. It was clear to the participants in this conference at the beginning of 1989, as it had been clear to many much earlier, that growth in the debtor countries would not return without debt relief. But the official agencies operate on the basis of an agreed-upon strategy, and none of them could openly confront the existing strategy without having an alternative to put in place. And to propose such an alternative would have required agreement among the major shareholders of these institutions. So long as the United States was not willing to move, the IFIs were not free to speak—though to be sure the repeated emphasis on debt reduction, with

“voluntary, market-based” added *soto voce* by the heads of the World Bank and IMF, was signaling their conclusion that it was time to move on.

Second, academic research, writing, and opinion have been far more influential on the debt issue than the academics may believe, or than officials like to pretend, for the academics are unencumbered by the official need to support the official strategy. It was academics who were first to point out that the stabilization focus of the programs imposed on debtors to deal with the debt crisis from 1982 to 1985, while necessary, was not sufficient for growth. The Baker strategy's emphasis on growth—although unfortunately unsuccessful—was a response not only to the lack of growth and consequent political pressure in the highly indebted middle-income countries through 1985, but also to the well-informed public debate in the United States and in Latin America during that period. Similarly, the academics' drumbeat of criticism against the Baker strategy during 1987 and 1988 helped keep up the pressure for change—especially the pressure from Congress on the U.S. administration.

Third, in the debt crisis, as in the earlier crisis of the Bretton Woods system, the solution that was adopted, while heavily influenced by the preceding debate, was not based directly on any of the many earlier proposals. The public debate helps describe the ingredients for and the menu of possible solutions: the official processes pick and choose items from the menu, and usually concoct their own recipes—and in so doing they are not guided solely by the underlying economic factors.

Fourth, some of the academic developments need to be interpreted carefully. One example is the research showing that it does not make sense for a country to buy back its debt, unless the resources for debt buybacks are restricted to that purpose. Superficially this seems to support the set-aside aspect of the Brady plan, which requires certain amounts of official support to be used only for buying back debt and not for credit enhancement. In fact, it does not, for the question remains for

the IFIs of whether they should set aside funds for buybacks—and the logic of the analysis is that they should not. In addition, it turns out that the issue has nothing to do with the choice between buybacks and interest support, as the unwary—present company included—might have believed. The underlying issue is whether additional resources should be used for investment or in some way to lighten the burden of the existing stock of debt, and here the distinction between interest support and buybacks is of no consequence.

If buybacks and credit enhancement do not—according to the logic of some papers—make sense, what is the rationale for the Brady plan? Debt and debt-service reduction plans begin to make sense if the debtors' estimates of the probability that they will service the debt exceed the creditors' estimates. They can also make sense if a concerted approach, with official backing, makes it possible to reach an overall solution which the free-rider problem prevented being reached earlier.

Will the Brady plan restore growth in the debtor countries? The answer is that we do not know. It is absolutely essential to restore investment in the debtor countries. For that to happen the outflow of resources from the

debtor countries has to be slowed and preferably reversed. That will require actions by the debtors, by the creditor governments, by the IFI the IFIs which are increasingly replacing the commercial creditors, and by the commercial banks. Beyond the need for the banks to pay their share, the debtor countries have to maintain the adjustment processes they have started. It is encouraging that many of them are doing so, even in the face of political difficulties.

Whether the Brady plan, which has as an essential element improved policies in the debtor countries, succeeds in restoring growth and creditworthiness in the heavily indebted countries, or whether another plan will be needed later, depends on the foresight and wisdom of the policymakers in creditor and debtor countries, the international financial institutions, and the commercial banks. That is well understood. But political wisdom is of little use without an understanding of the economic issues—and for that, the reader is advised to proceed.

Stanley Fischer
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Introduction

Ishrat Husain and Ishac Diwan

The debt crisis of the 1980s—now likely to drag on into the 1990s—has launched a constellation of competing aims and conflicting possibilities. In 1982 the highly indebted middle-income countries took in about 1 percent of GDP through external debt.¹ In 1988 they paid out about 4.7 percent of GDP. During 1986–88 the net transfer of resources from the highly indebted countries to the industrial countries was more than \$100 billion. These massive transfers were still too small, however, to cover the interest due, and the total debt of the highly indebted countries increased. By the end of 1989 their debt is projected to be about \$508 billion, roughly 30 percent higher than in 1982. And in 1989 net transfers abroad will take 24 percent of their export earnings.

The debtors have been hurt badly by the shutdown of commercial lending since 1982. In many highly indebted countries, investment ratios have declined, growth has slowed to a halt, per capita consumption has not increased in a decade, capital flight has added to the progressive decapitalization, and inflation is on the increase. The continuing economic expansion of industrial countries—and the high demand for traded goods—have helped debtor countries little. Many highly indebted countries cannot repay their debts on current schedules, and to repay at all, they must get their economies back onto a path of sustained growth. Unable to squeeze more from their already austere economies, they now need new resources from abroad—from the commercial banks and from the international financial institutions (IFIs)—to boost investment and growth.

The Baker plan tried to avoid this situation by forsaking write-offs of debt and debt service in favor of encouraging new lending in the context of the explicit policy conditions underpinning adjustment programs. But with the breakdown of concerted lending, the focus has shifted to debt reduction. Several broad questions about

the new strategy must be addressed. What is the role of domestic adjustment in highly indebted countries? What will be the effects of debt reduction? How much reduction is needed, and by whom? Should debt or debt service be reduced? How will these reductions be achieved? And what are the constraints on action?

To begin to address these questions, the World Bank organized a symposium in January 1989 under the theme “Dealing with the Debt Crisis,” bringing together many specialists, both academics and practitioners. The aim was to determine what recent research can contribute to our understanding of the debt crisis—and to identify the gaps that remained to be filled. Unlike the previous World Bank Symposium in 1984, when participants focused their analysis on involuntary lending, most of the attention this time was devoted to the effects of high debt and to the need for (and methods of) debt reduction. Since the symposium, French, Japanese, and American officials have announced the need for a new focus on debt reduction. By June the World Bank and the International Monetary Fund had approved guidelines for their financing for this purpose, and by July Mexico reached an agreement with its commercial creditors that included an important debt reduction component.

The papers presented at the symposium were written during a period of intense discussions about public policy for dealing with the debt crisis, discussions that helped shape the Brady initiative. Reflecting many important controversies and warning us against potential pitfalls, the introduction is arranged in four sections: the debt crisis in perspective; debt management: from the Baker plan to the Brady initiative; the need for debt reduction; debt reduction and the menu approach. Given the many participants, we have not tried to summarize each contribution in this introductory chapter, choosing instead to produce a synthesis and draw out the main lessons.

The Debt Crisis in Perspective

The international debt crisis of the 1980s differs in fundamental ways from that of the 1930s. Lending in the 1930s was mediated by the bond markets, that in the 1970s and 1980s by the commercial banks. The mechanism for negotiating readjustment of defaulted debts also differed. In the 1930s outright default was common; in the 1980s serial reschedulings and other expedients have prevented a significant spread of formal defaults. And the rise of such supranational agencies as the World Bank and the IMF has greatly changed the global financial scene.

Despite these differences, the earlier crisis offers insights about the current one. It stresses the advantages, for financial stability, of dispersing foreign obligations among many private investors rather than concentrating them in the hands of financially vulnerable commercial banks. And it spotlights the serious obstacles to global plans of debt relief.

Eichengreen and Portes's analysis of the debt crisis of the 1930s concludes that:

- The readjustment of defaulted debts in the 1930s entailed protracted negotiation. In many cases, debt service was interrupted, and uncertainty about the size of transfers lingered for decades.
- Government intervention in the 1930s and 1980s differs less in extent than in direction. In recent years, creditor-country governments have exerted continuous pressure on debtors to maintain service on their external debts. In the 1930s and 1940s those governments pressured debtors and creditors alike.
- Global schemes to short-circuit the protracted bilateral negotiations proved unavailing in the 1930s. Nearly every aspect of the global solutions proposed in the 1980s—a special international lending facility, matched injections of public and private funds, conversions of existing assets into new assets with different contingencies—was first suggested in the 1930s. Ultimately those global schemes floundered on the issue of who should fund them and control their administration.
- Unlike global plans, market-based debt reduction helped to resolve the debt crisis of the 1930s—but the resolution was slow, with long periods of arrears.

In her comments, Skiles emphasizes the difference between the 1930s and the 1980s, concluding that default was a logical policy choice in the 1930s. A great depression and a wave of protectionism in the industrial countries led to the collapse of international trade. Import substitution still paid off well as a development strategy. And the debt crisis was highly dispersed and did not threaten the stability of the financial system. Consequently, default was more tempting, as defaulting debtor

countries were not threatened by large sanctions or penalties.

The Crisis of the 1980s

Since the start of the debt crisis, the focus has been on two distinct groups of countries: those with large debts to commercial banks, and those indebted mainly to governments. These groups coincide broadly with the 17 highly indebted middle-income countries, mainly in Latin America, and with the low-income countries of Sub-Saharan Africa.

At the end of 1988 the highly indebted countries had more than \$275 billion in long-term loans from commercial banks outstanding. Only a few years earlier, nonpayment of these debts had threatened the survival of the global financial system. Large defaults today could still bring down some of the banks, but most of them have steadily strengthened their capital base and their provisions for doubtful assets. By contrast, low-income Africa's total external debt, about \$70 billion, is less than Mexico's alone, and the exposure of international banks there is less than \$10 billion, with most of the rest being in loans from (or guaranteed by) official creditors. The debt of low-income Africa—Nigeria and Côte d'Ivoire are not with this set but with the highly indebted set—is thus no threat to the international financial system. But it is a more severe economic burden to economies there than the debt of the middle-income countries is to theirs. Humphreys and Underwood argue that conventional re-scheduling makes less sense for Sub-Saharan countries than some combination of increased concessional aid and concessional rescheduling.

The paper by Cuddington sets the historical stage for the debt crisis by reconsidering the roles of debtors, creditors, and the external environment of the 1970s, when lending to developing countries changed significantly. By forming syndicates, commercial banks became the dominant source of funds to middle-income countries, intermediating the large surpluses of oil-exporting countries. This process—a historical aberration in the words of Fishlow—accelerated after the first oil shock, with some countries borrowing to finance import deficits provoked by rising oil prices. Later, countries also borrowed to meet rising debt-service obligations and to sustain macroeconomic policies of exchange rate overvaluation. The historical rise in interest rates in the early 1980s and the drop in commodity prices made the sustainable debt level relative to resources lower than had been previously assumed, triggering a global crisis.

The impact of the oil, commodities, and interest rate shocks varied greatly among countries, depending on their past macroeconomic, financial, and development policies. Some countries with bad policies—overvalu-

ation of the exchange rate, inward orientation, financial repression—accumulated large debts without a corresponding increase in productive capacity. Those countries lacked the flexibility needed to adjust to shocks without engendering a serious crisis.

Cuddington and Fishlow both conclude that the debt problem is not a temporary difficulty that can be solved by a couple of years of worldwide economic growth. The debt crisis is now a development crisis, and the debtor countries laboring under their debt burden are rapidly falling behind. Debt service with austerity will not restore voluntary lending, and public policy changes are needed to slow down and reverse the capital outflows.

Macroeconomic Management during the Crisis

The cutoff of external finance in 1982 called for two adjustments in the debtors' economies. The first was an increased external transfer, which required generating a trade surplus in the balance of payments. The second was a fiscal adjustment—an internal transfer from the private sector to the public—which worsened as governments assumed the external liabilities of their private sectors. For the highly indebted countries, the external adjustment has been staggering: their trade balance rose from \$4.4 billion in 1982 to \$30.5 billion in 1988, and their current account deficit fell from \$50.8 billion to \$9 billion. But the internal adjustment has proved tricky, and in many countries the needed increase in the internal financing of fiscal deficits could not be managed without engendering a serious macroeconomic crisis. Today, the binding constraint in most of the highly indebted countries is fiscal, not external.

Easterly examines the patterns of internal adjustment in the highly indebted countries. For some countries (call them crisis countries) the debt crisis contributed to a parallel fiscal crisis. The crisis countries (Argentina, Brazil, Chile, Mexico, Morocco, Yugoslavia, and the Philippines) generated a resource surplus mainly by expenditure cutbacks rather than revenue increases, and public investment bore the brunt of the adjustment. Many of them managed a dramatic improvement in the primary deficit (the total deficit excluding interest payments). But their fiscal adjustment did not match the decline in external financing, and they resorted increasingly to domestic borrowings and the inflation tax—depressing private investment, generating capital flight, boosting inflation, and damaging long-term growth.

What is the best way to accommodate a shortfall in foreign funds? Reisen and Easterly examine the possible policy choices. Faced with an increase in its cost of funds, the public sector should reduce domestic expenditures, but the actual choices seem to have relied too much on domestic financing and on investment cutbacks. So, for

public finance to contribute to savings, investment, and growth, more effort should go into tax collection and less into cutting public investment. Smaller transfers abroad will help as well. Easy solutions are disappearing, however, and large deficits cannot be stopped by a burst of inflation, because the demand for base money is now too small relative to public domestic debt.

Why did actual policy choices diverge from desirable ones? In the crisis countries, tax revenues remained stagnant or declined. These countries would have been better off increasing the rates and coverages of broad-based taxes. But as Tanzi stresses in his description of fiscal policy in developing countries, the main reason traditional tax revenues are low is that the structure of their economies and the quality of their tax administrations do not make a higher tax ratio possible. So, raising conventional taxes is inherently slower than resorting to quick (though distortionary) policies. And in some countries, these policies were set in motion when the reversal of net external transfers required quick action.

More delicate forces may also be at play. Rodrik points out that there is no simple explanation for governments to reach for the capital budget when they are short of funds. "If governments discount the future very heavily, how can we simultaneously explain the presence of typically bloated investment budgets prior to the crisis? Or is it that the discount rate increases only in periods of crisis? Simplistic answers like this one will not do."

Indeed, that diverse countries have responded to the crisis by slashing investment and generating inflation suggests that common factors are at work. The flood of foreign resources before 1982 entrenched claimants from both the public and the private sector. In 1982 the main political issue became scaling down these claims, something requiring strong government action. While some governments could make large transfers of resources abroad without generating inflation (Chile, Venezuela, and Colombia), others could not, passing the buck to inflation. The main constraint in the debt crisis has proven to be the difficulty of forging a united front to mobilize considerable resources without losing authority or legitimacy. Candidates in favor of long-term reform today have little at hand to offer to the public, while candidates with more immediate messages of a debt moratorium and a (transitory) wage increase have a much more attractive offer to many people (Sachs).

Debt Management: From the Baker Plan to the Brady Initiative

Reductions of the stock of debt and its service are now at the core of the strategy to bring the debt crisis to an end. Japan's former finance minister, Kiichi Miyazawa, proposed officially supported debt reductions before the

1988 IMF-World Bank annual meetings in Berlin. France's President Mitterand proposed them for Africa at the Toronto Summit in 1988. Since the Toronto Summit, official bilateral creditors have been offering a menu of three options to low-income African countries: partial write-offs, longer terms, and lower interest rates, with the combination tailored to the circumstances in each country. President Mitterand has also suggested an extraordinary use of SDRs through the IMF to support debt reduction for middle-income countries and, in May 1989, forgave France's public debt to 35 low-income African countries.

In March 1989 U.S. Treasury Secretary Nicholas Brady proposed a new initiative for dealing with the debt crisis. The Brady initiative, in most general terms, is a series of measures to induce commercial banks to exchange debt either for cash or for secure liquid assets on better terms than those under existing contracts. The reduction of debt has the official support of the IMF and the World Bank, as long as it goes hand in hand with strong programs of adjustment.

The new strategy challenges the traditional relationships between debtors and creditors. But public policy has already progressed through three distinct phases in the last seven years, and the new strategy is a logical step of an evolutionary process, with the medicine getting stronger with the protraction of the crisis and with the inadequacies of timid treatment.

- New money with conditionality by international financial institutions (1982–85).
- New money, conditionality, and a menu of options—the Baker plan (1986–88).
- All of the foregoing plus official support and funding for debt reduction—the Brady initiative.

The Baker Plan, 1986–88

The Baker plan, developed in 1985, “served notice that the absence of major new money programs in 1984–85 could not be expected to continue in the medium term” (Cline). The initiative envisioned new lending by commercial banks of about \$7 billion annually (\$20 billion for the three years 1986–88, representing an interest refinancing ratio of about 25 percent). The IFIs would increase their net flows to \$7 billion annually, implying a shift of risk to the public sector. The strategy rejected debt write-offs in favor of growing out of the problem. Accordingly, the plan also called for major structural reforms in debtor countries in exchange for this financing, including liberalizing trade and foreign investment and reforming state enterprises.

Cline recounts the story of the Baker plan, assesses its strengths and weaknesses, and attempts to ascertain what it teaches us for the future. On the positive side, the

plan stressed that the debt crisis was a development problem that required more than short-term balance of payments stabilization programs. And it confirmed the industrial country governments' intention of resolving the crisis through the intervention of the IFIs. The plan's major weaknesses were related to the tension between its stress on new lending and the perceived need to reduce debt to more sustainable levels. This tension explains the modest capital flow targets—to reduce the annual net transfers from the highly indebted countries from \$26 billion to \$13 billion—and the lack of a mechanism to enforce even this modest goal. To counteract free-rider problems—the temptation of individual creditors to avoid new lending and still receive repayments because of lending by others—the official sector had only moral suasion to ensure that the private sector met the plan's targets.

The plan fell short of its targeted net flow, with the contribution of the commercial banks subject to some controversy (see Cline, Shilling, and Husain and Mitra). The banks provided \$13 billion in new money but when repayments are netted out, the net flow was only about \$4 billion, far short of the \$20 billion targeted. But some of the repayments were for debt conversion operations (which, according to Cline, should be added back in). The public sector provided about \$15 billion over 1986–88. With multilateral lending as the most important source of finance to developing countries, the commercial banks' share of total debt declined from 60 percent in 1986 to 56 percent in 1988 (compared with 67 percent in 1982).

But as Teitel stresses, controversies, even of a few billion dollars, miss the point: the transfer of resources from the highly indebted countries to the industrial countries for external debt was more than \$100 billion during 1986–88. Moreover, there was a growing asymmetry in the distribution of these flows. Commercial lending to the highly indebted countries was increasingly concentrated in a few large debtors with considerable bargaining strength (Brazil, Argentina, and Mexico, with Chile and the Philippines picking up a little). Smaller debtors got nothing, even when they produced sharp economic adjustments (as in Morocco, for example).

What Went Wrong with the Concerted Approach?

Concerted “involuntary” lending emerged early in the crisis because of the banks' collective need to protect their assets and to buy time for reducing their exposures. Facing the threat of international financial collapse, the IMF and the creditor governments enforced the banks' participation. In rescheduling exercises, banks bargained with the debtor countries for a net repayment, and they lent the difference between the amount owed and the

amount paid. Sachs, Bouchet and Hay, and Husain and Mitra analyze why concerted lending declined over time. In essence, coordination within the banks' group weakened, the bargaining power of the banks' group strengthened, and the pressures from creditor governments abated.

There were inherent tensions in the creditor coalition all along. Because of the collective action of involuntary lending, small banks had incentives to ride for free. The sharing clauses of loan contracts preclude any mechanism to prevent free-riding—an unintended side-effect—by legally allowing some banks to benefit from other banks' contributions to interest refinancing operations. The threat of an international financial collapse could override divergences between banks only temporarily. The divergences are due to differences in exposures, in expectations, in business strategies, and in international tax and accounting practices. As the banks' financial positions improved, individual banks regained more autonomy, slowing the process of putting together rescheduling agreements with new money. Steering committees have become less successful in preventing free-riding, and creditor governments became less willing or able to force their (now stronger) banks to participate in financing packages.

The outward orientation of many debtors also strengthened the bargaining power of the banks by making the default penalties (partly related to trade) greater. As a result, the net transfer of resources from debtor countries increased steadily, reaching more than \$30 billion for the highly indebted countries in 1988. But arrears have also been mounting, supplementing net lending as a source of finance but increasing the risk of breakdowns in relations. Countries in arrears as of July 1989 include Argentina, Bolivia, Brazil, Costa Rica, Côte d'Ivoire, Dominican Republic, Ecuador, Honduras, Liberia, Nicaragua, Nigeria, Panama, Peru, Sudan, Zaire, and Zambia.

The Menu Approach

The 1988 Brazilian financing package was the first package specifically based on the market-based menu approach to debt workouts (see Lamdany). The approach, first associated with U.S. Treasury Secretary Baker in April 1987, allows banks to choose from various options, including various exit instruments and new-money facilities, instead of being offered a uniform package. The menu was intended to allow some banks to exit from the concerted new-money process by offering relief; but without making it contingent on similar relief by all banks.

A menu of voluntary, market-based methods was not new to the commercial banks, for they began working such methods to reduce their developing-country debt exposure in 1986. Secondary markets for developing country debt have become more liquid and more cohesive, and the number of participants has grown as many banks raised their provisions for doubtful assets sufficiently to cover losses from loan sales (Huizinga). But the market is not liquid enough for debt prices to represent an efficient valuation of country debt (see Hajivassiliou for an econometric test). The total face value of debt conversions—transactions that actually reduced external bank debt—is estimated to have been about \$21 billion in 1988. And the bulk of the transactions remained highly concentrated. Brazil and Mexico accounted for more than 72 percent of that \$21 billion in both formal and informal conversions. A rough estimate, taking into account the increase in debt and equity investment liabilities, puts the net reduction of external liabilities in 1988 at \$8.5 billion. Today, most debtor countries, facing fiscal difficulties and inflationary pressures, have become more cautious in their approach to these conversions.

Market-based transactions to reduce debt and debt service can be divided into three broad categories: buybacks, exchanges of foreign debt against other foreign assets with different terms, and exchanges of foreign debt against domestic assets.

Buybacks. In this type of operation, a country buys back its debt at a discount for cash. Bolivia and Chile are two such examples. In both cases, exceptional circumstances facilitated the buybacks—the Bolivian operation had to be financed by aid agencies, and Chile had excess reserves because of unexpected increases in the price of copper (see Sachs, and Bouchet and Hay). Few countries in debt difficulties have much ready cash (without external support for such transactions, as envisioned by the Brady initiative).

Exchanges of claims. The exchange of debt for another debt instrument with less principal or interest requires that the new instrument be a more secure asset and that the probability of the borrowers' fully servicing this asset is stronger than that of servicing the old debt. Three measures would make new assets more secure. First, the banks could collectively agree that exit bonds have seniority over other claims. Second, the IFIs could guarantee them. Third, the new asset could be backed by collateral for the principal or for interest payments—or it could have special conversion rights. To purchase the collateral, the country has to have resources that it can use, or it has to obtain (part of) the resources from other

sources, such as the IMF and the World Bank, under the Brady initiative.

Debt-equity swaps. An investor exchanges a foreign loan for local currency to make domestic investments. When the retired debt is public debt, the government is effectively prepaying its debt in domestic currency, sometimes at a discount. Even when private debt is retired, the government loses cash flow, as the debt service would otherwise have been paid to the central bank for later payment (under the terms of rescheduling agreements) to external creditors.

The Brady Initiative

The main features of the Brady initiative are the following. Debtor countries should maintain growth-oriented adjustment programs and take measures to encourage the repatriation of flight capital. The IMF and World Bank would provide funding for debt and debt-service reduction through debt buybacks, exchanges of old debt at a discount for new (partly) collateralized bonds, and exchanges of old debt for new bonds at par value with reduced interest rates. Over a three-year period, the Fund and the Bank would provide somewhere between \$20 billion and \$25 billion. Japan would provide about \$10 billion over the next several years as additional financing. In principle, commercial banks would provide debt reduction and new money—and support the accelerated reduction of debt and debt service. Creditor governments would continue to reschedule their loans through the Paris Club and to maintain export credit cover for countries with sound reform programs. Tax, accounting, and regulatory impediments to debt reduction would be eliminated.

The Arithmetic of the Brady Initiative

The external financing of the highly indebted countries falls far short of the requirements (see Husain and Mitra). Between now and 1995 the 17 highly indebted countries require about \$18 billion to \$20 billion of net new disbursements each year to reverse recent investment trends, bring some modest growth in per capita incomes, and pay interest on their external debts. Of this \$20 billion, \$6 billion can come from nondebt flows (mainly direct foreign investment and official development assistance, but excluding debt conversions). Official creditors should be able to contribute another \$5.5 billion a year (up from \$3.6 billion in 1988). The gap for the commercial banks to finance is thus about \$9.5 billion—compare that with a small negative flow in 1988. The commercial banks' burden of picking up half the tab

is not unfair. They hold more than 55 percent of the claims on the highly indebted middle-income countries and have \$275 billion in long-term debt to protect. Moreover, a net flow to developing countries of \$10 billion would still leave the banks with a net transfer of more than \$12 billion.

If this \$10 billion were new money (doubtful, given the recent flows), the developing countries' debt ratios would rise unless their economies grew rapidly. At the other extreme, the \$10 billion might come from a reduction of commercial debt service: if the banks sold their claims at a 33 to 50 percent discount, about \$30 to \$50 billion would be needed—in cash—to reduce commercial claims by \$100 billion and debt service to commercial banks by about \$10 billion. But reductions funded by new loans increase the amount needed to achieve a given reduction in debt service.

The Brady initiative has already mobilized about \$34 billion—\$24 billion from the IMF and the Bank and \$10 billion from Japan—funds that could reduce the highly indebted developing countries' commercial debt by \$68 billion to \$102 billion (for prices in the range of 33–50 percent of par). This debt reduction would reduce the debt service to commercial banks by about \$6.8 billion to \$10.2 billion a year—total debt service by \$3.4 billion to \$6.8 billion, taking into account the interest on the new loans. That leaves a gap of \$3.2 billion to \$6.6 billion to be filled by new money. The total debt of the highly indebted countries would be reduced 10 to 20 percent.

Could this work? Four factors will be crucial. First, achieving simultaneous debt reduction and new money in a single package will be difficult. It is uncertain whether enough banks would get out voluntarily at a 50–66 percent discount (the agreed-upon discount in the recent Mexican deal appears closer to 35 percent), even though the prospect of collecting a net transfer of \$12 billion (plus the \$28.5 billion of prepayment) and preventing a breakdown in their relations with debtors must be attractive to the commercial banks as a group. Second, given the recent weakening of concerted lending, it is going to be less than easy to round up \$4 billion to \$6 billion in new money while many banks realize losses on existing claims. Third, the key assumption in these projections is a big improvement in domestic policies, especially in the four large debtor countries—Argentina, Brazil, Mexico, and Venezuela. There naturally is concern whether the forthcoming debt reductions will increase adjustment incentives sufficiently. Fourth, unstable interest rates or commodity prices could derail the best of adjustment efforts. Each percentage-point rise in interest rates boosts the highly indebted countries' annual interest bill by \$3.5 billion.

The Need for Debt Reduction

Most speakers at the symposium recognize the seriousness of the decline in growth rates and emphasize that the tenacity of the debt problem has demanded a new strategy for the 1990s. Without reductions in debt and debt service, the period needed for the debt workout—to restore to acceptable levels such key indicators of creditworthiness as debt-GDP ratios and debt-export ratios—would be too long. And so far the countries that have rescheduled debt in the 1980s have been unable to obtain voluntary long-term loans of any size from private creditors.

Is debt reduction really necessary for a substantial improvement, and cannot higher investment be financed by new money instead? While most papers express some views on the subject, two papers—by Claessens and Diwan and by Cohen, and the comments of their discussants Calvo and Borenzstein—examine this question in detail. Both conclude that conventional debt rescheduling cannot mimic efficient recontracting under a debt overhang. Both analyses, as well as that of Sachs, imply that the biggest single failure of the debt management process to date is the progressive decapitalization of the debtor countries. Claessens and Diwan, and Borenzstein, argue that the burden of external debt can depress investment below its optimal level and thus slow economic growth below its potential through two channels. One is the inability to get as much foreign borrowing as desired—the liquidity constraint. The other is the expected future loss of output to foreign creditors—the debt overhang. The debt overhang creates disincentives for growth by acting as a tax on adjustment efforts: as the share of output a debtor has to transfer overseas increases, austerity for the sake of growth becomes less attractive. A country's willingness to repay its debts decreases when its liquidity constraint becomes more binding and when its indebtedness relative to resources becomes larger.

Illiquidity and disincentives for growth hurt the creditors as well as the debtors by blocking the effective recovery and growth of the debtor countries. In such circumstances the interests of the two parties do not necessarily diverge, and it may then be in the collective interest of commercial banks to do whatever is needed to ensure that the debtors do grow by providing a mix of liquidity and future debt-service reductions. Needed, then, is a typology of countries to distinguish the reforming debtors from the intransigent and to tailor solutions to situations (Selowsky). Otherwise, it may well be more profitable for uninformed creditors to deny relief to all debtors rather than to grant it to all. Countries that are constrained only by illiquidity merely need substantial infusions of new funds to take advantage of good investment opportunities. Countries under a debt overhang

may also need such infusions, but they surely need some debt and debt-service reduction as well. The provision of liquidity alone would leave the disincentive problem unresolved. But when a debt overhang and illiquidity coexist, both debt relief and liquidity are needed: debt reduction alone can reduce debt to levels where it does not pay to default, but very large debt reductions would be needed if the liquidity problem is not taken care of.

How Sensitive Will Growth Be to Reductions in Debt and Debt Service?

Empirical estimates on this issue remain scarce. The decapitalization of the highly indebted countries is apparent in statistics showing a remarkable drop in their rate of capital accumulation, with the drop being larger than the increase in external transfers, suggesting that disincentive effects must be at work (Sachs). Hajivassiliou attempts to shed some more light on the issues of illiquidity and disincentives using panel-data econometric techniques. He finds evidence suggesting that illiquidity is not the sole reason for repayment problems. First, with everything else constant, longer debt maturities are associated with bigger repayment problems, not what would be expected under pure illiquidity. Second, when a country gets into a debt problem and builds arrears—thus alleviating the liquidity crunch—it is very likely that its problems will persist and even get worse. Indeed, 90 percent of the countries that run arrears in any given year are likely to run arrears in the following year. The persistence of problems suggests that liquidity cannot be the sole culprit. But as several participants pointed out, careful econometric work of full-fledged structural models of investment, growth, and debt payments are required to draw robust conclusions about the incentive effects of a debt overhang.

Cohen's analysis sheds some light on how to approximate an efficient rescheduling. He contends that incentive problems stem from the inability of banks to commit themselves to sufficient refinancing to accompany the debtor's growth. He goes on to argue that a simple debt write-off is not the most appropriate form of debt reduction, because it does not guarantee that service on the written-down debt will be scaled down appropriately in the future. Instead, flows from the country should be optimally scaled down, with the scaling factor set equal to the discount on the market value of a country's debt. How would this process work? Creditors would split a country's debt into two parts, one performing, the other nonperforming, with the split determined by the market value of the debt. While the performing part would be serviced, some of the nonperforming part of the debt would be kept on the banks' books so that they might benefit from positive developments that would raise a

country's ability to repay. The scheme's main virtue is that it undoes the costs of a debt overhang—increasing the country's incentives—without locking creditors into a once-and-for-all reduction of the stock of debt. This gives the creditors incentives for being more generous on flows rather than on stocks, because they can recapture the upside potential of positive shocks.

Besides debt and debt-service reduction, there are other ways of increasing the solvency of debtors. Lessard's analysis focuses on efficiency gains that can be unlocked by alternative forms of finance in the inevitable restructuring of highly indebted countries' debt, irrespective of whether this restructuring includes much debt reduction. He describes the shortcomings of existing debt contracts as a form of external finance and compares their characteristics to those of other external finance contracts. If the characteristics of the new claims are better, the transformed claims could provide gains for both debtors and creditors. Lessard classifies financial instruments along three dimensions: cost, risk-sharing, and managerial participation, with instruments that score low on the first and high on the second and third characteristic preferred. Debt finance is low in cost but involves little or no risk-sharing and no managerial participation. Other forms of finance—commodity bonds, direct investment, portfolio investment, quasi equities, nonrecourse finance, and the like—are similarly classified and assessed in relation to commercial debt finance. Lessard also studies the obstacles to new forms of finance and implementation problems due to the debt overhang.

In his comment, Eaton focuses on the enforceability of contracts. He distinguishes between exogenous and endogenous types of risk and argues that "much of the risk associated with foreign investment arises from endogenous sources of risk: whether the recipient will pay, or encourage policies that facilitate repayment. Unfortunately, the more successful a particular instrument is in allocating exogenous risk, the more likely is it to create endogenous risk."

Why Has There Been So Little Debt Reduction to Date?

Huizinga analyzes the relation between banks' stock prices and the secondary market price of their debt exposure. Based on empirical work, he argues that the stock prices for U.S. commercial banks already reflect a high discount on developing country debt—and that no major U.S. bank is likely to fold if it gets a repayment consistent with the prices of such debt on the secondary market. The top banks in Japan, France, Canada, the Federal Republic of Germany, and the United Kingdom are less exposed than their U.S. counterparts—and thus less imperiled by the debt crisis.

But if commercial banks can afford to provide relief and gain from it, why has there been so little debt reduction to date? Several papers focus on various explanations, all related to problems of collective action and coordination. Debt reduction may benefit the whole group of creditors. But each party in the crisis has incentives to enjoy the benefits without supporting the costs of debt reduction, resulting in an inferior equilibrium without relief. The small banks want the large banks to pay, the large banks want official and public bailouts, and individual creditor governments wait for other governments to pick up the bill. Added to this is the mistrust between creditors and debtors.

Tax, regulatory, and accounting practices in the various creditor countries also discourage debt reduction:

- Book value accounting distorts the incentives of money-center banks that dominate the steering committees providing relief. Large banks resist concerted debt reduction even when debt reduction can raise the market value of their claims. Debt reduction requires book losses that they cannot afford given their large exposure and weak financial position. While the ratio of net exposure to Latin America to equity of the world's top 100 banks declined from 125 percent in 1982 to 57 percent in 1987, the money-center banks' net exposure to equity ratios remains high at 84 percent (Sachs, and Bouchet and Hay).

- When banks can realize their tax benefits upon provisioning, there are limited tax incentives to recognize losses. Partial deductibility of loan-loss reserves for corporate income tax purposes is allowed in all the major creditor nations (Canada, France, Germany, Switzerland, and the United Kingdom) except in the United States, where general provisioning is not tax deductible. In Germany, for example, provisions are so large that banks would have to recognize a capital gain if claims are sold (Huizinga, and Bouchet and Hay).

- Some countries allow their commercial banks to include loan-loss provisions in capital (United States, France, and Japan). This creates a further disincentive to formally recognize losses on developing country debt because of the capital losses it would entail (Bouchet and Hay).

- Another constraint derives from the operation of deposit insurance and other regulatory safeguards. Valuable subsidies to stockholders—such as mispriced deposit insurance and forbearance over capital adequacy rules—may have increased in value as the debt crisis worsened. In other words, the taxpayers are underwriting a lower bound on stock prices. This reduces the incentives for banks to undertake actions that will end up saving taxpayers' resources—rather than their shareholders' (Sanders).

Cohen, and Claessens and Diwan, focus on problems of consistency over time. Because the credit relationship continues over time, efficient solutions have to involve promises by both parties to take future actions. The banks cannot credibly promise to debtors that they would extract only a small share of future resources if the debtor imposes austerity and increases investment. And the debtor cannot credibly promise to invest new loans if they were forthcoming. Coordinated action can increase the available resources that will have to be shared, but it will not occur in the absence of some commitment mechanism. And while such a mechanism is available for debtors in the form of IFI conditionality, complex financial contracts would be needed to get the banks to commit to lower debt-service payments in bad times—without creating a serious moral hazard that would make it attractive for countries to grow more slowly than they otherwise might.

Moreover, when investment disincentives are strong, conditional loans by the IFIs require an increase in investment incentives and thus some form of debt relief. Otherwise, conditionality would hurt the debtors. As Calvo stresses, conditionality can be beneficial because some form of precommitment always dominates discretion, but it may reduce a debtor's bargaining power and in some cases lower its welfare. Third parties that enforce conditionality should therefore have a clear notion of what is a fair distribution of wealth between borrowers and lenders.

Debt Reduction and the Menu Approach

In principle, a concerted approach can directly produce an efficient rescheduling process. But given the constraints on concerted action, the flexibility provided by presenting the banks with a menu of options can strengthen the rescheduling. The banks, Cline writes, are not monolithic, neither within nor across national boundaries. Some banks await the recovery of their clients' economies and consider their claims to be worth something much closer to face value. For these banks, the sale of a dollar's worth of debt at a discount would force them to write down the value of the rest of the debt they hold, so they stay in. Many others, by contrast, would accept fifty cents (or less) on the dollar for cash—or in exchange for another asset if the asset is secure.

Concerted, Voluntary, or Market-Based?

It has long been recognized that in the case of new money packages, a concerted arrangement rather than a voluntary arrangement is needed because of collective action problems. The same is true for debt reduction. Resolving the debt problem requires a concerted frame-

work that removes from banks the luxury of not sharing the burden of debt reduction. Otherwise, the possibilities for free-riding by dissenting banks would undermine the effort.

Needed, then, is the right institutional setting to encourage the sharing of the burden of debt reduction by all the creditors while preserving some flexibility to accommodate differences between banks. What actions should be allowed to be voluntary? For one thing, the items of the menu must be the result of a group decision. A concerted agreement is required for the menu to become legally operational. The permission of most creditors is needed because debt repurchases by borrowers and debt exchanges generally are not allowed under the contractual terms of loan agreements. Various covenants must be modified, especially the mandatory prepayment and sharing clauses (repayments must be divided pro rata among all creditors) and the negative pledge (which prohibits the selective pledging of assets) (Bouchet and Hay). It is therefore the choice between the elements of the menu that remains a voluntary decision for individual banks, with the relative pricing of those items done either through the market or in a concerted way.

This imprecision about what is voluntary and what is concerted has been a fundamental ambiguity in the Brady plan. In principle the plan was presented as market-based. But as the Mexican negotiations show, the official community seems at times to be leaning away from so much voluntarism, as it compared the debt reduction the banks seemed prepared to offer against the amounts deemed necessary. As a result, the negotiations focused on the pricing of the options, and a concerted agreement was reached to present banks with a package of three priced options: the first is the exchange of debt for debt reduction bonds (discounted bonds at 65 percent of face value and carrying an interest rate of LIBOR plus 13/16), the second for debt-service reduction bonds (par bonds at a fixed interest rate of 6.25 percent), both options implying a discount of about 35 percent in present value terms. The third is the provision of new money (25 percent of principal over four years).

Financing Debt Reduction

Can the voluntary approach mimic or approximate an efficient rescheduling that combines liquidity and debt relief in a way that optimizes the joint interests of creditors and debtors? The answer depends on the pricing of the options in the menu and on the amounts and sources of the funds to finance debt reductions (from the commercial creditors, the debtor, and the IFI). The Mexican agreement, for example, rejected market pricing. It left the mix of debt reduction and new money from commercial banks to individual choice and included a commit-

ment by the Mexican government to make available \$7 billion up front to enhance the exchange bonds (of which a portion comes from Mexican reserves and the rest from the Japanese government and the IFIs).

New money. If the nonexiting banks provide the debtor with enough new money to resolve the liquidity problem and to repurchase the exiting banks claims (or to collateralize a new exit instrument), the debtor cannot lose because its debts are reduced. The division among the various creditors of the gain from increased creditworthiness depends on the volumes and relative pricing of the exit and new money instruments. And this added flexibility of the menu increases the complexity of the negotiation. The interests of banks that want to exit and those that want to stick to the new money approach—especially the money-center banks—diverge. And each class of creditors can veto contract changes perceived to hurt its interests (Sachs, and Bouchet and Hay).

The money-center banks gain if the overall package can reduce debt—and increase debt prices—enough to offset their increased exposure. For the exiting banks, the price at which their claims are sold must make this alternative more attractive than staying in. Given the prospect of improved creditworthiness, this price could be quite high if they were allowed to free-ride and get paid out of the new-money package. But the higher this price, the less tempting the deal is for the remaining banks, since their increased exposure will not be compensated by substantial debt reduction. So, for an agreement to be reached, exiting must occur at prices that the remaining banks consider a bargain. Exiting would occur voluntarily at a lower price when some bank is more pessimistic than others about future prospects, when by selling its claims it can enjoy larger tax advantages, or when its operational costs are too high relative to its exposure. But conference participants in the symposium find it unlikely that the voluntary approach can reduce much of the debt, unless new money is found from other sources to buy back the claims of exiting banks.

The debtors. At the other extreme is a situation in which the nonexiting banks do not increase the amount of their new loans and the debtor finances the buyback with funds that could otherwise be used alternatively for domestic investment. In this case, analyzed by Claessens and Diwan and by Rogoff, the operation has two effects on the debtor's and creditors' welfare. One is the size of the pie that the two parties can share; the other, the division of this pie. When the pie increases, both the debtor and the creditors can gain. But when the pie is reduced, both can lose.

If buybacks had no secondary effects on the debtor's economy (fixed pie), market-based buybacks hurt the

debtor and profit the creditors. Without buybacks, the creditors' payoff depends mainly on the debtor's willingness to pay—and thus on the relative bargaining power of the two parties. When the debtor uses additional funds to buy back some of its debt, a larger amount goes to creditors. True, the face value of the country's debt goes down, but this helps the country only if a large share of the debt is ultimately repaid. If, instead, the country defaults on its remaining debt, creditors will probably recover as much as they would without a buyback. The reason is that marginal debt is always worth less than average debt. In Kharas's words: "Selling assets is no solution in an insolvent situation because the country does not have enough of them, so it ends up poor and bankrupt rather than rich and bankrupt."

Besides the change in sharing the debtor's output, debt reductions financed by the debtor can decrease or increase resources to be divided between the two parties because of the way investment is affected. So, the case for market buybacks turns out to hinge partly on the level of the rate of return on domestic investment. For plausible values of this rate, the debtor gains less by spending a dollar on buybacks than on domestic investment. Moreover, there is no guarantee that the banks gain overall when buybacks reduce investment and future growth. Debt overhang arguments strengthen the case against market buybacks because the rate of return on domestic investment has to be very high under a debt overhang because of induced investment inefficiencies. Buybacks make more sense when domestic investments yield a very low rate of return. But in some cases, buybacks financed by the debtor can be profitable to both parties, even though the sharing of output turns against the debtor. For this to occur, buybacks must increase resources (or reduce deadweight losses) considerably. This can happen when capital is badly misused domestically, when the debt crisis imposes large deadweight costs on the debtor's economy (costs unrelated to investment financing constraints), or when the debtor has no other way of signaling its creditworthiness.

Although case-by-case analysis is clearly required, the creditors' group generally needs to offer some concessions to the debtor—new money or attractive prices on exit bonds—for the debtor to gain from market buybacks. In particular, a concerted pricing of the exit option below the market price can make the deal acceptable. But the other options on the menu should not be more attractive than the exit options; otherwise, debt reduction would not be chosen voluntarily. And since free-riding can be more attractive than all the other options, some mechanism must guarantee enforcement of the concerted part of the agreement.

The Role of the International Financial Institutions

Debt relief must go along with stronger economic reforms in the highly indebted countries, and official support is needed. About this, there is little disagreement. But the workability of confronting banks with a choice between reducing debt and recycling interest hinges on how much of the tab the IFIs pick up and on the bargaining between debtors and creditors. Is it a good idea for debtors to borrow IFIs' money to finance voluntary debt reductions? The answer depends on the alternative uses of funds. As the foregoing analysis indicated, the answer might in many cases be "no" if the banks do not make any concessions in return.

In considering whether financing from the IFIs should go for market-based debt reductions, the relevant alternative use of funds is not only domestic absorption but also external debt repayments to commercial banks. The IFIs have an important stake in maintaining political and economic stability in the debtor countries, and they are thus willing to put money into the process if the banks do not. Indeed, expectations of official bailouts may have been a major reason for the fall in private financing in recent years. That is why the financing of debt reduction by the IFIs may in the long term involve smaller leakages to banks than the financing of new money under the Baker approach (Rogoff).

In any case, for the IFIs to be able to convince debtor countries to make stronger adjustments, the international community must deliver stronger support—a combination of the IFIs' own resources, of more favorable taxes and regulations in creditor countries, and of concessions from the banks. The new strategy is moving in these directions. A key element of the new plan is the decision that the IMF can lend into arrears. That is, the IMF—and by implication, other IFIs—no longer act as police for the banks by withholding disbursements if a country has not worked out an agreement with the banks but is deemed to be making its best efforts. For the IFIs, this solution has the benefit of avoiding arrears on their claims. More important, it allows debtors to negotiate new commercial packages from a stronger bargaining position, since quick agreement is not needed to get the IFIs' money. For Cline, this new flexibility should be used with great caution. If it encourages more rigid negotiating demands, and prompts otherwise avoidable entry into

arrears, the results could be destabilizing. Feinberg feels more strongly about the necessity for the IFIs to increase the bargaining power of the debtors in the context of what he calls "guided voluntarism."

* * *

In conclusion: the key to improved growth is balancing the burden that the developing countries, the IFIs, and the commercial banks and their governments bear. Each player is being asked to share the burden. Debtors are being asked to make their adjustment programs even stronger. But hampering their adjustment efforts is the considerable uncertainty over the timing and amount of outside financing they will receive. Meanwhile, IFIs are being asked not just to step up their lending but to assume some of the exposure of commercial banks—this, while the commercial banks pursue more attractive lending opportunities elsewhere. And commercial banks are being asked to write down doubtful loans and tenuous interest payments while pumping in new loans—just as they're convincing shareholders that they're getting back on their feet.

A reduction of debt—or of debt service—is what many developing countries need. A set of developing-country policies that would lead to higher repayments is what the commercial banks want. At the center of the negotiation, the IMF and the World Bank do what they can to frame fragile deals—providing the official finance and policy advice that can bring all parties closer together. The parties are closer than they were in the early 1980s. But they are still far from together. The only thing that can move each of the players to accept its share of the burden is to make sure that all players are doing the same. That requires a considerable amount of negotiation—and a considerable amount of confidence in a system that lacks it. In short, it requires money, ingenuity, and leadership.

Note

1. The highly indebted middle-income countries—also known as the Baker 17— are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Côte d' Ivoire, Ecuador, Jamaica, Mexico, Morocco, Nigeria, Peru, Philippines, Uruguay, Venezuela, and Yugoslavia.

Part I

The Debt Crisis in Perspective

The Extent and Causes of the Debt Crisis of the 1980s

John T. Cuddington

The Emergence of the Debt Crisis

The hope in 1982 when the debt crisis emerged was that it would be short-lived. Renewed economic growth in the major industrial countries would remove the potential threat to the stability of the international financial system, and previous levels of capital inflow to developing countries would be restored.

Although the threat to the banking system has been alleviated, the debt problem continues to be the number one economic development issue, and it is likely to remain so throughout the 1990s. Without substantial debt forgiveness, the debt "work out" period to bring creditworthiness indicators back into the "acceptable" range will be a very long one.¹ So far, none of the countries that rescheduled debt in the 1980s has subsequently succeeded in obtaining voluntary loans from the private credit markets (except in conjunction with World Bank cofinancing). Highly indebted developing countries in Latin America and Africa remain in a state of siege, threatened by impatient creditors, on one hand, and restless domestic constituents, on the other.

This chapter sets the historical stage of the debt crisis by reconsidering the role of debtors and creditors. The analysis of causal factors also includes policy actions by the Organization of Petroleum Exporting Countries (OPEC) and the Organisation for Economic Co-operation and Development (OECD) countries. It shows how the price shocks of 1973-74 and 1979-80 and the industrial countries' macroeconomic policy response adversely affected national economies in both the industrial and developing worlds. These factors shaped the international environment in which the massive expansion in sovereign lending occurred. The shocks' impact, however, varied greatly among countries depending on their past macroeconomic, financial, and development strategies. Developing countries with bad policies accumulated large amounts of debt without a corresponding

increase in their productive capacity. Hence their economic and financial flexibility has been weakened considerably.

The need to consider alternative policy actions by official institutions, both national and multinational, is as real today as it was at the time of the Bank's earlier conference on developing-country debt in early 1984. Yet the nature of the proposed solutions will undoubtedly have a somewhat different emphasis. The primary issue is how to regain the development momentum of the 1960s and early 1970s. Is this best done through more lending? What are the merits of case-by-case versus more generalized debt forgiveness schemes?

Origins of the Crisis

Internal policies in the developing countries can contribute to debt problems or help to avoid them. Debt-ridden countries typically share the following characteristics: they have highly distorted price systems as a result of overvalued exchange rates and inward-oriented trade policies. Furthermore, they often respond inappropriately to transitory booms and busts, leading to fiscal disequilibrium and unsustainable deficit financing strategies.

Most observers would date the beginning of the generalized debt crisis of the 1980s as August 1982, when the Mexican finance minister announced that Mexico was unable to service its public sector's external debt obligations. Mexico's debt-servicing moratorium was noteworthy because of the sheer magnitude of Mexico's external liabilities.² In addition, the large commercial bank exposure, especially in the United States, brought attention squarely to the systemic risks. Even by early 1983, disagreement remained regarding emerging debt-servicing problems. At that time the World Bank, with its characteristic optimism, argued that: "There is no generalized debt crisis; rather, the mutual difficulties of developing

countries in servicing foreign borrowing and of commercial banks in obtaining service payments on foreign lending are an outgrowth of the broader economic problems" growing out of three years of global disinflation, which began toward the end of 1979.³ The report stresses restoring economic growth in order to overcome these transitory difficulties. Echoing a widespread view, the Bank argued that the global disinflation, which was pushing many high-debt countries into debt-servicing crises, was the consequence of deliberate policies of the major financial powers (as well as many other countries, including developing countries) to limit aggregate demand growth after the second oil shock.

What ensued was more than a typical cyclical downturn in the world economy. It was a "crisis," not only for Mexico, which had to engineer massive external adjustment of its economy, but also for a number of other American heavy borrowers in Latin America and Africa. Massive exposure of North American and European commercial banks in these regions caused legitimate fears about the international banking system's stability. The real threat was that cascading sovereign debt problems, coupled with high interdependence of international banks, would trigger a "meltdown" of the financial system of the sort encountered in the 1930s.

Even as the vulnerability of commercial banks has declined, the number of developing countries encountering debt-servicing problems has grown. Virtually none of the troubled debtors has regained access to the private credit markets. "Of the countries that have rescheduled debts since 1982, only Côte d'Ivoire and Uruguay have been able to raise long-term loans from financial markets outside the context of a formal restructuring agreement. In each case, new lending by commercial banks was part of a cofinancing arrangement with the World Bank."⁴ Even countries that have not experienced debt problems have found their access to external funds greatly reduced.⁵

What remains after six years of intensive effort to restructure external debts and restore growth, however, is indeed a debt-servicing crisis. In many cases developing countries continue to service external obligations only at a very high cost of forgone economic growth and drastic declines in per capita consumption, with little prospect of a return to voluntary lending. As observers have emphasized, the decade of the 1980s has become a "lost decade for economic development," as per capita incomes in a number of regions have fallen to their 1960 levels, before the economic growth miracle of the 1960s and 1970s began.

Causes of the Debt Crisis

There is no shortage of commentary on "causes" of the debt crisis. Rudiger Dornbusch and Stanley Fischer (1986) conclude:

The question of the origin of the 1982 debt crisis is easily answered. Imprudent borrowing policies in the debtor countries and imprudent lending by commercial banks had a chance encounter with extraordinarily unfavorable world macroeconomic conditions that exposed the vulnerability of the debtors and the creditors.

Mario Simonsen, former finance minister of Brazil (1985, p. 120), places much more emphasis on systemic factors and their inevitable consequences for debt dynamics:

To sum up, neither the errors of the lenders nor those of the borrowers can explain the global debt crisis that emerged in late 1982. The central cause has already been indicated in the discussion on debt dynamics: the sudden and unanticipated change in sign in the difference between the growth rate of developing-country exports and international interest rates. From 1974 through 1980 a typical interest rate on developing-country loans, LIBOR plus 1.5 percent a year spread, averaged 10.7 percent. Meanwhile, exports of nonoil-exporting developing countries were expanding at 21.1 percent, overfulfilling the weak solvency test (that nominal export growth exceed the nominal interest rate). In 1981–82 the interest rate soared to 16.3 percent a year, while the annual rate of growth of exports declined to 1 percent, challenging any solvency criterion. Even if balance of payments finance had been provided by a single central lender, such a change would have required drastic adjustment policies. Under competitive recycling, the result could be nothing but a crisis.

William Cline (1984, p. 1) also focuses on global macroeconomic considerations:

The global debt problem stems from forces dating to the mid-1970s, and to the first oil price shock (1973–74) in particular. The intensification of the problem in 1982 derived primarily from the effects of global recession from 1980 to 1982, combined with adverse psychological shocks to credit markets caused by events in individual major countries. In a broad sense the problem is a consequence of the transition from inflation to disinflation in the world economy. Funds that were borrowed when inflation was high and real interest rates were low or negative are no longer cheap in an environment of lower inflation and high real interest rates.

While agreeing that global shocks were important, Jeffrey Sachs (1985, p. 526) stresses that country-specific factors, in particular their policy choices, were decisive in determining which developing countries escaped the “debt trap” and which did not:

The debt crisis of the early 1980s was triggered by a combination of global economic events and domestic developments in the debtor countries. The best evidence for the contribution of global events is the simultaneous onset of the crisis in more than forty developing countries. The best evidence for the role of distinctively national developments is the success of many debtor countries in surmounting external shocks without an emergency rescheduling.

While agreeing that external shocks and developing-country policies were important in bringing on the debt crisis, there are many students of the debt crisis (like Swoboda 1985 and Guttentag and Herring 1985) who blame the commercial lenders and their regulators. Banks allegedly “overlent,” aggressively expanding loans in the 1970s with insufficient attention to individual borrowers’ creditworthiness or the profitability of the projects being financed. Later, following the onset of the debt crisis, they abruptly cut back on sovereign lending, thereby worsening the liquidity crunch. Guttentag and Herring (1985, pp. 129–30) focus on the excesses in the commercial banking system and the inadequacies of prudential and supervisory regulations:

The conventional story about the debt crisis places some emphasis on imprudent borrowing (or endogenous factors in the borrowing country), but most of the emphasis is placed on the deterioration in the world economy. . . We believe this conventional story is incomplete. Imprudent borrowing is usually impossible without imprudent lending. In several instances, commercial banks continued to lend in support of unsound economic policies long after the residents of the borrowing countries had demonstrably lost confidence in their government’s policies. The consequence was a substantial amount of bank lending that was used to finance capital flight from the borrowing country.

They develop three hypotheses about how and why overlending by commercial banks occurred: (1) banks were subject to “disaster myopia,” (2) banks underestimated risks because of inadequate information, and (3) banks took calculated gambles based on the expectation of official support in the event of adverse outcomes. They also express concern that “bank regulatory authorities were so ineffectual in constraining growing concentrations of country exposure in individual banks.”

There are lots of possible culprits to consider in the “witch hunt,” to use Mario Simonsen’s (1985) colorful terminology, to assess blame for the debt crisis. “Witch

hunting” aside, a thorough understanding of the current debt problem’s causes is worth pursuing. “Much as the study of disease is one of the most effective ways to learn about human biology, the study of financial crises provides one of the most revealing perspectives on the functioning of monetary economies” (Eichengreen and Portes 1987, p. 10).

Beyond this intellectual motivation are more pragmatic ones. First, an understanding of the causes of debt crises may indicate the need for systemic reforms to reduce the vulnerability of the world economy. Second, it may help to predict incipient debt-servicing problems and to take timely action to avert them. Third, it may suggest equitable solutions to current difficulties. Fourth, in addition to “fairness” considerations, there is the issue of efficiency—maintaining or establishing appropriate economic incentives to prevent excessive borrowing and a future full-blown financial crisis. Paul Krugman emphasizes, “the current debt strategy involves, de facto, an element of bailout of debtors by their creditors, on one hand, and bailout of both debtors and creditors by official agencies, on the other. If the problems of debtor countries basically reflected irresponsible behavior, such a bailout would provide encouragement for more such behavior in the future. If, on the other hand, the debt crisis can be viewed basically as an act of God (or his earthly manifestation, Paul Volcker), this is not a concern” (Diaz-Alejandro, 1984, comment, p. 391). This is the moral hazard issue.⁶

The Nature and Extent of Debt-Servicing Problems

Debt-servicing difficulties vary greatly in terms of character and duration. Debt-payment problems include a range of maladies: arrears on interest payments, arrears on principal repayment as well as interest, higher tranche IMF arrangements, or requests to reschedule loans from private or official creditors. The study of debt-servicing problems between 1970 and 1982 by McFadden and others contends that “Of these, arrears are likely to be the first symptom, or even a deliberate signal, of difficulties. Rescheduling or IMF arrangements come later as part of the resolution of problems after their presence is generally recognized” (1985, pp. 186–87). Their transition matrix for various types of repayment problems for their sample of 93 countries (which includes problem and nonproblem debtors) confirms that “arrears are the most common problem, present in 73.4 percent of the years where any form of problem occurs. Furthermore, arrears are a strong one-year-ahead indicator of future problems: 83.3 percent of countries with arrears in year t have a problem in year $t + 1$, while this is true for only 20.6 percent of countries without arrears in t .”⁷

Table 2-1. Net Transfers to DRS Countries, 1971-88^a
(US\$ billions)

	1971	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988 ^b
Net transfers	5.0	19.0	26.1	25.5	22.9	12.2	0.7	-12.7	-19.4	-28.8	-39.9
Official creditors	3.2	9.9	14.5	16.6	14.5	12.6	11.9	5.4	4.6	0.9	1.4
Private creditors	1.8	9.0	11.6	9.0	8.4	-0.4	-11.1	-18.1	-24.0	-29.6	-41.3
GNP	512.2	1,051.8	2,083.2	2,199.5	2,161.7	2,063.4	2,092.7	2,153.7	2,229.9	2,411.9	2,555.2
	<i>Ratio of net transfer to GNP (percent)</i>										
Net transfers	1.0	1.8	1.3	1.2	1.1	0.6	0.0	-0.6	-0.9	-1.2	-1.6
Official creditors	0.6	0.9	0.7	0.8	0.7	0.6	0.6	0.3	0.2	0.0	0.1
Private creditors	0.3	0.9	0.6	0.4	0.4	0.0	-0.5	-0.8	-1.1	-1.2	-1.6

a. Long-term public-guaranteed debt only.

b. Estimated.

Source: World Debt Tables, First Supplement.

The number of rescheduling operations involving official and private creditors rose from one a year in 1975 and 1976 to eight in 1980. It then jumped to 14 in 1981 and to a higher plateau of 30 to 40 after 1983. Looking at the estimated dollar value of loans restructured, the big surge occurred in 1983, the year after the Mexican debt moratorium was announced. Restructuring activity has continued since that time, reflecting the enduring nature of the crisis. Between January and September of 1987, 25 restructurings occurred. The estimated face value of the debt was over \$102 billion, which represents fully 10 percent of the total outstanding external debt of the World Bank's Debt Reporting System (DRS) countries as of year-end 1986.

The vast majority of reschedulings have been concentrated in two regions: Latin America and Africa. Many countries experiencing debt-servicing difficulties have had to restructure their debt obligations several times. Once debt-servicing problems arise, they tend to dog the countries involved. This entails considerable time and negotiating costs for the developing-country policymakers and brings into focus larger economic and political costs.

Not surprisingly, these debt-servicing problems have been accompanied by, and to some extent have caused, a severe deterioration in the financial markets' assessment of developing-country creditworthiness. The timing and extent of this deterioration is suggested by several factors. First, spreads over London Interbank Offered Rate (LIBOR) for individual borrowers jumped as debt-servicing problems became imminent. First came Brazil with a jump in its spread from less than 1 percent over LIBOR in late 1979 to over 2 percent by the end of 1980. In early 1981, deteriorating economic conditions and domestic political uncertainty caused Argentina's loan spreads to jump from less than 0.6 percent to 1.1-1.2 percent over LIBOR.⁸ For Mexico, the spread began to increase slowly

in the latter half of 1981, after falling gradually in 1979 through early 1981. As debt-servicing difficulties seemed inevitable in early 1982, the spread climbed sharply to 1.5 percent.

A second indication of deteriorating developing-country creditworthiness is the high discounts for which developing countries' bank debts are being traded on the secondary market. The magnitudes of these discounts over the last couple of years are particularly interesting as they show just how far the current international environment is from the point where voluntary lending will be restored.

A third indication of the debt problem's severity is the low level of commercial lending in recent years. Much new lending that has occurred has been "involuntary," involving increased participation by existing creditors as part of rescheduling agreements. In 1985 and 1986, for instance, there were significant resource transfers from developing countries to creditors as aggregate debt-service repayments exceeded new loan disbursements. This negative transfer is because of large reflows to commercial banks in industrial countries that are only being partially offset by positive resource transfers from multilateral institutions. This pattern of net transfers emerges even in the aggregate data in table 2-1, which includes all DRS reporting countries. If one considers the major debtors and Sub-Saharan Africa separately, the negative transfer begins in 1983 and is much more dramatic (tables 2-1, 2-2).⁹

In sum, this section emphasizes that the debt crisis is severe, especially in Latin America and in Sub-Saharan Africa, and is likely to be very protracted—contrary to the optimistic assessments in the international financial community in the early years of the crisis. The high costs of the enduring crisis of debt and economic stagnation on debtor countries makes the roles of various causes of the crisis worth studying.

Table 2-2. Net Resource Transfers to Debtor Countries, 1981-88
(US\$ billions)

Category	1981	1982	1983	1984	1985	1986	1987	1988 ^a
Major debtor countries								
Official creditors	5.5	4.7	2.7	2.6	0.5	0.9	-1.0	-2.8
Private creditors	4.8	3.9	-2.9	-11.0	-18.4	-19.8	-13.9	-23.2
Latin America								
Official creditors	3.0	3.0	1.9	2.8	2.1	1.8	-0.2	-1.1
Private creditors	4.2	3.2	-3.2	-9.3	-16.1	-17.4	-12.3	-19.7
Sub-Saharan Africa								
Official creditors	3.2	3.5	3.6	2.3	1.3	2.6	2.9	2.1
Private creditors	2.1	2.7	-0.1	-2.3	-2.7	-1.1	-0.3	-1.6

a. Estimated.

Source: World Debt Tables, First Supplement.

Debt Trends and Creditworthiness Indicators

The total external indebtedness of the 109 countries included in the DRS grew from \$67 billion in 1970 to \$579 billion in 1980, before the debt-servicing difficulties. These figures represented roughly 16 percent of their collective GDP or 142 percent of exports of goods and services in 1970; total external debt amounted to 28 percent of GNP and 130 percent of exports in 1980 (table 2-3). By 1987, total external debt had skyrocketed to over 1 trillion dollars (\$1,170 billion) or 50 percent of DRS countries' GNP and 212 percent of their exports of goods and services.

Total external debt (EDT) grew at a compound annual rate of 24 percent between 1974 and 1980, after which time the growth rate fell sharply.¹⁰ Comparing the growth in total external debt to the long-term publicly guaranteed debt component (DOD), on which more com-

plete data are available over a longer time period, one can infer that short-term lending rose sharply in 1980—a precursor of the debt-servicing problems to come.¹¹

These aggregate data mask important features of the debt buildup. First, the growth in debt differed significantly across regions and among individual countries within each region. Generally speaking, debt burdens are greatest in Latin America and Africa, with the developing countries in Asia and Eastern Europe being considerably more conservative. Of the World Bank's 17 highly indebted countries, only two (the Philippines and Yugoslavia) are outside Latin America or Africa.¹²

Also hidden in the table is the pronounced shift in relative importance of creditor sources toward commercial lenders and away from multilateral lenders, particularly for Latin American debtors. With this shift came higher average interest rates and shorter loan maturities, albeit with less in the way of "conditionality" or restric-

Table 2-3. External Debt, GNP, and Exports of All DRS Countries, 1970-87

	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987
US\$ billions										
Total external debt (EDT)	67.0	166.7	579.4	673.7	752.2	815.5	851.3	962.6	1,052.9	1,170.8
Long-term public-guaranteed debt (DOD)	49.6	126.8	362.1	407.5	460.1	533.2	576.6	690.1	799.6	908.0
Gross national product (GNP)	469.9	1,024.1	2,089.3	2,205.5	2,188.1	2,063.4	2,092.7	2,153.7	2,230.0	2,411.9
Exports of goods and services (XGS)	47.2	171.8	447.2	497.4	469.4	464.9	500.6	487.4	475.3	584.0
Percent										
DOD/GNP	10.6	12.4	17.3	18.5	21.0	25.8	27.6	32.0	35.9	37.6
DOD/XGS	105.1	73.8	81.0	81.9	98.0	114.7	115.2	141.6	168.2	155.5
EDT/GNP	14.3	16.3	27.7	30.5	34.4	39.5	40.7	44.7	47.2	48.5
EDT/XGS	142.0	97.1	129.6	135.4	160.3	175.4	170.1	197.5	221.5	200.5
EDT growth rate	—	20.1	27.4	16.3	11.7	8.4	4.4	13.1	9.4	11.2
DOD growth rate	—	20.9	22.1	12.5	12.9	15.9	8.1	19.7	15.9	13.6
GNP growth rate	—	33.0	15.5	5.6	-0.8	-5.7	1.4	2.9	3.5	8.2
XGS growth rate	—	0.3	29.4	11.2	-5.6	-1.0	7.7	-2.6	-2.5	22.8

Source: World Debt Tables, First Supplement.

Table 2-4. External Debt Indicators, 1981 and 1980-83 (percent)

Country	Cumulative current account deficit, 1970-80 (percentage of 1981 GDP)	Debt-GDP ratio 1981	Debt-export ratio 1981	Debt service ratio 1980-83
Latin America				
Argentina	2.3	31.6	334.7	214.9
Brazil	22.8	26.1	298.7	132.6
Chile	19.8	47.6	290.0	153.3
Mexico	13.9	30.9	258.8	161.8
Peru	19.3	44.7	223.5	122.2
Venezuela	-7.5	42.1	134.0	117.8
Weighted average	13.6	31.3	271.5	153.8
Colombia	0.4	21.9	182.9	103.8
East Asia				
Indonesia	0.6	24.1	87.1	n.a.
Korea, Rep. of	24.6	27.6	76.6	90.1
Malaysia	-2.0	27.8	51.8	16.9
Thailand	22.4	25.7	103.1	58.1
Weighted average	11.9	25.9	82.1	61.7
Philippines	18.3	40.6	214.6	152.7

n.a. Not available.

Note: The debt service ratio equals total debt-servicing expenditures relative to exports. Debt-servicing equals interest payments on all debt, plus amortization of principal on medium- and long-term debt, plus the stock of short-term debt (the principal of which by definition comes due within the year). Debt stocks are end-of-year total gross debt.

Sources: Debt stocks are from the DRI International Data Base. The cumulative current account deficit is computed from *International Financial Statistics* data and is divided by the GDP of the country measured at the official exchange rate. Exports are from the national account series for exports of goods and services of *International Financial Statistics*. Sachs (1985), p. 533.

tive loan covenants than was typical on loans from multilateral lending institutions.

Debt-GNP, debt-export, and debt service ratios are widely used when studying the external debt's evolution. They are also used in informal and econometric assessments of creditworthiness. In limited dependent variable models that attempt to predict debt-servicing problems,¹³ the debt service-export ratio and debt-export ratio are typically the most significant explanatory variables. More often than not, the debt-GNP ratio is not significant. Interestingly, this is consistent with Sachs' (1985) study comparing Latin American and East Asian debtors (table 2-4). He finds that the problem debtors (primarily in Latin America) differed from the non-problem countries (concentrated in East Asia) in terms of their debt-export ratios. Debt-GNP ratios, however, were similar across the two regions. Sachs attributes

Asia's lower debt-export ratios to its superior export performance.

External debt grew at an average of 21.9 or 24.4 percent a year between 1971 and 1980, depending on whether one looks at EDT or DOD. As this was somewhat faster than the average growth rate in GNP of 17.5 percent, the debt-GNP ratio grew over the period. The abrupt climb in the ratio as the debt crisis emerged after 1980 reflected primarily the collapse in GNP growth, not a surge in the debt level.

In contrast to the debt-GDP ratio, the debt-export ratio actually fell slightly during the 1970s because export growth outpaced growth in external debt. The movement of the aggregate debt-GNP and debt-export ratios in the 1970s for the DRS reporting countries would hardly have suggested that a debt crisis was imminent. These data, of course, hide widely differing trends in individual countries.

Debt Dynamics

In judging the sustainability of developing-country debt burdens, the relationship between export growth rates and the interest rate on external liabilities has received considerable attention.¹⁴ The relation on which these discussions are based is obtained by rewriting the DOD-export ratio in terms of percentage changes:¹⁵

$$(2-1) \quad \% \Delta(DOD/XGS) = \% \Delta DOD - \% \Delta XGS.$$

Next, using a simplified version of the balance of payments identity, the growth in debt ($\% \Delta DOD$) in the above identity is replaced with the accounting identity relating changes in the debt (ignoring nondebt capital flows) to net interest payments (iD) and the noninterest current account deficit (CAD): $\Delta DOD = iD + CAD$, where i is the nominal interest rate on external borrowing. Using this identity, (2-1) becomes:

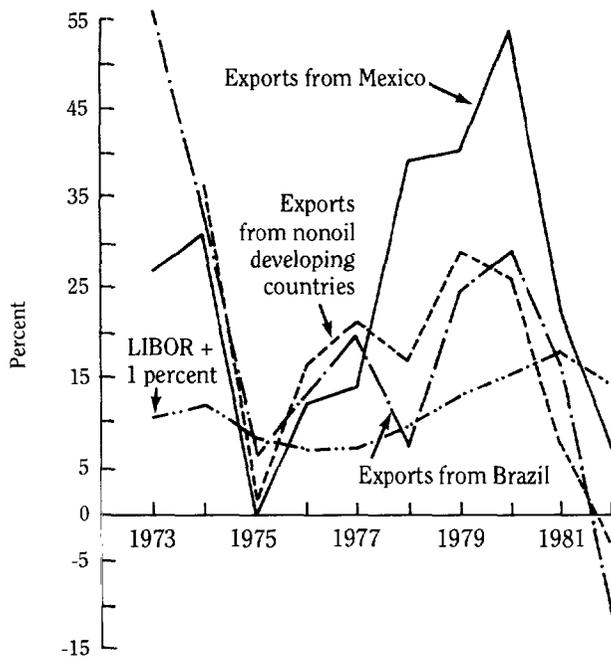
$$(2-2) \quad \% \Delta DOD/XGS = (i - g) + CAD/DOD,$$

where g is the growth rate in the dollar value of exports.

Taking the debt-export ratio as a measure of the debt burden, the relationship in equation (2-2) shows that, even if the noninterest current account is brought down to zero, the debt-export ratio will grow without limit if the nominal (dollar) interest rate on the debt exceeds the growth rate in the dollar value of exports. This explosive growth in the debt-export ratio is an indicator that debt-servicing problems will ultimately emerge unless borrowers or lenders implement corrective policies.

Mario Simonsen stressed that it was the sharp rise in world interest rates coupled with the collapse in devel-

Figure 2-1. *Nominal Export Growth and International Interest Rates, 1973-82*

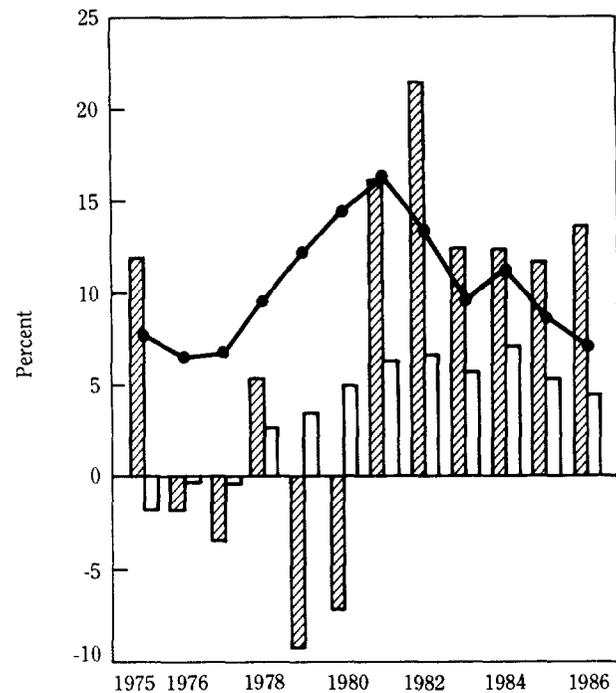


Source: Cline 1984, p. 9.

oping-country export growth rates that brought on the global debt crisis. Figure 2-1 shows the abrupt change in the relationship between interest rates and export growth rates for nonoil developing countries as a group, and for Mexico and Brazil alone. Although interest rates rose steadily from 1977 through 1981, it was the drastic turnaround in exports that was primarily responsible for the collapse in the simple solvency condition (or rule of thumb) that $i - g$ be less than zero.

One gets a slightly different perception of the relative importance of interest rate increases and the collapse in export growth if one considers real interest rates and the growth in export volumes and prices. To convert the relation ($i - g < 0$) to one about real interest rates ($i - \pi$) and the real export growth rate ($g - \pi$), one would have to measure changes in an appropriate (that is, volume) export price deflator (π) and interpret "real" interest rates ($i - \pi$) accordingly. The rule of thumb for debt sustainability then becomes: $(i - \pi) - (g - \pi) < 0$, where $(g - \pi)$ is the growth in export volume. The jump in real interest rates after 1981 is remarkable; see figure 2-2. The inference from figures 2-1 and 2-2 is that the growth in export volume must have collapsed after 1981. Thus, the sharp turnaround in the simple solvency condition reflects both higher real interest rates and lower export

Figure 2-2. *Real Interest Rates and LIBOR, 1975-86*



Real interest rate for
 developing countries and
 the United States.
 Six-month dollar LIBOR.

Note: The real interest rate is defined as the six-month dollar LIBOR deflated by the change in the export price index for developing countries. The U.S. real interest rate is defined as the six-month dollar LIBOR deflated by the U.S. GDP deflator.

Source: World Debt Tables, 1986-87 Edition, p. xii.

volumes, and thus leaves open the question of underlying "causes" of the debt-servicing difficulties that emerged in 1982.

Predicting Debt-Servicing Problems

Researchers have proposed econometric models using financial and macroeconomic indicators of creditworthiness to predict or "explain" the occurrence of rescheduling problems by using data on a cross-section or panel (that is, cross-section time-series) of developing countries. Many of these statistical exercises used discriminant or logit models and were carried out using data from the 1960s and early 1970s. In a few cases, the data extended through the early 1980s, but most studies do not include the period since 1982 when debt-servicing difficulties took on systemic dimensions and a rash of reschedulings occurred.¹⁶

These studies provide a useful starting point for examining various "causes" of the debt crisis by examining

various debt ratios (such as those we examined above) in bringing on debt crisis. Nevertheless, these variables are in most cases only proxies for more fundamental causes. As McFadden and others (1985) have noted, early studies also have statistical shortcomings. For example, they generally ignore time effects (that is, before and after 1982 when the debt crisis began) and country-specific effects. From a conceptual standpoint, the prediction models make no attempt to isolate separate influences affecting the supply of and demand for new loans to sovereign states. Thus, they are at best estimations of reduced-form models (table 2-5).

The second shortcoming has been remedied in recent work following Eaton and Gersovitz (1981) that applies the "regime-switching" econometric technique to allow for the possibility of disequilibrium credit markets. The underlying model assumes that interest rates may not adjust continuously to equate supply of and demand for new credit. Two types of disequilibrium, or more precisely non-Walrasian equilibrium, can arise in the Eaton-Gersovitz model. In one, the borrower faces a credit-availability constraint at the prevailing interest rate (that is, there is excess demand for funds); in the other regime, a borrower's demand for credit at the prevailing interest rate is completely met (and there may be an excess supply). In estimating this two-regime model, the parameters of both supply and demand schedules for external loans are estimated, as is the probability of facing a credit-constrained situation given a country's determinants of credit supply and demand.

McFadden and others (1985) and Hajivassiliou (1987) extend the two-regime model of Eaton-Gersovitz to three regimes, thereby allowing for the possibility of debt-servicing problems. Hajivassiliou improves on the econometric techniques used in his earlier work with McFadden and others by correctly allowing for the country- and time-specific effects in the (panel) data. He delineates the three separate regimes as follows.¹⁷ In the first, there is excess credit, so the borrowing country is not credit-constrained; no arrears occur, and there is no rescheduling. In the second, there is "moderate" excess demand for credit. Suppliers are on their notional supply schedules, but the available credit is less than the borrower's demand at the prevailing interest rate. The borrower responds by incurring arrears in debt-service payments. By assumption, however, arrears fall short of the country lending limit established by lenders, so they do not put pressure on the borrower to reschedule. In the final regime, there is a large excess demand for credit. In particular, the borrower's excess demand and, hence, its arrears are so large that it exceeds the lender's country lending limit. Rescheduling occurs.

Table 2-5. Significant Macroeconomic Correlates of Repayment Crises in Developing Countries

Variable	Study					
	Frank-Cline (1971)	Grinols (1976)	Feder-Just-Ross (1981)	Sargen (1977)	Bates (1978)	Cline (1983)
Debt service/exports	+		+	+		+
Principal service/debt	-					-
Imports/reserves	+		+			+
Debt/GDP		+				
Debt/exports		+		+		+
Debt service/reserves		+				
GNP per capita			- ^b			
Foreign exchange inflows/debt service			-			
(Current account) ^a exports						- ^c
Exports/GNP			-			
Rate of domestic inflation				+		
Growth rate of money supply					+	
Growth rate of reserves					-	- ^d
Growth rate of GNP per capita						-
Total borrowing/total imports						-

a. Variables with significant effects are indicated by sign of effect. These studies differ in countries and time periods considered and in details in definitions of both dependent and independent variables.

b. Defined relative to U.S. GNP per capita.

c. This variable is multiplied by the sign of the current account surplus.

d. Cline reports significant positive and negative signs on this variable.

Source: McFadden and others (1985), p. 188.

Under this approach, it is possible to estimate not only the supply and demand schedules for new loans but also a function specifying the allowable level of arrears (the country's credit limit) that creditors will tolerate before pushing for formal rescheduling. Hajivassiliou's estimation results are reproduced in table 2-6. The demand for new loans depends significantly and positively on the amount of debt service due relative to exports, and positively on the import-GNP ratio. The real GNP per capita had a statistically significant negative effect on new loan demand, all things being equal. The supply of new loans, however, depended positively on the debt-export ratio, while the export-GNP ratio was statistically insignificant. The presence of IMF support, rescheduling, or arrears tended to reduce the supply of new funds. Finally, the limit on arrears that lenders permitted was influenced

Table 2-6. Panel Estimates of Three-Regime Model; Dependent Variables Are DVDEL, DNEW, and ARR

Variable (tagged one year)	New loan demand	New loan supply	Limit on arrears
Constant	-0.342 (2.051)	0.460 (8.841)	0.0356 (0.067)
Debt service due/exports	5.650 (20.072)	—	1.983 (2.680)
Real GNP/capita	-0.439 (5.405)	—	—
Imports/GDP	1.149 (6.205)	—	—
Reserves/imports	—	0.116 (1.274)	—
Debt/exports	—	0.0625 (1.915)	0.146 (1.225)
Indicator for IMF support or rescheduling	—	-0.175 (2.358)	-1.375 (6.435)
Indicator for arrears	—	-0.261 (4.963)	—
Interest due/exports	—	0.436 (0.485)	—
Principal due/exports	—	0.0624 (0.310)	—
Standard deviation	0.944 (2.375)	0.453 (20.975)	
Correlation	0.182 (3.828)		
<i>Random effects</i>	η	θ	
Standard deviation	0.369 (7.529)	0.109 (6.425)	
Likelihood value	-1,607.892		

Note: Asymptotic *t*-statistics in parentheses. DVDEL = 1 if either a rescheduling is requested or an IMF agreement is in effect; DNEW = total new debt obtained within the period (scaled by the flow of exports); ARR = total significant principal and interest outstanding arrears on debt obligations.

Source: Hajivassiliou (1987), p. 219.

significantly by two variables: the debt-service ratio entered with a positive effect, and the indicator of an IMF support or rescheduling had a negative impact on allowable arrears.¹⁸

The regime-switching approach represents an important conceptual and econometric innovation in explaining and predicting debt-servicing problems (arrears, IMF support, rescheduling). The approach has, to date, yielded useful insights into the financial and macroeconomic variables that affect the supply of and demand for credit, as well as allowable arrears.

Most econometric models of creditworthiness and debt-servicing problems typically include variables, such as the debt-service ratio and the debt-GDP ratio as “determinants” of debt-servicing problems. While these variables may be rough “indicators” of the likelihood of encountering debt problems, they are typically not the true underlying “causal” factors.

In spite of this limitation, the financial indicator regressors used in most statistical models may reflect changing trends in debt-servicing potential. Some variables, such as the export and GNP growth rates, enter discussions of “debt dynamics” (as in Simonsen 1985) and so are reflecting causes of the debt crisis at this more mechanical, but arguably less fundamental, level. To date, the empirical analysis based on the three-regime disequilibrium model has not focused specifically on the internal and external factors that were the most important causes of the 1980s debt crisis. They use data for the precrisis period. This is unfortunate, because the three-regime model using panel data (as in Hajivassiliou 1987) is ideal for isolating the supply-side and demand-side factors—both country-specific and systemic—that have contributed to debt crises. A thorough analysis would attempt to incorporate the effects of both global shocks and individual developing countries’ policy choices outlined on the supply of and demand for loans in the international capital markets.

The Macroeconomic and Financial Environment of the 1970s

Policy decisions regarding foreign borrowing, exchange rate management, government expenditure, and revenue raising must take into account the uncertain world environment in which developing countries operate. For students of the debt-crisis, a critical question is: did individual developing countries experience debt-servicing difficulties primarily because of “bad policies” or “bad luck”? That is, did they undertake policies that should have been considered suboptimal when they were undertaken, given, say, the size and persistence of various shocks to their economies? Alternatively, did they encounter problems because of the extraordinarily adverse shocks in the early 1980s?

One often hears that cyclical fluctuations in worldwide economic activity were particularly pronounced during the 1970s and early 1980s. “Supply shocks” buffeted the world economy with higher oil prices, sharp increases and decreases in the prices of various nonfuel primary commodities, surging real interest rates in the early 1980s, and so on. Although these shocks were exogenous for most debtor countries, some of them might be considered direct consequences of industrial countries’ policies. For instance, the sharp recession in the early 1980s was, to most observers, induced by disinflationary aggregate demand policies in the major industrial nations and some developing countries. The World Bank pointed to this policy shift in outlining the events that brought on the debt-servicing difficulties in a growing number of developing countries:

- Excessive reliance on monetary restraint rather than on a balanced mix of monetary and fiscal policies led to very high and widely fluctuating real interest rates.
- The change in operating procedure of U.S. monetary policy toward control of monetary base and aggregates rather than interest rates led to increased interest rate volatility.
- The resulting worldwide economic slowdown had a negative impact on developing countries' export growth.¹⁹

Suppose policy shifts in industrial countries do cause key macroeconomic variables in the world economy to move far from their normal values, and that these developments bring on debt-servicing problems in many developing countries, perhaps those developing countries that borrowed most aggressively or invest unwisely. Under such a scenario, one might consider it "equitable" to have the industrial countries absorb some costs that the debt crisis subsequently imposed on debtor nations.

Before jumping to such a conclusion, however, it is obviously desirable to briefly reexamine the macroeconomic and financial environment facing developing countries in the 1970s and early 1980s—the period of the major buildup in external debt. Just how atypical was this period from a longer term historical perspective? In answering this question, several factors that affected the

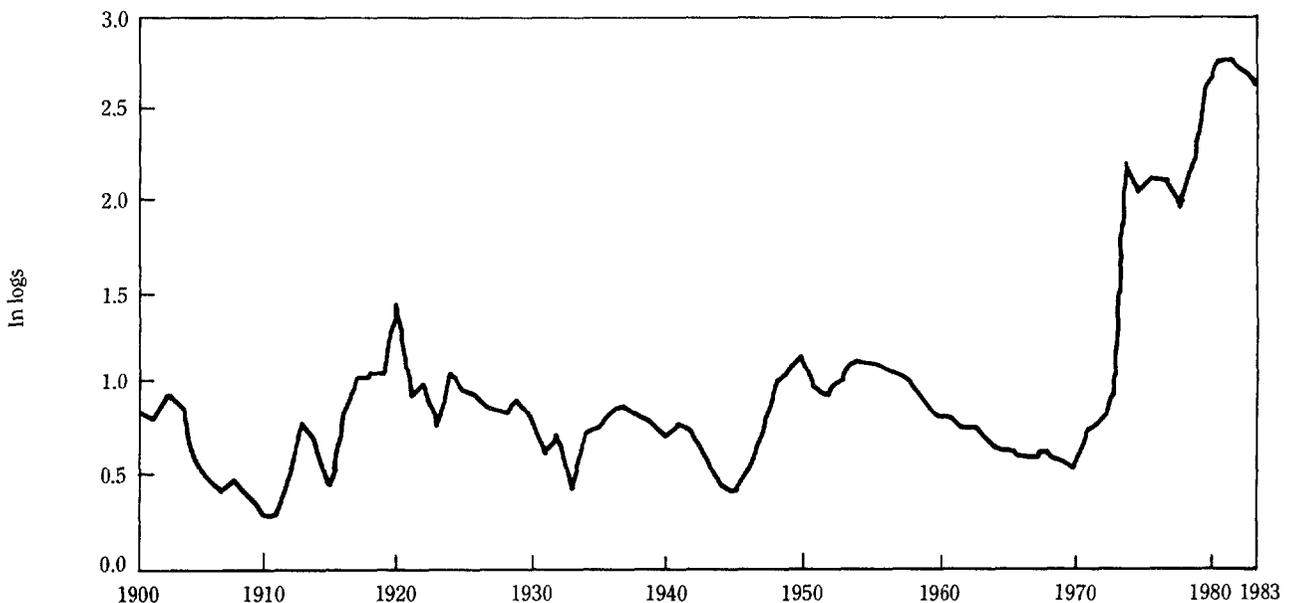
supply and demand for external funds in developing countries are considered.

The Oil Shocks

As Cline's quotation in the introduction suggests, many debt analysts focus on the oil price shocks in 1973–74 and 1979–80 as major causes of the debt crisis. Several channels exist through which oil shocks might give rise to increased vulnerability of developing countries to debt-servicing difficulties. Price hikes implied large real income losses for oil-importing nations, but there was a corresponding gain for oil-exporting nations. The impact that such income shocks have on domestic saving and investment and on the current account of the balance of payments depends on the perceived permanence of the oil price shock and the adjustment of categories of expenditure to altered income levels and relative prices.

The price hike of 1973–74 was unprecedented relative to past movements (figure 2-3).²⁰ Developing-country policymakers can hardly be faulted for not anticipating such shocks and taking preventative actions to reduce their countries' vulnerability to them. These shocks are particularly difficult to cope with from a policy standpoint because of the high uncertainty about their dura-

Figure 2-3. *Real Price of Oil, 1900–83*



Note: Real oil prices are defined by deflating nominal oil prices by the manufacture's unit value index.
Source: Cuddington and Urzua 1987.

tion. Past history of oil prices provides little guidance. Instead, one must rely on theoretical conjectures about the likely survival of cartels and so on. In the volatile external environment such as that following the first oil price hike, therefore, it is hardly surprising that policy responses in both industrial countries and developing countries varied widely. Some countries undertook contractionary aggregate demand policies to moderate the oil shock's inflationary impact. Others were more expansionary, working to reduce losses in output and employment.

Fluctuations in World Economic Activity

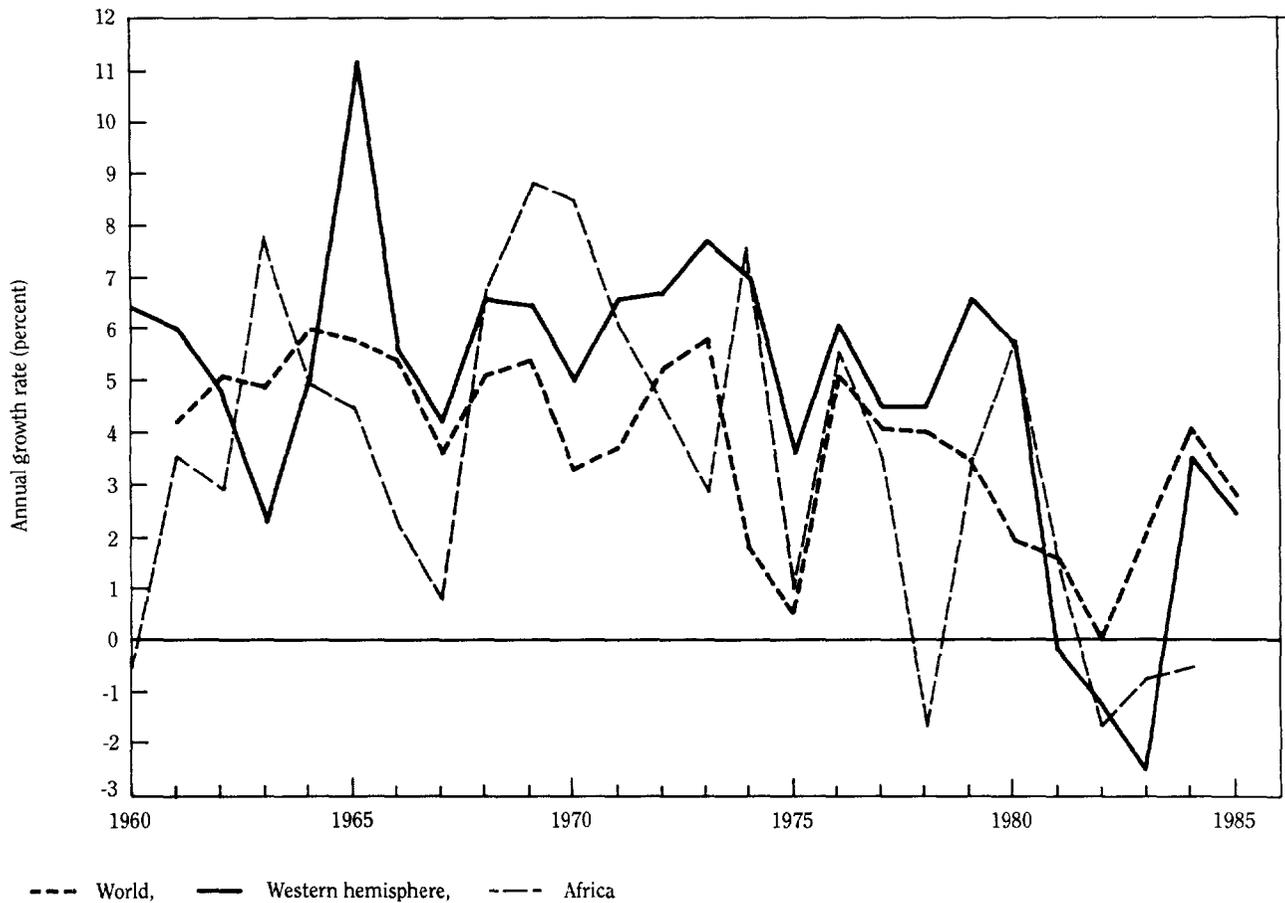
The behavior of world real GDP growth measured by the IMF's index is markedly different after 1973 than it was in the 1960s (figure 2-4). Before 1973, it fluctuated rather narrowly between 3 and 6 percent. This was a period of relative stability for world GDP, although—not surprisingly—the GDP of different regions and individ-

ual countries exhibited more volatility. After a drop from more than 5 percent in 1973 to less than 0.5 percent in 1975, GDP growth rebounded to 5 percent in 1976. Thereafter, the growth rate fell rather steadily through the trough of the worldwide economic slowdown in 1982.

The sharp drop in economic growth in 1974 as oil prices surged was felt more strongly by industrial countries than by either the Latin American or African developing countries (taken as regional aggregates). In Latin America, real growth continued relatively undisturbed by the adverse developments in the global economy—it was not until 1981 that their real GDP growth came to an abrupt halt. Strong primary commodity prices in the mid-1970s undoubtedly also contributed to the moderate impact of the industrial country recession on some Latin American and African countries.

Africa has experienced wide fluctuations in real GDP repeatedly over the past 25 years, although the continent's output growth reached new lows in the downturns of 1978 and 1982 (figure 2-4). The sharp

Figure 2-4. Real GDP Growth Comparison, 1960–85



Source: IMF, *International Financial Statistics*.

downturn in 1978, during the widespread drought, proved to be a mere preview of the persistent negative growth the region was to experience in the post-1982 period when foreign loans dried up and primary commodity prices softened.

Inflation and Disinflation

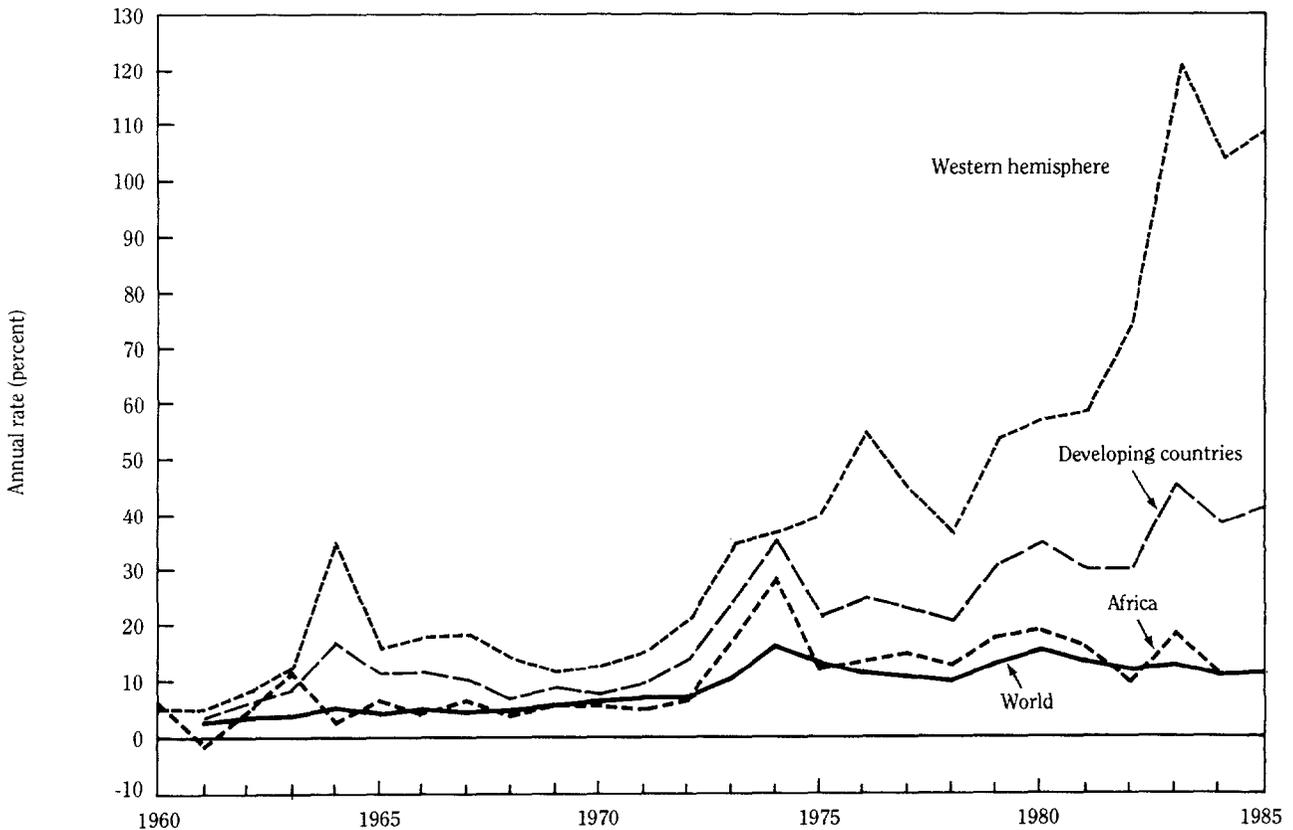
Inflationary pressure in the IMF's Western Hemisphere and African country groups also differs significantly from the world aggregate. As figure 2-5 shows, developing-country inflation before the first oil shock was somewhat higher but otherwise roughly followed the trend for the world as a whole (except in 1964). By the mid-1970s, however, inflationary trends began to diverge sharply. Africa experienced a relatively short-lived increase in inflation relative to the world aggregate in 1973-74. Latin America, in contrast, experienced steadily rising rates of inflation throughout the 1970s, with

only a brief respite in 1977-78. An alarming acceleration in Latin American inflation occurred in the early 1980s.

External borrowing in Latin America during the mid-to-late 1970s may have contributed to the diverging inflationary trends. These countries sustained high economic growth by borrowing to support high, in fact excessive, aggregate demand. This greatly moderated the economic downturn they experienced following the first oil shock, but with the cost of a sharp rise in inflation rates. This does not appear to be the case for the African continent as a whole (although it may characterize individual African countries well). Foreign borrowing facilitated at least a partial replacement of the larger drop in aggregate demand that would otherwise have accompanied the drought-induced recession in 1978.

To the extent that Latin American countries had financed large fiscal deficits with large amounts of external borrowing, they were especially vulnerable when their access to foreign capital collapsed after 1982. They were forced to undertake fiscal adjustment or turn to money

Figure 2-5. *International Comparison of Inflation Rates, 1960-85*



Source: IMF, *International Financial Statistics*.

creation to finance the deficits. In many cases, the second option prevailed. As a result, inflation skyrocketed.

Primary Commodity Prices

The decline in developing countries' terms of trade during the world recession of 1980–82 is often mentioned as a factor that contributed to the debt buildup. "The total loss to nonoil developing countries from deteriorating terms of trade in 1981–82 was an estimated \$79 billion" (Cline 1984, p. 13). Much of this estimated loss resulted from the downward movements in the prices of various primary commodities exported by developing countries (table 2–7). It is well known that primary commodity prices exhibit considerable volatility.²¹ This was true in the 1970s, and it was by no means peculiar to that period. Whether realized movements in commodity prices should be considered gains or losses in real income depends critically on one's impression about the "norm" and the persistence of deviations from the norm. To put various authors' estimates of developing countries' adverse terms of trade shocks into context, it is useful to review the historical behavior of fuel and nonfuel primary commodity prices. Grilli and Yang (1988) recently produced an index of nonfuel primary commodity prices between 1900 and 1986. Figure 2–6 shows this index (GYCPI) deflated by two alternative indices of manufactured goods prices, the modified manufacturing unit value index (MUV), and the U.S. manufactures price index (USMPI). The figure certainly confirms the sharp deterioration in the relative price of primary commodities in manufactures in the early 1980s, which is the basis for the real income loss calculated by Cline. When placed in historical context, however, the degree of volatility in primary commodity prices during the 1970s was not

atypical. It is somewhat misleading to argue that negative terms of trade shocks have played a major role in the creation of debt-servicing problems for several reasons. First, some debtor countries—those that were oil exporters—greatly benefited from the price surge in the 1970s. In spite of this real income gain, many became mired in severe debt-servicing problems because of massive "over-borrowing." Countries like Nigeria and Mexico, which became major oil exporters during a decade when the real price of oil skyrocketed, serve as perhaps the most dramatic examples of this phenomenon.

Second, if one considers only nonoil countries, should depressed commodity export prices in the early 1980s be considered as a factor contributing to the debt buildup? In fact, there was a sharp runup in nonoil commodity prices (relative to the index's norm of roughly 100) during the mid-1970s, before the collapse in the early 1980s.²² Thus, if one considers the negative income effect of the commodity price collapse in the early 1980s, one should also consider the income gain from the commodity price increase during the 1970s.

Various commodity price booms in the 1970s should have reduced the external borrowing needs of developing countries exporting those commodities. A comparative analysis of developing-country experiences with commodity booms (Cuddington 1989) shows, however, that developing countries experiencing booms in the 1970s often responded by increasing, not decreasing, their use of foreign resources. In most instances, this borrowing strategy was hardly an optimal response to the opportunities provided by the export booms. Adept, well-planned management of temporary booms has been relatively rare. If the booms of the 1970s had been well managed, less borrowing would have occurred, and the resilience of these economies to subsequent downturns in commodity export prices would have been greatly enhanced.

By looking at the downturn in commodity prices in the early 1980s, but ignoring the periodic years of strong price performance during the 1970s, too much blame for the debt crisis is placed on external shocks and not enough blame on domestic policy responses by the developing countries themselves.

The Pattern of Current Account Imbalances during the 1970s

The aggregate behavior of the nonoil developing countries' current account in the 1970s and early 1980s was quite different from the pattern in the industrial countries. First, these countries maintained deficits throughout the period. Their collective deficit moved from roughly 1 percent of their GNP before the first oil shock (although this may have been atypically low) to 4 percent of GNP in 1975. From there the deficit shrank to

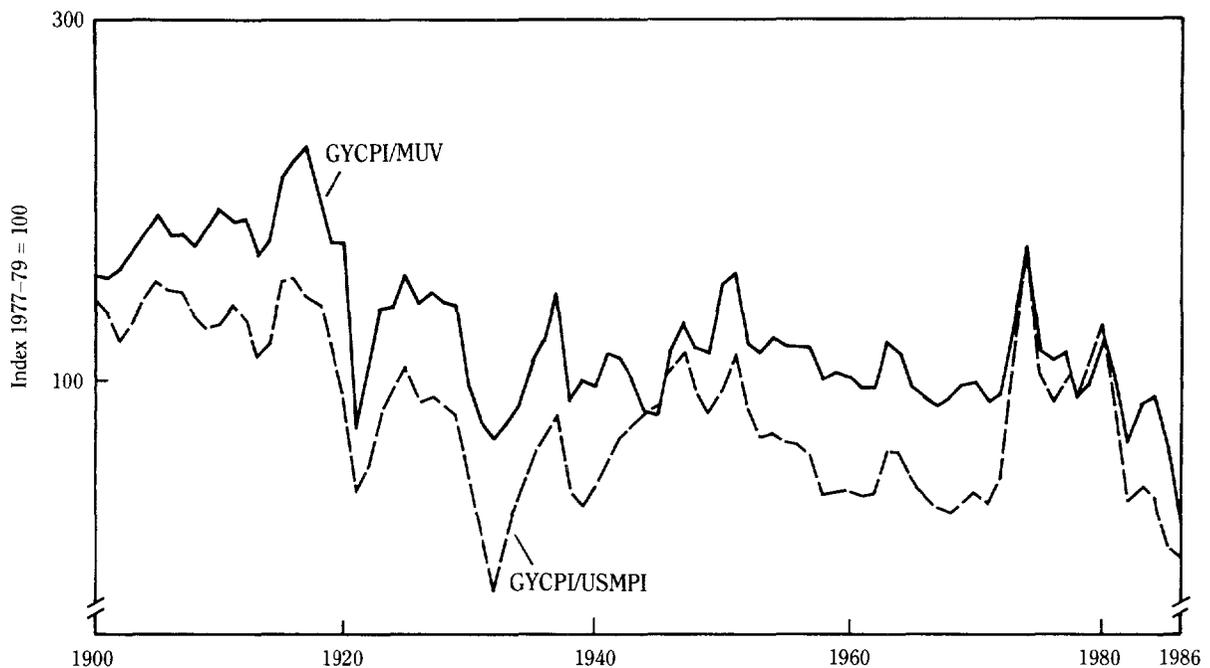
Table 2–7. *Impact of Exogenous Shocks on External Debt of Nonoil Developing Countries*
(US\$ billions)

	<i>Effect</i>	<i>Amount</i>
Oil price increase in excess of U.S. inflation, 1974–82 cumulative ^a		260
Real interest rate in excess of 1961–1980 average: 1981 and 1982		41
Terms-of-trade loss, 1981–82		79
Export volume loss caused by world recession, 1981–82		21
Total		401
<i>Memorandum items</i>		
Total debt	1973	130
	1982	612
Increase	1973–82	482

a. Net oil importers only.

Source: Cline (1984), p. 13. Copyright ©1984 Institute for International Economics, Washington, D.C. Reprinted by permission.

Figure 2-6. *Indices of Relative Prices of Nonfuel Primary Commodities, 1900–86*



Note: GYCPI = Index of nonfuel primary commodity prices. MUV = Modified manufacturing unit value index.
 USMPI = U.S. manufacturers price index.
 Source: Grilli and Yang (1988), appendix 1.

2 percent of GNP, where it remained until the second oil shock.

Thus, there was little attempt to adjust, or at least little success in adjusting, the current account back to its pre-oil-shock levels. Instead, the current account deficit stabilized at a level that was roughly twice what it had been before 1973.

Developing countries' tardiness in adjusting to the first oil shock—or more precisely the decision to finance rather than adjust—was aided by two developments.²³ First, the industrial countries returned rather quickly, albeit temporarily, to external balance, so that the increased saving generated by oil exports could be funneled to nonoil developing countries. Second, a number of developing countries benefited from surging commodity export prices. These booms offset the negative income effect of higher oil import costs on their external accounts. Current account deficits of the nonoil developing countries peaked at roughly 4 percent of their aggregate GNP in 1981 and 1982 before being compressed over the next five years as voluntary lending ground to a halt following the debt crisis.

Unlike after the first shock, developing countries were forced to adjust abruptly to the second oil shock as external funds were unavailable. This reflected in part the much faster erosion of current account surpluses in oil-exporting countries. It was also caused by growing industrial country demand for external funding for bal-

looning government budget deficits. These factors affecting the loanable funds in the international financial markets, coupled with the dramatic change in market psychology regarding developing-country creditworthiness, led to a retrenchment of lending to most developing countries unequalled in their postwar histories.

Financing Current Account Imbalances

Current account deficits, of course, need not imply a buildup in external indebtedness. Other financing methods include drawing down holdings of foreign exchange reserves, or selling equity rather than debt claims to foreigners. Nevertheless, there is a strong presumption that at least part of countries' current account deficits will result in an increase in the already substantial external borrowing. Table 2-8 summarizes sources of financing for nonoil developing countries' current account deficits during the 1970s.

The 1970s witnessed massive shifts in both the direction and the composition of international capital flows. Flow of capital from private sources in the industrial world through the international banking system gradually replaced official sources as the dominant provider of development capital to developing countries (table 2-9). The possible role of such massive shifts in the pattern of international capital flows as a precondition for financial crisis is highlighted by Eichengreen and

Table 2-8. *Current Account Financing, Nonoil Developing Countries, 1973-83*
(US\$ billions)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
<i>Net oil exporters</i>											
Current account deficit	2.6	5.1	9.9	7.7	6.4	7.9	8.5	12.5	23.5	15.6	14.2
Use of reserves	-1.3	-1.5	-0.3	-0.7	-1.9	-1.2	-3.8	-3.7	-0.7	2.8	-0.6
Non-debt-creating flows, net	2.2	3.3	3.7	2.7	3.3	3.9	5.5	5.6	7.2	5.3	4.9
Net external borrowing	1.6	3.3	6.5	5.7	5.0	5.2	6.8	10.6	17.0	7.5	9.9
Long-term borrowing	2.2	3.2	7.6	7.5	7.7	7.6	7.2	8.6	15.4	11.5	21.6
From official sources	0.8	1.2	3.4	2.2	4.2	3.4	2.4	3.0	3.5	3.3	3.9
From private sources	1.4	2.0	4.2	5.3	3.4	4.2	4.8	5.5	11.9	8.1	17.7
Reserve-related liabilities	—	—	—	1.2	-0.1	—	—	—	-0.1	3.0	0.3
Other short-term borrowing	-0.6	0.1	-1.1	-2.9	-2.6	-2.4	-0.4	2.4	1.5	-6.9	-12.0
<i>Major exporters of manufactures</i>											
Current account deficit	3.6	18.8	19.1	12.2	7.9	9.8	21.7	32.5	37.6	34.3	18.6
Use of reserves	-5.8	2.0	2.0	-7.1	-4.4	-10.2	-3.1	2.1	-2.3	4.0	-5.0
Non-debt-creating flows, net	3.8	4.4	2.9	4.6	4.5	6.4	7.5	7.4	7.9	8.2	8.1
Net external borrowing	5.6	12.4	14.1	14.7	7.7	13.7	17.3	23.1	32.0	22.0	15.5
Long-term borrowing	5.6	8.6	9.8	9.7	8.0	15.9	11.7	13.2	23.1	8.4	22.7
From official sources	1.8	2.1	2.5	2.7	2.6	3.7	3.3	3.1	3.1	3.5	3.7
From private sources	3.8	6.5	7.3	7.0	5.4	12.2	8.4	10.1	19.9	4.9	19.0
Reserve-related liabilities	—	0.2	1.1	1.9	0.3	-0.5	-0.6	0.5	1.0	3.3	3.3
Other short-term borrowing	0.1	3.5	3.2	3.0	-0.6	-1.7	6.2	9.4	7.9	10.3	-10.5
<i>Low-income countries^a</i>											
Current account deficit	3.4	6.6	7.3	5.5	5.4	8.4	9.9	11.8	12.1	12.0	11.4
Use of reserves	-0.5	-0.3	0.4	-0.7	-1.0	0.1	-0.2	-0.2	0.1	0.3	-0.1
Non-debt-creating flows, net	2.3	3.2	2.4	2.3	2.7	3.0	4.0	4.3	4.5	4.2	3.6
Net external borrowing	1.6	3.7	4.4	3.9	3.7	5.3	6.1	7.7	7.5	7.6	7.9
Long-term borrowing	1.6	3.0	3.1	2.9	2.8	3.9	5.1	5.5	4.9	4.7	4.7
From official sources	1.0	2.1	2.8	3.0	1.9	3.0	5.6	4.6	5.8	4.5	7.3
From private sources	0.6	0.9	0.3	-0.1	0.9	0.8	-0.5	0.8	-1.0	0.2	-2.6
Reserve-related liabilities	0.1	0.5	0.4	0.4	0.1	0.1	0.4	0.6	1.2	1.1	1.4
Other short-term borrowing	-0.1	0.3	0.9	0.5	0.8	1.4	0.6	1.6	1.4	1.7	1.8
<i>Other nonoil developing countries</i>											
Current account deficit	1.1	5.6	9.7	8.3	12.0	14.7	18.9	27.6	33.0	26.4	23.1
Use of reserves	-2.9	-2.4	—	-2.7	-2.7	-5.0	-3.7	-2.8	1.3	4.9	1.7
Non-debt-creating flows, net	1.8	1.7	2.7	2.6	3.6	4.2	6.1	6.1	7.3	6.8	7.1
Net external borrowing	2.2	6.3	7.1	8.4	11.1	15.5	16.5	24.2	24.4	14.8	14.3
Long-term borrowing	1.9	4.2	5.6	6.9	6.3	10.0	11.3	16.6	18.0	14.5	12.3
From official sources	1.4	1.4	2.0	2.3	3.7	3.9	3.9	7.9	9.8	7.3	8.7
From private sources	0.4	2.8	3.6	4.6	2.6	6.1	7.4	8.7	8.2	7.1	3.7
Reserve-related liabilities	0.1	0.3	0.8	1.4	0.3	0.8	0.6	0.7	2.7	1.6	4.4
Other short-term borrowing	0.2	1.8	0.6	0.1	4.4	4.8	4.5	6.9	3.7	-1.3	-2.5

a. Excluding China and India.

Source: IMF, *World Economic Outlook* (1983), p. 195.

Portes, where they compare the systematic vulnerability of the international financial system during the 1920s and the 1970s (1987, p. 13):

The 1920s were marked by three sets of developments which increased the international financial system's susceptibility to destabilizing shocks: flux in the foreign

Table 2-9. *Financial Flows to Developing Countries, 1956-80*
(US\$ billions)

Year	Total	Official development assistance	Private			
			Total	Direct private investment	Portfolio	Export credits
1956-60	21.9	13.2	8.7	—	—	—
1961-70	29.0	16.2	11.5	6.0	2.6	2.9
1971-80	76.6	28.1 ^a	38.1	10.7	19.9	7.4

Note: Data between periods are not strictly comparable because of redefinition. Dollars have been deflated by GDP deflator for industrial countries.

a. \$19.8 billion excluding assistance from the Council of Mutual Economic Assistance and the Organization of Petroleum Exporting Countries.
Sources: 1956-60: OECD, Development Assistance and Efforts in 1961 of the Members of the Development Assistance Committee (September 1962); 1961-70: OECD, Development Assistance, 1971 Review (1971); 1971-80: OECD, Development Cooperation, 1981 Review (1983). Fishlow (1988), p. 193.

exchange markets, rapid institutional change in the banking system, and dramatic shifts in the volume and direction of international lending. Each set of developments had its immediate origins in the dislocations associated with World War I.

They argue further that the same factors were at work in the 1970s but that institutional differences prevented the debt-servicing crisis from becoming a full-blown financial crisis.

Differing propensities to save and invest among the OPEC, OECD, and nonoil developing countries had important impacts on both supply and demand for funds in the international capital markets. Following the oil price shocks, many major oil-exporting countries became large net savers, providing loanable funds to the banking system in unprecedented quantities. Although there was considerable concern about it at the time, the international banking system readily intermediated these funds to meet credit demands in both developing countries and many industrial countries. Lending to developing countries by the banking system continued to grow for the rest of the 1970s, greatly outpacing official financing.

The abundant supply of loanable funds from OPEC following the first oil shock put considerable downward pressure on real interest rates. The six-month LIBOR deposit rate was forced considerably below its general upward trend in the mid-1970s (see figure 2-2). Spreads over LIBOR charged to developing countries also fell during this period. Softness in nominal interest rates coupled with rising world inflation rates drove real rates down in 1975. (See the LIBOR rate deflated by the U.S. GNP deflator in figure 2-2.) Perhaps because of lack of experience with rising inflation, savers were slow to demand interest rates that adequately compensated for the rising inflation rate. Furthermore, banks viewed negative rates as a blessing as long as profitable spreads between borrowing and lending rates prevailed.

From the debtors' viewpoint the negative real interest rates of the mid-1970s should hardly have been considered the historical "norm."²⁴ Instead, these abnormally low rates should have been recognized as a temporary

real income gain for debtor nations, just as high real rates at the end of the decade represented real income losses.

Throughout the mid-1970s, new loans to developing countries from both official and private sources far exceeded existing developing-country debt-servicing commitments. Although loan disbursements peaked in 1982 (at \$94 billion), net transfers to developing countries peaked much earlier—in 1977—at roughly \$30 billion. To some extent the shrinking of net transfers was inevitable. As Diaz-Alejandro points out, a massive shift in the composition of the portfolios of banks in the industrial countries took place as they expanded aggressively into the international arena in the late 1960s and 1970s. This portfolio adjustment to achieve international diversification was bound to trail off as international investors went from a position of having too few developing-country assets on their books toward a sustainable long-run equilibrium share of bank assets. To some extent the diminished flow of financial resources from commercial banks to developing countries was also a natural consequence of more rapid current account adjustment following the second oil shock. Oil exporters' surpluses of 1979-80 disappeared much more quickly than they had after the quadrupling of oil prices in 1973-74. At the same time, the major industrial countries were having increasing difficulty reining in their fiscal deficits, which led to considerable crowding out on a global scale—as slowly adjusting developing countries ran head on into industrial countries with large fiscal deficits and restrained monetary policies.

Commercial Bank Recycling of Petrodollars

Oil-exporting nations initially saved much of their greatly magnified export proceeds following the quadrupling of oil prices in 1973-74. In some OPEC countries, domestic investment was limited by absorptive capacity, among other things. Conservative investment attitude led to the deposit of funds in the Euromarket at short maturities. Because these funds were deposited in the Euromarket, commercial banks whose international op-

erations had been expanding rapidly even before the price shock took a central role in the international financial intermediation process. Because international loans were underrepresented in bank portfolios in the early 1970s, there was considerable room for direct commercial lending to developing countries. This greatly reduced the burden for recycling petrodollars that fell on official lenders, including multilateral institutions such as the IMF and the World Bank. Unlike official lending, which had predominated during the 1960s, recycling of petrodollars by commercial banks involved large amounts of maturity transformation. Even though interest rates were typically somewhat higher and the terms of maturity were typically shorter on commercial lending than on official credits, many developing countries preferred commercial loans because there were less restrictive loan covenants and conditionality.

In addition to improvement in loan terms as the market adjusted to absorb the massive supply of petrodollars, it is quite possible that many developing countries also experienced a relaxation in credit constraints imposed by lenders. Banks paid insufficient attention to developing countries' creditworthiness in their aggressive efforts to recycle petrodollars.

Empirical evidence on the petrodollar hypothesis is rather weak.²⁵ Nevertheless, most students of the debt crisis list the oil price shocks of the 1970s among the important causes, either because of their influence on developing-country borrowing behavior or their influence on the level of world economic activity.

Jeff Frieden (1983, p. 3), however, takes issue with this emphasis on the shocks in inducing developing countries to undertake massive external borrowing: "In this interpretation, the 'oil shocks' of 1973–75 and 1979–80 drove the oil-importing developing countries to borrow heavily, while simultaneously flooding the Euromarkets with petrodollars available for lending." He argues that major borrowing from the financial markets began before the first oil shock. Do these facts presented by Frieden contradict Gersovitz's (1985) explanation of why credit rationing appears to have been more common in 1974 than in 1970? Perhaps not. Although commercial bank lending to developing countries was well under way before 1974, the first oil shock induced a major change in the magnitude and direction of international capital flows. In particular, there was a massive wealth transfer to oil-exporting countries; these new suppliers of funds (OPEC) differed in important ways (that is, they sought high liquidity and short terms) from the major source countries who supplied funds to the Euromarkets in the pre-1974 period.

Retrenchment by Commercial Banks

Not only have commercial banks been accused of creating preconditions for a debt crisis by "overlending" in the mid-1970s, but they have also been accused of bringing on the 1982 crisis by abruptly cutting back on international lending.

[W]hat could have been a serious but manageable recession has turned into a major development crisis unprecedented since the early 1930s mainly because of the breakdown of international financial markets and an abrupt change in conditions and rules for international lending. . . in short, the 1982 collapse of a reasonably competitive, if flawed, international capital market (at least for Latin America) constitutes the major external shock to the region during the early 1980s (Diaz-Alejandro 1984, pp. 335, 356).

This interpretation is somewhat controversial. Paul Krugman complains that "the sharp cutback of new lending to debtors in 1982–83 is treated (by Diaz-Alejandro) as an exogenous event—rather as if Robert Shiller (a well-respected rational-expectations macroeconomist) had descended from heaven and decreed lending to Latin America suddenly unfashionable. This is not a satisfactory procedure . . . I would prefer to regard domestic economic management, the terms of trade, and interest rates as the fundamentals here, and the supply of funds as an endogenous variable. This supports a view that assigns heavy weight to the external factors, but it does so to a somewhat less dramatic extent than this paper's approach" (Krugman 1984, p. 391). Diaz-Alejandro's discussion of international banks in reducing lending ignores the evolving structure of current account imbalances following the first and second oil price shocks. The huge current account surplus of oil-exporting countries dissipated slowly—over a four-year period—after the first oil shock. The corresponding deficit of the industrial countries shrank very quickly. In fact, they restored their earlier surplus position by 1975 (although it subsequently deteriorated). The nonoil developing countries, however, sustained large current account deficits. Relative to their preshock levels, they were major recipients of capital in recycled petrodollars.

Current account imbalances following the second oil shock were quite different. First, the surplus of oil-exporting countries dissipated within two years; thus these countries provided loanable funds only temporarily. Second, several industrial countries became large capital importers—if the data are taken at face value in spite of the large statistical discrepancy at the global level. In

addition to these factors, different perceptions about the permanence of the two oil price hikes and growing caution about further lending to developing countries undoubtedly played a role in reducing commercial lending to developing countries.

With these factors contributing to a much-reduced inflow of petrodollars to the commercial banks, a sharp cutback in lending was unavoidable. It is not clear from casual inspection of the data just what caused this "abrupt change in conditions and rules for international banking" (Diaz-Alejandro 1984, p. 335).

Developing-Country Policies

Several developing-country policies potentially affect a country's vulnerability to debt-servicing problems, particularly if the external economic environment becomes unfavorable. These include: (1) its external borrowing strategy, that is, the extent to which foreign capital is used, and management of the sources, maturity structure, and contractual aspects (fixed versus variable interest rates) of debt, (2) exchange rate management, (3) trade orientation and other policies affecting market incentives in allocating resources, and (4) aggregate demand policies. Countries may also differ significantly in structural characteristics. These characteristics, in turn, affect the distributional impact and political and economic feasibility of various policy options.

Foreign Borrowing Strategy

When considering possible causes of the debt crisis, two difficult questions must be addressed: (1) did developing countries borrow "too much" from external creditors and (2) were the borrowed funds used efficiently? The second question is part of the broader issue of whether the developing country's economic structure and policy environment is conducive to overall efficiency in resource allocation. Credit allocation rules, exchange rate management, trade orientation (that is, taxes, subsidies, and quantity constraints facing exporters and importers), and government expenditure and revenue-raising policies all play a part. To the extent that these policies cause borrowed resources to be misallocated, they increase difficulty in debt servicing. In extreme cases, national welfare can actually be lowered by using foreign capital (Brecher and Diaz-Alejandro 1977).

Overborrowing?

It is often claimed, without detailed empirical support, that many of the developing countries currently experiencing debt problems are suffering consequences of ear-

lier "overborrowing." From a conceptual standpoint, there are several market failures that might give rise to overborrowing in a laissez-faire environment.²⁶

First, overborrowing must be clearly defined. Suppose the term is interpreted in its welfare-theoretic sense: it is a situation where private incentives or unenlightened government borrowing cause the country's foreign indebtedness to exceed the socially optimal level. Before there can be a need for foreign borrowing strategy (that is, government policy action to prevent inappropriate levels of borrowing), one must believe that there is a discrepancy between the private and social costs and benefits of external borrowing.

Two welfare distortions that might give rise to overborrowing come to mind. The first is based on the well-known optimum tariff argument: if the country's cost of borrowing rises as it takes on more debt, then the marginal cost of borrowing lies above the average cost. Policy action to limit borrowing to the point where the marginal cost equals the marginal (social) benefit is required.²⁷

A second justification for policy limits or optimal taxation of foreign borrowing is to reduce probability of financial distress, which rises sharply with the level of borrowing or "leverage."²⁸ Using an analogy with individual firms, sovereign nation states can grow more rapidly (in terms of per capita consumption and dividend payments, respectively) to the extent that they undertake investment projects whose net present value is positive. In financing such investments, countries—like companies—must decide on the appropriate balance between self-financed internal growth and external resources (in the form of debt or equity finance). Other things being equal, a country becomes more vulnerable to economic shocks—such as fluctuations in the prices of oil imports or primary commodity exports or surging world interest rates—when it takes on more external debt. Excessive reliance on debt, by increasing the "financial leverage" of the country, raises the likelihood and expected costs of "financial distress" in the event of adverse economic or political shocks.²⁹ These costs can be extremely high for borrowers and their creditors, as recent examples of Third World debt and the real estate financing problems of U.S. savings and loan institutions vividly illustrate. Even if borrowed funds are used efficiently, high financial leverage has potential costs. When loans are funneled into inefficient investment or excessive consumption, potential for financial distress is exacerbated.

Given these negative externalities of borrowing, unmonitored borrowing by either a decentralized market system or semiautonomous governmental bureaucracies will lead to overborrowing.³⁰ A well-articulated borrowing strategy thus makes good sense.

Using External Funds

Capital flows provide recipient countries with potential to expand domestic consumption more smoothly and more quickly than would otherwise be possible. There are attendant costs, however, in reduced national autonomy and financial flexibility.

Regarding the consumption-smoothing motivation for borrowing, countercyclical borrowing enables consumption-smoothing dictated by the permanent income theory of consumption. This type of borrowing may be limited by credit constraints, which tend to be adjusted procyclically rather than countercyclically by creditors. Furthermore, the credit ceiling is often not exogenous from the borrower's standpoint. It may be a function of how the funds are used. Countries with high investment ratios allegedly face more liberal credit constraints than countries with potentially unsustainable consumption rates.³¹

The second motivation is to undertake profitable capital investments. These investments raise the economy's economic growth rate and therefore permit higher steady-state consumption levels. Whether foreign borrowing did, in fact, raise countries' economic growth rates during the 1970s is unclear because of the lack of empirical studies on the question.

Two other uses of capital have also been of considerable importance during the debt buildup of the 1970s: the accumulation of official foreign exchange reserves and private capital flight. As table 2-8 shows, the external borrowing of nonoil developing countries more than covered their current account deficits over this period. Part of the difference reflected a substantial buildup in foreign exchange reserves (shown as negative numbers in the table). In some countries (such as Venezuela) these reserves were so large as to make it essential to look at

both gross debt and debt net of official reserves in order to get a complete picture of their debt burden and vulnerability to changes in world interest rates.

Capital Flight

A second form of foreign asset accumulation, private "capital flight," has received much greater attention as contributing to debt problems. Capital flight is notoriously difficult to estimate. There is no agreement on how it should be defined (Cuddington 1986 and Lessard and Williamson 1987). Even once it is defined, the nature of capital flight is difficult to measure. In some countries, domestic capital can be moved abroad only by violating capital controls. In others, export of capital is perfectly legal. Motivation for moving capital abroad may be to escape domestic taxation or to hide illegally earned income from domestic authorities. Incentives to "cover the tracks" of flight capital are obvious; thus the difficulty in measuring its extent.

Based on early estimates using various residual techniques calculated from balance of payments and debt data (Cuddington 1986, Dooley and others 1986, and Morgan Guaranty 1986), there seems to be general agreement that capital flight in the 1970s and early 1980s was large in several Latin American countries, most notably Mexico, Argentina, Uruguay, and Venezuela. Outside South America, the Philippines appears to be the country where capital flight has been most problematic.

Massive capital outflows estimated in table 2-10 occurred during the period when these countries were borrowing so heavily abroad.³² Thus, the question arises whether capital flight has been an important "cause" of the debt crisis. Of course, such two-way flows of capital might reflect portfolio diversification or maturity transformation occurring on a global scale. Without market

Table 2-10. *Estimates of Resident Capital Outflow and Capital Flight, 1976-84*
(US\$ billions)

	Argentina	Brazil	Republic of Korea	Mexico	Philippines	Venezuela	Total
Cuddington measure	16.0	-0.1	2.8	36.2	3.7	13.1	71.7
Morgan Guaranty measure	25.0	17.3	3.5	53.4	3.7	29.6	132.5
Bank deposits (end-1984)	8.2	8.8	0.4	15.1	1.0	12.2	45.7
Interest-compounding adjustment	4.9	0.0	n.a.	17.2 ^a	n.a.	1.9	n.a.
Misinvoicing adjustment	-5.4	-2.1	-10.8	-18.4	n.a.	0.0	-36.7
Stock of "legitimate" resident external capital, end-1984	2.4	12.0	6.5	18.9	4.8	2.5	37.1
Zedillo's residual	n.a.	n.a.	n.a.	26.0	n.a.	n.a.	n.a.
Preferred measure	16	9	0	27	4	30	86

n.a. Not available.

a. This estimate is an exaggeration inasmuch as the Mexican balance of payments figures already contain some allowance.

Sources: Row 1, Cumby-Levich (ch. 3) estimate of Cuddington measure using consistent data set. Row 2, Cumby-Levich (ch. 3) estimate of Morgan-Guaranty measure using consistent data set. Row 3, *International Financial Statistics*. Row 4, Cuddington (ch. 3, table 3.2). Row 5, Gulati (ch. 3.). Row 6, Cumby-Levich (ch. 3) estimate of Dooley measure. Row 7, Zedillo (ch. 7). Row 8, see text. Lessard and Williamson (1987), p. 206. Copyright © 1987, Institute for International Economics, Washington, D.C. Reprinted by permission.

failures, there need not be a policy concern. When capital-scarce developing countries that borrow heavily in international capital markets are involved, however, there is a strong presumption that massive private capital outflows are socially counterproductive. In short, capital flight is usually a reflection of highly distorted private incentives rather than the true opportunity cost of capital in the home market. Policy intervention to limit such capital flows may be justified.

Limited empirical work on the determinants of capital flight points to the overvaluation of the domestic currency as perhaps the most important macroeconomic factor (Dornbusch 1985 and Cuddington 1986). Other empirically significant determinants of capital flight include domestic inflation and interest rates (Cuddington 1986), the domestic economic growth rate (Conesa 1987), and, in some countries, loan disbursements (Conesa 1987 and Cuddington 1987). For the most part, these variables are only the proximate causes of capital flight. They are, like capital flight itself, best viewed as symptoms of underlying macroeconomic disequilibrium. These same distortions often give rise to overborrowing. It is, therefore, rather simplistic to view capital flight as an independent cause of debt-servicing problems.

Impact on Domestic Saving and Investment

Even if overborrowing in the welfare-theoretic sense did not occur during the 1970s, the question remains of how efficiently borrowed funds were utilized. If there were no distortions affecting domestic saving and investment behavior (such as regulated submarket interest rates and administrative credit-rationing mechanisms), foreign capital inflows would generally cause both higher investment and reduced domestic saving, that is, higher private or public consumption. This is an efficient response—effects on investment and saving will depend on their respective interest elasticities. It is incorrect to conclude that funds have been allocated inefficiently if investment does not increase one-to-one with higher capital inflows.

But if financial repression keeps domestic saving far below its socially optimum level, further declines in saving resulting from increased foreign borrowing would be cause for policy concern. By exacerbating existing welfare distortions, borrowing may impose high costs on the economy. Current and future growth will be hampered, and financial distress during world recession will be more likely.

Views differ widely on the extent to which borrowed funds have been funneled into investment rather than consumption and the extent to which the funds devoted

to investment have been used productively. According to Kharas and Levinsohn (1988), for example:

Conventional wisdom holds that less developed country (LDC) debt rescheduling problems reflect, in part, the failure of borrowers to invest their loans in productive activities with returns, evaluated at border prices, higher than the interest rate on their debt. This worry became particularly acute because of the rapid switch of external financing in the 1970s away from official sources, mostly tied to closely supervised investment projects, towards commercial loans without such ties . . . The perceived danger was that such loans could be used to finance consumption and . . . would lead to long-term insolvency. Indeed, most non-oil developing countries had lower average savings rates after 1973. [Middle-income oil-importing developing countries on average had savings rates of 21.5% in 1973 and 18.0% in 1981.]

Dornbusch and Fischer (1986) claim that:

A large part of Latin American borrowing was wasteful or unjustified in that it primarily financed consumption and government deficits rather than investment. A very significant part of the increase in external debt has as its counterpart capital flight by residents of those countries.

Cline (1984, p. 16) apparently disagrees, stressing that:

Aside from the notable amount of capital flight in [Argentina, Mexico, and Venezuela], the use of most borrowing appears to have been productive. Thus, domestic savings did not decline in the 1970s when external financing was heavy. For middle-income oil-importing countries, gross domestic savings were 21 percent of GDP in 1980 compared with 19 percent in 1960, and gross domestic investment was 27 percent compared with 21 percent, suggesting that not only did foreign financing help increase domestic investment, but also that it was not used for the purpose of raising domestic consumption and reducing domestic savings (*World Development Report 1982*, p. 118). Similarly, for 10 major borrowing developing countries, the average savings rate rose from 20.6 percent of GNP in 1965–73 to 21.9 percent in 1974–79, and the investment rate rose from 20.4 percent to 22.6 percent (Sachs 1981, pp. 201–68).

The World Bank also echoes this view in the 1982–83 *World Debt Tables* (p. vii):

The resulting special difficulties encountered by the developing countries in the turbulent opening years of the 1980s do not support the widespread contention that banks lent imprudently to developing countries as a whole during the 1970s and that the countries wasted the proceeds. On the contrary, the record shows that

most of them used external capital for productive investment, which sustained their growth and helped them increase their capacity to earn foreign exchange.

The evidence they provide to substantiate this conclusion is suggestive, although hardly definitive (*World Debt Tables, 1982–83 Edition*, p. ix).

Effects on Consumption

Has increased foreign borrowing been associated with a fall in average savings rates (or, equivalently, a rise in the consumption share of GDP)? Has there been a discernable difference between consumption out of project and nonproject foreign financing? Kharas and Levinsohn (1988) examine these questions by checking for structural breaks in individual countries' consumption functions between the 1960s and early 1970s—when project financing presumably dominated—and more recent years—when nonproject financing became increasingly important.³³ They find that 12 countries out of 26 studied experienced rises in consumption when foreign borrowing increased. As the authors recognize, however, this is not necessarily indicative of a welfare loss from borrowing for the reasons outlined above. Nevertheless, some countries exhibited very high propensities to spend out of borrowed funds, leaving little for increased investment (unless the capital inflow causes a large multiplier effect on national income). In Bolivia, for example, the marginal propensity to spend out of foreign loans was 0.88; in Colombia, it was 0.99; in Guyana, 1.2. On the basis of this evidence, the hypothesis that foreign borrowing facilitated a consumption binge in these countries cannot be ruled out, but more comprehensive and conclusive evidence would certainly be desirable.

Regarding the possibility of different propensities to consume out of official loans and private loans, Kharas and Levinsohn conclude: “for most developing countries there is no strong evidence that the expansion of non-project lending in the 1970s led to a structural change in the propensity to consume out of foreign inflows” (1988, p. 782). “It appears that from a macroeconomic view, foreign funds have been sufficiently fungible with domestic resources such that their impact on domestic investment and consumption has remained unchanged, regardless of whether the loans were tied to specific projects or not” (1988, p. 785).

The Impact of Foreign Borrowing on Investment Efficiency and Economic Growth

Were the borrowed funds that found their way into investment, rather than financing higher current consumption or capital flight, used efficiently? Even if one

concludes that developing countries used a large portion of their external funding for investment, the question is if the efficiency of this investment remains, in part due to inherent difficulties in measuring the productivity of investment. Diaz-Alejandro (1984, p. 338) argues that some, but not all, Latin American debtors suffered from a deterioration in investment productivity after 1973:

Using gross fixed investment and GDP data, one can compute marginal capital-output ratios to obtain a rough index of the productivity of the investment. With three-year averages and investment lagged one year, the ratios are as follows:

	1961–63 to 1971–73	1971–73 to 1979–81
Argentina	4.4	11.1
Brazil	2.9	3.3
Chile	3.8	5.0
Colombia	3.1	3.3
Mexico	2.5	3.1
Venezuela	4.2	7.2

Brazil, Colombia, and Mexico—the fastest growers—had the lowest marginal capital-output ratios, and the ratios increased only slightly from one period to the next. Argentina, Chile, and Venezuela had lower investment productivity (which could be because of either supply inefficiencies or poor management of aggregate demand) throughout the years under study and experienced a sharp decline in that productivity after 1971–73. For Venezuela, disaggregation into oil and nonoil sectors might yield a better picture for the nonoil sector; nonoil output has grown more than OPEC-restricted petroleum production since the early 1970s.

Although the changes in these incremental capital-output ratios are suggestive, it should be noted that similar calculations for the early 1980s would yield meaningless values, because income growth turned negative in many countries and resulted in considerable excess capacity. This highlights the limitations of such crude aggregate measures of investment productivity.

In short, existing empirical evidence does not yield definitive conclusions regarding the efficiency of externally financed capital investment (or overall investment, for that matter). It would be highly desirable to investigate the ex-post profitability of foreign-financed capital investments on a project by project basis to shed more light on the rates of return realized in practice.

Without firm conclusions on the productivity of capital investment in various developing countries, it is also difficult to reach strong conclusions about the impact of foreign borrowing on economic growth. Without detailed econometric work, further circumstantial evidence makes a contribution. The 1982–83 edition of the *World Debt Tables* makes a simple comparison of economic growth rates across countries with low and high

levels of foreign borrowing. It concludes that regions where borrowing was heavy did seem to grow more rapidly during the 1970s. Unfortunately, the extent to which differential growth performance might be explained by factors other than use of foreign funds is unclear.³⁴ This is an area where further empirical evidence is essential. After all, the advisability of further lending to developing countries depends critically on its expected impact on investment and, hence, long-term growth.

Policies That Alter Incentives

Many government policies in developing countries have a direct impact on allocation of both domestic and foreign resources. Exchange rate management and trade orientation, for example, are important because they affect the likelihood that funds borrowed abroad will be employed efficiently, thereby insuring that debt can later be serviced. In highly distorted economic environments, potential for gross misallocation is much greater. In addition to their impact on long-term economic growth, the two policies affect the economy's ability or flexibility to respond to external shocks—adjustment is much less costly in efficient economies than in economies with major rigidities and distorted incentive structures.

The Importance of External Shocks, Their Size, and the Policy Response

There seems to be general agreement that the debt-servicing problems do not depend in any systematic way on the external shocks faced by developing countries during the 1970s and early 1980s. Countries' policy responses to external shocks and their economic structure, rather than the magnitude of the shocks, determined which countries adjusted efficiently and which became ensnared in debt-servicing problems. Aquiles Almansí summarizes:

Recent studies by Balassa (1984, 1986) and Sachs (1985) have provided renewed support for the belief, very popular in the development literature, that the economic performance of a developing country facing an external shock is explained mainly by the country's policy response to it, and not by the shock's direct effects on the country's economy. In particular, different commercial policies are credited with success or failure in preserving economic growth after the onset of the "debt crisis" in 1982. Both Balassa and Sachs point to the contrasting experiences of countries in East Asia and Latin America in the aftermath of such events (1988, p. 1).

While some developing countries experienced shocks that reduced their real income, others—most notably the oil-exporting countries, but also exporters of other primary commodities—benefited from net positive shocks. The latter group includes such countries as Mexico, Venezuela, and Nigeria that nonetheless encountered debt-servicing problems. The terms of trade movements were not markedly different for groups of reschedulers and nonreschedulers (Donovan 1984 and Roubini 1985).³⁵

Regardless of whether oil exporters are involved (Sachs 1985, p. 529–30), this observation suggests that positive terms of trade shocks are more likely to induce excessive debt buildup and subsequent debt-servicing problems than are negative shocks. Perhaps this is because credit constraints are relaxed by lenders during periods when borrowers' export markets are booming. In such situations, the booming developing country often rushes to take advantage of the greater credit availability. Unless the funds can be invested wisely, however, the country's debt-servicing burden will grow. This scenario has been all too common.³⁶

Trade Orientation

Divergent views exist about an individual country's trade orientation in determining the efficiency with which it adjusted to the external shocks of the 1970s. Although "outward-oriented economies" are more vulnerable to external shocks because of their greater openness to trade and international capital movements, they also exhibited greater resilience in adjusting to these shocks, thereby avoiding excessive reliance on external borrowing (Balassa 1982, 1984a, and 1986). Trade orientation is highly correlated with "free market orientation" or a relatively noninterventionist stance by the public sector:

Outward-oriented economies by-and-large adopted realistic exchange rates and interest rates; gave similar incentives to industry and agriculture; eschewed price controls; limited the scope of public investments while giving attention to efficiency considerations in the choice of these investments; and had a relatively small deficit in the government budget. By contrast, inward-oriented economies tended to have overvalued exchange rates and negative real interest rates; biased the system of incentives against agriculture; made use of price controls; had a larger share of often inefficient public investment projects; and incurred relatively high budget deficits. (Balassa 1984a, p. 9).³⁷

Balassa (1984a, table 2) provides estimates of the external shocks faced by nonoil developing countries in two five-year periods: 1973–78 and 1978–83. Countries are

grouped according to whether their trade orientation was outward oriented or inward oriented. Perhaps not surprisingly, the group of outward-oriented economies suffered adverse shocks of greater magnitude due to their openness to trade and international capital movements. In 1974–76, the outward-oriented countries' external shock amounted to 6.4 percent of GDP, while inward-oriented economies experienced a negative shock of roughly 3.5 percent. Similarly in 1979–81, outward-oriented economies faced external shocks equal to roughly 11.1 percent of GDP, while inward-oriented economies' external shocks were only 4.2 percent of GDP.³⁸

Almansi (1988), however, is skeptical about this view, noting that it is based, in part, on the empirical observation that Latin American debtors adjusted to the cut-off in external credit by reducing imports by more than the collapse in their exports. In contrast, Asian debtors adjusted by expanding exports more rapidly than imports. He shows that these differing outcomes may be because of structural differences in the economies of the two regions, rather than their trade policies. He assumes that the Latin American economies export primary products and import manufactures. For Asia, the opposite trade pattern prevails. Manufactures require intermediate imported goods, whereas primary products, by assumption, do not. In this context, if governments in both regions protect their respective import-competing sectors by placing quantitative restrictions on final-goods imports, an exogenous reduction in the availability of foreign capital (as happened in the early 1980s) will cause very different outcomes: Asia will expand exports by more than the growth in imports. Latin America will contract imports by even more than the fall in exports. These differing responses of exports and imports in the two regions need not tell us anything about differences in their trade orientations. "Beyond the particular details of the example studied here, the main implication . . . is that we should pay more attention to structural differences, and less to political idiosyncrasies, in order to understand policy behavior in developing countries" (Almansi 1988, p. 11). Perhaps more important, one must be careful not to conclude that all changes in import-GDP and export-GDP ratios reflect policy rather than endogenous economic adjustments (efficient or otherwise).

While Almansi's argument is compelling if one considers trade changes in the post-1982 adjustment period, Latin America and Asia have exhibited very different long-term trends in export performance—presumably in large part because of their trade orientations. "It is not easy to get good measures of the size of the tradables sectors over time . . . The typical recourse . . . is simply to measure the extent of actual exports relative to total income to get an estimate for the growth of the tradables sectors. Though admittedly imperfect, the data strongly

indicates the rapid growth of exports relative to GDP in East Asia since 1965, compared with a fairly flat pattern in Latin America" (Sachs 1985, p. 536). Sachs also attempts to assess differences in economic structure (in part, policy-induced) by comparing the service sectors in Asia and Latin America: "The data suggest that the Latin American countries have a much larger service sector, and hence presumably a much larger nontraded goods sector, than do the Asian economies" (1985, p. 537). Countries with large nontradables sectors will, Sachs believes, feel less pressure to carry out rapid external adjustment than countries with small nontradables sectors.

Exchange Rate Management

Developing countries that encountered debt-servicing problems experienced much more dramatic movements in their real exchange rates in the early 1980s than countries that avoided difficulties. This is because of their exchange rate management policies and other policies (such as expansionary fiscal policy) that affect real exchange rates. Over the 1976–83 period, most Latin American countries experienced large real exchange rate appreciations and significant black market premiums on foreign exchange. The same was not true for most typical Asian economies. It seems highly unlikely that underlying determinants of equilibrium real exchange rates justify this geographic pattern of changes in actual rates. Presumably, exchange rates were, in fact, becoming severely overvalued in many Latin American debtor nations as inflation skyrocketed relative to world rates (table 2–11).

Overvalued exchange rates contribute to debt problems through several channels. First, they undermine the competitiveness of the country's exports while making imports seem artificially cheap. The result is unsustainable current account deficits, which are financed by external borrowing. Exchange rate overvaluation also fuels capital flight by creating expectations that a devaluation is imminent. Capital flight, in turn, contributes to erosion of the domestic tax base. Unless public expenditures can be reduced correspondingly, foreign borrowing and domestic money creation must be used more aggressively.

Structural and Income-Distribution Considerations That Limit Policy Choice

A recent study by Berg and Sachs (1988) goes beyond simple financial indicators in simple econometric models of debt-servicing problems by examining some political economy considerations that make it difficult for developing-country policymakers to undertake policies

Table 2-11. *Exchange Rate Management, ^a Selected Periods*
(percent)

Country	Black market premium on currency		
	Real appreciation, 1979-80 over 1976-78	1977-81	1982-83
Latin America			
Argentina	36.9	10.7	36.0
Brazil	-20.5	16.9	51.8
Chile	7.5	6.1	29.6
Mexico	13.3	2.4	32.7
Peru	-7.2	5.0	1.0
Venezuela	7.0	0.2	— ^b
Weighted average	2.9	9.4	40.4
Colombia	10.4	0.9	6.9
East Asia			
Indonesia	-29.7	2.3	9.1
Korea, Republic of	3.8	9.0	10.0
Malaysia	-4.6	0.1	0.5
Thailand	1.0	-0.7	0.5
Weighted average	-10.5	3.7	6.9
Philippines	6.7	6.8	16.2

a. The real exchange rate is calculated for each year as EP^*/P , where E is the official exchange rate in units of domestic currency per dollar, P^* is the U.S. consumer price index, and P is the domestic price index. All variables are annual averages. The black market premium is computed for the months of March, June, September, and December, using official rates and the black market rates. Annual average premiums are then computed.

b. Not comparable for Venezuela, since in the split exchange rate system operating since 1983, nontraditional exports are sold at the parallel market rate, and hence are subsidized. However, private sector nontraditional exports represent less than 3 percent of total exports.

Source: Sachs (1985), p. 541.

needed to avert servicing difficulties. So, they investigate the potential role of several structural characteristics of individual debtor countries.³⁹

Like earlier work by Balassa (1982, 1984a) and Sachs (1985), they show that a country's foreign trade regime is an important determinant of debt crises (defined as the occurrence of rescheduling of debt to private creditors). Unlike earlier work, which proxied the orientation of trade policy with output-based measures such as growth in the export-GDP ratio or the excess of this ratio relative to a predicted value, Berg and Sachs use a World Bank measure of the orientation of trade policy itself. Their findings corroborate existing research concluding that outward-oriented trade policy not only enhances growth prospects, but it also improves their capacity to adjust to external shocks.

Berg and Sachs maintain that: "For many countries, the debt crisis reflects a political crisis as well as an economic crisis" (1988, p. 12). This leads them to consider some political determinants of rescheduling in their cross-section of 35 developing countries. These structural variables are: (1) the fraction of total income obtained from the agricultural sector and (2) income

inequality. Income inequality is measured as the ratio of the percentage of total income received by the highest 20 percent of the households divided by the percentage of income received by the poorest 20 percent. "[A] high degree of income inequality should be associated with a high probability of rescheduling, since the income inequality undermines the political stability and political effectiveness needed for successful macroeconomic management" (Berg and Sachs 1988, p. 14). Regarding the first variable: "The share of agriculture in production is included to offer a rough indication of the extent to which governments can derive their political backing from rural interests rather than urban interests." A rural power base tends to be more stable and more supportive of export-promoting policies.⁴⁰

One potential shortcoming of the Berg-Sachs work is that it ignores supply-side considerations: why do creditors who observe undesirable structural or political characteristics lend amounts sufficient to create servicing problems in such countries? It would be interesting to include the Berg-Sachs measures for political and structural characteristics in the supply and demand schedules for foreign loans in a three-regime model of the sort estimated in McFadden and others (1985) and further improved upon by Hajivassiliou (1987).

Conclusions

This paper has reconsidered the role of debtors and creditors in bringing on the crisis. The analysis of causal factors also considered the contribution of policy actions by the OPEC and the OECD countries. As anticipated earlier, there is lots of blame to go around. The price shocks of 1973-74 and 1979-80 and the industrial countries' macroeconomic policy response, which adversely affected national economics in both the industrial and developing worlds to some extent, undoubtedly played a central role. These shocks were by their nature global or systemic rather than country-specific. They shaped the international environment in which the massive expansion in sovereign lending occurred. But their impact varied greatly from country to country, depending, on their past macroeconomic, financial, and development strategies. Developing countries with bad policies accumulated large amounts of debt without a corresponding increase in their productive capacity. So their economic and financial flexibility has been weakened considerably.

Although these policies caused some countries to become especially vulnerable to worldwide economic downturns, domestic reforms to correct policy distortions will probably not be sufficient at this point to undo the damage inflicted by the current debt overhang. Although bad policies by individual developing countries

may well have caused their difficulties, good policies by creditors and the international community are now required to extricate them.

It is now clear that the debt problem is not just a temporary difficulty that a couple of years of strong worldwide economic growth can “solve”—contrary to optimistic expectations in the early years of the crisis. Thus, the need for new policy initiatives by official institutions and the “international community” at large is as pressing as ever. Dealing with or coping with the developing-country debt crisis is likely to be the single most important issue in global economic development policy for the 1990s.

Notes

1. See Selowsky and van der Tak (1986) for a simulation exercise that substantiates this claim.
2. According to the *World Debt Tables*, total external debt by DRS reporting countries was an estimated \$672 billion at the end of 1981, of which approximately \$78 billion was incurred by Mexico.
3. *World Debt Tables, 1982–83 Edition*, p. vii.
4. *World Debt Tables, 1986–87 Edition*, p. viii.
5. Eichengreen and Portes (1985, 1987) have made the interesting observation that this drying up of external funding for problem and nonproblem debtors alike also characterized the debt-servicing crisis of the 1930s.
6. Richard Portes has warned economic policymakers not to overestimate the practical importance of the moral hazard problem. In the current search for a resolution to the debt crisis, he argues, “hazardous moralizing” may be slowing progress much more than the potential complications caused by moral hazard!
7. These calculations, of course, assume that the individual country observations are independent. That is, they ignore the impact of one country’s problems on problems elsewhere—a phenomenon that typifies periods of generalized debt crises.
8. *The Argentines’ surprise invasion of the Falkland Islands* came in April 1982.
9. Based on provisional data for the 1988 *World Development Report*, Eugene Versluysen (1989) comments that “despite numerous reschedulings and concerted lending by banks, [the 17 largest debtor countries] have suffered a total resource drain of some \$105 billion, or about 2 percent of their aggregate GDP during the last six years.” (p. 3 of the 1988 typescript).
10. The series on total external debt jumps in 1977 because reasonably comprehensive data on short-term debt becomes available from that date forward.
11. Short-term debt data reported in the *World Debt Tables* for the years after 1977 confirm this inference.
12. The other 15 highly indebted countries are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Côte d’Ivoire, Ecuador, Jamaica, Mexico, Morocco, Nigeria, Peru, Uruguay, and Venezuela.
13. In the simplest of such models, the dependent variable takes on a value of one if the country is experiencing debt-servicing problems and a value of zero otherwise.
14. See Simonsen (1985) for a recent application.
15. DOD = long-term public-guaranteed debt. XGS = exports of goods and services.
16. An exception is the Berg and Sachs (1988) paper, which uses data from 1977 through 1985.
17. See, especially, the technical appendix (pp. 224–25) in Hajivassiliou (1987).
18. These findings about the negative impact of IMF support contradict the “seal of approval” thesis regarding the signaling effect of IMF programs on private lending.
19. *World Debt Tables, 1982–83 Edition*, p. vii.
20. Cuddington and Urzua (1987) have recently fit univariate time series to a number of real commodity prices before using the Beveridge and Nelson (1981) technique to decompose the price series into permanent and temporary components. It is noteworthy that the oil price shocks of 1974 and 1979 had to be captured by dummy variables; they are indeed outliers.
21. There is also an ongoing debate initiated by Prebisch and Singer about whether or not developing countries have experienced a secular deterioration in the relative price of commodity exports in terms of the price of imported manufactured goods.
22. Commodity prices continued to be soft well into the mid-1980s. More recently, they have again turned upward.
23. The level of oil imports undoubtedly had a pronounced effect on the changes in the current accounts experienced by various countries in the very short run. In the intermediate run following the oil shocks, however, Sachs (1981) has argued that changes in countries’ patterns of fixed capital formation were much more important in determining what happened to individual countries’ current accounts. These investment fluctuations may be exogenous shocks or responses of investment to shifts in the relative price of energy inputs. The latter may reflect the fact that oil is a key intermediate good. As firms reassess factor input mixes, major structural adjustments with high levels of investment may be needed. In addition, decisions by domestic monetary and fiscal authorities on how to respond to the economic slowdown caused by higher oil prices may have a significant impact on investment.
24. One can examine the long history of real interest rates in the U.S. compiled in Ibbotson and Sinquefeld (1979) if there is any doubt about this.
25. As Hajivassiliou (1987, p. 218) explains, “According to [the ‘petrodollar hypothesis’], the current debt problems in international capital markets have been caused to a large extent by ‘too easy’ availability of credit following the influx of ‘petrodollars’ in search of a borrower, that took place after 1973 events, and by developing countries attempting to maintain their declining standards of living after the oil shock by obtaining higher external debts.” The one relevant article by Eaton and Gersovitz (1981) provides evidence on the prevalence of credit rationing in 1970 and 1974. They concluded that although the credit rationing was more prevalent than the unrationed regime in both years, relatively more countries were credit constrained in 1974 than in 1970! Gersovitz’s (1985, p. 74) explanation for this finding seems to be that “bank lending was much less important [than official lending] before 1973–74.” This explanation presupposes that commercial lenders are

more likely to impose credit limits than are official lenders—a hypothesis that has not been tested.

Hajivassiliou (1987) examines the empirical support for the petrodollar hypothesis by including a post-1973 dummy variable in each of the three equations in his three-regime switching model (discussed above). The variable was found to have a statistically insignificant impact on the supply of external credit, the allowable limit of arrears, and also on the demand for credit by the borrowing countries (after controlling for other explanatory variables, of course). Thus, he is unable to find empirical support for the petrodollar hypothesis. Given the plausibility of the hypothesis, I suspect that the test is not sophisticated enough. Hajivassiliou's data sample begins in 1970 (through 1982), so only four years are not in the post-1973 period. His petrodollar dummy variable takes a value of zero in 1970–72 and a value of one for the rest of the sample period. It might help to extend the sample back in time. In addition, a more direct measure of the supply of petrodollars could be employed. For example, one might use OPEC's current account surplus or cumulative surplus after 1973 rather than the dummy variable just described to pick up the petrodollar impact.

26. For a more detailed discussion of this issue, see Cooper and Sachs (1985, pp. 42–45).

27. I know of no countries that implement this policy by imposing an optimal tax on foreign borrowing. There are many quantitative limits on borrowing, but these limits may or may not be designed to achieve the above-mentioned objective.

28. See Brealey and Myers (1988) for a good textbook treatment of the costs of financial distress.

29. In addition, the probability of increased debt-inducing financial distress depends on the maturity structure of the debt and on whether it is contracted at fixed or variable interest rates.

30. Overborrowing cannot, of course, result in excessive actual borrowing unless there is complicity by creditors. Widespread allegations of “loan pushing” by bankers, who were rewarded on the volume of loan commitments rather than on the ultimate profitability of that lending, suggest that the precondition of careless lenders was met in the 1970s.

31. Unfortunately the estimated supply-of-funds schedules in the regime-switching models of Eaton and Gersovitz (1981) and Hajivassiliou (1987) do not include the investment-GDP ratio. Thus their models provide no empirical evidence on this issue.

32. A recent paper by Cumby and Levich (1987) provides an extremely useful comparison of earlier estimates using a common data base. Their work plus that of other researchers led to the “best guess” estimates summarized in table 2–10, which was taken from the summary chapter in Lessard and Williamson (1987).

33. The exact year of the structural break differed from country to country based on their detailed knowledge of each country's circumstances.

34. It would be interesting to extend the literature on comparative growth performance, most notably Kormendi and Meguire (1985) and Fry and Lilien (1986), by including foreign borrowing among their list of explanatory variables.

35. Commenting on their papers, Sachs (1985, pp. 529–30) notes that “while the cumulative terms of trade movements

during 1978–83 were comparable for the two groups, Roubini shows that for the rescheduling group, the terms of trade improved more during 1977–81 and then fell more during 1981–83 than it did for the nonreschedulers. This finding seems to hinge on the heavy representation of oil exporters in the rescheduling group.”

36. See Cuddington (1989) for a discussion of developing economies that experienced booming commodity export markets during the 1970s and yet later encountered debt-servicing difficulties.

37. See Balassa (1982) for corroborating evidence on this point.

38. This characterization of external shocks included the net effect of adverse terms of trade movements, declining export volumes, and (in the 1979–81 subperiod) rising world interest rates. The same pattern emerged between outward-oriented and inward-oriented countries when the various external shocks were considered separately.

39. In addition to fitting a simple probit model attempting to explain the cross-country pattern of reschedulings and no reschedulings, they use a tobit model to explain the level of the discount on a developing country's bank debt in the secondary market, arguing that this discount is a good cardinal measure of creditworthiness. The conclusions regarding the statistical significance of the foreign trade regime, as well as their measure of income inequality and of the agricultural share of GDP are similar across the two models.

40. The authors provide a detailed discussion of the political science literature on these hypotheses in order to provide adequate justification for the explanatory variables chosen.

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Comment

Albert Fishlow

John Cuddington's paper, in which he reviews the evolution of developing-country borrowing in the 1970s and the crisis of the 1980s, provides an ample and useful context for the volume. He summarizes existing literature and underlines sometimes divergent views on the principal causal factors for increased lending in the 1970s and those that provoked the contraction of the 1980s.

The scope of the paper is great so I shall confine myself to four issues. The first is the special form of the capital market that evolved in the 1970s and rapidly receded in the 1980s. The second is public policy, a subject on which the paper is surprisingly sparse. The third is again addressed only to a limited degree, the consequences of adjustment with substantial debt service, characteristic since 1982. In conclusion, I address potential solutions: understanding the problem should help to clarify policy choices.

In the 1970s, developing-country lending changed significantly. By forming syndicates through the Eurocurrency market, commercial banks became the dominant source of flows to middle-income countries. This lending process, already under way before the first oil shock, was given a significant impulse by the preference of oil exporters for liquid assets. Their acceptance of negative real interest rates underwrote the banks' capacity to satisfy initial borrowing by developing countries to finance import deficits provoked by rising oil and other prices. Later, borrowing motives diversified. Large debtors needed new loans to meet rising service requirements. Southern Cone countries borrowed to sustain macroeconomic policies of exchange rate overvaluation to combat inflation. And oil-rich countries increased their debt based on the rising value of their collateral.

Econometric studies fail to capture this significant shift in the 1970s. Estimated supply functions do badly, and fail to bring attention to variables influencing banks' behavior. Bank lending was short- to medium-term and

at variable interest rates. Risk was shifted wholly to country borrowers, making banks bolder. Because of negative real interest rates and rising export prices, many countries were willing to choose finance over adjustment. During the 1970s, as debt grew, so did the debtors' incomes and the strategic choice seemed vindicated. But not for long. A new oil shock, rising interest rates, and an OECD recession (that contributed to export volume and price effects) suddenly changed the panorama.

Cuddington's distinction between bank and country mistakes is not as useful as it first seems. The errors largely arose because borrowers and lenders based their behavior on the special circumstances of the 1970s and failed to anticipate a less favorable state of the world. The interesting question is how much of an increase in interest rates and deterioration of export proceeds would have been compatible with the earlier financial pattern. The reliance on debt had proceeded to a point where even more normal real interest rates and export performance would have posed a problem. Disinflation and recession were obviously more than enough to push matters over the edge.

So, the question posed as to whether reduction in capital supply was endogenous or exogenous seems slightly off the mark. The point is that countries could no longer depend on flows that were comparable to those of the 1970s. There were two key factors. First, the change in the interest rate made the sustainable debt levels relative to resources lower than had previously been assumed. Second, the significant rise in the ratio of developing-country loans to bank capital led banks to want a much lower rate of new commitments. No change in premium above LIBOR or even reasonable curtailment of imports could help. In this sense there was a clear capital shock and it especially affected the most highly indebted countries that counted on inflows of resources to cover rising debt service. Less lending made countries less creditworthy.

The Latin American countries had to cut imports to the bone to service debt. In a three-year interval, imports were reduced by almost a third, primarily because of smaller capital flows. Relative to their export capability, the shocks to Latin American countries were greater than the East Asian countries experienced. It is no wonder that the Latin American countries were overwhelmed even with the more realistic exchange rates and export performance in the 1980s. They were too deeply mired in a debt trap for a change in trade orientation to work a miracle. The more favorable domestic management of debt in some Asian countries is related to the initial curtailment of imports.

The capital market of the 1970s did not endure. In bad times lenders suddenly recalculated. Banks had no intention of being development institutions or any experience

in doing so. Lending was prompted not only by the profits inherent in expanding to new international markets, but also by the industrial countries' decision to allow private markets to recycle the large current account surpluses of the oil-exporting countries. When the magic of the market failed in 1982, it was suddenly necessary to deploy policy to save the international financial system. The IMF's leadership in imposing concerted lending was not simply for the good of the countries; it also was essential for the banks.

The financial integrity of the system was assured by maintaining debt service. After 1982 banks were able to take out in interest payments much more than they put back in new lending. What was much more difficult was to shift priority to the plight of the indebted developing countries. Despite the Baker plan's intention to make restored economic growth the principal determinant of debt policy, developing-country performance remains the residual. U.S. domestic policy does not help: Japanese and German current account surpluses flow to finance U.S. budget deficits as interest rates are bid up.

In the last few years, there has been a fundamental shift in the supply of credit. Banks now trumpet debt reduction also, but emphasize debt-equity swaps that provide modest gain on the external transfer dimension, at the cost of an exchange rate subsidy and increased pressure on domestic resources. After all, to engage in the swap is to take principal that could otherwise be substantially postponed and to redeem it immediately.

At the heart of the matter has been the inability of almost all highly indebted countries to extract the needed interest payments without severely penalizing their economies. Export surpluses have complicated macroeconomic policy considerably. Their counterpart in public sector purchase has contributed to issuance of money or domestic debt, the latter pushing up domestic interest rates and future deficits in a destabilizing fashion. Real exchange rate depreciation has been accomplished by accelerated inflation and increased social tension and pressure. At high inflation rates, distributional shares are subject to wide variance; uncertainty is substantially increased. Inflation and high ex-ante domestic interest rates are the principal instruments by which public sector debt service has crowded out investment; consumption has held up, in part because it is protected by more open politics in many of the principal debtors.

The debt crisis has led debtor countries to fulfill the single objective of debt service at the expense of other objectives. Getting the balance of payments under control has not automatically translated into better performance. Instead it has created new distortions. The difficulty of adjustment for most highly indebted countries does not excuse domestic policy errors. More austere fiscal policy is needed in many countries to enhance

domestic saving and avert inflationary pressures. Because of the debt crisis, debtors can no longer rely on the luxury of foreign finance. They will have to increase and channel domestic resources more efficiently. But the key policy issue is whether those needed changes will emerge because of continuing stringency or whether some alleviation of the debt burden is now likely to be more productive.

What we have seen is that the capital market of the 1970s was an aberration to which industrial country

neglect contributed. But policy in the 1980s has been based on the long-run continuity of that structure of finance. Debt service and austerity were deemed necessary to restore voluntary lending. That is "waiting for Godot." While it was justifiable to focus on repayments to avert financial distress in 1982, that phase is long over. It is time to understand that the debt crisis has matured into a development problem. African and Latin American countries laboring under their debt burdens are rapidly falling behind.

The External Debt Difficulties of Low-Income Africa

Charles Humphreys and John Underwood

Two debt crises affect developing countries. The more highly publicized crisis affects the middle-income "Baker plan" countries, including Nigeria and Côte d'Ivoire in Sub-Saharan Africa. The other, less well-known, debt crisis affects the majority of a set of 34 low-income African countries. The total external debt of these countries, about \$70 billion, is less than Mexico's alone.¹ International bank exposure in low-income Africa is less than \$10 billion; their external liabilities are mainly loans from, or guaranteed by, official creditors.

Because their debt represents no threat to the international financial system, these countries receive little publicity about their plight. Yet, their external debt represents, by many measures, a more severe burden to their economies than the middle-income country debt represents to those economies. On average the debt of the low-income African countries is 500 percent of their exports. For ten of these the ratio is twice as high. Scheduled debt service for these 10 countries averages 80 percent of annual exports. The last ratio—which unlike the debt-to-export ratio takes into account the more concessional terms of low-income Africa's debt—is 40 percent higher than the comparable ratio for the highly indebted middle-income countries.

In addition, the poverty and economic rigidities in these countries make it harder for them to grow out of their debt problems without special assistance. Low-income African countries are more dependent than the highly indebted middle-income countries on fewer primary commodity exports, which often require long investment periods to increase production. Their populations live in more difficult conditions with respect to the availability of health care and access to safe drinking water. Their education systems completely miss over a third of school-age children. Under these conditions the expansion of the output of tradable goods that is central to adjustment is more difficult and is likely to be slower than elsewhere.

Official creditors and donors have recognized the severe and long-term nature of the debt and development problems facing highly indebted low-income countries. Since 1978, several bilateral donors have converted concessional development loans to grants in many of these countries. The World Bank's Special Program of Assistance (SPA) and the International Monetary Fund's Enhanced Structural Adjustment Facility (ESAF), both backed by bilateral donors, were launched in 1987 to address these problems more directly. Most recently, at the 1988 Toronto Summit, donor governments endorsed concessional debt relief for low-income debt-distressed countries. Industrial country governments have worked out the forms of that relief and have rescheduled debts of Benin, the Central African Republic, Guinea, Niger, Madagascar, Mali, Mauritania, Senegal, Tanzania, Togo, Uganda, and Zaire under the new arrangements. The near-term relief from these reschedulings will not be large, but the important principal of orderly debt reduction has now been put into practice. Together, these actions by official creditors and donors are important steps in restoring normal creditor-debtor relationships in these countries. In some countries, more will be required, in additional assistance or the maintenance of a high level of special assistance for some time beyond the scheduled expiration of the SPA and other special programs.

Although they are not a major share of total claims on low-income African countries, commercial bank claims remain a significant problem in some of the most debt-distressed low-income African countries. The additional aid and debt reduction provided by official creditors may tend to benefit commercial banks disproportionately. Some method of burden sharing would help to ensure that these official resources support growth. One method would be to use concessional aid to buy up long-term commercial bank claims, at heavily discounted prices, and to pass the discount on to the debtor country. This

process would be similar to—but if possible without the price increases of—the Bolivian buyback. Other methods include increased official tax and regulatory support for commercial banks for both concessional debt-exchanges and donations of claims to aid or charitable organizations. The organizations would use the local currency payments to add to their support of programs in the debtor country.

To grow out of debt, even with the extraordinary external support forthcoming, debtor countries must take the lead in establishing and maintaining workable medium-term adjustment programs. It is in the interest of donors and creditors to provide adequate external resources to support these programs, once orderly and sustained adjustment is occurring. The external support now in place covers mainly the years 1988–90. With its economic rigidities, low investment and savings rates, and infrastructural weaknesses, recovery in low-income Africa will extend at least well into the next decade. Donors must keep in mind the special external financing needs of these countries after 1990, especially during discussions surrounding the upcoming Ninth Replenishment of the International Development Association (IDA), the soft-loan window of the World Bank, and the next Lomé Convention between the European Community and developing countries in Sub-Saharan Africa and other regions (including replenishment of the Seventh European Development Fund.)

Why Low-Income Africa's Debt Problem is Different

Origins of the Debt Problem

The origins of low-income Sub-Saharan Africa's debt problem are in many respects similar to those of other highly indebted countries. World commodity prices, in real terms, for many of their major commodity exports (including bauxite, cocoa, coffee, cotton, sugar, tea, groundnuts, and uranium) peaked in the mid- or late-1970s. These commodity booms lowered the real cost of borrowing (it was negative in the last half of the 1970s) and led to optimistic expectations that future export revenues would rise in line with the growth in external obligations.

This optimism fueled two converging tendencies. Strong commodity prices increased government revenues and allowed governments to ratchet up expenditures, which were difficult to compress when commodity prices fell (Krumm 1985). But these low-income countries appeared creditworthy at a time when export credit agencies were under pressure to promote exports to help offset the rising cost of oil imports. As a result, there were short, but intense, bursts of exports to low-income Africa for intermediate and capital goods, which were financed

Table 3-1. *Borrowing by Low-Income Africa, 1970–87* (US\$ billions; numbers in parentheses are percentages)

<i>Kind of debt</i>	1970	1980	1987
Total nonconcessional debt	2.0	18.2	37.5
(Share of total			
long-term debt)	(48)	(65)	(63)
ECA-type debt	1.0	10.1	19.0
(Share of total			
long-term debt)	(25)	(36)	(32)
Debt-service payments on			
ECA-type debt	0.1	0.9	0.9
(Share of payments on total			
long-term debt)	(42)	(41)	(34)

Note: Excludes short-term debt. ECA-type debt is defined as direct bilateral official nonconcessional lending plus all private-source suppliers' credits and fixed rate commercial bank loans, which are assumed to be guaranteed by creditor governments or agencies.

Source: World Bank Debtor Reporting System.

(or guaranteed) by export credit agencies (ECAs). Direct and guaranteed export credits grew rapidly during the 1970s (see table 3-1). In addition, a few low-income African countries had some access to the international syndicated loans of commercial banks.

Even countries that did not go through major commodity export price booms (for instance, copper exporters like Zaire and Zambia and iron ore exporters like Liberia and Mauritania) could borrow more because of their previous growth, their mineral reserves, and the expectation that these mineral prices would eventually rise along with those of other commodities.

Many African economies fell out of step with the world economy when too optimistic images of the future faded and unrealistic development strategies failed. Export prices declined sharply, growth in industrial countries slumped, governments were slow to react, and the economies were unable to adjust. The conditions of these nonconcessional export credits turned out to be unrealistically hard, in terms of both interest rates and repayment periods.

The windfall resources from the boom years of the late 1970s and early 1980s did not accelerate development. Instead, they led to unrealistic expectations, overextended borrowing on commercial terms, and an unmanageable debt burden.

The Contrast between Low-Income Africa and the Highly Indebted Middle-Income Countries

Differences exist between low-income Africa and the highly indebted middle-income countries. (See table 3-2 for a list of these latter countries.) Increases in real interest rates were less of a factor in low-income Africa, the debt crisis came earlier, and, most importantly, the debt burden is, by most measures, more severe.

Although the unexpected increases in real interest rates were a key element in the highly indebted middle-income countries' debt crisis (Cuddington in this volume), they played a much smaller part in low-income African countries because much less of their bilateral official and private debt carries variable rates (5 percent compared to 66 percent for the highly indebted middle-income countries in 1987).

The debt problem emerged earlier in low-income Africa than in the highly indebted middle-income countries. Beginning with Zaire in 1976, 10 low-income African countries rescheduled official claims on 19 occasions and commercial bank claims on five occasions before the first rescheduling by a highly indebted middle-income country in 1982.

Low-income Africa is more heavily indebted. Although the amounts are small relative to financial stocks and flows in other developing countries, the debt is worse for many low-income countries. The usual ratios are as severe, and the economies of these countries are less able to absorb the required adjustments (see table 3-2).

Most methods of assessing debt burdens show that low-income Africa faces a more difficult debt situation than the highly indebted middle-income countries or low-income countries in other developing regions. The low-income African countries owe debt of 100 percent of their GNP and 500 percent of their annual exports. These debt ratios are two-thirds higher than those in the highly

indebted middle-income countries. The comparison with low-income Asian countries, where the external debt ratios average less than a third of the ratios in the severely indebted low-income African countries, is more telling.

Because more of this debt is concessional (almost half of total debt in low-income Africa compared to 5 percent in the highly indebted middle-income countries), the usual ratios may overstate low-income Africa's real debt burden.² The most straightforward adjustment for concessionality is to reduce the debt stock by its grant equivalent, which can be estimated as the difference between the nominal face value and the discounted present value of all scheduled debt service on all outstanding debt. The estimated grant equivalent in low-income Africa's existing debt is about \$17 billion. On this basis, its ratios of debt to GNP and to annual exports drop to about 80 and 400 percent, respectively. Even adjusting for this higher concessionality, low-income Africa's burden (debt as percentages of exports and GNP) remains more severe than the highly indebted middle-income countries. In addition, the bite that debt-service payments take out of exports is about as large.

Another element that mitigates low-income Africa's debt burden is the high level of grants in its capital inflows. Grants make up more than half of the total gross capital inflows of these IDA-eligible countries in Sub-Saharan Africa, compared with less than a fifth for the rest of the region (World Bank 1989). In 1987, grants were \$6.4 billion, including technical assistance grants that were 35 to 40 percent of the total. If these grants were included with exports in foreign exchange receipts in that year, the adjusted debt service ratio would have been much lower than the conventional debt service ratio (21 percent compared to 31 percent).

No matter how it is measured, the strong conclusion from these data is that low-income Sub-Saharan Africa is more severely indebted than the highly indebted middle-income countries. The short-term real cost of this higher indebtedness (debt service paid) is almost as severe for low-income Africa as for the highly indebted middle-income countries when compared to export receipts. But the region's capacity to bear this burden is limited by its weaker, more rigid, economies.

Economic Factors behind Low-Income Africa's Debt Difficulties

Although the origins and characteristics of their debt problems are similar to those of the highly indebted countries, the weaker, less flexible economies in low-income Africa are more severely limited in their ability to adjust sufficiently and rapidly enough to restore creditworthiness. Structural economic rigidities have been compounded by policy rigidities. These economies have

Table 3-2. Indicators of Debt Burdens, 1987
(Percentages unless otherwise noted)

<i>Indicator</i>	<i>Highly indebted middle-income countries^a</i>	<i>Low-income Africa</i>	<i>Low-income Asia^b</i>
Total debt (US\$ billions)	527	71	113
(official source)	28	77	68
Debt-service payments (US\$ billions)	56.4	4.2	11.8
(official source)	33	68	56
Ratio of debt to exports	357	520	158
Ratio of debt to GNP	63	104	19
Debt-service ratio (payment basis)	38	31	17
Debt-service ratio (obligation basis, using 1987 exports)	59	52	17

Note: Total debt includes IMF and short-term obligations. Debt-service payments include IMF repurchases and charges and estimated interest on short-term debt.

a. Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Côte d'Ivoire, Ecuador, Jamaica, Mexico, Morocco, Nigeria, Peru, Philippines, Uruguay, Venezuela, and Yugoslavia.

b. Bangladesh, Bhutan, Burma, China, India, Lao PDR, Maldives, Nepal, Pakistan, Sri Lanka, and Vanuatu.

Source: World Bank Debtor Reporting System.

an arguably lower capacity to adjust to their debt burdens. As a result, a strategy of simply delaying debt-service payments to allow these countries to grow out of their debt problems is much less likely to work.

Structural weaknesses. Structural weaknesses preclude most of these economies from achieving the rapid growth necessary to escape from their debt difficulties under conventional debt-relief mechanisms. They are smaller, poorer, and more dependent on primary commodities than the highly indebted middle-income countries. The lack of a diversified economy and export base makes it more difficult to adjust to changing world economic conditions.

Population growth is higher by almost a percentage point compared to the highly indebted middle-income countries (see table 3-3), making it harder both to increase per capita income and to provide for basic human needs. Living conditions and the quality of human capital are worse. Infant mortality is about double that of highly indebted middle-income countries, and life expectancy is some ten years less. Only about two-thirds of the school-age children attend primary school, compared with almost 100 percent in the highly indebted middle-income countries; and only 16 percent attend high school, compared with about half in the highly indebted middle-income countries. Relative to population, there is only a seventh as many physicians in these low-income countries.

Savings and investment rates are, on average, the lowest in the developing world, making it harder to strengthen low-income Africa's productive base; savings rates are only a third those in the highly indebted middle-income countries, and investment rates, for all low-income Africa, are some five percentage points lower (see table 3-3). Low incomes make it difficult to increase investment and savings. Low-income Africa is almost twice as dependent on imports as the highly indebted middle-income countries, but export shares are not much larger. Consequently, low-income African countries have substantial resource gaps, and foreign capital is essential to finance both trade deficits and domestic investment. Gross aid flows, including technical assistance and other grants, are about \$10 billion a year, equivalent to about 90 percent of gross domestic investment in these countries, and are three times their actual debt-service payments on nonconcessional debt.

Investments that are made are less productive than in other developing countries. Incremental capital output ratios (ICOR) measure the units of investment required to raise annual output by one unit; smaller ratios imply greater efficiency and productivity than higher ratios. Those in low-income Africa are much higher than in the highly indebted middle-income countries. During the 1970s, the better ICORs in low-income Africa (about five,

Table 3-3. Indications of Structural Differences between Low-Income Africa and Highly Indebted Middle-Income Countries

<i>Indicator</i>	<i>Low-income Africa</i>	<i>Highly indebted middle-income countries</i>
Average population per country (millions, 1987)	9	36
Population growth (annual percentage, 1987)	3.1	2.4
GNP per capita (Atlas basis) (US\$, 1987)	287	1,452
Gross domestic savings (percentage of GDP in current prices, 1986-87)	6	14
Gross domestic investment (percentage of GDP in current prices, 1986-87)	14	20
Exports ^a as share of GDP (percent, 1980-86)	19	16
Imports ^a as share of GDP (percent, 1980-86)	28	15
Share of manufacturing in exports (percent, 1986-87)	8	26

Note: Averages are weighted.

a. Goods and nonfactor services.

Source: World Bank data.

with most being much higher) were about the same as the worst ICORs in the highly indebted middle-income countries (most were about three).

Economic performance in these countries has been poor, both before and during the debt crisis. GDP grew in low-income Africa by only 2 percent a year in 1970-80, declining in per capita terms. Over the same period, GDP grew by almost 6 percent a year in the highly indebted middle-income countries. Since the onset of the international debt crisis in 1982, when new flows of non-concessional capital virtually dried up for these countries, their export growth has been lower and more erratic than that of the highly indebted middle-income countries, and their per capita consumption has been declining faster (see table 3-4). Low-income Africa's export volume is lower now than in 1970, and the failure of exports to expand in line with expanding world trade (including that in primary commodities) goes far in explaining the region's debt-servicing difficulties. If these countries had simply maintained export volume growth in line with other developing countries, their debt service ratio in 1987 would have been more than a third lower. Had they simply maintained their market shares in developing-countries' nonoil primary commodities, the additional export revenue would have

Table 3-4. Selected Economic Performance Indicators

Indicator	Low-income Africa	Highly indebted middle-income countries
GDP growth (annual percentage, 1982-87)	1.8	2.0
Export growth (annual percentage, 1982-87)	0.6	4.3
Instability of export revenues ^a (median country values, 1970-85)	20.8	20.2
Import growth (annual percentage, 1982-87)	-1.1	-3.0
Per capita consumption growth (annual percentage, 1982-87)	-1.7	-0.4

Note: Growth rates are based on totals for all countries for each group and computed in constant prices using least-squares regression.

a. Defined as the average annual absolute percentage deviation from the trend during the period.

Source: Development Committee, (1987) and World Bank data.

amounted to about twice as much as their debt-service payments in the mid-1980s.

Failure to diversify their exports out of primary commodities has also contributed to their problems in coping with higher debt burdens. Manufactured exports represent the most rapidly growing segment of developing-country exports, particularly for the highly indebted middle-income countries during the 1980s. But the highly indebted middle-income countries also substantially increased nonoil commodity exports, in contrast to their decline in low-income Africa.

Poor policies have compounded these structural rigidities and contributed to poor performance. As in the highly indebted middle-income countries, these policies must also be rectified if the region is to recover from the debt crisis. They have been dealt with at length elsewhere, including in recent reports on progress on reforms (World Bank and UNDP, 1989). But regardless of the reforms adopted, a solution to low-income Africa's debt problem must take into account the structure of their debt.

Low-Income Africa's Debt Structure Is Different

Almost 90 percent of low-income Africa's total debt represents claims directly from or guaranteed by official agencies, both bilateral and multilateral. (See appendix tables 3-1 and 3-2 for a breakdown by creditor of low-income Africa's debt.) Thus, most of the creditor effort to help deal with the problem in these countries must be by official agencies, not commercial banks. In the short run,

official creditors' efforts must focus on reducing debt-service obligations and payments in an orderly fashion, and on increasing gross capital inflows.

Well over half (60 percent) of the official claims are bilateral, including private loans guaranteed by official export credit agencies. Most low-income African countries could not borrow to any significant degree without external guarantees provided by official export credit agencies. When borrowers were unable to pay debt service due on these loans, the ECAs pick up the share of these claims that they guaranteed. Altogether, this creditor-guaranteed private lending by commercial banks and suppliers' credits to low-income African countries account for about 8 percent of their total debt, or a quarter of their nonconcessional, bilateral official debt.³

About half (52 percent) of this bilateral official and creditor-guaranteed debt is nonconcessional. Although official bilateral nonconcessional direct and creditor-guaranteed loans (mainly ECA exposure) represented almost 30 percent of the long-term debt in these countries, it accounted for 27 percent of debt-service payments on long-term debt (including IMF transactions) in 1987 and 53 percent of scheduled debt-service obligations in 1988.

Multilateral creditors, including the IMF, hold about \$25 billion (39 percent) of the claims on low-income Africa (see table 3-5). More than 60 percent of these claims are at concessional interest rates and represent a small proportion of scheduled debt-service obligations.

IDA holds almost \$10 billion in claims on the 34 countries (excluding Mozambique) and is their largest single creditor. Although IDA credits account for 15 percent of low-income Africa's total long-term debt, debt service to IDA amounted to less than three percent of their actual long-term debt-service payments in 1987.

Table 3-5. Low-Income Africa's Multilateral Debt, 1987

	US\$ billions	Percentage of total long-term debt
Multilateral debt	25.5	39
World Bank	3.0	5
IDA	9.6	15
IMF	5.6	9
AfDB/F	2.8	4
Debt-service payments on multilateral debt	2.0	54
World Bank	0.4	10
IDA	0.1	3
IMF	1.0	27
AfDB/F	0.2	5

Note: AfDB/F is the African Development Bank and African Development Fund.

Source: World Bank Debtor Reporting System.

Table 3-6. Summary of Debt Structure, Year End-1987

Year end-1987 debt	Low-income Africa	Highly indebted middle-income countries
Official direct bilateral		
US\$ billions	30	54
Percent	42	10
Creditor-guaranteed ^a		
US\$ billions	6	34
Percent	9	6
Multilateral		
US\$ billions	26	83
Percent	36	16
Private (including short-term debt) ^b		
US\$ billions	9	357
Percent	13	68

a. Defined as suppliers' credits and fixed rate commercial bank loans.

b. Defined as private loans not guaranteed by debtor governments, variable rate commercial bank loans, short-term debt (which may include interest in arrears on public loans), bonds, and nationalization obligations.

Source: World Bank Debtor Reporting System.

Private commercial lending to low-income Africa, mostly by commercial banks, that is not guaranteed by creditor governments or agencies is relatively small—less than \$10 billion (13 percent) of total external debt. Most of this is short-term debt, including interest arrears on long-term debt. In several of the most severely indebted low-income African countries, much of this debt is in arrears.

This debt structure contrasts sharply with the highly indebted middle-income countries, whose claims are highly concentrated in private creditors (two-thirds), with only a sixth from bilateral creditors (direct and guaranteed), and the rest from multilateral creditors (see table 3-6).

The Debt Problem's Magnitude

The low-income countries of Sub-Saharan Africa are much less creditworthy than anticipated at the time most of the original nonconcessional loans were made. Their current debt structure is, in most cases, inappropriate to their current economic circumstances or prospects. Marginal adjustments to past strategies for dealing with debt are, with few exceptions, not sufficient to resolve their debt distress.

Medium-term projections made in 1986 show that many of the low-income African countries will face continuing debt problems (World Bank 1986). Most of the 34 countries would be unable to finance imports adequate for adjustment and growth while at the same time fully servicing their existing debts. Additional borrowing to fill

the gaps—assuming creditors were prepared to lend—would push future scheduled debt service ratios well above levels that these countries have been able to meet in the past. Some of the assumptions made then about export price and volume growth now appear optimistic, reinforcing the results of the World Bank 1986 study.

The magnitude of effort that might be required to extract low-income African countries from their debt difficulties can be assessed by analyzing the 19 countries eligible by early 1989 for the Bank's SPA for debt-distressed low-income African countries. Real imports are targeted to grow one percentage point faster than population growth, starting from a 1988 base, providing for some recovery of imports from the extremely depressed levels of the mid-1980s. (This level of imports in 1988-90 corresponds to that agreed to by donors in setting targets for the SPA.) The target growth rate of real imports translates into an 8 percent nominal growth rate. (See appendix table 3-3a.) With projected export growth of 8 percent in nominal terms, which is a turnaround from the declines in export volumes over the past 20 years, the implied current account deficit (including interest, before receipt of grants) would be \$8.8 billion in 1989.

In the first exercise, the nonconcessional equivalent of the 19 countries' total external debt was held constant, relative to exports, through 1995. This target would represent a minimum requirement: creditworthiness should not deteriorate.⁴ The change in the level of nonconcessional debt is the sustainable current account deficit in each year after grants and payment of interest. The difference between this current account deficit and net exports of goods and all services is the needed level of grants. The results indicate that the grant equivalent of any combination of loans and grants must be 68 percent to keep the ratio of the nonconcessional equivalent of debt to exports constant. At one extreme, commercial rate loans can be combined with pure grants. The other extreme would be financing entirely by concessional loans, with a 68 percent grant element.⁵

To represent a move toward creditworthiness, the 1995 target ratio of the nonconcessional equivalent of debt to exports was lowered, in a second exercise, to 200 percent, compared with its present level of 330 percent. Casual empirical work indicates that a debt-export ratio of 200 percent is a rough divider between countries that have maintained creditworthiness and those that experienced debt-servicing difficulties. This ratio would be an upper bound to creditworthiness in low-income Africa, given the lower short-term growth potential of the region.

Achieving this target would require reducing debt by almost \$12 billion as measured in terms of its net present value. The grant equivalent of the debt relief required each year between now and 1995 would raise the overall

grant equivalent of all combined grant and loan flows to these 19 countries to over 90 percent.

These results indicate the extent of medium-term support that these low-income debtor countries need in aggregate. A case-by-case study taking into account the conditions of individual debtor countries would be required to make a more definitive calculation for specific countries.

Responses to Date

The low-income countries of Sub-Saharan Africa have benefited from both regular and special measures to help alleviate their debt problem. These include reschedulings, cancellations of concessional debt, increased concessional inflows, and concessional debt relief. Because of some of these measures, debt-service payments have, in aggregate, been less than the level of debt of these countries (even adjusted for its higher concessionality) would have suggested.

Reschedulings

During 1980–88, 21 of the 25 Sub-Saharan countries that rescheduled their debt with official and private creditors were low income. These countries had 88 agreements within the multilateral frameworks of the Paris and London Clubs, about 85 percent of the total number of agreements. About three-fourths of these agreements were with the Paris Club, and, in total, during the eight years 1980–87, these reschedulings reduced scheduled debt-service payments by \$10 billion,⁶ equivalent to 57 percent of the total debt-service payments. The annual consolidation of debt-service obligations has been increasing, from an average of \$0.6 billion in 1980–81 to a peak of \$1.8 billion in 1986.

Nor is the official debt of other creditors fully serviced. Paris Club agreements oblige debtor governments to seek parallel treatment from creditors that do not participate in the Paris Club, especially Arab and Eastern Bloc countries. Although details of such arrangements are seldom reported, it would appear that only about one-third of the obligations on Soviet and Arab debt are being regularly paid.

In June 1987, the Venice Summit agreed that “for those of the poorest countries that are undertaking adjustment efforts, consideration should be given to the possibility of applying lower interest rates on their existing debt, and agreement should be reached, especially in the Paris Club, on longer repayment and grace periods to ease the debt burden” (*New York Times*, 11 June 1987, p. A16). Since then, several Paris Club reschedulings have reflected the new approach. Mozambique, Somalia, Guinea-Bissau, Niger, and Malawi all received 20-year

maturities, including 10 years’ grace, compared with 15-year maturities with 6 years’ grace for the five other low-income Sub-Saharan African countries that rescheduled during 1987–88.

Debt Cancellation

In 1978, the United Nations Conference on Trade and Development (UNCTAD) adopted a resolution calling on official creditors to cancel concessional debt owed by least developed countries (27 of the 34 low-income African countries are currently classified by the United Nations as least developed). During 1978–87, 14 OECD countries that are members of the Development Assistance Committee (DAC) canceled over \$1.4 billion of concessional debt, about a fifth of their concessional loans to IDA-eligible countries in the region.⁷ Much of the service on this debt would probably have been rescheduled by the Paris Club (about \$1.2 billion in debt service owed on concessional debt was rescheduled in 1980–87, or about \$150 million a year). Thus, the additional savings in any year from the cancellations would include only the moratorium interest charges on the consolidated amounts, or some \$5 million a year on average. But additional savings from cancellation increase over time, because cancellations reduce the growth in the stock of consolidated debt from rescheduling, which progressively increases moratorium interest charges.⁸

Increased Official Aid Flows

In addition to their efforts to alleviate debt burdens directly, creditor governments and agencies have sought to increase the net flow of new funds. Multilateral agencies (including the IMF) have increased their net official development assistance (ODA) disbursements to Sub-Saharan Africa even faster than bilateral donors. When deflated by the region’s import prices, net ODA disbursements (including grants) by multilateral agencies grew by 12 percent a year between 1983–85 and by 13 percent a year in 1986–87. IDA accounts for most of this increase; since 1983, net disbursements from IDA have grown 25 percent a year in real terms, three and a half times the annual rate for other multilateral agencies. Bilateral ODA rose by 12 percent a year in 1986 and 1987, as measured by the volume of imports the aid could finance, despite the shrinking global aid and the decline of food aid and emergency relief for Sub-Saharan Africa since 1985.

The World Bank’s Special Program of Assistance

At a donors’ conference in December 1987, the World Bank formally launched the SPA for low-income, debt-

distressed countries in Sub-Saharan Africa. The objective of the three-year (1988–90) program is to help eligible countries adjust and grow while restoring and sustaining normal debtor-creditor relationships. The program provides for substantially increased highly concessional, quick-disbursing financing, and debt relief on softer terms to expand import capacities in eligible countries.

Donors have agreed on three eligibility criteria for the SPA: first, poverty (eligibility for IDA credits but not IBRD loans); second, debt problems (originally a projected debt service ratio of 30 percent or more in 1988–90); and third, adjustment (the country must be currently implementing a policy reform program supported by the World Bank and IMF). Nineteen countries are currently eligible, and others may soon be approved.⁹

The program established a framework of five elements for case-by-case assistance to eligible countries. This framework includes increased adjustment lending from IDA-8, increased cofinancing and coordinated financing from bilateral and other multilateral donors for adjustment operations, and supplemental IDA adjustment credits. These resources would be provided in conjunction with additional IMF resources from the ESAF and greater debt relief. These five components constitute the additional assistance being made available to eligible debt-distressed countries under the SPA, although the total resources available for some components are not necessarily restricted to African low-income, debt-distressed countries or limited to 1988–90.¹⁰

Additional IDA-8 Adjustment Lending

About half of the eighth IDA replenishment has been set aside for Sub-Saharan Africa. Two-thirds of this is earmarked to debt-distressed countries, and over half will be quick disbursing. This high allocation reflects the addition of \$1 billion above regular project and program lending as IDA's contribution to the SPA. The additional disbursements from IDA's SPA contribution to the 19 currently eligible countries are projected at \$0.7 billion in 1988–90. Overall, the program should enable IDA to increase its disbursements to the low-income, debt-distressed countries of the region by about 50 percent, compared with levels of the previous three years.

Increased Cofinancing of Adjustment Operations

Eighteen donor governments and multilateral agencies pledged an initial \$6.4 billion in concessional, quick-disbursing funds for low-income African countries with debt problems. These funds will be provided through both formal cofinancing of specific IDA-supported adjustment operations and other financing coordinated closely with these same operations. About half was esti-

mated to be additional to aid disbursements already planned by donors for these countries. By early 1989, donors had indicated specific commitments of over \$5 billion, of which about \$1 billion had been disbursed by year-end 1988. If a high rate of disbursements (about 80 percent over 3 years) can be achieved, these commitments could be expected to disburse some \$4 billion during 1988–90. Additional commitments would further increase disbursements.

Supplemental IDA Adjustment Credits

A special allocation for supplemental IDA adjustment credits for IDA-only countries with outstanding IBRD debt (other than for enclave projects) was added in September 1988 to support the SPA. The global allocation would average 10 percent of IDA reflows and investment income on IDA donor encashments in fiscal 1989–93, divided among qualifying countries in proportion to their IBRD interest payments. Supplemental IDA adjustment credits totaling over \$150 million will be provided in 1989–90 for eight countries (which is equivalent to about 60 percent of their annual IBRD interest obligations). In support of this initiative, Norway and Sweden also made grant funding available to help meet IBRD debt service in four African countries in 1989.

Enhanced Structural Adjustment Facility

At the end of 1987, the International Monetary Fund set up ESAF to help low-income countries with protracted external payments problems adjust their policies and grow over the medium term. This program supplements the original Structural Adjustment Facility (SAF), established in March 1986. Together, these two programs can provide \$11.7 billion (31 percent from the SAF and 69 percent from the ESAF) in 10-year credit, including five years' grace, at interest rates of 0.5 percent, to low-income countries, mostly in Africa.¹¹ By the end of 1988, SAF arrangements totaling \$1.3 billion had been agreed on for 22 Sub-Saharan African countries, with disbursements of \$0.6 billion. In July 1988, Malawi became the first country to receive assistance from the ESAF, and programs for four more African countries had been approved by the end of 1988 with commitments totaling \$0.9 billion and disbursements of \$0.2 billion. ESAF arrangements approved so far provide an average access of about 165 percent of quota, much higher than the 70 percent now available under the SAF.

More Concessional Debt Relief

The SPA calls for continued rescheduling on conventional terms to provide cash-flow relief during 1988–90.

Such rescheduling has occurred, or is expected, for 15 of the 19 countries. But the SPA also calls for more concessional debt relief in two forms: (1) further conversion of bilateral ODA loans to grants, and (2) softer terms on rescheduled commercial loans from or guaranteed by creditor governments. Much has been accomplished on both fronts.

More Official Development Assistance Conversions

In 1987–88 Canada and the Federal Republic of Germany moved to convert their ODA loans to grants. After the Toronto Summit, Japan added eight low-income countries to its program of financing debt service on its ODA loans with additional grants, bringing the total to 14 in Africa. France recently announced cancellation of debt service due on ODA loans worth about \$2.5 billion for 35 African countries, beginning in 1990. And the United States is also considering forgiving or allowing repayment in local currencies for certain types of concessional debt, worth almost \$1 billion in up to 23 countries. But the actual short-term cash savings of these cancellations, as explained above, would probably be small—on the order of \$3 million to \$10 million a year over conventional rescheduling.

The Concessional Debt-Relief Menu

The Toronto agreement, finalized in Berlin at the 1988 Annual Meetings of the World Bank and the IMF, represents a major breakthrough by creditor governments to reduce the burden of their official nonconcessional debt in low-income, debt-distressed countries, mostly in Sub-Saharan Africa. It is a way to lower debt-service payments in the short term with less buildup of nonconcessional debt that must be serviced in the long term. And it established the principle of reducing the stock of official nonconcessional bilateral debt.¹²

Creditors agreed on a menu of comparable options to increase the concessionality of rescheduling official nonconcessional debt. These are:

A. Partial write-off. Forgiveness of one-third of eligible debt service due during the consolidation period, and rescheduling of the remainder at market interest rates with a 14-year maturity.

B. Longer terms. Rescheduling of eligible debt service due during the consolidation period at market interest rates, but with a 25-year maturity.

C. Lower interest rates. Rescheduling of debt at lower interest rates (either 3.5 percentage points below or one-half of market rates, whichever gives the smallest reduction), with a 14-year maturity, including eight years of grace.

Creditor governments have described these options as comparable in that partial write-offs and lower interest rates offer similar concessionality, while longer terms (though less concessional) involve greater risk since creditors choosing them would not begin to receive principal payments until after those choosing the other options were repaid.

By year-end 1988, this menu of options had been applied by the Paris Club to five Sub-Saharan countries (Mali, Niger, Tanzania, Madagascar, and Central African Republic) and was applied to Benin, Guinea, Mauritania, Senegal, Togo, Uganda, and Zaire by mid-1989. In applying the options, two creditors have forgiven a third of the debt-service obligations on loans covered by the rescheduling arrangements (option A); four creditors have provided longer maturities of 25 years (option B); and the other Paris Club creditors have reduced the interest rates charged on the rescheduled debt by up to three and half percentage points (option C). One chose a mix of options depending in part on the type of loan rescheduled. Based on the debt service on nonconcessional debt that the five debtors that rescheduled in 1988 owe to the Paris Club creditors in 1989, which the agreements cover wholly or in part, about half would be covered by option A, a seventh by option B, and a third by option C.¹³

The Toronto-Berlin consensus is a helpful step, and it should be applied in future reschedulings of the debts of eligible SPA countries. But it is not a full solution. First, debt owed to regular Paris Club creditors does not account for all official bilateral nonconcessional debt. The nonconcessional debt owed to Paris Club creditors gives rise to only about a third of the total debt-service obligations of the five SPA countries whose debt was rescheduled under the menu approach in 1988. Second, the reduction in debt-service payments, over and above that achieved by conventional rescheduling, is limited in the short term to the savings on moratorium interest payments. For these five countries, the additional reduction in the first year may be no more than \$10 million. But the gains will accumulate progressively, which is why the consensus is important in addressing the long-term debt problem of these countries. Third, some creditor governments are financing the debt reduction provided for by the menu by transferring funds from their aid budgets to their creditor agencies. This practice reduces the additivity of the Toronto-Berlin consensus.

Evaluating the Options

The relief to debtor countries that the options agreed on at the Berlin meeting would provide can be compared using two general criteria: increasing net financial transfers and contributing to creditworthiness.

Net Resource Transfers

Increased resources are needed to enable debt-distressed countries to import, invest, and grow. Conventional rescheduling does not increase net resource transfers; it simply alters the profile over time of the transfers. Rescheduling actually reduces cumulative net transfers because of the additional financing charges when interest is consolidated (although the net present value of transfers is unchanged). Concessional debt relief can increase transfers by reducing debt-service payments over a specified time period. But this increase will materialize only to the extent that creditors do not finance concessional rescheduling out of existing aid budgets, and that debtors would have eventually serviced their debt. Permanent reduction in nominal debt-service payments can be achieved by forgiving debt, writing off debt service as it comes due, or rescheduling at reduced interest rates. Extending terms reduces debt-service payments for only a limited period.

Restoring Debt-Servicing Capacity

Restoring normal debt-servicing capacity for these countries will usually require reducing the stock of nonconcessional debt (or the nonconcessional equivalent of the stock of all debt).¹⁴ Debtors that have less nonconcessional debt after rescheduling should be better able to service both that debt and any new borrowing. One way to measure the movement toward debt-servicing capacity is to look at the reduction in the nonconcessional equivalent stock of debt under each option at the end of a specified period (for example, when the consolidation period ends). Nonconcessional debt can be reduced by borrowers repaying it as scheduled, by rescheduling it at below-market interest rates, or by creditors writing it off. Rescheduling on conventional terms alone does not reduce the stock of debt, and consolidation of interest obligations actually increases it.

These criteria are used here to compare the three options now being applied by the Paris Club with two other options chosen as benchmarks for comparison.

No Rescheduling

This option assumes that debtor countries are able to pay all of their debt-service obligations on time, which they are unlikely to be able to do without a substantial increase in financial resources or a severe compression of growth. This option, however, provides a point of reference for assessing the benefits of the various rescheduling options.

Conventional Rescheduling

This option represents the average rescheduling terms that the Paris Club has given the 10 low-income debt-distressed countries that rescheduled during 1987–88 before the menu of options began to be applied. These consist of rescheduling virtually all nonconcessional debt service at market rates with an 18-year maturity, including eight years' grace. No country received exactly those terms (half got better terms, half worse), but they serve as a benchmark for the current practice, against which the more concessional rescheduling options can be assessed.

The analysis that follows compares the benefits of these options for 22 low-income debt-distressed countries currently eligible for the SPA. It is based on results using the World Bank's rescheduling model (Humphreys and Underwood 1989) and debt data compiled for the *World Debt Tables* and focuses only on nonconcessional debt owed by these countries to Paris Club creditors (including *pari passu* debt). Although the specific empirical results depend on the debt structure of the countries analyzed and on the various assumptions about the implementation of the options, the results nonetheless indicate the relative merits of the proposals. (See appendix for comparative indicators for the five rescheduling scenarios studied.)

Comparative Results

The options can be compared by first examining the increase in net financial transfers to debtor countries that results from reducing debt-service payments (column 10 of appendix table 3–4). Over the consolidation period (1988–2000), total debt-service payments, if made on time, in nominal terms, would be roughly three-fourths of the level that would result with conventional rescheduling (second line in appendix table 3–4). However, there are significant differences. Option A results in higher total interest payments during 1988–2000 and in higher annual debt-service payments until 1996, when the grace period ends and the principal payments start coming due, which are larger under option C. Option B (longer terms) would result in somewhat higher overall debt-service payments than options A and C, although still substantially less (about 17 percent) during 1996–2000 than under conventional rescheduling. Option B would also result in lower annual debt-service payments than either A or C between the late 1990s and the early 2000s, during the period after the end of the grace period for A and C and before the end of the grace period for B.

In terms of increased concessionality, which is a measure of the quality of the increase in net financial transfers, both options A and C are substantially more conces-

sional than the conventional practice (compare figures in column 3 of appendix table 3-4), with option A (partial write-off) being more concessional under the specific empirical assumptions in this analysis.¹⁵ Option B provides no additional concessionality compared to recent Paris Club rescheduling practice (second line), because rescheduling at market interest rates with no forgiveness merely postpones repayment while accruing additional charges at commercial interest rates in the interim.

In terms of the second criterion—the extent to which different options reduce the stock of nonconcessional debt and thereby help debtor countries regain creditworthiness—options A and C again accomplish more. Under option A (partial write-off) the stock of nonconcessional debt at the end of the consolidation period (the year 2000) would be less than 60 percent of the level remaining after conventional rescheduling (compare figures in column 5 of appendix table 3-4). Option C (lower interest rates) would reduce the nonconcessional equivalent end-2000 debt by one quarter. By contrast, option B (longer terms) would actually increase the stock of debt at the end of the consolidation period (the year 2000) compared to recent practice because there would be no repayment of any of the debt until 2001.

The year-by-year profiles of debt and debt service also are important. As appendix table 3-5 and figure 3-2 show, all of the rescheduling options studied, including the recent practice, have something in common. All reduce debt service compared to obligations without rescheduling for eight years (the length of the grace period under conventional rescheduling as well as the one assumed for options A and C). But they do so at the expense of higher debt service later on, lasting well into the next century. In figure 3-2, showing the profile of debt service, each of the options starts out below the line representing no rescheduling. The distance by which they are below this line shows the amount of debt-service relief, or the increase in net financial transfers. By 1996, all of the options are above the no-rescheduling line. The distance above shows by how much the rescheduling increases debt service in the future.

In figure 3-2, options A and C provide more debt-service relief in the early years, up through 1995. Option B and conventional rescheduling are identical during this period. In general, debtor governments probably consider debt-service relief up front to be worth more than the same amount of debt-service relief later on, because of their immediate needs and the uncertainty of the future.

Figure 3-2 shows that beginning in 1996, debt service would rise more slowly under option B than under A and C, until early in the next century. Option B would thus provide a somewhat longer period during which financial obligations would be less than under conventional re-

scheduling—a longer period during which debtor countries would be able to restructure their economies and attempt to regain creditworthiness. In a sense, option B postpones longer the problem of the future bulge in debt-service obligations. But the timing of this bulge depends on the grace period used, while its size depends on the length of the actual repayment period.

The year-by-year profile of the stock of debt is also important. As figure 3-1 on nonconcessional debt shows, option C (lower interest), and repayment as scheduled (no rescheduling), brings down the stock of nonconcessional debt quickest, although the remaining debt service due on the concessional debt is substantial in the case of Option C. Option A reduces the nonconcessional stock of debt the most. Other options (longer terms [B] and conventional rescheduling) temporarily increase the stock of debt because of interest capitalization. Option B prolongs the debt burden the longest.

In sum, the possible concessional debt relief from the Paris Club will vary depending on the economic circumstances of the country, its particular debt profile, and its mix of creditors. But the options outlined at Toronto and adopted by the Paris Club are clearly constructive steps in the right direction. They would provide the concessional debt relief that these countries require to lower debt-service obligations in the next few years and to help assure that their debt-service remains manageable in the near future.

The three proposed options have similar concessionality when the higher risk faced by creditors granting longer terms is taken into account. But the options affect the debtor's debt-service profile differently, and some combinations might serve best the needs of certain debtors while different ones would help others more. Partial forgiveness (A) would provide the lowest and shortest debt-service profile, which should speed a country's return to creditworthiness. But as currently proposed, it would not provide the most financial relief in the near term. Longer terms (B) would give financial relief for a longer period, but would offer no better relief than conventional rescheduling in the short term and would eventually require larger overall debt-service payments. Lower interest rates (C), as defined in the proposal, would give more financial relief up front but at the cost of requiring, around the end of the century, the highest debt-service payments of any option.

The Problem of Commercial Bank Claims

Holders of commercial bank claims on debt-distressed countries may tend to benefit disproportionately as the Paris Club puts into place these concessional rescheduling proposals.¹⁶ Several debt-distressed countries have been identified as countries in which a reduction in the

face value of claims (implicit in the case of a concessional rescheduling) would increase the likely future repayment stream, making both the debtor country and the creditors better off (see Claessens 1988 and Cohen in this volume). That benefit would accrue heavily to the holders of commercial bank claims if bilateral official creditors were to provide the entire amount of debt forgiveness.

A debt facility would be one way to reserve this gain for the debt-distressed countries, instead of allowing a gain to holders of commercial bank claims at the expense of official creditors. A debt facility is defined as an official entity that would buy all or part of the commercial bank debt of a developing country and forgive a portion of that debt. A facility can operate directly on its own behalf or indirectly, loaning or giving the funds to the debtor country (see Corden 1988). In the last case, the debtor country would negotiate to repurchase its debt, as Bolivia has recently done. A debt-distressed country facility would provide a way to spread the costs of debt forgiveness to commercial banks, in keeping with the concept of equitable burden sharing among creditors.

Proposed facilities have been criticized in the past for potentially breaking important creditor-debtor relationships. For most debt-distressed countries—and all of those debt-distressed countries whose debt would be considered eligible for facility purchase—that relationship is likely to be quite unimportant for the foreseeable future. An exception is the short-term trade-credit relationship. These claims (except for those that have been in arrears for a long period and are *de facto* long-term debt) should be excluded from consideration for purchase by a facility.

Unlike a facility designed for the purchase of the debt of highly indebted middle-income countries, a facility for the purchase of the long-term commercial bank liabilities of the debt-distressed low-income countries would not necessarily face large potential losses or put large amounts of official funds at risk. An estimated \$3.5 billion would be eligible for purchase by such a facility. At current market prices, most of that debt could be purchased for less than \$350 million.¹⁷ A combination of a “take it or leave it offers” plus regulatory persuasion may convince banks to sell at prices near current levels. If the debt were to be purchased at open auction, the commercial banks would, of course, reap the benefit of the post-purchase debt forgiveness. The auction price at which they would sell to the facility would be substantially above the current market price (see Dooley 1988).

Other options for sharing the burden of debt relief across commercial creditors include official tax and regulatory support for donations of claims to aid agencies or to charitable organizations. “Debt for nature” and “debt for development” swaps have already occurred on a small scale. In some cases commercial banks donated their

claims to the recipient. The recipient aid, charitable, or environmental agency uses the local currency proceeds for local projects, reducing the debtor’s external transfer. Currently, the tax advantage for these donations is outweighed, at least in the United States, by the combined cash and tax proceeds from secondary market sales (see Burton 1988). In other cases, ODA or donated funds have been used to purchase commercial bank claims on the secondary market. These purchases run the risk of raising secondary market prices and relieving commercial banks from burden sharing. (If the problem commercial bank debts are a small part of a country’s total debt, burden sharing with banks may not be a major issue.)

Conclusions

The above analysis leads to the following conclusions with regard to the external debt difficulties of low-income Africa. The efforts of the debtor countries, and the special programs of the official creditor and donor community in support of these efforts, are the first steps in the process of economic recovery. The structural adjustment problems of low-income African countries are not amenable to quick solutions. The debtor countries and the donor community must make medium-term commitments to their solution. The debtor countries must undertake and sustain actions to reduce chronic government budget deficits and inefficiencies in public resource use, to encourage domestic savings, to increase export competitiveness and to maintain basic infrastructure and health and education programs that underpin long-term growth. The donors must realize that the special efforts undertaken on behalf of the Bank’s Special Program of Assistance and the Fund’s Enhanced Structural Adjustment Facility must continue into the 1990s. In particular, adjustment support for the debt-distressed countries must be taken into account in the upcoming Ninth Replenishment of IDA and the next Lomé Convention.

Notes

The authors would like to acknowledge the able assistance of David Stewart, who designed the mechanism to project the effects of alternative rescheduling terms, and Maria-Cristina Germany and Carmini Luther who prepared the data used in the paper.

1. See appendix table 3–1. Appendix table 3–2 lists the low-income African countries.

2. Debt is conventionally defined as concessional when its terms are long enough and its interest rates low enough that it contains an implicit grant element of at least 25 percent, using a discount rate of 10 percent. (See OECD 1987, annex.) Because of the convention of using a 10 percent discount rate, debt on regular commercial terms may sometimes appear to have a

grant element. This anomaly can be eliminated by using the current commercial interest rate as the discount factor.

3. This figure includes private lending not guaranteed by creditor governments or agencies plus guaranteed debt for which the guarantee has not been called. It has been estimated from the loans recorded in the World Bank's Debtor Reporting System on the assumption that all supplier credits and all commercial bank loans issued with fixed interest are guaranteed.

4. The nonconcessional equivalent of debt was calculated as the present discounted value of scheduled debt-service payments on disbursed debt, using a discount rate of 9 percent. An average 9 percent rate of interest was also assumed on the nonconcessional equivalent debt over the projection period.

5. Grants can include the grant equivalent of debt forgiveness. Forgiveness of concessional loans has a grant equivalent of no more than the part of the loan in excess of its implicit grant element.

6. This is a gross reduction and does not take into account the moratorium interest payments on the consolidated debt service.

7. These creditors report higher cancellations—about \$2 billion for 1978, through the period of 1987–88, which is two-thirds of their worldwide cancellations (UNCTAD 1988).

8. To illustrate, \$150 million rescheduled annually at 3 percent interest would, after ten years, give rise to additional interest obligations of \$250 million a year.

9. The eligible countries are: Burundi, Central African Republic, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, São Tomé and Príncipe, Senegal, Tanzania, Togo, Uganda, and Zaire. In April 1989, Chad became eligible, and Benin and Somalia have since become eligible.

10. Some donors have discussed including proposals to deal with commercial debt not eligible for Paris Club rescheduling within the framework. This private debt is about 3 percent of total external debt and 7 percent of debt-service payments of the 19 countries currently eligible for the SPA. An objective of any proposal to reduce this private debt would be to transfer to debtor countries the prevailing market discounts on it (which can be as high as 90 percent or more). This could be accomplished through a variety of mechanisms, including direct cash

buybacks, debt-for-debt swaps, conversion of debt to equity, exit bonds, or direct contributions by creditor institutions.

11. SDRs have been converted to U.S. dollars at \$1.35 per SDR, the exchange rate at the end of 1988.

12. On ODA debt, the Toronto-Berlin consensus provides for 25-year maturities at interest rates no higher than those originally contracted.

13. Exact coverage is difficult to ascertain in advance because not all debt service owed to Paris Club creditors is eligible for consolidation (for example, debt contracted after the cut-off date—1983 in five of the seven applications—is excluded, some previously rescheduled debt—one-fifth of previous rescheduling agreements—is excluded, and arrears may be rescheduled on less favorable terms). It is also up to the debtor to seek similar terms from other creditors that do not formally participate in the Paris Club.

14. The nonconcessional equivalent of the debt stock is simply the present discounted value of the future debt-service payments, calculated using a market discount rate. Its usefulness as a concept is illustrated by a simple example. Suppose a country has \$100 million of debt at a seven percent rate of interest, with a 25-year maturity and one-year grace period. If creditors agreed to change the interest rate to 6 percent, the country's nonconcessional debt would fall to zero, under the standard OECD definition of concessionality (25 percent grant element, using a discount rate of 10 percent). Yet annual interest payments would fall by only \$1 million to \$6 million a year. The nonconcessional equivalent of the stock of debt would fall much less dramatically, from \$80 million to \$74 million, using a discount rate of 10 percent.

15. Option C becomes more concessional, relative to other options, at lower interest rates; at 7 percent, for example, it is about as concessional as Option A.

16. Ironically, the commercial banks originating the loans may not be the primary beneficiaries, to the extent that they have sold their claims at a discount on the secondary market.

17. Prices are not quoted for the debt of many of the potentially eligible countries. The above estimate was based on the secondary market prices for the debt of Sudan and Zaire, considering more of the debt to be closer to the price of Sudan's debt.

Appendix: Interpreting the Data

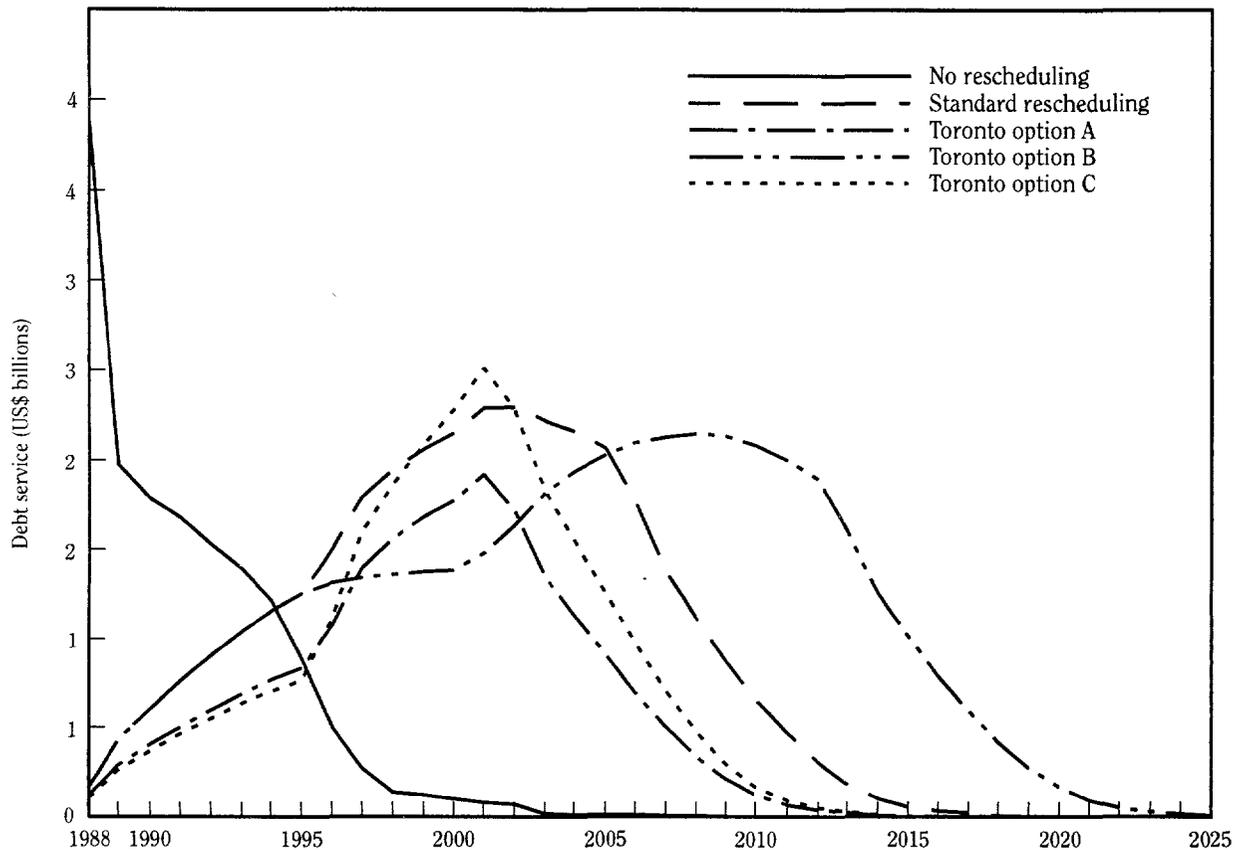
Appendix table 3–4 shows comparative indicators for the five rescheduling scenarios studied. Appendix table 3–5 shows annual debt-service obligations during 1988–2025 and the remaining stock of debt at the end of each year for each of the five options. Figures 3–1 and 3–2 compare the streams of debt-service payments and the stocks of remaining nonconcessional debt after rescheduling under each option.

The net present value (NPV) of total debt-service payments during 1988–2025 (columns 1 and 2 of appendix

table 3–4) is based on all payments during the life of the loan, taking into account any rescheduling.¹ For these columns, the period covered is 1988–2025, whereas the rest of the table refers to the cumulative consolidation period, 1988–2000.

The relative grant element of each option (column 3) is the proportion by which the NPV of debt-service payments without rescheduling is reduced by each option. It measures the concessionality provided by the option (higher values denote options that are more conces-

Figure 3-1. Debt Service—Toronto Term Comparison for 22 SPA Countries, 1988–2025



sional) and can be used to rank the options in terms of overall concessionality.²

The nonconcessional equivalent debt stock at year-end 2000 (columns 4 and 5) shows the present discounted value, as of the year 2000, of all future principal and interest payments outstanding at the end of the cumulative consolidation period. Nonconcessional equivalent debt increases because of the rescheduling of interest obligations at market rates during 1988–2000 and decreases as a result both of actually paying principal after the end of the grace period and of applying concessional moratorium interest rates on rescheduled amortization obligations. Longer terms result in higher debt at the end of the consolidation period, because principal payments are delayed longer and are smaller each year.

Information on debt-service obligations during 1988–2000 (columns 6–11) covers principal and interest on both original debt and new debt resulting from consolidating interest obligations. Total debt-service obligations are shown in both nominal dollars and in terms of their net present value. (The NPV figures in column 11 are

smaller than the sum of columns 1 and 2 because the former do not include payments during 2001–25.)

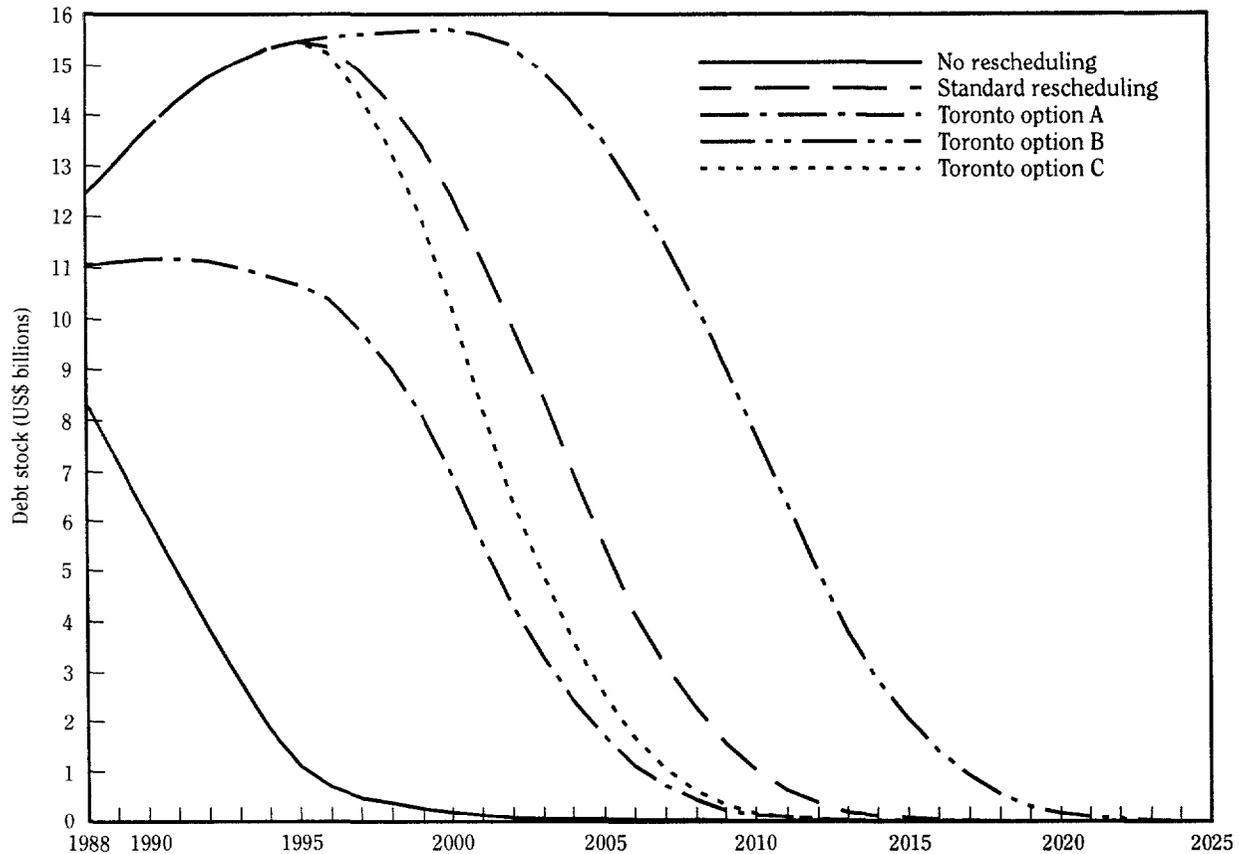
The amount of debt service rescheduled (columns 12 and 13) is simply the sum of annual consolidations of debt service during 1988–2000. The amounts shown variously overstate the actual contribution of each option to increasing net financial flows because they have not been reduced by the additional interest that accrues on rescheduled principal obligations and on consolidated interest obligations (which is shown in column 9) or by principal payments on debt service that may have been rescheduled during the first part of the consolidation period but has come due after the expiration of the grace period.

Notes

1. For these columns, the period covered is 1988–2025, whereas the rest of the table refers to the cumulative consolidation period, 1988–2000.

2. The NPV of debt-service payments without rescheduling is slightly less than the actual stock of debt at the end of 1987

Figure 3-2. Debt Stock—Toronto Terms for 22 SPA Countries, 1988–2025



because the discount rate is higher than the average interest rate on existing debt.

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Appendix table 3-1. *IDA-Only Countries of Sub-Saharan Africa: External Debt at Year End-1987*

Year end-1987	US\$ billions	Percentage share
1 Total debt	71.6	100.0
2 Long-term debt	59.4	83.0
3 Public and publicly guaranteed	58.2	81.3
4 Official Creditors	50.8	71.0
5 Multilateral	19.9	27.8
6 Concessional	15.4	21.5
7 Nonconcessional	4.5	6.3
8 Bilateral	30.9	43.1
9 Concessional	17.9	25.1
10 Nonconcessional	12.9	18.1
11 Private creditors	7.4	10.3
12 Paris Club eligible	6.0	8.4
13 Other	1.4	2.0
14 Private nonguaranteed	1.2	1.7
15 IMF	5.6	7.8
16 Short-term ^a	6.6	9.2
<i>Memorandum items</i>		
17 Concessional debt	33.3	46.6
18 Nonconcessional debt	38.2	53.4
19 Exposure of private creditors (13 + 14 + 16)b	9.2	12.8
20 Exposure of official creditors (4 + 12 + 15)b	62.4	87.2

Note: Guaranteed debt in this table is that guaranteed by debtor governments. Debt presumed to be guaranteed by creditor governments is shown as Paris Club eligible.

a. Including interest arrears on long-term public debt.

b. A small share of the short-term debt is likely to be from an official source or to carry an official guarantee.

Source: World Bank Debtor Reporting System.

The External Debt Difficulties of Low-Income Africa

Appendix table 3-2. Structure of External Debt for IDA-Only African Countries in 1987
(US\$ millions)

Debtor country	Official bilateral debt		Private-source debt				Official multilateral debt			Total
	Con-cessional	Non-con-cessional	Paris Club eligible	London Club eligible	Short-term	Other	Con-cessional	Non-con-cessional	IMF purchases	
Benin, People's Republic of	145	26	360	35	204	.	324	40	.	1,133
Burkina Faso	196	70	35	3	67	.	437	54	.	861
Burundi	201	3	20	.	37	.	440	55	.	755
Cape Verde	32	13	3	.	11	.	57	16	.	131
Central African Republic	148	87	26	.	28	.	230	29	37	585
Chad	55	22	42	0	38	.	146	4	10	318
Comoros	77	1	0	.	15	.	95	14	.	203
Djibouti	71	3	3	.	29	.	75	.	.	181
Equatorial Guinea	55	68	9	.	11	.	36	7	8	193
Ethiopia	1,106	45	257	140	94	9	811	66	63	2,590
Gambia, The	70	19	8	9	23	.	148	19	23	319
Ghana	662	41	192	110	108	.	994	238	778	3,124
Guinea	793	258	93	6	138	.	359	108	30	1,784
Guinea-Bissau	99	37	82	.	31	.	154	19	2	424
Kenya	1,328	327	722	56	591	496	835	1,213	381	5,950
Lesotho	12	5	14	3	4	.	175	29	.	241
Liberia	413	79	74	123	175	.	211	252	291	1,618
Madagascar	616	1,366	149	126	119	.	777	80	144	3,377
Malawi	194	99	24	25	98	.	660	152	110	1,363
Mali	1,119	31	55	5	94	1	624	12	75	2,016
Mauritania	929	263	120	7	119	.	375	174	47	2,035
Niger	251	276	102	129	75	254	446	55	91	1,679
Rwanda	136	0	11	.	39	.	396	2	.	583
São Tomé & Príncipe	30	18	1	.	4	.	35	0	.	87
Senegal	923	836	134	124	319	42	818	232	267	3,695
Sierra Leone	140	96	84	3	63	.	171	19	83	659
Somalia	1,343	187	66	20	92	81	566	25	154	2,534
Sudan	2,453	2,388	2,022	27	2,019	.	1,216	143	859	11,126
Tanzania	1,105	1,131	424	1	192	9	1,070	338	65	4,335
Togo	119	404	39	43	102	.	387	50	78	1,223
Uganda	153	112	58	.	60	.	662	130	229	1,405
Zaire	1,616	3,485	382	496	462	.	1,136	219	833	8,630
Zambia	1,340	1,143	389	221	1,089	.	524	738	957	6,400
Total	17,930	12,939	6,000	1,712	6,550	892	15,390	4,532	5,615	71,557

Note: For the purposes of this chapter, the set of low-income African countries is taken as those African countries whose access to the World Bank is limited to the World Bank's soft loan facility, the International Development Association (IDA). External debt data for Mozambique, an IDA-only country, were not available.

. Amounts less than one-half million.

a. Estimated; Paris Club includes all suppliers' credits and fixed rate bank loans.

b. Estimated; London Club includes only variable rate long-term bank loans to, or guaranteed by, the debtor country.

Source: World Bank Debtor Reporting System.

Appendix table 3-3a. *Grant Equivalent Flows and Grant Element of Flows to Keep Nonconcessional Debt-Export Ratio Constant at End-1987 Level for 19 Sub-Saharan African Countries Eligible for the Special Program of Assistance, 1987-95*

(US\$ billions, unless otherwise noted)

	1987	1988	1989	1990	1991	1992	1993	1994	1995
1. Nonconcessional equivalent debt	32.4	34.9	37.7	40.8	44.0	47.5	51.3	55.4	59.9
2. Debt-export (percent)	330	330	330	330	330	330	330	330	330
3. Exports of goods and services		10.6	11.4	12.4	13.4	14.4	15.6	16.8	18.2
4. Imports of goods and services excluding interest		15.8	17.1	18.4	19.9	21.5	23.2	25.1	27.1
5. Noninterest trade deficit (4 - 3)		5.2	5.6	6.1	6.6	7.1	7.6	8.3	8.9
6. Interest on debt ^a		2.9	3.1	3.4	3.7	4.0	4.3	4.6	5.0
7. Current account deficit, before grants (5 + 6)		8.1	8.8	9.5	10.2	11.0	11.9	12.9	13.9
8. Current account deficit ^b	2.6	2.8	3.0	3.3	3.5	3.8	4.1	4.4	
9. Grants required (7 - 8)		5.5	6.0	6.4	7.0	7.5	8.1	8.8	9.5
10. Grant element of loan and grant flows (percent) ^c		68	68	68	68	68	68	68	68

Appendix table 3-3b. *Grants Required to Return D/E to 200 Percent by 1995 for 19 Sub-Saharan African Countries Eligible for the Special Program of Assistance, 1989-95*

(US\$ billions, unless otherwise noted)

	1989	1990	1991	1992	1993	1994	1995
Target level of debt		36.3					
Debt in 1995 (from table 3-4)		59.9					
Present discounted value of difference		11.8					
Annual supplemental grants required to achieve D/E target							
11. 1989-95 (undiscounted total = 16.9)	1.84	2.01	2.19	2.38	2.60	2.83	3.09
12. Total grants required (11 + 8)	7.4	8.0	8.6	9.3	10.1	10.9	11.9
13. Current account deficit after grants ^b (2 - 11)	0.7	0.8	0.8	0.9	0.9	1.0	1.0
Grant element of loan and grant flows (percent)	91	91	91	91	92	92	92

a. Assuming an average interest rate of 9 percent on the nonconcessional equivalent external debt.

b. Deficit implied by the target change in debt, abstracting from exchange rate changes among major currencies. This is the current account deficit financed by nonconcessional borrowing. The current account deficit would be larger if it were financed by concessional loans, with a corresponding drop in grants. As long as the grant element (line 10) remains unchanged, however, the level of nonconcessional equivalent debt over time would be identical to that shown in line 1.

c. Line 9 divided by the sum of lines 9 and 8.

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Appendix table 3-4. Comparative Indicators for Rescheduling Options: All Creditors Each Option (US\$ millions)

Options	Net present value of total debt - service payments ^a 1988-2025			Remaining debt stock (end-2000)	Payments, 1988-2000							Amounts rescheduled in nominal terms 1988-2000		
	Principal	Interest	Relative grant element (percent) ^b		Total	Nonconcessional equivalent ^f	Principal		Interest			Total	Principal	Interest
							On original debt	On consolidated interest	On original debt	On consolidated debt service	Nominal value			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
1. No rescheduling	6,921	3,419	0	202	182	10,610	0	4,887	0	15,497	10,286	0	0	
2. Pre-Toronto rescheduling ^d	3,506	7,141	(3)	12,485	12,108	2,006	1,208	8,379	4,222	15,815	7,024	10,610	4,887	
3. Toronto options														
A. Partial forgiveness ^e	2,733	4,366	31	6,962	6,720	2,229	1,342	5,436	2,723	11,730	5,088	7,074	3,258	
B. Extended terms ^f	2,034	8,680	(4)	15,699	15,380	0	0	8,716	4,428	13,145	6,111	10,610	4,887	
C. Lower interest rates ^g	4,077	4,003	22	10,342	9,056	3,344	2,014	4,983	2,496	12,836	5,371	10,610	4,887	

Note: The figures presented here are based on data from the World Bank's Debtor Reporting System (DRS) and a World Bank rescheduling model. All rescheduling options are for serial rescheduling over a cumulative consolidation period of 13 years (1988-2000), 100 percent consolidation of principal and interest, and no rescheduling after 1987. The moratorium interest rate (9 percent) is the average dollar-denominated interest rate on rescheduled loans in 1988. Projections are based on March 1989 exchange rates and market interest rates and assume no new disbursements. The creditor countries are all bilateral creditors (including pari-passu creditors). The type of debt is total nonconcessional Paris Club eligible debt. The debtor countries are the 22 SPA-eligible countries: Benin, Burundi, Chad, Central African Republic, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Mali, Malawi, Mauritania, Mozambique, Niger, São Tomé & Príncipe, Senegal, Somalia, Tanzania, Togo, Uganda, and Zaire. Data exclude Mozambique.

- Based on 9 percent discount rate.
- Degree of concessionality of each option compared with no rescheduling.
- Face value less grant equivalent assuming a 9 percent discount rate.
- Rescheduling all debt service at market rates with 8 years' grace and 18 years' maturity, average Paris Club terms accorded to these countries in 1987-88.
- Annual cancellation of 1/3 debt service, rescheduling remaining debt service at market rates with 8 years grace and 14 years maturity.
- Rescheduling all debt service at market rates with 14 years grace and 25 years maturity.
- Rescheduling all debt service at 350 basis points below market rates with 8 years grace and 14 years maturity.

Appendix table 3-5. *Reductions in Debt Service Payments and Remaining Debt Stock under Rescheduling Options: All Creditors Each Option, 1988-2025*
(US\$ millions)

Options	1988	1989	1990	1991	1992	1993
1. No rescheduling						
Debt service due	3,883	1,978	1,789	1,673	1,534	1,394
Remaining debt stock, end period	8,735	7,201	6,083	4,969	3,888	2,839
2. Rescheduling all debt service at market rates ^a						
Reduction in debt service due compared with option 1	3,708	1,540	1,181	909	626	355
Remaining debt stock, end period	12,618	13,062	13,733	14,292	14,745	15,090
3. Toronto options						
A. Partial forgiveness ^b						
Reduction in debt service due compared with option 1	3,767	1,686	1,383	1,164	929	701
Remaining debt stock, end period	11,323	11,109	11,183	11,184	11,126	11,007
B. Extended terms ^c						
Reduction in debt service due compared with option 1	3,708	1,540	1,181	909	626	355
Remaining debt stock, end period	12,618	13,062	13,733	14,292	14,745	15,090
C. Lower interest rates ^d						
Reduction in debt service due compared with option 1	3,776	1,710	1,417	1,206	979	759
Remaining debt stock, end period	12,618	13,062	13,733	14,292	14,745	15,090
Nonconcessional	8,735	7,201	6,083	4,969	3,888	2,839
Options	2007	2008	2009	2010	2011	2012
1. No rescheduling						
Debt service due	7	6	4	4	3	2
Remaining debt stock, end period	36	31	28	25	23	21
2. Rescheduling all debt service at market rates ^a						
Reduction in debt service due compared with option 1	(1,374)	(1,111)	(872)	(656)	(467)	(307)
Remaining debt stock, end period	3,154	2,280	1,576	1,032	635	370
3. Toronto options						
A. Partial forgiveness ^b						
Reduction in debt service due compared with option 1	(500)	(336)	(203)	(114)	(63)	(36)
Remaining debt stock, end period	711	419	239	137	79	44
B. Extended terms ^c						
Reduction in debt service due compared with option 1	(2,135)	(2,154)	(2,140)	(2,086)	(2,001)	(1,896)
Remaining debt stock, end period	11,560	10,387	9,119	7,789	6,423	5,039
C. Lower interest rates ^d						
Reduction in debt service due compared with option 1	(703)	(475)	(289)	(162)	(91)	(52)
Remaining debt stock, end period	1,048	613	344	193	107	56
Nonconcessional	36	31	28	25	23	21

Note: The figures presented here are based on data from the World Bank's Debtor Reporting System (DRS) and a World Bank rescheduling model. All rescheduling options are for serial rescheduling over a cumulative consolidation period of 13 years (1988-2000), 100 percent consolidation of principal and interest, and no rescheduling after 1987. The moratorium interest rate (9 percent) is the average dollar-denominated interest rate on rescheduled loans in 1988. Projections are based on March 1989 exchange rates and market interest rates and assume no new disbursements. The creditor countries are all bilateral creditors (including pari-passu). The type of debt is total nonconcessional Paris Club eligible debt (including pari-passu creditors). The debtor countries are the 22 SPA-eligible countries: Benin, Burundi, Chad, Central African Republic, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Mali, Malawi, Mauritania, Mozambique, Niger, São Tomé & Príncipe, Senegal, Somalia, Tanzania, Togo, Uganda, and Zaire. Data exclude Mozambique.

a. With 8 years' grace and 18 years, maturity, average Paris Club terms accorded to these countries in 1987-88.

b. Annual cancellation of 1/3 debt service, rescheduling remaining debt service at market rates.

c. Rescheduling all debt service at market rates with 14 years grace and 25 years maturity.

d. Rescheduling all debt service at 350 basis points below market rates with 8 years grace and 14 years maturity.

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1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1,214	889	503	276	142	123	100	85	71	14	12	10	10
1,865	1,122	706	481	376	281	202	132	70	61	53	46	40
56	(363)	(997)	(1,521)	(1,810)	(1,946)	(2,056)	(2,209)	(2,229)	(2,214)	(2,155)	(2,061)	(1,761)
15,330	15,476	15,368	14,932	14,294	13,473	12,485	11,259	9,912	8,512	7,043	5,537	4,205
442	54	(579)	(1,121)	(1,419)	(1,562)	(1,677)	(1,834)	(1,651)	(1,343)	(1,126)	(905)	(692)
10,842	10,691	10,394	9,812	9,051	8,096	6,962	5,608	4,333	3,320	2,440	1,710	1,135
56	(363)	(811)	(1,073)	(1,226)	(1,257)	(1,291)	(1,395)	(1,563)	(1,802)	(1,926)	(2,020)	(2,090)
15,330	15,476	15,562	15,614	15,651	15,679	15,699	15,629	15,391	14,939	14,317	13,539	12,615
506	124	(615)	(1,321)	(1,727)	(1,972)	(2,183)	(2,430)	(2,221)	(1,816)	(1,541)	(1,252)	(966)
15,330	15,476	15,239	14,478	13,389	12,003	10,342	8,346	6,465	4,950	3,634	2,542	1,683
1,865	1,122	706	481	376	281	202	132	70	61	53	46	40
2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	1	1	1	1	1	1	1	1	1	1	1	1
20	20	19	19	12	4	4	4	3	3	3	2	2
(183)	(102)	(57)	(33)	(17)	(5)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
210	120	70	40	17	4	4	4	3	3	3	2	2
(19)	(6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
26	20	19	19	12	4	4	4	3	3	3	2	2
(1,615)	(1,260)	(1,014)	(793)	(596)	(425)	(279)	(166)	(93)	(52)	(30)	(16)	(5)
3,821	2,859	2,064	1,426	927	561	321	176	95	49	22	7	2
(28)	(9)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
29	20	19	19	12	4	4	4	3	3	3	2	2
20	20	19	19	12	4	4	4	3	3	3	2	2

Comment

Stephen A. O'Connell

Charles Humphreys and John Underwood provide a useful introduction to the debt problem facing low-income Africa. I will highlight what I found most interesting in the paper and identify some analytical issues that are important in the Sub-Saharan African context but are only partially addressed, if at all, in the literature on highly indebted countries.

The authors establish that the debt problem in low-income Africa is severe, and that it differs from the crisis in the highly indebted countries in two key respects: it has older origins and it involves primarily official creditors. The point here is that the debt crisis in low-income Africa is part of a deeper development crisis. The most revealing indicator is growth per capita income: the positive growth achieved in the 1960s now looks like an aberration from the entire post-independence period perspective. Per capita incomes in these countries will not be much different in the early 1990s than they were in the early 1960s, even under optimistic assumptions about debt relief and export growth. Much of low-income Africa is not concerned with restoring growth, but instead with one of establishing—essentially for the first time in the post-independence period—secular growth in per capita incomes.

The development crisis in low-income Africa has an intellectual as well as an economic dimension.¹ The African crisis has come under intense scrutiny by the donor community since 1980, with the result that official debt relief is now beginning to be mobilized in exchange for fiscal reform, removal of anti-agricultural price distortions (including overvalued exchange rates), and greater reliance on markets (for example, through privatization of government enterprises and trade liberalization). This tidy prescription, however, obscures the keen sense of uncertainty of participants on all sides about African growth prospects and the probable outcome of relief-supported economic reform programs. There is a strong sense that practice, as embodied in the various initiatives of official creditors, is ahead of economic theory.

The Growth Puzzle

Some writers have recently observed that the African experience of the past three decades is a glaring anomaly from the standpoint of standard growth theory. To set up a useful straw man (or straw model), consider what the simplest intertemporal optimizing model with a neoclas-

sical production function would show about growth prospects in low-income Africa.

These countries are among the poorest in the world. They should therefore be natural borrowers, having extremely high domestic returns to investment. This should mean high growth in per capita incomes in the transition to steady-state levels of high capital per worker and substantial participation by foreign capital markets in supplementing domestic saving along the transition.

But in reality, no region of the world has grown more slowly since the mid-1960s (including the group of low-income countries outside of Africa). As the authors point out, private creditors have largely been unwilling to lend to low-income African countries without a guarantee from a developed-country export credit agency. And when one looks at ICORs, one can only admire, in grim retrospect, private banks' judgment in staying out of the region.

Infrastructure and Markets

Of the three failures of the straw model, the most telling is the absence of private creditors, since it suggests that this is the wrong model for analyzing growth in poor countries (the other failures might be explained by bad luck, and low-income Africa has had plenty, particularly in the last decade).

What is missing here? Consider first infrastructure's role in development. Long-standing traditions exist in development economics that view transport services, education, health, and financial services as complementary inputs to domestic capital, implying that low levels of these inputs can be bottlenecks limiting the return to capital accumulation.

Each of these forms of infrastructure throws off important externalities and has characteristics of a public good. This gives government a natural role, since private markets will tend to underprovide public goods or goods with positive externalities. This role would seem particularly important in a growth context, given the dynamic nature of infrastructure externalities: today's investment in human capital raises labor quality today and leaves a higher stock of human capital to begin with next period, which may raise the productivity of tomorrow's human capital investment. Decisions on infrastructure can therefore have long-lasting effects on the path of output, and perhaps even on growth rates.

The World Bank and other donors, particularly the United States, have taken a strong implicit view that the externalities in infrastructure investments (and in devel-

opment more generally) operate most strongly in private markets. This view leads to the prescription that governments remove themselves, to the degree possible, from production and trade—thus promoting private market development—while focusing on the provision of basic infrastructure. While this view has basic appeal, the issues are complex, and there is a high potential return to work that seeks to identify the nature of dynamic externalities, and what features of market organization are important for capturing them. Specific policy issues, such as the relative benefits of import substitution and trade liberalization, seem to depend crucially on these relationships.

What is the role of private external capital markets in helping governments capture infrastructure or externality-led growth? Along with externalities, infrastructure investments often involve large fixed costs and long gestation lags. None of these features, however, rules out high social returns and therefore a potential role for private international capital markets. It does seem clear that borrowing must be long term, and that it should be public borrowing, or publicly guaranteed borrowing. The lag problem suggests that there may be some reason for reschedulings that provide significantly longer maturities and grace periods than are currently provided, even if (like option B described in the paper) these arrangements do not lower the present value of repayments. The puzzle remains however why, if socially profitable infrastructure investments are available in these countries, borrower government guarantees have not been enough to attract private lenders.

Finance for Development?

Sovereign debt theory states that private banks will not lend unless they anticipate sufficient bargaining power over the sovereign borrower (or its guarantor) to recover the cost of funds. This suggests two reasons for the abstinence of private creditors in low-income Africa. First, poor African countries simply do not have projects (including infrastructure investments, and factories or policy reform) with above-market expected rates of return, given uncertainty about exogenous events. Second, such projects exist, but governments (or their successors) cannot be induced to carry them through or to appropriate the returns on behalf of creditors in a sufficiently wide range of states of nature.

While the first interpretation goes profoundly against the optimistic instincts of development economists, it is at least conceivable that existing technologies are inadequate to generate bankable projects given the adverse demographic and physical characteristics of some of these countries. This would lead to the “pure” case for multilateral (or even bilateral) development aid based on

externalities (for creditor countries) associated with African growth and development. The type of project that such aid should support is presumably not simply the transfer of blueprints, but instead projects like infrastructure and agricultural research and development, aimed at overcoming fundamental barriers posed by the demographical and physical environment.

The second interpretation, which addresses moral hazard problems and limitations on the penalties banks can impose, seems to be extremely relevant in explaining private-lending risks to low-income Africa. At the most obvious level, a number of countries in low-income Africa have been openly hostile to foreign private participation in their economies. This is particularly true with respect to direct investment, but such a stance must also affect the political risk perceived by commercial bank lenders.

More fundamentally, sociologists and political scientists suggest that many low-income African states are “soft,” constrained by the need to buy political support through economic concessions to powerful interest groups. Outwardly hegemonic, governments lack the legitimacy needed to implement growth-oriented policies (Ravenhill 1986). This issue has important implications for interpreting the notion of “debt overhang” in low-income Africa and conditionality’s role in official debt relief.

Key in most formal analyses of the debt overhang is debt relief’s effect on the borrower’s incentives to invest. In low-income Africa, the “investments” in question are policy reforms that are costly today but possibly productive over time. What is needed to design such reforms is normative models of growth and resource allocation and positive models that realistically treat the objectives and constraints of governments. If “soft” governments are concerned not only about growth, but also about their own tenure, and perhaps disproportionately about the welfare of particular groups, adjustment programs—impeccable by the standards of normative models—may fail repeatedly in practice. The challenge is to identify policies that have desirable growth-promoting properties and also create immediate and sustained political constituencies and therefore have a chance of actually being implemented.

Commodity Dependence

As the authors observe, commodity price fluctuations have been key in the African debt problem. Government expenditures in many countries rose dramatically in the face of commodity booms, and then fell only gradually, with a buildup of debt, as prices collapsed. While export diversification will eventually reduce exposure to terms of trade fluctuations, the reality in the medium term is

that commodity dependence will continue to pose substantial problems for most of low-income Africa. For some countries (especially the agricultural exporters, as opposed to the mineral exporters), exposure may even increase in the medium term as policies discriminating against the agricultural sector are dismantled as part of structural adjustment efforts.

The problem is designing sustainable and appropriate policies for handling commodity price fluctuations. It is tempting to characterize past behavior of many debt-ridden countries in low-income Africa as reflecting the assumption that all terms of trade improvements are permanent and all deteriorations temporary. But since the data exhibits no basis to justify such a view of commodity price movements, and no reason exists to suppose that African policymakers are systematically poor price forecasters, the challenge is one of understanding the economic and political constraints that generate such superficially irrational behavior.

The authors point out that creditworthiness in private markets, while sporadic at best, appears to be strongly linked to commodity prices. Given the central importance of commodity price fluctuations for these countries, it is somewhat surprising that one does not see more commodity-based finance. If moral hazard problems could be overcome, there would seem to be a strong case for lending with repayments linked to commodity prices, based on the preferable risk-sharing attributes of such contracts.

The Behavior of Official Creditors

Though commercial banks have not been willing to lend directly to many low-income African countries (except for short-term trade credits, and in some cases during commodity booms), export credit agencies in the developed countries have. As the authors point out, much of current debt service is nonconcessional interest on rescheduled obligations that originated as export credits or export credit guarantees.

The straw model views the borrower as facing a well-defined cost-of-capital schedule. But it is clear that offi-

cial creditors, including export credit agencies, have different objectives than commercial banks. Official creditors give weight not only to narrowly defined risk and return, but also (and perhaps primarily) to promotion of home exports and to such foreign policy objectives as providing aid and buying friendships. The implications are both negative and positive.

On the negative side, aid-financed development (and by implication, debt relief) may be particularly prone to high ICORs given the need to satisfy the donor interests. In fact, the World Bank itself has identified donor pressures as a key source of inefficiencies in investment in low-income Africa. But on the positive side, that official creditors are capable of looking beyond the bottom line means many of the blockages to commercial bank coordination may not operate as strongly in the case of official creditors. This presents an institution like the World Bank with a real opportunity to contribute to the resolution of the low-income Africa crisis by informing and coordinating the debt relief efforts of bilateral official creditors.

Note

1. Much intellectual ferment followed the publication of the World Bank's *Accelerated Development in Sub-Saharan Africa* (1981), which differed in style and substance from the views of African heads-of-state as expressed in the 1980 *Lagos Plan of Action*. For a balanced overview of the issues, see Ravenhill (1986) and Berg and Whitaker (1986).

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Dealing with Debt: The 1930s and the 1980s

Barry Eichengreen and Richard Portes

The history of foreign lending in the 19th and 20th centuries offers a rich lode of evidence on the operation of international capital markets. The last hundred years have been punctuated by a series of crises—in the 1870s, 1890s, and 1930s, to cite three instances—bearing a striking resemblance to the debt crisis of the 1980s. For the historian, that experience provides an exceptional opportunity to study the long-term evolution of international markets and their adaptation to repeated shocks. For the economist, it provides an opportunity to reflect on how the current debt crisis may be resolved. It is not possible to extrapolate directly from historical experience since institutional aspects of the lending process, including the relative importance of bank and bond finance, the rise of supranational agencies such as the World Bank and the International Monetary Fund, and the role of creditor-country governments in re-scheduling have changed fundamentally over the past century. But even though the extent of institutional variation renders naive the hope that one might be able to draw simple “lessons from the past,” it still offers the only evidence we have on the efficiency and distributional effects of different approaches to organizing international lending and readjusting existing debts.

In a series of papers, we have examined the interwar debt crisis from this perspective. Our analysis has spanned the lending of the 1920s, the defaults of the 1930s, and the debt readjustments of the 1940s and 1950s (Eichengreen 1988, 1989, and Eichengreen and Portes 1986, 1987, and forthcoming, a and b). This paper summarizes and extends the main conclusions of that research. The discussion will be organized around nine major findings.

- Interwar investors exhibited sophistication and foresight at the lending stage. Our analysis suggests that the past repayment record of a country, its current political circumstances, and its economic policies all figured in the determination of risk premiums on foreign bonds

floated in the 1920s. Little evidence exists that capital markets have grown more sophisticated or that banks have a comparative advantage in processing information. On the contrary, the bond market’s response to borrower characteristics during the 1920s bears a remarkable resemblance to experience during the post-1970 era of bank finance.

- Neither monocausal explanations nor, for that matter, multivariate explanations limited to economic variables can explain the incidence and extent of default. Although authors like Diaz-Alejandro (1983) and Fishlow (1985) point to the magnitude of the external shock, proxied typically by terms of trade deterioration, as a leading indicator of default, other economic variables, including the size of the debt burden and domestic policy response, and noneconomic variables, such as proximity to a major military power and international political links, are also relevant.

- The implications of different debt management strategies for subsequent macroeconomic performance remain difficult to isolate. In the 1930s as in the 1980s, maintaining debt service tended to be associated with fiscal austerity, import compression, and export subsidies, while the decision to suspend payments was often accompanied by fiscal expansion, monetary reflation, and import-substituting industrialization. This wholesale re-orientation of a country’s macroeconomic stance makes it difficult to differentiate the effects of external debt management from the entire constellation of policies. The accumulation of evidence nonetheless points to the conclusion that countries that interrupted service on their external debts recovered more quickly from the Great Depression than did countries that resisted default. This contrasts with the experience of the 1980s, for which it is even more difficult to discern a relationship between different debt management strategies and subsequent macroeconomic performance.

- Countries that defaulted in the 1930s did not have inferior capital market access after World War II. Following the conclusion of negotiated settlements with their creditors, countries that previously had suspended interest payments and amortization were offered virtually identical access to the capital market as were countries that maintained debt service without interruption. This is not to suggest that default was without costs in terms of loss of market access, only that those costs were not borne differentially by countries that interrupted debt service once they reached settlement agreements with the creditors. Many of the costs were external to defaulting countries: neither defaulting nor nondefaulting debtors had significant access to portfolio capital in the decades immediately following World War II.

- Readjustment of defaulted debts entailed a protracted negotiation process. The analogy with Chapter 11 corporate bankruptcy proceedings in the United States, in which default and readjustment permit a clean break with the past, is no more applicable to the 1930s than to the 1980s. In many cases, interruptions to debt service were sporadic, and uncertainty over transfers lingered for decades.

- In contrast to the experience of the 1980s, interwar default in some cases led to a substantial reduction of transfers from debtor to creditor. What we might call “selective debt relief” was, however, compatible with a reasonable overall rate of return to the creditors. The risk premiums charged *ex ante* sufficed to elevate the average realized rate of return on sovereign loans above the yields on British and U.S. Treasury bonds. Losses to creditors on provincial, municipal, and corporate loans, although more extensive, still permitted British investors to reap positive *ex-post* returns.

- Despite the contrast conventionally drawn between government involvement in debt negotiations in the 1930s and the 1980s, creditor-country governments often were intimately involved in interwar debt readjustment. The difference between the 1930s and 1980s lies not in the extent of government intervention but in its direction. In recent years creditor-country governments have exerted continuous pressure on the debtors to maintain service on their external debts. In the 1930s and 1940s, in contrast, creditor-country governments pressured debtors and creditors alike.

- Global schemes to short-circuit protracted bilateral negotiations proved unavailing. Nearly every element of the global plans proposed in the 1980s—a special international lending facility, matched injections of private and public funds, conversion of existing assets into new ones featuring different contingencies—was first suggested in the 1930s. Ultimately, those global schemes foundered on the issues of who should fund and control their administration. Failure of the global plans of the

1930s does not leave one optimistic about their prospects in the 1990s.

- Unlike global plans, market-based debt reduction made a useful contribution to resolving the debt crisis of the 1930s by reducing the debt overhang and eliminating marginal creditors. Little evidence exists that debt buybacks had a significant impact on secondary market prices, whose movement seems to have been influenced primarily by changes in the prospects for a negotiated settlement. In contrast to their public statements of disapproval, creditor organizations were willing privately to entertain buybacks out of reserves as part of the readjustment process.

The Lending Stage

The international capital markets in the 1920s are accused of having engaged in all manner of excesses. The issue houses pushed questionable obligations on hesitant borrowers and questionable bonds on otherwise cautious investors.¹ New entrants into the supply side of the market—large New York banks that “foresaw a series of lean years in wholesale and industrial banking, and jumped on the new bandwagon of retail banking”—were particularly guilty of such infractions (de Cecco 1985, p. 57).² But they were not alone. Private investors discriminated inadequately between good and bad credit risks (U.S. Senate 1932). Governments failed to monitor the industry adequately and to discourage dubious activities, even erring in the other direction as when, for instance, they encouraged the flotation and purchase of German bonds (Schuker 1988).

So it is alleged. Unfortunately, most of these assertions are difficult to test with precision. Successive authors have cited the poor *ex-post* performance of interwar loans as proof of the interpretation. There are obvious dangers of drawing conclusions on the basis of 20–20 hindsight, however. There was no way that investors in the 1920s could anticipate an unprecedented macroeconomic crisis on the scale of the Great Depression. That their loans performed poorly given the exceptionally poor state of the world does not suffice to impugn the lending process.

It is more informative to consider the market’s *ex-ante* assessment of foreign lending risks. Table 4–1 contains estimates of the determinants of spreads over risk-free rates on foreign loans floated in New York and London in the 1920s. This analysis utilizes *ex-ante* yields to maturity on two samples of foreign bonds.³ The regressions relate the spread between those *ex-ante* yields and contemporaneous Treasury bond rates (consol rates for the United Kingdom) to country characteristics, current economic policies, and shifting capital market conditions. The specification parallels Edwards’ (1986), who

Table 4-1. *Determinants of Spread over Risk-Free Rate*

	<i>Dollar bonds</i>		<i>Sterling bonds</i>	
	<i>Coefficient</i>	<i>Standard error</i>	<i>Coefficient</i>	<i>Standard error</i>
Constant	2.61	0.31	1.97	0.46
Value/exports	-0.07	0.24	0.0007	0.0007
Municipal	0.11	0.18	—	—
State	0.07	0.17	—	—
Corporate	0.76	0.16	—	—
National bank	0.04	0.34	—	—
Other bank	0.14	0.28	—	—
Dominion etc. central	—	—	-1.52	0.38
Dominion etc. local	—	—	-1.25	0.69
Foreign corporate stocks	—	—	-0.45	0.25
Trade surplus	-0.20	0.25	-0.56	0.40
Budget surplus	-0.80	0.40	-0.12	0.41
1921	-0.12	0.26	—	—
1922	0.04	0.25	—	—
1923	-0.01	0.36	—	—
1924	0.17	0.29	0.18	0.48
1925	0.19	0.27	0.39	0.52
1926	0.40	0.26	0.09	0.44
1927	0.38	0.26	-0.01	0.45
1928	0.07	0.27	0.22	0.45
1929	0.06	0.28	0.20	0.48
Western Europe	-0.73	0.18	0.33	0.26
Eastern Europe	1.21	0.26	1.15	0.33
Canada	-1.38	0.19	-0.69	0.85
Central America	-0.79	0.29	—	—
South America	0.50	0.21	0.38	0.67
Japan	0.05	0.36	-0.03	0.38
Australia	-0.91	0.45	-0.29	0.67

Note: Dependent variable is spread. For dollar bonds 1920 is the omitted year, while for sterling bonds 1923 is omitted. The omitted country is Germany, while national government is the omitted category of borrower.

<i>R</i> -squared	0.69	0.91
Standard error of regression	0.00654	0.3876
Number of observations	207	43

Sources: Eichengreen and Portes (forthcoming, b); *Stock Exchange Yearbook*; Young (1931).

sought to address Guttentag and Herring's (1985) contention that rates charged foreign borrowers on bank loans in the 1970s could not have incorporated adequate country risk premiums because they varied so little across loans. Edwards tested this hypothesis for both bank loans and bonds by regressing spreads on indicators of country risk such as the magnitude of the debt burden, the level of investment, measures of debtor-government policy, and other borrower and loan characteristics. Although he found for the bond market that the spread rose with the debt-GNP ratio and fell with the investment-GNP ratio, consistent with the hypothesis that lenders distinguished among good and bad credit risks, his other coefficients were insignificant, suggesting that investors paid inadequate attention to other indicators of country risk.⁴

The regressions in table 4-1 seek to replicate the essence of this analysis for the 1920s. The spread on each loan is related to the debt's value (scaled by exports), to the category of borrower (national governments versus others), to the year in which the loan was issued, and to the borrower's geographical location. Also included are two measures of current economic policies and conditions in the borrowing country: the trade balance and the budget balance. For the 1920s it is not possible to construct a measure of the investment share of GNP like that used by Edwards for the 1970s and 1980s. But neither were investment statistics available to prospective bondholders. Instead, contemporary investment manuals urged investors to focus on trade and budget balances as the two most important indicators of a country's capacity to generate and mobilize the foreign exchange required to service external debts.⁵

The spread on the dollar loans in the first column varies considerably, with a mean of 2.6 percentage points and a standard deviation of 1.1. The omitted alternatives from the vectors of dummy variables (which are picked up by the constant term) are 1920, Germany, and national government bonds. The coefficients on years indicate little tendency of the spread to widen or narrow, as one would have expected had foreign lending come into or fallen out of fashion.⁶ Relative to the omitted alternative (national government loans), higher spreads were charged on loans to states, municipalities, corporations, and banks, which is consistent with the ex-post evidence that loans to national governments outperformed these other loans from the creditors' point of view. (This is discussed below, under "Terms of Settlement.") Only the coefficient on loans to corporations is significantly different from that on the omitted alternative, however. In the case of sterling loans, where the omitted alternative is government-guaranteed British funds, again there is evidence of informed behavior: higher risk premiums were charged on loans to local governments than on loans to central governments, and on foreign than on Dominion issues. These results contrast with those of Edwards for the 1970s; he detected no discernible difference in spreads on loans to different categories of borrowers.

In the dollar-bond equation, the coefficients on regions suggest, not surprisingly, that the best bond market reputations were enjoyed by Canada, Central America, and Western Europe. Both Canada and Western Europe had unblemished records of foreign debt servicing, while the small Central American countries economically or politically dependent on the United States had little choice in the matter.⁷ Conversely, the Eastern European nations were charged the largest risk premiums. These geographical variations are suggestive of bondholder sophistication, insofar as the pattern of ex-post

returns indicates that loans to Eastern Europe were relatively risky and those to Western Europe and Central America were relatively safe. With hindsight, only the German loan risk premium is anomalous. The spreads on loans to Germany, the leading borrower of American funds, were smaller on average than those on loans not only to Eastern Europe and South America but to Australia and Japan as well. This is consistent with the view of the U.S. State and Commerce Departments, voiced in 1925, that American investors underestimated the risks associated with investment in German bonds (Eichengreen 1988).

The results for sterling bonds are basically consistent. The average spread is smaller (1.8 percentage points compared with 2.6 for the United States), perhaps reflecting the perception that British loans were less risky because of their different geographical destination; the standard deviation of the spread is virtually identical to that for dollar bonds (1.0 versus 1.1). High risk premiums were charged the Eastern European countries, while Latin America, Greece, and Germany stood in the middle, and the Dominions and Japan enjoyed the lowest costs of borrowing.

The dummy variables for countries and regions capture political factors influencing default and, presumably, reputational factors related to past repayment performance. In a well-functioning market, investors should also take into account current economic policies. Coefficients on the trade and budget balances speak to this question. In equations for both sterling and dollar bonds, their coefficients have the anticipated negative signs (larger trade and budget surpluses tended to reduce spreads), although only the budget surplus in the equation for dollar bonds differs significantly from zero at standard confidence levels.⁸

Absolute statements about market efficiency are always problematic, but comparative evaluations are more straightforward. In this case, there is no evidence that investors were less discriminating in the 1920s than in the 1970s. There is no evidence that either banks or the bond market possessed a comparative advantage in pricing foreign loans.

Causes of Default

The debt crisis of the 1930s unfolded in three stages (Eichengreen and Portes 1987). The first, spanning calendar year 1931, was dominated by Latin American defaults. Interest and amortization payments were partially suspended by every South American country except Argentina. In the second stage, from early 1932 to mid-1933, default spread to Southern and Eastern Europe. The proportion by which payment fell varied across countries, but most countries were affected. The third

stage, whose dawn coincided with the Monetary and Economic Conference of 1933, was dominated by default by Germany, the largest foreign debtor.

As in the 1980s, the debt crisis of the 1930s did not have a single cause. Liberal foreign borrowing in the 1920s increased the debtor countries' vulnerability to external shocks. Central government debt-export ratios in many Latin American countries had risen to more than 100 percent by 1928, and interest and amortization on this component of the debt alone would have required 10 percent of export receipts.⁹ In certain cases, debt-export ratios were considerably higher (table 4-2). Germany had reparations and commercial debts with which to contend; in 1928 reparations transfers plus commercial

Table 4-2. *Central Government Debt-Export Ratios* (percentage points)

	1929	1931	1933	1935
<i>Heavy defaulters</i>				
Brazil	153	163	215	127
Bulgaria	263	288	n.a.	416
Chile	102	327	842	573
Colombia	58	101	123	67
Costa Rica	96	130	174	158
El Salvador	106	153	183	157
Germany	7	34	62	42
Greece	415	750	633	474
Guatemala	65	97	162	123
Hungary	124	251	347	256
Poland	135	212	472	355
Uruguay	147	185	212	148
Unweighted averages	139	224	311	241
<i>Light defaulters</i>				
Argentina	49	73	113	81
Australia	162	684	621	585
Austria	78	157	310	274
Belgium	87	111	190	240
Canada	44	82	98	107
Czechoslovakia	26	48	119	98
Denmark	45	56	57	54
Finland	52	128	74	51
France	n.a.	n.a.	22	18
Italy	12	17	28	30
Japan	69	132	76	57
New Zealand	278	454	400	350
Nicaragua	30	42	53	46
Norway	107	165	133	118
Spain	43	95	137	157
Venezuela	5	1	1	1
Unweighted averages	72	150	152	142

n.a. Not available.

Note: War debts and reparations are excluded for France. Figures for Australia starting in 1931 include state debts assumed by the federal authorities. Those for Brazil and Chile include selected state and local debts assumed by the federal authorities.

Source: League of Nations, *Annual Statistical Yearbook* (various issues).

debt service required more than 20 percent of gross export receipts (Harris 1935).

Starting in 1928 the debtor countries were battered by a series of external shocks that increased their transfer burden and reduced their debt-servicing capacity. First was the sudden decline in lending by the United States and other creditor nations. The mounting boom on Wall Street diverted American funds from foreign to domestic uses and, like a powerful suction pump, siphoned off liquidity from the rest of the world. At the beginning of 1928 approximately US\$800 million was required to meet foreign debt-service payments on dollar debts.¹⁰ Net short- and long-term foreign lending by the United States exceeded \$1 billion in 1927 and reached nearly \$700 million in 1928. Thus, despite the collapse of new lending in summer 1928, the new money provided between January and June nearly sufficed to finance that year's dollar debt-service costs. In 1929 net short- and long-term lending by the United States turned negative, and the \$800 million bill came due. As in the 1980s, part of the problem was the suddenness of the shift.

There could have been no less opportune time for the collapse of global commodity markets. Primary commodity exporters had already come under strain. Their terms of trade had deteriorated steadily over the course of the 1920s. These then dropped like a stone with the onset of the Depression. Lewis (1949, p. 56) provides the sad litany: "From 1929 to 1930 the average price of wheat fell by 19 percent, cotton 27 percent, wool 46 percent, silk 30 percent, rubber 42 percent, sugar 20 percent, coffee 43 percent, copper 26 percent, tin 29 percent; the index of prices of commodities entering world trade fell from 1929 to 1932 by 56 percent for raw materials, 48 percent for foodstuffs, and 37 percent for manufactures." It is these developments that Diaz-Alejandro (1983) and Fishlow (1985) stress as determinants of default. They emphasize first that the collapse of real export revenues was so severe that countries could avoid default only through the most decisive action. They suggest that the magnitude of the terms of trade decline determined for whom the necessary steps were still feasible. Argentina and Australia continued to service their debts, for instance, because as wheat exporters they suffered milder terms of trade declines than countries like Brazil, which exported coffee, or Bolivia, which exported tin.

The impact of the export price collapse on foreign exchange receipts was reinforced by the contraction of export volumes. Between 1929 and 1932, world trade in foodstuffs fell by 11 percent, trade in raw materials by 19 percent (Lewis 1949, p. 58). These observations are consonant with the explanation for default that emphasizes the magnitude of the external shock.

Empirical analysis of the incidence and extent of default suggests, however, that Diaz-Alejandro's "commod-

ity lottery" was only one of several determinants of the response of borrowing countries. Regressions relating the percentage of government and government-guaranteed debt in default (for all levels of government) at various points in the 1930s to a vector of country characteristics confirm the importance of the commodity composition of exports and the export price shock (Eichengreen and Portes 1986). More severe terms of trade declines increased the probability of default. But in addition to the commodity lottery, default was significantly related to other variables. Holding constant the terms of trade decline, more heavily indebted countries were more likely to default.

In addition to these changes in the debt burden and in debt-servicing capacity, however, two other sets of variables conditioned the default decision. First, the domestic response to the external shock played an important role. Countries that prevented large government budget deficits from emerging, through either tax increases or expenditure reductions, were less likely to default than their spendthrift counterparts. To put the point another way, governments least willing or able to retrench fiscally were least able to avoid default. Second, political aspects of the decision whether or not to suspend debt-service payments appear to retain a role even after controlling for the country's economic characteristics. For instance, our equations significantly underpredict the level of debt service maintained by Australia. That Australia never defaulted on its external debt (notwithstanding attempts to suspend interest payments by a left-leaning state government in New South Wales in 1931, which were countermanded by the national authorities) can be attributed to political ties to Britain, to which the vast majority of the debt was owed.

This analysis provides a nuanced picture of the debt-servicing decisions of borrowing countries. One cannot sustain the argument that the severity of the external shock left each defaulting country without other options. Nor does it appear that the only factor differentiating the countries' situations was the extent of the terms of trade decline. The external shock's severity, the economy's vulnerability, the domestic policy response, and political factors combined to influence the decision.

Macroeconomic Repercussions of Default

In the 1930s as in the 1980s, efforts to maintain external debt service entailed import compression to generate foreign exchange, and a surplus on the noninterest current account of public authorities to mobilize receipts for government and government-guaranteed debt service. As tax revenues declined with the deepening Depression, governments were forced to impose draconian cuts on current expenditures to avoid the emergence of unman-

ageable public sector deficits. Export revenues declined, and international reserves were run down, forcing the authorities to adopt increasingly stringent monetary stances to strengthen the balance of payments. In combination, these policies would be expected to have depressed domestic demand in general and investment demand in particular. Governments willing to suspend interest payments had more scope for adopting monetary and fiscal policies conducive to recovery.

There are obvious parallels with the 1980s, when the Latin American debtors, in a desperate effort to maintain service on their debts, have been forced to adopt austerity policies that have resulted in nearly a decade of slow growth. But many observers have cautioned the debtors that a moratorium or default, although it may offer immediate macroeconomic benefits in terms of scope for reflationary policies, may also have macroeconomic costs in terms of disruptions to export and capital market access. Exporters may encounter difficulties in obtaining trade finance or suffer retaliatory trade sanctions.

For the 1930s it is possible to compare economic performance across countries adopting very different policies toward their external debts (figures 4-1 and 4-2).¹¹ Both GNP and industrial production expanded more quickly in the "heavy defaulters" after 1931. The simple comparison suggests that countries that defaulted recovered more successfully from the ravages of the Great Depression.

There are several reasons to treat the comparison with caution. For one, the constellation of policies influencing growth may have differed across countries in ways that are not attributable to their different debt management strategies. Moreover, there is the problem of sorting out the direction of causality: countries suffering more severe declines in income were more likely to default; now it seems that defaulting countries enjoyed more rapid income growth. There is nothing incompatible in the two arguments, but two-way causation poses identification problems. Even if the problems posed by the joint endogeneity of default and output growth can be solved,

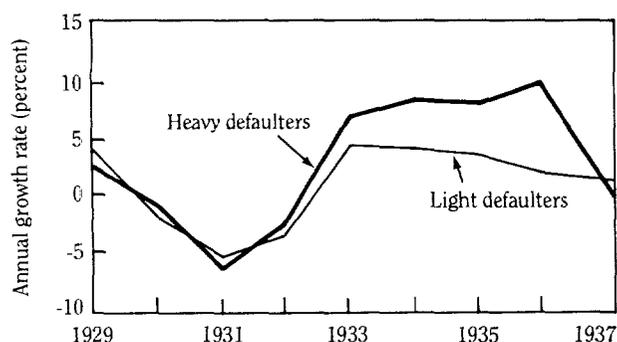
Table 4-3. *Default and Economic Performance in the 1930s: A Statistical Description*

	Ordinary least-squares regression			Two-stage least-squares regressions		
Terms of trade	-9.67 (6.45)	-18.89 (8.35)	-8.24 (5.63)	-10.39 (9.32)	-3.98 (11.51)	-4.41 (7.08)
Percent of debt in default	0.26 (0.04)	0.33 (0.05)	0.20 (0.03)	0.46 (0.09)	0.99 (0.15)	0.59 (0.15)
Import-GNP ratio x 100		1.47 (0.26)	0.61 (0.16)		2.51 (0.41)	1.30 (0.29)
1930			-1.95 (2.37)			2.71 (3.46)
1931			-10.48 (2.22)			-7.37 (3.12)
1932			-18.11 (2.28)			-15.83 (2.83)
1933			-12.21 (2.29)			-12.83 (2.92)
1934			-2.91 (2.26)			-4.26 (2.89)
1935			5.31 (2.39)			3.19 (2.89)
1936			16.07 (7.30)			11.82 (2.95)
1937			24.53 (10.62)			19.69 (3.36)
Standard error of regression	16.49	16.12	10.64	17.03	20.93	12.74
R ²	0.15	0.23	0.68	0.10	0.10	0.52
Number of observations	214	214	214	204	204	204

Note: The dependent variable is annual percentage change in industrial production between the previous and current years, where the current year runs from 1929 through 1937. The variables terms of trade and import-GNP ratio are defined as deviations from country mean for that variable for the sample period to eliminate country effects. Standard errors are in parentheses. The number of observations varies because some variables are not available for some countries for some years.

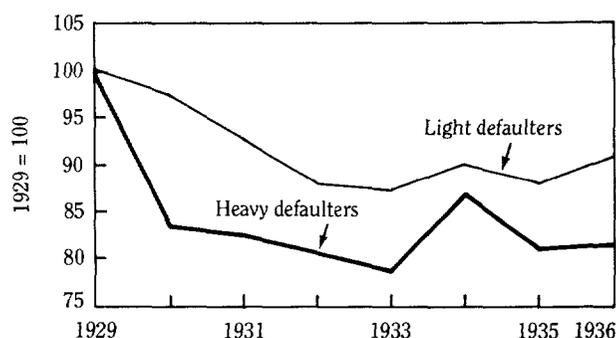
Source: Authors' calculations.

Figure 4-1. Growth of Real National Income, 1929–37



Source: Data are from the sources described in Eichengreen and Portes 1986, appendix.

Figure 4-3. International Terms of Trade, 1929–36

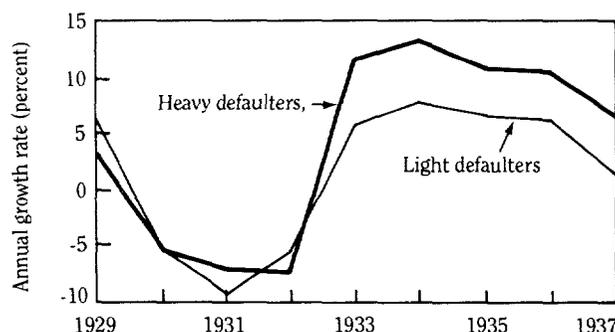


Source: Data are from the sources described in Eichengreen and Portes 1986, appendix.

there is still the possibility that, because production declined more dramatically before 1931 in countries that defaulted, higher unemployment and excess capacity may have offered more scope for output to snap back later. After suffering more serious terms of trade declines before 1931, serious defaulters may have benefited from more rapid terms of trade improvements as international commodity markets recovered thereafter. In fact, figure 4–3, while confirming the greater severity of the terms of trade shock suffered by heavy defaulters immediately after 1929, suggests that, with the exception of 1934, the terms of trade of the two groups of countries subsequently evolved more or less in parallel.¹²

When the rate of change of industrial production is regressed on both the terms of trade and the measure of default (table 4–3), both variables tend to have an impact on output growth.¹³ To control for cross-country differences in the secular rate of growth, the dependent variable is defined as the deviation from the country mean for that variable for the sample period, eliminating the

Figure 4-2. Growth of Industrial Production, 1929–37



Source: Data is from the sources described in Eichengreen and Portes 1986, appendix.

need for a constant term.¹⁴ To control for changes over time in the global economic environment, we include a vector of dummy variables for years. Although the coefficient on the terms of trade exhibits instability, it appears that countries suffering more severe external shocks grew more slowly. And strikingly, countries with a larger share of their external debt in default grew more quickly. This continues to be the case when the vector of dummy variables for years is added and when the terms of trade variable is dropped.

One problem with basing inferences on these regressions is that the default variable is endogenous. In defense of ordinary least-squares regressions, one might argue that only past output growth affects current default, but current default influences future output, rendering the system recursive. In practice, however, it is possible for effects to run in both directions within a calendar year. But the direction of endogeneity bias should only reinforce conclusions drawn from the ordinary least-squares regressions. Output growth should have a negative effect on default, while according to table 4–3, default had a positive “impact” on growth. If endogeneity is present, it is likely to bias the coefficient on default toward zero, rendering the estimates in the first three columns of table 4–3 lower bounds. The final three columns therefore report two-stage least-squares estimates, which use as instruments for the percentage of debt in default the determinants of default identified in our previous work (Eichengreen and Portes 1986). These confirm that the coefficient on default tends to increase with this adjustment.¹⁵

To test the “rubber-band effect” (that countries suffering the largest declines in output in the early stages of the Depression had the greatest scope for recovery subsequently), we regressed the rate of growth production in the recovery period (1931–37) on our default variable, the percentage change in the terms of trade, and the

percentage change in production between 1929 and 1931. The rubber-band effect is present, but its inclusion does not reverse the coefficient on default (table 4-4).

Such regressions may fail to control adequately for other respects in which the external environment and the stance of domestic economic policy conditioned the pattern of growth.¹⁶ Whether to continue external debt service was only one of several interrelated policy responses to macroeconomic shocks of the 1930s. Lacking an explicit model of fiscal policy, there was little conscious manipulation of budgetary instruments in the 1930s.¹⁷ Monetary policy was more widely used, although monetary authorities were constrained by inflationary fears, by the desire to defend the gold standard, and by doubts regarding effectiveness of monetary reflation. The most widely adopted measures were the complex of policies referred to as "import substitution." With the collapse of their export markets following 1929, governments adopted policies designed, in varying degrees, to reduce their economies' dependence on exports and to shift resources to import-competing uses. Exchange rates were devalued, first in New Zealand and Latin America, and then in other parts of the world. Increasingly comprehensive systems of tariffs and quotas, often supplemented by exchange controls, were used to limit imports. In some countries credit was extended by the public sector on favorable terms to import-competing industries, and other measures were adopted to promote their growth. Such policies may well have been related to the choice of debt management strategy. Countries like Argentina, for instance, that continued to service their debts, did so by retaining resources in the export sector and by relying on imports for provision of other goods. Other countries like Brazil, which reduced or suspended debt-service payments, had neither as urgent

a need to generate foreign exchange receipts nor as favorable access to certain creditor-country markets and had reason to shift resources into the import-competing sector.¹⁸ The simple correlation of -0.30 in table 4-3 between default and the import share of GNP (pooled time-series cross-section data, defined as the deviation of the import share from the country average for the sample period) is consistent with this view.

The consensus view of such policies as they operated in the past quarter century is that they have proven inferior to export promotion (Krueger 1978). Experts indict import substitution strategies for insulating producers from the chill winds of competition, for diverting resources into sectors far removed from comparative advantage, for raising input costs, and for discouraging industry from achieving minimum efficient scale. But it need not follow that import substitution was an inferior strategy in the 1930s. Some country studies suggest that import substitution worked well in particular instances (Fishlow 1972 and Thorp 1984). It is conceivable, for instance, that the effectiveness of import substitution relative to export promotion may depend on the rate of expansion of international trade. When trade expands rapidly, as it has since World War II, it may make sense for developing countries to hitch their economies to this locomotive; when trade expands slowly, it may pay to consider other options.

To capture this complex of policies, we added to the regressions in table 4-3 the import share of GNP relative to the country average for the sample period. This measure captures not the different growth prospects of more and less open economies but rather the implications of policies tending to increase or reduce openness. The coefficient enters with a positive sign and differs from zero at standard confidence levels, suggesting that countries that raised their capacity to import most rapidly in the 1930s recovered most quickly from the Depression. More significantly, the coefficient on the percentage of debt in default is robust to the inclusion of this additional measure of economic policy stance.

If the data for the 1930s suggest a positive relationship between default and subsequent economic performance, the evidence for the 1980s is much more ambiguous. Part of the problem is distinguishing different debt management strategies. Most authors' measure of interruptions to debt service, namely the prevalence of rescheduling, is an imperfect proxy. Figure 4-4, which compares growth rates of GDP for 20 defaulting and nondefaulting countries, confirms that the growth rate of reschedulers accelerated in 1984-85 relative to 1982-83, but that their performance was still substantially worse than that of the nonreschedulers. Whereas only one nonrescheduler shows a deterioration in fiscal position (India), six reschedulers do (Argentina, Brazil, Chile, Peru, Philip-

Table 4-4. Percentage Growth of Output for a Cross-Section of Countries, 1931-37

Explanatory variable	Dependent variable	
	Industrial production	GDP
Constant	0.353 (0.094)	0.151 (0.056)
Percentage change in dependent variable, 1929-31	-0.417 (0.419)	-1.313 (0.403)
Percentage of total government debt in default	0.002 (0.001)	0.002 (0.001)
Percentage change in terms of trade, 1931-37	-0.074 (0.023)	-0.089 (0.174)
Standard error of regression	0.258	0.188
R ²	0.113	0.522
Number of observations	25	24

Note: Standard errors are in parentheses.

Source: Authors' calculations.

piners, and Uruguay). Investment ratios drop much more dramatically in reschedulers than in nonreschedulers.¹⁹

Once again, the problem with such comparisons is that they fail to control for other respects in which countries differ. One attempt to do so finds little evidence that rescheduling promoted growth. Analyzing macroeconomic performance in 52 developing countries, Lindert (forthcoming) finds that reschedulers performed less well (as measured by the GDP growth rate) than did other countries. This result emerges even when instrumental variables are used in an attempt to eliminate simultaneity bias.

Two explanations for this difference between the 1930s and the 1980s suggest themselves. First, compared with rescheduling in the 1980s, default in the 1930s offered more opportunity for redirecting domestic resources toward investment and other domestic uses. Interruptions to debt service in the 1980s have been partial and intermittent, and the net resource transfer to creditors remains large. Second, the macroeconomic repercussions of default may have been different when interruptions to debt service were widespread, as in the 1930s, rather than relatively isolated, as in the 1980s.

Default and Capital Market Access

Excluding debtors from the capital market was the immediate way for creditors to retaliate against default. Starting in 1825, the London Stock Exchange refused quotation to new loans of governments in default on outstanding obligations, and, in extreme instances, refused to quote all loans of the offending government. There was no comparable arrangement in New York, though it was still possible for individual creditors to refuse accommodation to defaulting borrowers.

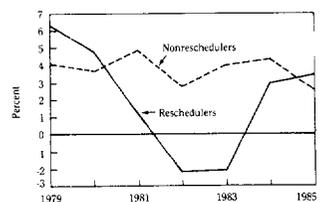
That capital markets reacted strongly to the defaults of the 1930s is beyond question. For years—decades in

fact—following the defaults of 1931–33 portfolio lending remained depressed. Only in the late 1960s and early 1970s did portfolio capital flows recover with the entry of the money-center banks into international retail banking. American and European investors concluded from 1930s experience that foreign direct investment was preferable to foreign bond purchases. As a spokesman of the U.S. National Association of Manufacturers put it in 1949, “After the experience of the thirties and the serious balance of payment difficulties now plaguing most of the world, the superiority of equity over loan financing has, we believe, a universal appeal” (cited in Eichengreen 1988). Few deceived themselves into believing that the risk of nationalization of foreign direct investments was negligible; that it was thought to be significantly less than the danger of default on foreign portfolio investments is an indication of the scars left by the interwar experience.

But there is scant evidence that defaulting debtors were differentially affected. Jorgensen and Sachs’ (forthcoming) study of six large Latin American debtors shows no observable capital market penalty for 1930s default in the period 1950–64. Lindert and Morton (1988) conclude from their study of over a century of international lending experience that “defaulting governments have seldom been punished, either with direct sanctions or with discriminatory denial of late credit.” Eichengreen (1988) analyzes borrowing by a cross-section of 32 countries in the first postwar decade, relating foreign borrowing to both demand-side variables (as proxied by country characteristics such as openness, export variability, and inherited debt) and supply-side variables, notably past debt-servicing performance. In those results there is no apparent relationship between severity of interwar default and ability to borrow immediately following World War II.

This does not mean that lenders were unaware of default. But reaction against portfolio investment abroad was general rather than selective. “A general sigh of resolve was to be heard over the United States,” Herbert Feis wrote. “Never again should we lend or invest our money in foreign lands” (Feis 1950, p. 1).²⁰ American investors, having been rudely reminded of the special risks of foreign loans, revised their assessment of lending abroad. The British and others reacted similarly and were significantly constrained by controls on capital movements until the end of the 1950s. Thus the market for portfolio investments remained becalmed for more than a third of a century. Sovereign default may have had costs in disruptions to capital market access, but many of these costs were external to the defaulting countries and affected the market access of defaulters and nondefaulters alike.

Figure 4-4. Average Growth Rates of GDP, 1979–85



Note: Figures are unweighted averages. Reschedulers are countries categorized in *World Debt Tables* as major borrowers or highly indebted countries, excluding Sub-Saharan Africa, which had not rescheduled before 1983 but did reschedule 10 percent or more of their total debt during 1983–85, thereby restricting attention to countries that rescheduled only after the 1982 crisis; they include Argentina, Brazil, Chile, Costa Rica, Ecuador, Mexico, Morocco, Peru, Philippines, Uruguay, and Yugoslavia. Nonreschedulers include Colombia, Egypt, India, Indonesia, Israel, Republic of Korea, Malaysia, and Venezuela.

Source: IMF, *International Financial Statistics*.

Two caveats to this conclusion are in order. First, the generality of the capital market's reaction may have been a function of the generality of default. Default having been so widespread, it led to a comprehensive reassessment of the risks of international lending that redounded unfavorably even on countries that kept their debt service up-to-date. In contrast, in periods like the 1920s, when the only countries in serious default were Mexico, Ecuador, and the Soviet Union, and the 1970s, when debt problems were much more isolated than they became later, the market may have been more inclined to focus on particular countries' creditworthiness and less inclined to reassess the entire enterprise. Second, the market's tendency to discriminate among countries according to their debt-service records may be different in periods of stagnation and buoyancy. Özler (1988b) suggests that during the boom in bank finance in the 1970s, larger spreads over the risk-free rate were demanded of countries with records of having defaulted on loans in the past.²¹ Still, there is little evidence that defaulters were rationed out of the market, or that faithful servicers were rationed in.

The Settlement Process

Observers of the current debt crisis deplore its protracted nature. Investment and growth remain low. Uncertainty about the resolution of the crisis continues to depress bank share prices and to increase the money-center banks' vulnerability to destabilizing shocks. A contrast is often drawn with the era of bond finance, when debtors were able to make a clean break with past problems and divert scarce resources to productive domestic uses. But even in the era of bond finance readjustment of defaulted debts involved a protracted process of sporadic suspension and renegotiation. Service might be suspended in part or in full, restarted for some years, suspended again, and so forth. Negotiations with the creditors often proceeded on an on-again, off-again basis and required as much as a quarter of a century to complete.

Brazil's experience is illustrative.²² The Depression caused a precipitous fall in Brazilian exports, leading the government in October 1931 to suspend interest payments unilaterally on most of the nation's external debts. In March 1932 a plan was announced to issue 20- and 40-year funding bonds to capitalize interest arrears and to resume normal interest payments no later than 1934. But in 1934, with the advice of British financial experts, Brazil announced a plan to readjust the debt. The Aranha Plan, designed to run through 1937, limited debt service to roughly half of Brazil's net export receipts. Bonds were divided into seven grades, with funding loans and other select obligations to receive full interest; other federal,

state, and local loans partial interest (from 17.5 to 50 percent of contractual levels); and certain state and municipal loans no interest. At the end of 1937, with the external situation little improved, debt-service payments were suspended again. Following sporadic negotiations with creditors, in 1940 Brazil announced another temporary, four-year settlement, under which the seven categories of bonds distinguished in 1934 were to receive interest at modified rates. Finally, in 1943 Brazil and her creditors negotiated a permanent readjustment in which bondholders had the option of choosing between two plans, one that reduced interest rates from 30 to 70 percent of contractual levels, and a second under which they would surrender 20 to 50 percent of capital in exchange for a cash payment of 6 to 60 percent of par value and somewhat higher interest rates on the remainder.

So, while there may be some truth to the notion that in the era of bond finance debtors were better able to jettison their debt overhangs and redirect resources toward domestic uses, the extent of the difference should not be exaggerated. Even when payments were suspended, there was often a real possibility that they would be restarted. In the 1930s like the 1980s, investors had reason to be wary about committing funds to domestic investment because government still might tax the returns and devote them to debt service. The difference between periods lies not in the uncertainty or in any difference in investment-debt service links, but in governments' willingness and ability to reduce payments by a substantial fraction of contractual rates.

Negotiations were complicated by the existence of a large number of bondholders. It was even harder than in the era of syndicated bank lending to solicit opinions of the creditors on a settlement proposal. Yet the British and, after 1933, the Americans came up with a remarkably efficient solution to the representation problem. Committees were appointed to negotiate with debtors. Bondholders were sometimes asked to lodge their bonds with the committee and at other times simply to register as interested investors. Readjustment plans were signaled by publication of an offer or by an announcement that bond covenants were henceforth modified. If the plan was deemed fair or at least the best that could be expected, the committee would recommend its acceptance by the bondholders. Bondholders signified their approval by cashing a coupon or, when requested, exchanging the old certificate for a new one. The only option available to dissident bondholders was to hold out for better terms.

Recommendation of a reputable bondholder's committee was the seal of approval on an offer. In Britain, where the Corporation of Foreign Bondholders (CFBH) had been in existence since 1868 and was universally

acknowledged to represent the creditors, that recommendation carried considerable weight. When the CFBH recommended an offer, any stock exchange sanctions could be expected to be withdrawn, and dissident bondholders had little hope of obtaining better terms. In the United States, a comparable organization was created only in 1934 when, with State Department prompting, the Foreign Bondholders Protective Council was formed. Before then, bondholders relied on ad hoc committees created to deal with individual defaults. The ad hoc nature of such committees inflated administrative expenses, while the existence of rival committees, and committees of dubious reputation, made it difficult for both debtors and creditors to determine who best represented the bondholders' interest.

Terms of Settlement

In contrast to the experience of highly indebted countries in the 1980s, interwar default led to a substantial reduction in net resource transfers from some debtors to creditors. Estimates of Lindert and Morton (1988), Jorgensen and Sachs (*forthcoming*), and Eichengreen and Portes (1986 and *forthcoming*, b) agree on this point. Our own calculations, based on two large samples of foreign bonds issued in the 1920s, also reveal considerable variation in debtor and creditor experience.²³

To summarize performance of foreign loans issued between 1920 and 1929, we calculated the nominal own-currency internal rate of return on more than 300 issues (table 4-5). For dollar bonds, at one extreme the realized return marginally exceeded the contractual rate, as with Norway and Canada, because of early debt retirement. At the other extreme, the realized internal rate of return might reach substantial negative levels, such as -7.4 percent for Brazil, -9.8 percent for Bolivia, and -14.76 percent for Hungary, indicating that not just interest but substantial principal was written off.

On average, however, both British and American creditors recovered their principal. Our calculations suggest that, for creditors with diversified foreign bond portfolios who were willing to hold out for final settlement, the 1930s defaults were not as disastrous as typically portrayed. The average nominal internal rate of return (weighted by issue value) was roughly 4 percent on dollar bonds and about 5 percent for sterling issues. Although dollar bondholders settled for approximately half of contractual interest and sterling bondholders settled for only slightly more, dollar bondholders did only slightly worse than if they had held domestic Treasury bonds, and sterling bondholders did slightly better. Ex-ante risk premiums were nearly sufficient to compensate American bondholders for foreign lending risks, and they more than sufficed for British bondholders. Although some

debtor countries received what can be interpreted as substantial relief, the defaults of the 1930s did not inflict unsupportable losses on creditors.

Investors in different bonds had rather different experiences. First, for both sterling and dollar issues, loans to national governments yielded higher realized returns than loans to states and municipalities; loans to states and municipalities in turn yielded higher realized returns than loans to foreign corporations. And American investors purchased a disproportionate share of speculative bonds issued for foreign municipalities and corporations. Second, London specialized in new overseas issues for the Commonwealth and colonies and devoted a smaller share of capital than New York to riskier loans to Latin America and Central Europe. It is difficult to know if London's behavior is attributable to a more experienced market, to long-standing political and financial ties with the Commonwealth, to preferential British tax treatment of colonial issues, or to the Bank of England's intermittent embargoes on foreign issues. But the combined result of these factors was a significantly lower incidence of default on sterling than on dollar issues.

The prevalence of default does not by itself account, however, for international differences in realized rates of return. British creditors also recovered more successfully in the event of default. For the bonds in our sample, the average default on a dollar issue cost creditors more than 4 percentage points of realized rate of return, while the average default on sterling issues cost them only about 2 percentage points. Part of the difference may reflect the greater effectiveness of the CFBH than its American counterparts,²⁴ and part may also reflect different stances of the British and American governments.

Table 4-5. Realized Rates of Return on Overseas Bonds Issued in the 1920s, by Borrowing Region or Country
(percentage points)

<i>Region or country</i>	<i>Dollar bonds</i>	<i>Sterling bonds</i>
Central America	1.46	—
South America	3.50	1.44
Germany	1.12	3.61
Other Western Europe	4.83	4.81
Eastern Europe	2.04	1.45
Canada	5.08	5.18
Australia	5.97	5.26
Japan	6.20	5.30
Other Asia	—	5.92
Africa	—	5.62

Note: Rates of return on sterling bonds are calculated on the assumption that repurchases occurred at market prices. Returns on dollar bonds use market price or par retirements as specified in the bond covenants.

Source: Eichengreen and Portes (1989 and *forthcoming*, b).

Government Intervention

A theme in much recent literature on debt (see Sachs 1986) is that creditor-country governments have continually pressured debtors to service their obligations. One might think that in the 1930s and 1940s, when creditor-country banking systems held only a small share of their portfolios in foreign bonds and therefore were not at risk in the event of foreign default, creditor-country governments might have felt less compelled to intervene.²⁵ This view is supported by the tendency of British officials between the wars to cite the remarks of their well-known 19th-century predecessors that the British government was not a debt collector. American officials also argued that higher returns on foreign loans than on contemporaneous domestic investments represented implicit acknowledgment of, and compensation for, the special risks of lending abroad, and that investors had no justification for seeking assistance.

In fact, governments were intimately involved in inter-war debt readjustments. This involvement varied across creditor countries. British governments in the 1930s were more willing to intervene than the Roosevelt administration. The British used the Ottawa Agreements of 1932, which provided preferential British market access to the Commonwealth and Empire at foreign exporters' expense, to secure favorable treatment of sterling debts by Argentina, in return for tariff preferences under the provisions of the 1933 Roca-Runciman Treaty.²⁶ The Americans were more hesitant to link trade and debt, especially once Roosevelt was persuaded by Secretary of State Cordell Hull to give priority to the restoration of free trade and the U.S. began to move in that direction by adopting the Reciprocal Trade Agreements Act in 1934.

Links between U.S. Export-Import Bank loans and commercial debts varied. On some occasions, the United States extended Eximbank loans despite unsettled defaults; on others, officials made clear that Eximbank decisions had a political dimension and might be torpedoed by Congress without progress on the debt. Along with several European governments, Britain threatened to impose clearing arrangements on Germany following its default in 1933, leading to partial or full resumption of service on Germany's European bonds. No clearing was threatened by the United States, and no significant interest payments were made to Germany's American creditors in the 1930s. After the outbreak of World War II, governments became directly involved in international trade and finance, and intervention was limited largely to instances where public officials promoted the original bond issues (as with Germany's Dawes and Young Plan loans) or when the debtor discriminated against one national creditor in favor of another.

As the war approached, creditor-country pressure for settlement intensified. But in contrast to the 1980s, considerable pressure was often applied to creditors as well as debtors. In addition to providing information and advice to the bondholders' representative committee and objecting to discriminatory provisions included in settlement offers, governments sometimes intervened directly in negotiations if they felt that progress was inadequate. Obtaining a favorable settlement for the creditors was a lower priority than international trade concessions and international security agreements. Creditors were urged to settle, in no uncertain terms, if their obstinacy stood in the way of these other goals.

The essential difference in government intervention in the 1930s and 1980s, then, lies not in its extent but in its direction. While U.S. officials in the 1980s have made clear the priority they attach to maintaining debt service, in the 1930s and 1940s, when governments intervened, they might pressure both debtors and creditors to reach early agreement.

Global Plans

The Mexican and Brazilian crises in August-September 1982 transformed the perception that debt difficulties were country specific. These countries not only required emergency rescue packages, but their problems made the international financial community aware of the generalized nature of the debt crisis.

The policy reaction was designed to avoid contagion effects that might lead to a financial crisis like that of the early 1930s (see Eichengreen and Portes 1987 for a comparison). The perception that serious debt-servicing problems were already widespread prompted the elaboration of several proposals for global solutions. These plans have been surveyed and analyzed by Cline (1987) and Fischer (1988). Most involved taking debt off the books of commercial banks at a discount and reducing debtors' repayment obligations correspondingly. Typically, they required an international financial institution to implement the scheme.

There are three obstacles to these global solutions. First, there must be political agreement to authorize and initiate the scheme. Second, there must be uniform procedures for all debtors or at least criteria for discriminating among them. Third, taxpayers in creditor countries must be willing to help defray the costs of debt relief. All three factors mitigate against the successful implementation of such schemes.

Most authors of global solutions to the 1980s debt crisis are unaware that similar plans were widely discussed half a century earlier. Some, like current proposals in which the World Bank or International Monetary Fund plays a central role, suggested that the then newly

established Bank for International Settlements (BIS) be endowed with funds and authority to readjust defaulted debts. Others advocated an independent facility under the bondholders' control. Some advocated converting existing debts into new obligations, not unlike the debt-equity swaps and seniority provisions so fashionable today. Others emphasized the need to index payments to export revenues (compare Peru under Garcia) or to service debt in local currency (Dornbusch 1988).

Four sets of global schemes can be distinguished (Eichengreen 1989). The first proposed to endow the BIS with the resources needed to resolve the crisis. The BIS was established in 1930 as part of the Young Plan to reschedule German reparations; it was logical to propose that it might also take charge of other debt problems. Hubert Henderson, a highly placed British government economic adviser, suggested that the BIS issue "International Certificates" to exporting countries to finance debt-service payments and other economic needs.

The 1931 Kindersley-Norman Plan, named after Montagu Norman, governor of the Bank of England, and Robert Kindersley, one of its directors, proposed a new international facility to make loans to countries and corporations unable to obtain them through normal channels. This new international entity was to be capitalized by the leading creditor-country governments and financed through bond sales to private investors. The agency would extend new loans to indebted countries unable to obtain them through the market, "reestablishing the credit of the foreign Governments, corporations, etc., to whom the money is lent . . . improving the price of their securities . . . and the purchasing power of their nationals" (cited in Eichengreen 1989). Like a mutual fund, it would in effect resell packages of these claims to private investors in the creditor countries.

The Beyen and Crena de Jongh Plans, offered by two Dutch bankers to the Standstill Conference in the winter of 1931-32, addressed short-term debts. Beyen proposed to convert short-term debts frozen by debtor governments into long-term obligations repayable in installments over as long as 20 years. Debtors that did not possess enough foreign exchange to meet current obligations might be permitted to make payment in local currency and to extend preferential treatment to creditor countries who were their best export customers. Crena de Jongh took the idea of payments in domestic currency a step further. He proposed the creation of a special administrator to issue foreign-currency-denominated bonds; the administrator would accept repayment of short-term obligations in domestic currency, invest the currency at home, and pay the creditors out of the proceeds.

A variety of proposals were mooted in preparatory meetings that preceded the 1933 World Economic Con-

ference. In meetings with U.S. officials, Britain proposed a "normalization fund" to channel capital to countries requiring foreign funds for purposes including the resumption of debt service. British officials suggested up to \$2 billion of capitalization for the fund, to be subscribed to by creditor-country governments. Representatives of debtor countries endorsed variants of the plan.

It is a pessimistic commentary on the global plans currently under consideration that none of their interwar predecessors bore fruit. Implementing those schemes would have required a serious commitment by leading creditor-country governments. But at each juncture, domestic problems diverted their attention from the international debt crisis. In 1931 Britain was battling increasingly intense balance of payments difficulties, which ultimately drove it from the gold standard in September. In 1933 the Roosevelt administration turned toward devaluation and away from international policy coordination precisely when the World Economic Conference was poised to act on the debt problem. As a result that conference limited its attention to the increasingly turbulent exchange rate situation.

Even when governments and banks were willing to entertain an international debt facility, there remained insoluble problems of finance and control. Under the Kindersley-Norman Plan, for instance, the bulk of new finance was supposed to come from private investors. But large investors, like J. P. Morgan, expressed their unwillingness to contribute unless control over any new organization also rested in private hands. Governments insisted that control be allocated according to the nationality of the finance. In 1931, for instance, the Bank of France insisted that control rest with it because the largest single share of the funds would be donated by Paris.

Finally, there were debilitating disputes over what countries and obligations to include. At the 1933 World Economic Conference the United States declared war debts off limits. The realization that official forgiveness of inter-allied obligations was unlikely weakened the willingness of the Europeans, who would have preferred to reschedule the whole interlocking set of debts, to push for the adoption of a global plan.

Market Solutions

In contrast to global plans, market-based debt reduction made a useful contribution to the interwar debt crisis. One type of market-based debt reduction involves repurchases of bonds on the market, often at prices substantially below par.²⁷ The argument that buybacks from reserves leave the debtor in worse shape (since reserves are sacrificed and the market price of remaining obligations simply rising to reflect the country's un-

changed debt-servicing capacity) is difficult to reconcile with the actions of interwar governments, many of which used the option extensively, and with the market prices of the bonds repurchased at the time. In 1939 the Foreign Bondholders Protective Council estimated that a dozen countries in default had repatriated between 15 and 50 percent of their bonds since 1930. Jorgensen and Sachs (forthcoming) estimate that Bolivia repurchased 5 percent of its defaulted debt at an average price of 16, that Chile retired 18 percent at 59, Colombia 22 percent at 22, and Peru 31 percent at 21.

Buybacks were controversial. Dornbusch (1988) points to opposition by some creditors, while Skiles (1988) notes that "because creditors objected so strenuously to the practice, most of these bond repurchases were carried out through intermediaries." Intermediaries were also used by debtors to avoid driving up bond prices by signaling their policy through first-person appearance in the market. In fact, the time-series behavior of bond prices suggests that, while repurchases put upward pressure on prices, the effects were not particularly large. There is little evidence that debtors sought to depress prices immediately before repurchases or that buybacks had a major impact on price trends. Figure 4-5, for example, displays high and low market prices for a sterling loan to the Chilean government issued in the 1920s, along with estimates of the volume of repurchases of bonds (valued at par). We imputed the quantity of buybacks from figures provided by the CFBH, as described in Eichengreen and Portes (forthcoming, a). The data for a variety of other bonds tell a similar story.

The Chilean case is particularly interesting since the country was one of the first to engage in extensive buybacks and was the target of criticism by creditors. The buybacks of the second half of the 1930s, second half of the 1940s, and first half of the 1950s were not preceded by unusual declines in bond prices, nor did they result in major price increases, although in the 1930s and 1940s some upward movement in prices is observed (figure 4-5).

The private attitude of bondholders' committees toward repurchases was significantly different from their public position.²⁸ In public, bondholders' committees insisted that available foreign exchange should be allocated to resumption of debt service and contractual amortization rather than to repurchases of defaulted bonds at a discount. They objected to debtors' potential capacity to manipulate bond prices by declaring their inability to service their debts, and then to turn around and retire the debt when market prices fell. In private, committees were more receptive to the practice, especially if it was accompanied by the resumption of at least partial debt-service payments, and when the creditors were unlikely to receive a better offer.

For instance, in December 1936, after the unilateral imposition of restricted repayments and interest by Chile, representatives of the U.S. bondholders refused to accept the reduced interest payments that were deposited in New York. Chile then borrowed from Schroeders in London on this security to purchase bonds in the market. The CFBH did not object; it noted with satisfaction that "the Finance Minister so far has obtained and used \$4 million for purchases." As part of the 1940 temporary settlement recommended by the Council, Brazilian authorities devoted "at least \$400,000 in each of four years" to purchases in the British market. In the 1941 Colombian negotiations, the CFBH was asked to agree that all sterling debt be repurchased in the market. While it objected to the "disastrous precedent" that might be set, its members admitted that "we have long become acclimatized to the idea of a debtor being allowed to devote some sums to amortization, provided that he is paying an agreed percentage on the principal of his debt." Typically, the bondholders argued that purchases below par should take place only if at least partial service was being paid. Thus, in 1944 the CFBH decided "to refuse to consider a settlement of the Ecuadorean debt by means of a purchase offer at below par" unless at the same time the bondholders were offered an option of partial service on the debt (Council of the Corporation of Foreign Bondholders, Minutes, 31 May 1944).

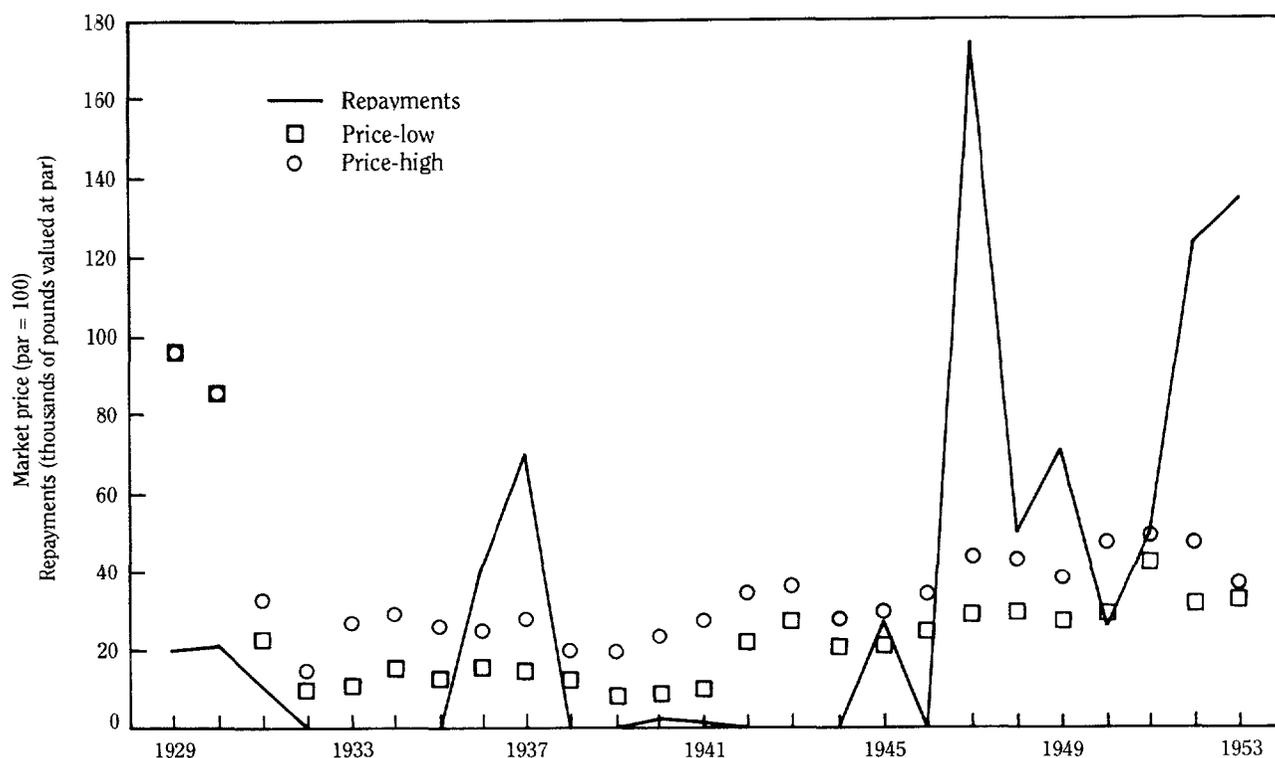
Perhaps the most revealing exchange surrounded the hearings of the U.S. Securities and Exchange Commission (SEC) investigation into defaulted foreign bonds in 1937 (U.S. Securities and Exchange Commission 1937). The SEC had recommended that, to curb the repatriation of bonds by defaulters, measures be introduced to restrain bankers and brokers from dealing on behalf of governments in default. Representatives of the bondholders noted that such restraints on repurchases would be met with "strong and . . . effective criticism on the ground that, by limiting the market in such bonds, it would act detrimentally to the bondholders" (Council of the Corporation of Foreign Bondholders, Minutes, 31 May 1937).

Clearly, debt buybacks were controversial. But many British and American experts regarded them favorably, especially when they were accompanied by other measures designed to readjust debt.

Conclusions

The international debt crises of the 1930s and the 1980s differ in fundamental ways. In the 1920s lending was mediated by the bond market, in the 1970s by the commercial banks. Since the lending mechanism differed, so did the mechanism for negotiating readjustments of defaulted debts. In the 1930s outright default

Figure 4-5. Repayments and Market Prices for a Representative Sterling Bond of Chile from the 1920s, 1929–53



Source: Eichengreen and Portes (1988a).

was common, albeit sporadic. In the 1980s, in contrast, serial reschedulings and other expedients so far have prevented a significant spread of formal default.

Despite these differences, this earlier debt crisis sheds light on many aspects of the current situation. It highlights the advantages, from the viewpoint of financial stability, of dispersing foreign obligations across large numbers of private investors rather than concentrating them in the hands of financially vulnerable commercial banks. Although it reminds us of the bond market's sophistication, it shows that bondholders historically have been no more adept than the banks in avoiding loans to countries with a repeated tendency to default. It alerts us to the fact that creditor-country governments can play a central role in promoting or impeding a negotiated resolution of the crisis. Finally, it reminds us of serious obstacles to implementation of any global plan for resolving the debt crisis and underscores the useful contribution to resolution offered by market-based debt reduction schemes.

Notes

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1. For two accounts of loan pushing in the 1920s, the first of which is more agnostic than the second, see Skiles (1988) and Darity and Horn (1988).

2. See also the evidence on the lending practices of different issue houses in Mintz (1951).

3. The two samples of foreign bonds are described in Eichengreen and Portes (forthcoming, b). For Britain we constructed estimates for all 125 overseas bonds offered for subscription and listed by the *Stock Exchange Yearbook*, while for the U.S. we drew a stratified sample of 250 foreign bonds from the list of more than 1,400 such bonds published in Young (1931). After adjusting for the actual price paid by the purchaser, we then tracked interest and amortization payments until the bond issue was extinguished and calculated the nominal own-currency internal rate of return. The number of bonds included in the regression analysis was limited by the availability of explanatory variables. For a similar analysis utilizing

grouped data that yields results generally consistent with those reported in table 4-1, see Eichengreen (1988).

4. Edwards's results for bank loans are basically consistent. In addition, see Özler (1988a), who suggests that spreads decline with the length of time the borrower has been in the market.

5. See for example Madden and Nadler (1929). Other variables to which investment advisers referred included the natural resource endowment of the country and the position of the central bank.

6. For both sterling and dollar bonds, the coefficients have signs consistent with this hypothesis, but it is impossible to reject the hypothesis that each individual year effect is zero. This contrasts with the analysis of grouped data for the United States in Eichengreen (1988), where there was some tendency of the spread to rise in the 1920s, suggesting that investors recognized foreign loans' increasingly risky nature.

7. Under the provisions of the Hay-Bunau Varilla Treaty of 1904, the United States was permitted to intervene in Panama to preserve order and to supervise the expenditure of government loans placed in the United States. Under the Platt Amendment, the United States was entitled to object to "improvident or otherwise objectionable fiscal policy" in Cuba. The Dominican Republic was under United States military administration until 1924, and thereafter the United States retained the right to object to changes in Dominican tariffs and public debt. Haiti was under U.S. martial law from 1916 to 1931. See Angell (1933), pp. 8-27.

8. Obviously, the greater precision of the estimate of the coefficient on budget balance in the equation for dollar bonds compared to its sterling counterpart may reflect the larger sample size.

9. Central government debt-export ratios are not representative of total debt. They are, however, the only debt indicators available for a range of countries, which is why we present them in table 4-2. Where state and local government debts were substantial, the total government debt-to-export ratio could be much higher. Germany's for 1931 rises from 34 to 212 percent, for example. Schuker (1988), p. 65.

10. Lary (1943), p. 6 and table III after p. 216, estimates that debt service on dollar loans was \$900 million in 1929. The stock of U.S. portfolio investments abroad at the end of 1929 was on the order of \$7.2 billion. Subtracting net short- and long-term lending in 1928 and 1929, which totaled \$576 million (Lewis, 1938, pp. 628-29) and multiplying the 1927-1929 ratio of debt stocks by \$900 million yields \$828 million.

11. Both figures are constructed from unweighted averages of country data. The heavy defaulters are Brazil, Bulgaria, Chile, Colombia, El Salvador, Germany, Greece, Guatemala, Hungary, Poland, and Yugoslavia. The light defaulters are Argentina, Australia, Austria, Belgium, Czechoslovakia, Denmark, Finland, France, Italy, Japan, New Zealand, Nicaragua, Norway, and Spain.

12. It is tempting to ascribe the 1934 improvement in the commodity exporters' terms of trade to the 1933-34 devaluation of the dollar. Why the heavy defaulters should have benefited more is not clear, however. Data limitations, along both quantity and quality dimensions, preclude the estimation of a simultaneous-equations model to sort out these effects. Our

approach is to rely instead on simpler descriptive analyses. None eliminates all of the problems acknowledged above, but all point in the same direction.

13. Table 4-3 displays regressions relating rates of growth of industrial production to both debt management strategy (as measured by the share of government and government-guaranteed debt, for all levels of government, in default) and the severity of the external shock (as measured by the terms of trade). We use industrial production indices rather than GDP because their wider availability permits the inclusion of more countries. (We also suspect that the industrial production indices are more reliable.) Table 4-4 documents that the choice of dependent variable is of little consequence.

14. When the constant term is included, it differs from zero only because of rounding. The first equation of table 4-3 becomes:

$$IP = -0.15 - 9.70 \text{ Terms of Trade} + 0.26 \text{ Default} \\ (1.08) (6.47) \quad (0.04)$$

with standard errors in parentheses.

15. Instruments include the debt-income ratio, the 1928 export-GNP ratio, and dummy variables for British Commonwealth and Latin American countries (all variables that were shown to be significant determinants of default in Eichengreen and Portes 1986).

16. Defining the dependent variable for each country in table 4-3 as the deviation from that country's average growth rate during the sample period should, by picking up secular differences in national growth rates, eliminate problems potentially caused by pooling countries at different stages of economic development.

17. There were, however, independent expenditure programs that de facto had fiscal effects, such as commodity price stabilization schemes and unemployment insurance systems, although their effects are much debated.

18. Contrast Anglo-Argentine trade relations as discussed in the section entitled "Government Intervention" and footnote 26.

19. See Eichengreen and Portes (1989) for complete data on reschedulers and nonreschedulers.

20. Feis (1950), p. 1. Other observers were less pessimistic about the prospects for the foreign bond market. As King (1950, p. 11) put it, "And so, economically speaking, I would not call the prospects unfavorable. If you were to look for a foreign bond as a safe investment you would have to use care and judgement, you would have to consider the many different factors which I have mentioned or hinted at, the character of the country and the people, their industriousness, their ingenuity, their good faith, and policies of the governments, their reserves of strength, their vulnerability to economic and technical changes and so forth. But I do not think you would be left high and dry without a candidate for admission—except for one thing, the political situation."

21. These results are consistent with those in table 4-1, which suggest that in pricing foreign bonds in the 1920s, investors took the past debt-servicing records of countries into account.

22. Three accounts of Brazilian experience are Abreu (1978), Cardoso and Dornbusch (forthcoming), and Eichengreen and Portes (forthcoming, a).

23. In what follows we concentrate on the results reported in Eichengreen and Portes (forthcoming, b) using samples of 207 dollar bonds and 125 sterling bonds issued between 1920 and 1929. This analysis is an extension of the pilot study using two considerably smaller samples reported in Eichengreen and Portes (1986).

24. For further discussion of this possibility, see Eichengreen and Portes (forthcoming, b).

25. For the interwar data available on the weight of foreign bonds in American banks' asset portfolios, see Eichengreen and Portes (1987), pp. 23–24.

26. Details on Roca-Runciman and references to the surrounding literature may be found in Abreu (1984).

27. Similar practices have been discussed recently by Portes (1987), USUNA (1988), and Williamson (1988) and were used extensively by Mexico (for private sector debt) and by Bolivia. Their efficacy has been a subject of controversy. See in particular the critique of Bulow and Rogoff (1988).

28. We offer more archival evidence to this effect, drawn from the records of the Council of Foreign Bondholders, in Eichengreen and Portes (forthcoming, a).

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Comment

Marilyn Skiles

One of this paper's main contributions to the literature on the interwar period is that defaults in the 1930s were associated with higher growth rates in the defaulting countries. This has long been suspected since countries that reduced or severed their links to the international economy in the 1930s enjoyed higher growth rates than those countries that retained open trading systems. But this paper is the first systematic attempt to relate the defaults of the 1930s to economic performance. Although the effort is laudable, the underlying statistical analysis that supports the authors' argument could be expanded through more complete specification of how default contributed to improved economic performance the 1930s. In addition, the authors need to direct more attention to other important policy changes that accompanied the defaults.

As is evident from the experience of both the 1930s and the 1980s, a debt-servicing crisis imposes two burdens

on a debtor country: (1) the transfer burden, which results from the country's need to generate a foreign trade surplus to service the debt; and (2) a fiscal burden, which occurs when any substantial amount of the debt is held by the public sector. That is, debtor countries must generate both a trade surplus and a fiscal surplus in order to maintain external debt servicing when external capital inflows have dried up or are no longer sufficient. Indeed, the fiscal constraint may have been even more binding in the 1930s than it has been in the 1980s, since domestic capital markets in many of the debtor countries were nonexistent.

A default alone, that is, simply suspending debt servicing, will not have any effect on economic performance unless it is accompanied by other changes in economic policy. What is important is how the resources that are generated, or saved, through the default are used. Defaults contribute to improved economic performance through relaxing the foreign exchange constraint, which allows countries to channel scarce foreign exchange to-

ward imports, or relaxing the fiscal constraint on debtor governments, which allows them to run less restrictive macroeconomic policies than they could otherwise.

The authors only discuss the first channel; that is, they see defaults as important because they allowed governments to relax contractionary macroeconomic policies. But the statistical analysis does not directly test this hypothesis. Instead, the effect of default, measured as the proportion of the country's total debt for which debt servicing has been suspended, is regressed on variations in the level of industrial production. Therefore we do not have any information on which of the two channels—that is, relaxation of the foreign exchange constraint or relaxation of the fiscal constraint—was more important in stimulating industrial production after the defaults.

More important, the authors ignore the effect of other policy changes on economic performance in the 1930s. Most countries that defaulted in the 1930s experienced significant economic and, in many cases, political changes when they defaulted. One case in point is Germany, which defaulted on all of its foreign bond obligations in 1933. Obviously, the growing role of the state in the economy under the Nazis, the reliance on high import protection, and the incorporation of much of Eastern Europe as a quasi-colonial empire, had an important effect on German economic performance during the 1930s. Most Latin American countries that defaulted also suffered from abrupt regime shifts, both economically and politically, during the 1930s. This era saw the expansion of the state in economies throughout the region, the adoption of high import barriers, and an underlying shift in economic policy away from reliance on external markets and toward increased reliance on domestic demand.

The authors attempted to account for these other policy changes by including an import coefficient into their regression analysis. This variable is used as a proxy for "import substitution policies." But the import coefficient alone is clearly not sufficient to capture the effect of policy changes that were convulsing many defaulting countries in the 1930s. Because these other economic and political shifts were so important, if the analysis were expanded the authors might find that the defaults were, in many cases, more of a handmaiden to growth rather than the engine of growth.

One of the paper's main themes is that substantial similarities exist between the debt crisis of the 1930s and that of the 1980s. Eichengreen and Portes conclude their analysis of the 1930s defaults by comparing the growth rates in the 1980s of developing countries that have not rescheduled their external debts to the growth rates of developing countries that have rescheduled. Not surprisingly, they find that the countries that rescheduled have had far lower growth rates than the countries that did not reschedule. It is not at all clear what is meant by this

comparison. The countries that have rescheduled include Argentina, Peru, and Ecuador, while the countries that have not rescheduled include the Republic of Korea, Indonesia, and Malaysia. Obviously, there are important differences among these countries, including differences in economic structure and policy. These differences must be taken into account in explaining different economic performance. Moreover, the authors do not address the problem of causality. Did countries reschedule because of poor economic policies and performance, or has the rescheduling caused the poor economic policies and performance? This section of the paper has some weaknesses and is potentially misleading.

The obvious real question here is not why some indebted developing countries in the 1980s have performed better (or worse) than other developing countries, but rather: why have highly indebted developing countries in the 1980s not defaulted, as did a large number of debtors in the 1930s? This question can only be answered by looking at the differences between the conditions of the 1930s and those of the 1980s, rather than focusing simply on the similarities. For example, despite low commodity prices and that most highly indebted developing countries still do not have access to the voluntary capital market, debtors are facing a different situation than in the 1930s, when both international trade and capital markets had collapsed. One could argue that default was a logical policy response to the world macroeconomic situation in the 1930s. Because trade and capital markets had collapsed, countries that defaulted in the 1930s did not suffer penalties or sanctions from creditors. Such sanctions, which could have taken the form of reduced capital inflows or reduced access to export markets in creditor countries, were impossible to apply in a situation where world trade and capital markets no longer existed.

More important, no 1930s economy experienced high growth rates based on links with the international economy; on the contrary, those economies that grew the most rapidly, such as Germany, did so largely based on a closed economy model. But in the 1980s, the developing countries that are experiencing the highest growth rates are precisely those that devote a large share of their output to export markets. Although these economies may not be completely open, they clearly have retained strong links to the international economy and have continued to flourish in large part because of those linkages. As a result, the signals that the international economy is sending to debtors in the 1980s are completely different from the signals that were sent in the 1930s, and the argument for delinking from the world economy is considerably less compelling than it was in the 1930s.

Secondly, in addition to external conditions, differences in domestic economic structures in debtor countries help to explain the different debtor response in the

1980s compared with the 1930s. In the 1930s, at least in Latin America, governments could induce industrialization relatively easily, since the industrial base in most of the countries was quite small. But many Latin American countries have long since exhausted the "easy" stage of import substitution. Because of the Latin American industrialization since the 1930s, further increases in output and productivity depend critically on continued access to high technology imports and export markets in the creditor countries. Any unilateral moves to break relations with international creditors could threaten debtors' access to both technology and export markets in creditor countries.

In the final section, Eichengreen and Portes note that creditor governments played an important role in the settlement of the defaults of the 1930s. This important point is often ignored in discussions about 1930s' defaults and deserves to be expanded in the paper. For most of the 1930s, the Latin American debt situation was not a high priority in Washington, primarily because the defaulted bonds were held outside of the banking system and thus did not threaten the stability of U.S. financial

markets. But the debt issue was still a major impediment to improved inter-American relations, since the administration was subject to pressure from both the debtors and bondholders. Once the war broke out in Europe in 1939, and the Roosevelt administration realized that the United States would need Latin American support if it were to join the war, the official stance toward the defaults changed dramatically. The administration increased its involvement in the settlement process, and in some cases went so far as to approve debt settlements before bondholders had a chance to review the proposal. In large part because of increased U.S. pressure, most Latin American defaults were settled within five years after the outbreak of war in 1939, and in many cases on terms that the creditors regarded as highly favorable to the debtors.

Obviously, the political conditions that hastened the resolution of the debt crisis in the 1930s are not present in the 1980s. Once again, to understand the behavior of debtors in the 1980s, relative to the behavior of debtors in the 1930s, it is necessary to examine the differences between the two periods, rather than just the similarities.

Part II

Debt Management in the Late 1980s

Fiscal Adjustment and Deficit Financing during the Debt Crisis

William R. Easterly

The reduced external financing to most high-debt countries in the 1980s forced major adjustments in macro policy, especially in the management of fiscal deficits. The debt crisis initially worsened public finances, since the governments of debtor countries often felt compelled to assume external liabilities of the private sector and financial system. At the same time, the near-termination of external capital flows required an increase in internal finance of public deficits. The results in most high-debt countries were increased inflation, output stagnation, and falling private investment. In contrast, some high-debt countries that avoided drastic declines in capital inflows did not have to reduce public deficits as sharply or increase reliance on internal financing. The outcome was much more favorable in these countries: steady growth, low and stable inflation, and healthy private investment.

Adjustment to the debt crisis can be understood by examining seven debtor countries that experienced a sharp reduction in external capital flows and rescheduled their debt during 1982–87: Argentina, Brazil, Chile, Mexico, Morocco, the Philippines, and Yugoslavia. These “crisis” countries relied heavily on implicit taxes on financial intermediation to domestically finance their deficits, which explains the poor private investment and the high inflation. In contrast are five countries that avoided rescheduling in 1982–87 and maintained access to external capital: Colombia, Indonesia, the Republic of Korea, Turkey, and Thailand. These “noncrisis” countries eschewed taxes on financial intermediation for domestic borrowing at market rates, with better results.

The debt crisis was clearly an endogenous phenomenon—and one that had a lot to do with fiscal policy. But the origins of the debt crisis have already been analyzed in many other places (see for example, Barandiaran 1988,

Sachs 1985, Berg and Sachs 1988, and Cuddington in this volume) and so will be treated as exogenous events in this paper. Discriminating between the two groups shows the adverse consequences of the cutoff in external financing to the crisis group and the resulting policy response. The combination of wiser policy choices and a more favorable external environment, partly reflecting the good policies, made for better performance in the noncrisis group. The external debt crisis contributed to a parallel fiscal crisis in the crisis countries but not in the noncrisis countries. Adjustment efforts were concentrated on public investment in the crisis countries, while the noncrisis countries maintained levels of most fiscal aggregates. A resource surplus was generated in the crisis countries through the investment-led contraction of absorption, even though overall production was stagnant. By contrast the noncrisis countries had obtained a resource surplus by the end of 1987 through healthy production and absorption growth. Fiscal adjustment was less than the decline in external financing in the crisis countries, forcing them to rely increasingly on domestic financing. Larger deficit reductions—preferably implemented through tax reform and reduction of current expenditures—and less distortionary financing would improve the outcomes in the crisis countries.

Discriminating between countries that reschedule and countries that did not is far from ideal, since it refers only to a short period and thus does not capture problems that may not have become evident during this period. The distinction between rescheduling and “voluntary” refinancing may also be more of form than of substance in some cases. Turkey and Colombia are borderline cases in this regard, both because they may yet reschedule and because their refinancing operations may have contained an element of official intervention. But the rescheduling

criterion at least has the advantage of being objective, in contrast to the judgmental assignment of countries to "success" and "failure" groups by the researcher.

Specifying two contrasting groups of countries must also allow for substantial differences among countries within each group. This is particularly evident in the varying policy responses in the crisis group—ranging from failed adjustment efforts in Argentina to impressive adjustment in Chile—and in the incomplete adjustment of Turkey in the noncrisis group. But the similarity of external conditions faced within each group justifies also considering the group as a whole.

Fiscal deficits and their financing have recently received increased attention in the voluminous literature on the adjustment to the debt crisis. The framework linking public deficits, the decline in external financing, and inflation has been set out in Anand and van Wijnbergen (1989) and Buiters (1988). The risk of an internal public debt trap and need for eventual monetization has been analyzed in Morley and Fishlow (1987), with the classic result on monetization of internal debt coming from Sargent and Wallace (1985). Reisen and van Trotsenburg (1988) contains a comparative analysis of internal public financing in debtor countries and its macroeconomic implications. Cardoso and Dornbusch (1988) and Dornbusch (1988) have analyses of the internal and external debt dynamics in Brazil and Mexico, respectively. Kiguel (1988) has a trenchant analysis of the role of excessive public financing requirements in the failure of the Austral Plan in Argentina.

Many cross-country studies of adjustment to the debt crisis also give a central place to fiscal policy. Chhibber and Khalilzadeh-Shirazi (1988) and Tanzi (1985) show the importance of public finances in the adjustment to the debt crisis. Barandiaran (1988), Cline (1987), Foxley (1987), and Edwards and Larrain (1987) all feature inadequate fiscal adjustment as one of the main culprits in the disappointing macroeconomic outcomes in Latin America.

Changes in External Debt Flows

Sharp reduction in external debt flows to the crisis countries was the hallmark of the external debt crisis. Net flows of public external debt to the crisis countries peaked at 3.8 percent of GNP in 1982 and then declined to 0.8 percent of GNP in 1986 (appendix table 5-1). The reduction in private long-term debt flows began after 1981, when it reached a peak of 2.3 percent of GNP. By 1986, there was a small negative flow of external long-term debt to the private sector in the crisis countries.

The public sector assumed part of the private external debt. The increase in public external debt is considerably greater than the net flow of new lending (both measured

in U.S. dollars as a percentage of GNP in dollars). Revaluation of debt in nondollar currencies explains part of this difference in 1985-86, but this was not a factor in 1983-84. The residual—the difference between the net flow (plus revaluation) and the increase in debt—reaches 5.6 percent of GNP in 1983 and is over 2 percent of GNP in 1984-86. The private sector data display a complementary negative residual beginning in 1984—the reduction in the private external debt is not fully explained by the negative flow of new lending minus amortization, plus revaluation (a positive factor in 1984-86). The data on short-term debt complete the picture. In 1983, the effective reduction in short-term debt (excluding revaluation) was over 6 percent of GNP, continuing at over 1 percent of GNP in 1985-86. The data imply that there was a conversion of short-term debt (both public and private) into public long-term debt in 1983—and to a lesser extent, into private long-term debt. Private long-term debt was converted into public debt beginning in 1984. In most countries, this was accomplished by exchanging the private external liability for a domestic currency liability to the public sector. This domestic debt in many cases was not serviced, or carried negative real interest rates. The public sector thus had to absorb a double shock—the reduction of net flows of new finance and the need to finance the servicing of newly acquired short-term debt and private long-term debt.

In contrast, external finance to the public sector in the noncrisis countries was steady until 1986, with a modest but stable flow to the private sector. Short-term debt also does not show any marked fluctuations. There is no evidence that the public sector assumed private sector debt. Thus, the public sector in these countries was able to avoid the double shock that bedeviled governments in crisis countries.

Fiscal Adjustment during the 1980s

This section analyzes the fiscal adjustment undertaken in high-debt countries after the outbreak of the debt crisis. This paper takes the approach of using only consolidated public sector data, refraining from any conclusions where such data are not available. This will leave gaps in the analysis, but this is preferable to the use of misleading central or general government data. Although central government data are more widely available for most countries, these data are inadequate to address fiscal adjustment, in which public enterprises usually figure prominently.¹

Changes in Fiscal Aggregates

The reduction of net capital flows and the assumption of private external debt forced the crisis countries to

adjust their public expenditures, revenues, and overall deficits. In several countries—Argentina, Brazil, Chile, and Yugoslavia—the debt crisis initially caused an increase in the public deficit (see appendix table 5-2). After 1982 most crisis countries reduced their deficits, especially in operational terms. Argentina, Brazil, Mexico, and the Philippines had particularly sizable cuts in adjustment's early stages, although deficits later increased again in Argentina and Brazil. Chile had a smaller fiscal deficit and achieved more permanent adjustment in the conventional fiscal accounts but experienced high central bank losses. Yugoslavia also had a major fiscal problem because of central bank losses. Morocco postponed most of this adjustment until 1986-87. The total public deficit shows modest fiscal adjustment in the crisis countries.

There is also some decline in public deficits in the noncrisis countries after 1982, although it is more gradual and begins from a slightly lower level. Korea eliminated its deficit by 1986, while Colombia and Thailand continue to show moderate deficits. Turkey's fiscal deficit, however, failed to improve in 1983-86 and even increased in 1987.

The improvement in the primary deficit (the total deficit excluding interest payments) is more pronounced than the overall fiscal adjustment in the crisis countries. Brazil, Chile, Mexico, and the Philippines achieved primary surpluses after 1982. In Mexico and the Philippines, adjustment in the primary balance was particularly noteworthy—a change of 13 percentage points of GDP from 1982 to 1987. In the noncrisis countries, the primary deficit's improvement was more modest, although again the level was lower to begin with. Korea, Colombia, and Turkey achieved primary surpluses by 1986.

Central bank losses—often not included in conventional deficit definitions—were a major factor in the deficit's behavior after 1982 in several countries. These losses occurred when the central bank assumed the external liabilities and financial losses of private corporations and banks. In some cases, the losses stemmed from exchange rate guarantees or differentially low exchange rates to private debtors in foreign currency. Data on such losses were only found for four countries—Argentina, Chile, the Philippines, and Yugoslavia—but they were probably important in other cases. In these four cases, the central bank losses were very important—in Chile and Yugoslavia they explain virtually the entire public sector deficit. The losses prevented the total deficit from falling more rapidly (or not at all) in these countries.

The additional revenue effort to achieve the fiscal adjustment in the crisis countries was small (see appendix table 5-3). Revenue remained stagnant or declined in Argentina, Chile, the Philippines, and Yugoslavia. Tax and nontax revenue shows that taxes did not play much

of a role in adjustment. Tax revenue's ratio to GDP falls or is virtually unchanged in 1982-85 for the six crisis countries for which consolidated data are available. An increase in nontax revenues—mainly reflecting improved public enterprise performance as a result of output price increases—is noticeable in the first year after the debt crisis began, but it proved to be temporary. Some noncrisis countries—Colombia, Korea, and Thailand—do not show major changes in their tax revenue ratios. Turkey did have a rapid rise in taxes, although this was not enough to keep its deficits from rising. Nontax revenues are more variable—falling sharply in Colombia, rising in Korea, and remaining static in Thailand.

The adjustment burden in the crisis countries was on the public expenditure side (see appendix table 5-4). Capital spending was the most severely cut, falling sharply in Argentina, Brazil, Mexico, Morocco, and the Philippines, but it increased in Chile. In contrast, Colombia, Korea, and Thailand showed fairly stable public investment ratios in the period, while Turkey increased its ratio.

The other expenditure category that shows significant reduction is net transfers. This is a loosely defined category that includes, among other things, social security contributions and payments, benefits of public employees, and consumer subsidies. After an initial increase in 1982-83, net transfers fell in Argentina, Brazil, Chile, the Philippines, and Mexico. They were also reduced in Colombia, but not in other noncrisis countries.

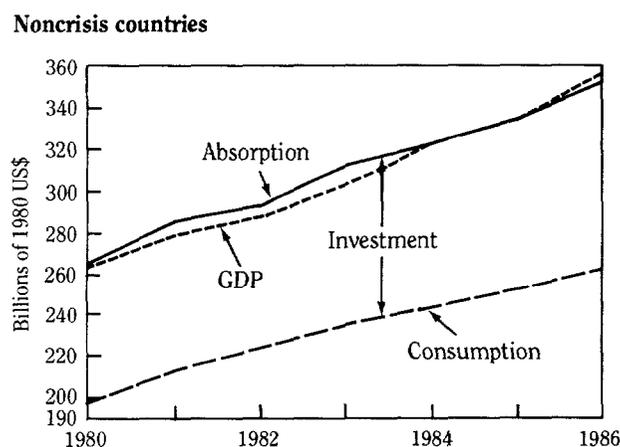
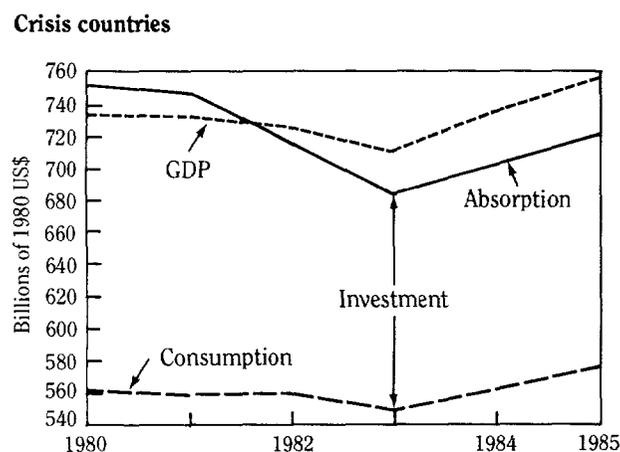
Not surprisingly, public interest expenditures increased dramatically in all crisis countries. Even when interest is corrected for high inflation—as in Mexico and Brazil—the increase is still significant. In contrast, public interest expenditure in the noncrisis countries stays stable at around 2 percent of GDP.

One category that showed considerable variability between crisis countries was current expenditure (excluding interest). It increased in Argentina but was cut in Chile and the Philippines. In Mexico, current expenditures rose and fell erratically in response to crises and successive stabilization efforts. Colombia, Korea, and Thailand, however, show little change in current expenditures over the period.

Income and Absorption

The adjustment pattern in the crisis and noncrisis countries is very different. In the crisis countries, saving remained constant but investment was cut. In the noncrisis countries, investment increased while saving rose even higher, so that a resource surplus was eventually achieved. Income was stagnant in the crisis countries but rose steadily in the noncrisis countries. Absorption grew in the noncrisis countries but was reduced sharply in the

Figure 5-1. GDP, Absorption, and Consumption in Crisis (1980-85) and Noncrisis (1980-86) Countries

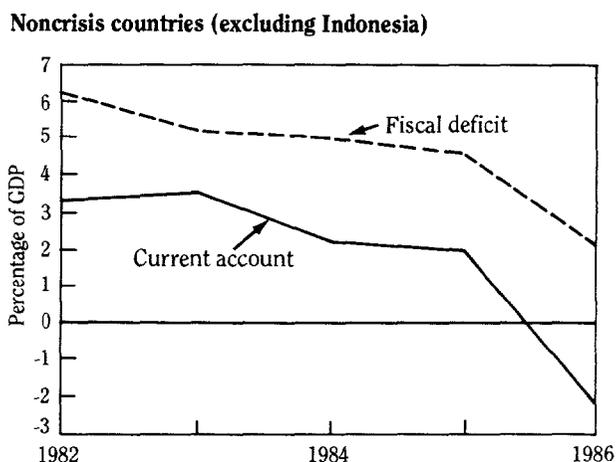
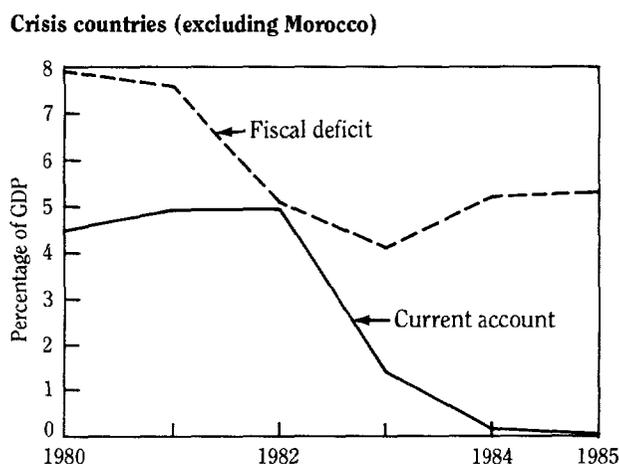


Source: World Bank data.

crisis countries (figure 5-1). Thus consumption stayed flat in the crisis countries, but increased rapidly in the noncrisis countries. Imports contracted sharply in the crisis countries, while exports stagnated. Both imports and exports grew in the noncrisis countries. The different patterns of adjustment between crisis and noncrisis countries were because of public finance choices, especially the financing of the fiscal deficit.

Comparing the current account deficit and fiscal deficit in six crisis and three noncrisis countries shows that, although public expenditure adjustments contributed to the improvement in the crisis countries' resource balance, overall fiscal improvement was less than the turnaround of the external balance (figure 5-2). The greater reduction in the current account deficit compared with the public deficit implies that more net internal finance

Figure 5-2. Current Account and Fiscal Deficits in Crisis (1980-85) and Noncrisis (1982-86) Countries



Source: World Bank data.

from the private sector had to be mobilized. The public sector in the crisis countries was forced to rely more heavily on domestic financing even though its overall deficit and public deficit declined gradually together, so that there was less need for internal financing.

Financing of Public Deficits and Macroeconomic Outcomes

This section will set out a framework for the analysis of the domestic financing of public deficits and their macroeconomic consequences. The overall flows of financing within the economy will first be discussed to try to pin down what "domestic financing" of the public deficit really means. Then the menu of financing choices faced by the public sector will be detailed. Last, the

macroeconomic implications of domestic financing choices will be discussed.

Financing Choices for the Public Sector

Financing choices for the public sector are not always what they seem. The government could borrow entirely from domestic sources, only to have the banking system finance the entire public debt through its own external borrowing. If the government borrows from the private banking system instead of the central bank, it can avoid depending on money creation. But the banks may in turn get rediscounts from the central bank—with effects on money creation equivalent to those of direct central bank financing to the government. The government could even allow the central bank to take over certain public expenditures itself, such as credit subsidies or exchange rate guarantees to private enterprises. The nonfinancial public sector deficit might appear low in such cases, but money creation or loss of foreign exchange reserves would result from the deficit of the central bank.

This tells us that, even knowing the composition of the government's financing, it is possible to misread the implications for foreign borrowing and money creation. To predict results of government financing choices, there must be data on the behavior of the other participants in the financial markets.

Some of these problems can be solved through the consolidation of the accounts of the public sector and the central bank. High-powered money less net foreign assets and central bank rediscounts can be substituted for net domestic credit creation to the public sector. This consolidation eliminates any possibility of hiding indirect money creation or central bank deficits.

The problem of indirect foreign borrowing can be addressed by examining the balance sheet of the financial system. Public borrowing cannot be analyzed without also considering the outcome for financial flows. What follows is a framework for analyzing how government financing affects private financial behavior.

External financing. External financing would be measured as direct foreign borrowing by the nonfinancial public sector less the change in central bank foreign reserves. But this must be interpreted carefully because in the extreme case of perfect capital mobility, the division of government financing into direct internal and external borrowing has no analytical significance. Although there was capital mobility in many high-debt countries before 1982, borrowing constraints became binding after the debt crisis broke out. The breakdown between external and domestic finance again became

meaningful as reduced total net external flows led to increased economywide reliance on domestic financing.

Domestic financing. Six alternative means of domestic financing are available:

- **Currency creation.** To the extent that currency creation exceeds growth in demand for real balances, it is a tax on currency holdings and so has the advantage that excess expenditures are paid for now instead of in the future. However, the cost of current distortions caused by the inflation tax may be very large.

- **Reserve requirements.** These also pay for expenditures now, but through a tax on all financial intermediation and not just on currency. They increase interest rates to private borrowers and depress rates to private savers. This effect is worse the higher the inflation rate. The tax is distortionary because it represses domestic financial intermediation.

- **Required bank holdings of government bonds at controlled interest rates.** This is equivalent to reserve requirements except that the distortion is reduced if the controlled interest rate is greater than that on reserve requirements (usually zero). Controls on government interest rates expand the potential for the inflation tax to include real devaluation of government nonmonetary liabilities.

- **Government controls on all domestic interest rates with credit rationing.** If domestic interest rates are kept below market levels, credit will be rationed and private investment will be determined by credit availability rather than its explicit cost. If there is inflation, the inflation tax will include devaluation of real government nonmonetary liabilities, as in the previous option, but part of this tax will be shared with the private sector through the controlled loan rates.

- **Borrowing from banks at market rates** (the same as those of the private sector). This does not distort financial intermediation like the previous options. But excessive reliance on this source will drive real interest rates well above the economic growth rate and the return to public spending—thus only postponing fiscal problems to the future—as well as crowding out private investment. If there is unanticipated inflation, this will still generate an inflation tax as in the previous options, but without the distortionary effects.

- **Direct government bond sales to the nonbank public sector at market interest rates.** This is equivalent to the government depriving itself of the tax on financial intermediation. But excessive reliance on these bond sales drives up the domestic interest rate and crowds out private investment in the same way as borrowing from the banking system.

Consequences of Deficit Financing Choices

Government faces tradeoffs when it chooses between alternative domestic financing methods for a given fiscal deficit. The conclusions of this section are from a simple theoretical model (Easterly 1989) that integrates portfolio equations for three assets—money, debt, and foreign currency—and an equation for fixed capital formation. As in recent work of Buiter (1988) and Anand and van Wijnbergen (1989), the government financing identity is then used to draw the consequences of government financing choices on inflation (and in this model, real interest rates as well). Controls on interest rates will be examined after first looking at liberalized financial markets.

Uncontrolled financial markets. There are two basic relations in the model, corresponding to equilibrium conditions in the domestic debt and money markets (see Easterly 1989 for the derivation of these conditions). The relations are written in the form of deviations from the initial equilibrium. The equilibrium condition for the debt market can be written as:

$$(5-1) \quad \Delta l_g = f(\Delta i_c - \Delta \pi, \Delta \pi) \text{ with } f_1 > 0 \text{ } f_2 < 0,$$

where:

- Δl_g = the change in the ratio of government domestic debt to GDP,
- i_c = the nominal interest rate on corporate loans, and
- π = the rate of inflation.

The government chooses the increase in the domestic debt ratio when it decides the composition of internal deficit finance (external finance is exogenous) between debt and money. The increase in the debt ratio will be negatively related to the rate of inflation (Easterly 1989). Inflation depresses the real deposit rate for a given real loan rate and thus lowers the savings flow into the banking system. This effect will be only partially offset by a shift from cash into deposits. There is a positive relationship between the debt ratio and the real interest rate. Increased real interest rates increase real deposits (domestic assets are substituted for foreign assets) and depress private investment for a given inflation rate, increasing the domestic debt flow to government. Therefore, the debt equilibrium implies a positive relationship between real interest rates and inflation for a given stock of government debt.

The money market equilibrium can be written in similar form:

$$(5-2) \quad \gamma - [\Delta f_g - \Delta r_b - i^*(f_g - r_b)] = g(\Delta i_c - \Delta \pi, \Delta \pi) \text{ with } g_1 > 0 \text{ } g_2 > 0$$

where:

- γ = the primary deficit of the public sector,
- Δf_g = the change in the ratio of public external debt to GDP,
- Δr_b = the change in the ratio of foreign exchange reserves to GDP, and
- $i^*(f_g - r_b)$ = interest paid on existing net external debt.

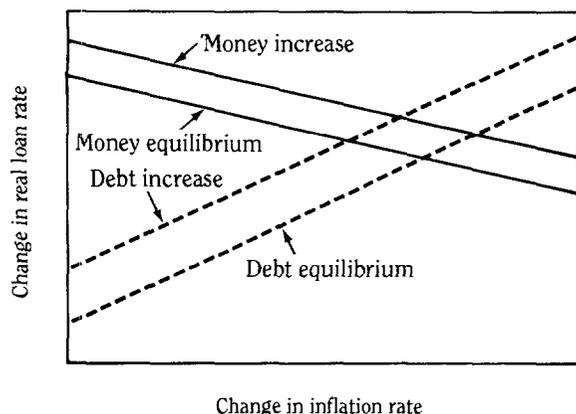
Thus, the expression on the left-hand side gives the primary domestic financing requirement of the public sector. Since the increase in public domestic debt is already given in equation (5-1), and money is the residual source of finance, this equation gives the equilibrium in the money market. The left-hand side can be thought of also as the total “domestically financeable deficit” through money creation.

The domestically financeable deficit is a positive function of inflation as long as we have not passed the maximum point of the inflation tax Laffer curve. The increased revenues from money creation will offset the decrease in demand for deposits and currency in this case. The relationship of the financeable deficit to the real interest rate depends on existing government domestic debt. If the debt is low, then increased real interest rates increase demand for base money by increasing real deposits and thus make possible a higher domestically financeable deficit.² But higher real interest rates also raise the need for money finance through higher domestic debt-servicing costs. If government domestic debt is high, higher real interest rates will raise the requirement for money finance more than the demand for base money, and thus lower the “financeable deficit.”

Real interest rates and inflation are jointly determined by the money and debt market equilibrium as shown in figure 5-3.³ An increase in debt finance (with unchanged domestic financing requirements) shifts up the debt equilibrium line. So, a shift in the composition of debt finance from money to debt raises real interest rates and lowers inflation. This confirms conventional wisdom on the effect of “tight money.” But if government continues to rely on debt increases to finance its deficit, the higher debt stock will eventually reverse the slope of the money market equilibrium as described above. A shift to debt finance could result in increased real interest rates and inflation (figure 5-4). This is because additional inflation tax revenues are needed to generate financing to cover higher interest costs.

The other comparative static experiment that can be performed with this model is a money-financed increase

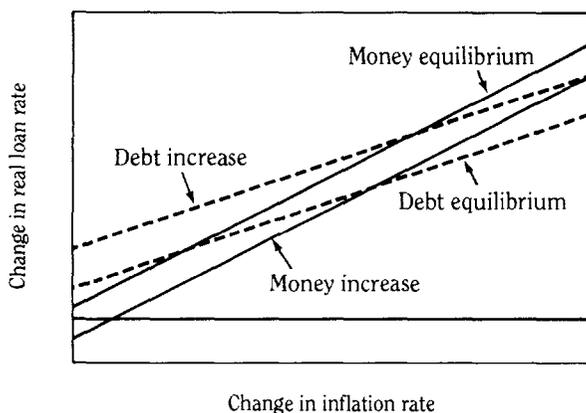
Figure 5-3. Free Interest Rates: Low-Debt Case



in domestic financing (caused, for example, by a decline in external financing). This shifts the money market equilibrium relation upward, but leaves the debt equilibrium unchanged. As figures 5-3 and 5-4 show, this increases both the inflation rate and the real interest rate on loans. The increased real interest rate comes about because higher inflation raises the “tax” on financial intermediation through the reserve requirement.⁴

A last exercise is to combine an increase in domestic borrowing with an increase in the domestic financing requirement (shifting both curves in the graphs). This exercise can be thought of as substituting domestic for foreign debt and has the same effect on interest rates and inflation as a debt-financed expansion in the primary deficit. An exact substitution of domestic for foreign debt increases real interest rates because of the increased pressure on credit markets (Easterly 1989). Inflation may go either way. The increase in interest rates increases the demand for money base and so makes possible the same inflation tax revenue at a lower inflation rate. But the

Figure 5-4. Free Interest Rates: High-Debt Case



monetization of additional interest payments may partially or fully offset this effect. Thus inflation will decline in the low-debt case (figure 5-3) and increase in the high-debt case (figure 5-4).

It is straightforward to trace these outcomes for other macroeconomic variables. A shift to debt finance for a given domestic financing requirement, a money-financed increase in the domestically financed deficit, and substitution of domestic for foreign debt all cause a decline in private investment through increased real interest rates. If the low-debt situation of figure 5-3 existed, a shift to debt finance could cause a decrease in capital flight through the increase in interest rates and a fall in inflation. But tight money could perversely cause an increase in capital flight (and a fall in reserves) in the high-debt situation of figure 5-4. This would occur if the negative effect of higher inflation outweighs the positive effect of higher real interest rates on capital flight. The substitution of domestic for foreign debt could also increase capital flight for the same reason.

It is instructive to see the long-run results of the financing changes considered in the model. These will be different than the short- to medium-run results described above. For instance, substituting money finance for either internal or external debt finance in the short run will lower inflation (and interest rates) in the long run because of reduced debt-servicing requirements. A substitution of internal for external debt will raise inflation if the domestic interest rate (adjusted for depreciation) exceeds the foreign interest rate. An increase in the primary deficit will also raise inflation and interest rates.

Interest rate controls and credit rationing. When there are controls on interest rates, the trade-off between debt and money finance changes. Inflation now worsens the real rate on all domestic financial assets and liabilities. Since there will be excess demand for credit if controls are effective, credit to the private sector must be rationed. This assumes that the government is the preferred borrower and that transaction costs are so high that they prevent formation of informal credit markets.

The rationing of credit means that the equilibrating variable in debt and money markets will be private investment instead of interest rates. The equilibrium condition for the debt market can be written as follows:

$$(5-3) \quad I_c / Y = h(\Delta I_g, \Delta \pi) \text{ with } h_1 < 0 \quad h_2 > 0,$$

where I_c / Y is the ratio of private investment to GDP (see Easterly 1989). Investment is a negative function of the increase in government debt. The “crowding out” is one-to-one, since an increase in government borrowing simply subtracts investment financing credit from the private sector. The relationship between investment and

inflation depends on the level of government debt relative to total deposits. If government debt is low or total deposits are high, enough benefits of the inflation tax could accrue to private firms to offset the negative effect of inflation on total deposits and total credit. Nonetheless, too much reliance on inflation and interest rate controls will eventually lead to a decline in deposits until the credit-crunch effect dominates.

The money market equilibrium condition can be given as follows:

$$(5-4) \quad I_c / Y = j(\gamma - (\Delta f_g - \Delta r_b - i^*(f_g - r_b)), \Delta\pi) \text{ with } j_1 < 0 \ j_2 > 0$$

Private investment is a negative function of the total primary domestic financing requirement. Crowding out is one-to-one regardless of whether domestic financing is through money or debt, since either one displaces private credit. Private investment is a positive function of inflation as long as the maximum point on the Laffer curve has not been passed. The base of the inflation tax now includes both currency and deposits, and not only high-powered money, since the interest rate is fixed on all domestic financial assets. When inflation increases, part of the inflation tax accrues to private firms, making possible an increase in investment unless the increased "tax" is more than offset by the decline in real financial assets and thus total credit.

The money and debt equilibriums are graphed in figure 5-5 for the case where government debt is low relative to deposits. The slopes of both are positive, but the loci of debt equilibriums is flatter than the loci of money equilibriums. A shift away from money to debt finance in this case will lower private investment by even more than one-to-one. This is because in addition to crowding out through the credit market, this shift also lowers inflation and increases the real interest rate to corporations, decreasing net resources left for invest-

ment. An increase in the domestically financed deficit covered by money creation will increase private investment for the same reason. Higher inflation and lower real interest rates will make more resources available for investment.

But inflation will cause financial disintermediation that will eventually reverse the slope of the debt equilibrium line, as shown in figure 5-6. A money financed increase in the domestic borrowing requirement will now lead to a fall in investment because the fall in deposits and credit more than offsets the inflation tax benefit to firms. A shift to debt finance will still lead to a fall in investment, but now less than one-to-one. The declines in inflation from tight money will have enough of a positive effect on the credit supply to mitigate crowding out of investment in credit markets.

Substituting domestic for foreign debt has a particularly simple result in the credit-rationing model. It will have no effect on the inflation rate and will decrease private investment one-to-one, regardless of the government debt level. The control on interest rates means that no additional interest costs will arise, so no additional monetization or inflation is necessary. With no change in either inflation or interest rates, there will be no change in total credit supply and the increase in public domestic borrowing will simply displace private credit.

How can these policy experiments be compared across regimes—free market interest rates versus interest rate controls? The comparisons depend very much on the initial conditions. If government debt is high, then the inflationary impact of substituting money creation for foreign debt will tend to be less in the controlled regime. This is because of the effect on inflation of monetizing additional interest costs in the free market regime, as opposed to the erosion of real domestic debt service in the controlled regime. The effect on private investment could also be more favorable under controlled interest rates because part of the inflation tax will be passed on to the private sector. But as total deposits shrink under

Figure 5-5. Credit Rationing: Low-Debt Case

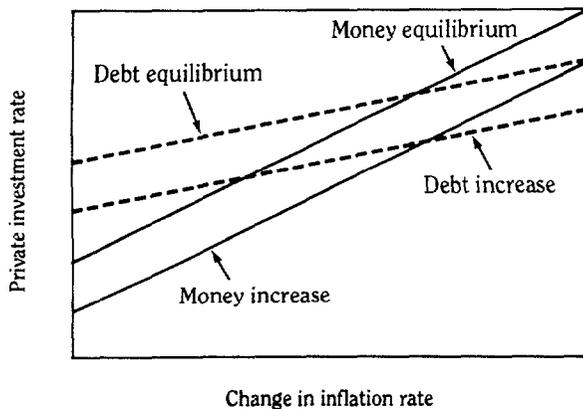
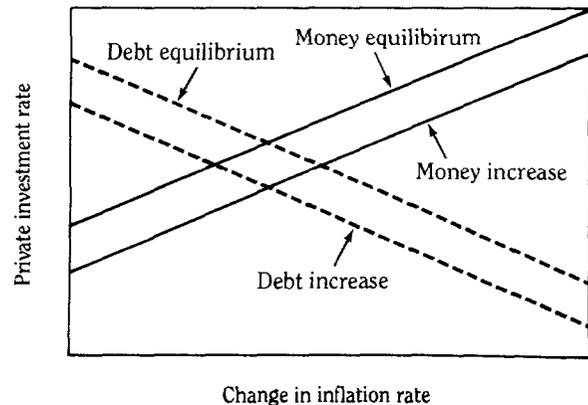


Figure 5-6. Credit Rationing: High-Debt Case



negative real interest rates, the ranking is reversed. The inflation tax's base—although broader at the beginning—declines more rapidly under the controlled regime, so a given amount of money creation will lead to more inflation than under free markets. Investment will also be hurt more under the controlled regime in these circumstances by the eroding credit flows caused by inflation.

Substituting domestic for foreign debt could also be less negative under the controlled regime if government debt is high. Such substitution could cause more than one-to-one crowding out under free markets because of the double effect on real loan interest rates of higher inflation and greater government credit demand. Under the controlled regime, crowding out is always one-to-one, regardless of government debt. But this ranking is peculiar to the special case of an internal "debt trap." Under more normal circumstances, private investment has the crowding out mitigated by the decrease in inflation and rise in total domestic credit caused by "tight money" policies in uncontrolled financial markets.

How can the theoretical model be applied to the experience of the crisis and noncrisis countries? The fundamental characteristic of the adjustment in the crisis countries was the shift from external and domestic financing. Although the model allows for many possible outcomes of this shift, they all share certain characteristics. Domestic real loan interest rates rise if they are not controlled, regardless of whether the shift is to money or domestic debt finance. Private investment thus always declines, either through increased real interest rates or rationing of credit to the private sector under controlled interest rates. Inflation will rise if either money creation is used to substitute for external debt or internal debt becomes so high that interest payments must be monetized. Thus, we would expect both real interest rates and inflation to increase in most of the crisis countries. For countries that controlled interest rates, we would expect financial savings to decline and inflation to rise even more (since the initial level of domestic government debt was not large in most cases).

For the noncrisis countries, a large shift toward domestic financing was unnecessary, so we do not expect to see major changes in real interest rates or inflation. The model also predicts better performance of private financial savings and investment under these circumstances in the noncrisis countries. We will see in the next section that these predictions are borne out by the actual experience of the crisis and noncrisis countries, so the model

appears to fit well the adjustment experience of these countries in the 1980s.

Deficit Financing in the High-Debt Countries

This section examines the economic outcomes in crisis and noncrisis countries in light of the predictions of the framework of the previous sections. Since the key variables that reflect financing choices of the public sector are interest rates and inflation, data on these variables will be presented first. Monetary data will then show the actual financing choices made in the crisis and noncrisis countries.

Interest Rate Behavior

Great variety is seen in real interest rate levels in the crisis countries, not only between countries but also for the same country over different years (see appendix table 5-5). Argentina and Yugoslavia have followed a policy of financial repression, which resulted in high negative real interest rates for 1980-87. Mexico and the Philippines did the same for part of the period, while Brazil lurched back and forth between high positive real rates and financial repression. (In these countries, the variability of inflation also led to ex-post negative real rates in some years even when financial repression was not a conscious policy). Chile had market-determined interest rates that were extremely high in real terms in 1981-82, declining thereafter to modest positive levels. Morocco had much lower inflation and more modest swings in real interest rates, although they were negative until 1986. Policies determining interest rates on government securities also varied considerably. In Brazil and Chile, rates on Treasury bills were considerably lower than deposit rates, so that required holdings of government bonds by banks functioned as an additional tax on financial intermediation. In Mexico and the Philippines, government bond rates were similar to other interest rates, all of which were negative in real terms when inflation accelerated. Interest rate spreads—reflecting both intermediation costs and implicit taxes on intermediation such as reserve requirements—were very high in Argentina, Chile, and Yugoslavia throughout the period. In Argentina, for example, the high spread is because the banking system has over 70 percent of total deposits tied up in reserve and forced saving requirements. Other countries do not show high spreads, although data can be misleading since quotes on deposit and loan rates do not necessarily reflect average rates paid and received by banks for all types of

assets and liabilities. The overall conclusion is that all of the crisis countries put substantial taxes on financial intermediation at one time or another in the adjustment process, either through overall financial repression or through negative real interest rates on government bonds or central bank liabilities.

In the noncrisis countries, however, policies of positive real interest rates have been consistently followed since 1982. In all of the countries interest rates reached high levels by historical standards—most loan rates were in double digits in real terms throughout the period. The most extreme case was Turkey, where loan rates reached 51 percent in real terms in 1986. Government bond rates were also positive in real terms. Spreads were fairly modest except in Turkey, where the large spread explains the extreme interest rates on loans. Thus, except for Turkey, most of the noncrisis countries did not rely heavily on taxes on financial intermediation.

Inflation Outcomes

Inflation accelerated in all of the crisis countries except Morocco beginning in 1982 (see appendix table 5-6). The aggregate inflation rate accelerated from 41 percent in 1981 to 57 percent in 1982. There was further acceleration during 1983-84, led by a more than doubling of triple-digit inflation in Argentina and Brazil and the high inflation in the Philippines. In 1985-86 there was a significant drop in inflation because of the Austral and Cruzado anti-inflation programs in Argentina and Brazil, respectively. The Philippines also returned to near price stability. But the improvement was transitory, as the breakdown of the Austral and Cruzado plans and inflation in Mexico and Yugoslavia increased average inflation in the crisis countries to over 100 percent in 1987. Inflation fell in the noncrisis countries, Korea and Thailand, and remained roughly stable in Indonesia. Colombian inflation was higher than in the East Asian countries, but it was stable at about 20 percent. Inflation was more erratic in Turkey, accelerating in 1984 and in 1987 after temporary declines. The aggregate inflation rate in the noncrisis countries is much lower and more stable than in their crisis counterparts.

Domestic Financing Flows

The results in this section are from a flow-of-funds exercise to identify what types of domestic finance were actually used in the crisis and noncrisis countries. To be consistent with the theoretical framework developed above, the data are presented in the form of the change in the financial stock (year-end) as a percentage of GDP. All flows are analyzed in inflation-adjusted terms except

for the money base and rediscounts, where both the inflation-adjusted and nominal flows are given. The nominal flows are relevant for the money base because they represent the total "revenue" from the inflation tax. The inflation-adjusted flow represents the real change in demand for the money base, which can be interpreted as the real seignorage accruing to the public sector. The nominal flow of central bank rediscounts is also important when no interest is effectively paid on these rediscounts. The inflation-adjusted flows are calculated as the nominal flow minus the inflation adjustment applying to the previous year's stock.

For some cases it is appropriate to make adjustments for the negative real interest rates paid on government debt. This is done in the analysis for loans from the financial system and for sales of government securities. The adjusted figure can be interpreted as the net domestic transfer, that is, the real net flow minus interest payments on that particular liability. The adjustment factor to get from the inflation-corrected flow to the net transfer can be interpreted roughly as the real interest on government debt times the outstanding stock of debt. Where data on government bond rates are not available, the deposit interest rate is used as a proxy. Where interest is paid on bank reserves by the central bank (Argentina, Chile, and Mexico), the same correction is made for reserves.

The results on financial intermediation taxes and financial savings dramatize the policy dilemmas faced by some of the crisis countries. The tax on financial intermediation—including the inflation tax—was one substitute for the external public financing that disappeared beginning in 1982, especially as increased central bank rediscounts demanded more resources. With the poor financial savings performance in these countries, it could generate more financing than conventional borrowing at market rates. But the tax itself caused further declines in real financial balances, which in turn required even more reliance on inflation or interest controls to achieve the necessary financing. The end result was a severe squeeze on private sector credit, with baleful consequences for private investment.

Total domestic financing. Most crisis countries show a marked increase in domestic financing in 1982 or afterwards. Argentina, Chile, and Mexico show an increase immediately, even if bank reserves are treated as debt (see appendix table 5-7).⁵ After the initial burst of financing in 1982, domestic financing slowed in Argentina and Mexico, even turning negative if reserves are treated as debt. In Brazil, Morocco, and Yugoslavia, the increase in domestic financing was more gradual, but still significant. The Philippines is the only crisis country

that does not show a sizable increase in domestic financing in the period beginning in 1982.

The noncrisis countries show a different pattern. None of them had a marked increase in domestic financing over the period. Some countries show a moderate increase for selected years, such as Thailand for alternating years, Korea in 1986, and Turkey in 1984–85.

Tax on financial intermediation. Even the high numbers shown for domestic financing in the crisis countries underestimated the impact on the financial system. This is because negative interest rates were paid on government debt in some cases, which meant the real change in debt was artificially depressed by the amount of “tax” that was collected from the holders of the debt.⁶ Summing this and the “inflation tax” on the money base (which includes both currency and bank reserves) gives the total “tax on financial intermediation.” As shown in appendix table 5–8 for crisis and noncrisis countries, the tax on financial intermediation was an important source of finance for the crisis countries of Argentina, Mexico, and Yugoslavia after 1982 (it is still important, even if we make the correction for the interest paid on reserves in Argentina and Mexico). It was also significant in some years in Brazil and in the Philippines compared with precrisis levels. Even these “revenues” from financial intermediation taxes do not fully reflect the increase in the “rates” of the tax, since the “base” of the tax was at the same time being eroded. For example, Brazil had very high inflation and negative real interest rates throughout the period, but shows only moderate inflation tax revenues because of its miniscule financial base. Only in Chile and Morocco is there little change from precrisis levels. Among the noncrisis countries, Turkey and Colombia show a significant revenue from the tax on financial intermediation, but this was a decline from the 1979–81 period. Indonesia, Korea, and Thailand do not have significant revenues from this “tax.”

Financial savings. Reliance on taxes on financial intermediation had consequences for the financial saving in the crisis countries (see appendix table 5–9). Countries that had high revenues from financial intermediation taxes also saw their “tax base” begin to disappear. Argentina, Mexico, and Yugoslavia had negative real financial savings for most or all of the period beginning in 1982, and a decline in real currency balances. The Philippines had negative financial savings and a decline in real currency holdings in 1983–84—the same years for which it had a higher than usual financial intermediation tax. The other crisis countries had mostly positive financial savings. Brazil increased financial savings compared with a poor performance in 1979–81, but it remained relatively low by international standards and currency still declined. Chile had one year (1983) of negative financial

savings immediately after the crisis. Only Morocco—which had moderate taxes on financial intermediation—had fairly steady improvement in financial savings throughout the period. Morocco was also the only country that avoided a decline in currency balances after 1982.

The noncrisis countries had much stronger performance in the growth of financial savings on the whole. Korea and Thailand had outstanding growth in financial assets, which surpassed their experience in the 1970s. Indonesia, Colombia, and Turkey had more erratic performance, but they were still superior to most of the crisis countries, as well as comparable or superior to their performances in the 1970s.

Credit to public and private sectors. In 1982, there was a credit surge to the public sector in Argentina, Chile, and Mexico, with more modest credit flows in the other crisis countries (see appendix table 5–10). In 1983–84, however, the inflation-adjusted flow of credit to the public sector turned negative in Argentina, Brazil, Mexico, Morocco, and the Philippines. In 1985–86, public credit flows increased sharply again in Mexico and Morocco, but declined in Argentina and Yugoslavia. These erratic flows reflect the increased need for credit to the government when financial disintermediation made such credit provision difficult.

This fatal squeeze had an even greater effect on credit to the private sector in the crisis countries. Inflation-adjusted flows of credit to the private sector were negative in most years for the crisis countries beginning in 1982, with the exception of Morocco. The private sector was the residual that absorbed the effects of increased public financing demands and lower financial savings.

In the noncrisis countries, the credit pattern is drastically different. All of the noncrisis countries improved credit flows to the private sector compared with the late 1970s. Only Turkey had a negative inflation-adjusted flow in one year (1984). Thailand and Korea had particularly high rates of real delivery of private credit. Credit provision to the public sector was more modest, but was positive for the period for Indonesia, Korea, and Thailand. Turkey and Colombia had more erratic flows of public credit, averaging close to zero from 1982–86.

Central bank rediscounts. The remaining piece of the puzzle is the provision of credit by the public sector—through central bank rediscounts—to the banking system and private sector. These flows (measured in nominal terms as percent of GDP) were very important in some of the crisis countries (see appendix table 5–11). Argentina, Chile, and Mexico had a surge in such credits in 1982, which continued afterward for Argentina and Chile, but not for Mexico. This reflected some form of bailouts of banks and private firms in these countries after the outbreak of the debt crisis. In Brazil and Yugo-

slavia, previously high levels of central bank rediscounts continued in the 1980s. These flows were comparatively less important in Morocco and the Philippines.

In the noncrisis countries, the flows of central bank rediscounts are important in all of the countries except Thailand, but do not show dramatic increases over the period as a whole. Indonesia and Colombia both show the effect of financial crises, but not on the same scale as Argentina or Chile.

Conclusions and Extensions

What policy lessons should we draw from the country experience reviewed in this paper? Outcomes in the crisis countries suggest that policies were not optimal even under the conditions imposed by the debt crisis. Large taxes on financial intermediation through reserve requirements, high inflation, and interest rate controls were severely distortionary both in the short run and in the long run. In the short run, the tax was associated with capital flight and financial disintermediation. This may have implied some inequity in the "tax collection," since wealthier people could move their capital out more easily. By penalizing private investment, the tax also damaged long-run growth. In the noncrisis countries, however, government borrowing at market rates was less costly for private investment because of the rapid growth of financial savings.

More research is needed on how distortions caused by taxes on financial intermediation compare with effects of conventional taxes. Although any conclusions are speculative in the absence of such research, it seems likely that small increases in rates or coverage of broad-based taxes (such as those on income or consumption) would generally be less distortionary for the same amount of additional revenue than taxes on financial intermediation. Conventional broad-based taxes mainly penalize consumption, while the tax on financial intermediation falls more upon investment. This might suggest that the long-run damage caused by the financial intermediation tax is more severe.

The choice of public investment as the main locus of fiscal adjustment also may have hurt private investment and growth in the crisis countries. Some public investments—such as infrastructure—are essential inputs into private production. By contrast, public investment in the noncrisis countries may have reinforced the healthy private investment and growth. These effects should be the subject of further research.

The evidence collected in this paper suggests that the approach followed in most of the noncrisis countries—modest domestic finance at market interest rates—was

superior to that followed in most of the crisis countries—increased domestic finance through taxes on financial intermediation. The crisis countries probably would have been better off raising conventional taxes and cutting current spending instead of raising taxes on financial intermediation and cutting public investment.

The context in which these policies were made should not be ignored. The speed with which external net transfers were reversed required quick action by the crisis countries. Raising conventional tax collection is an inherently slower process than taxing financial balances. Cutting current spending is more politically and institutionally difficult—and thus slower—than cutting public investment. It is understandable that countries often resorted to quick, though distortionary, policies. To allow a shift toward sounder policies in the future would likely require some breathing space provided by new external financing or relief from debt service.

Notes

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1. Indonesia is excluded from this part of the analysis on this criterion, since data on public enterprises are not available.

2. The model assumes that demand for currency is a function only of inflation, so base money increases unambiguously with increased interest rates (Easterly 1989).

3. Figure 5-3 shows the money market relation for the "low-debt" case, where money market equilibrium implies a negative relation between inflation and interest rates. Equation (5-1), the debt equilibrium, is also shown in the graph.

4. See Reisen and van Trotsenburg (1988) for a similar result.

5. If interest is paid on reserves, we should treat them as debt and include the real flow instead of the nominal flow in the domestic financing calculation. This correction is done only for Argentina, Chile, and Mexico, where interest is paid on reserves and information is available. But the correction is overstated, because not all reserves receive interest in these countries. The numbers presented for Argentina, Chile, and Mexico should thus be thought of as upper and lower bounds for domestic financing.

6. Without enough information to evaluate the equilibrium real interest rate, it is implicitly assumed to be zero for all countries. If the equilibrium rate is positive, the tax will be underestimated.

Appendix

Appendix table 5-1. *External Debt Flows, 1980-86*
(percentage of GNP)

	1980	1981	1982	1983	1984	1985	1986
<i>Public long-term debt</i>							
Crisis countries							
Change	2.3	2.4	3.8	8.1	4.1	4.4	4.4
Net flows	2.3	2.8	3.8	2.9	2.4	1.3	0.8
Revaluation	-0.1	-0.4	-0.3	-0.4	-0.6	1.2	1.3
Residual	0.1	-0.1	0.3	5.6	2.2	2.0	2.4
Noncrisis countries							
Change	3.9	2.0	2.6	2.5	2.1	4.9	4.3
Net flows	2.8	2.9	2.9	2.9	2.9	2.5	1.3
Revaluation	0.0	-0.8	-0.6	-0.5	-0.8	2.0	2.7
Residual	1.1	0.0	0.2	0.0	0.1	0.4	0.2
<i>Private long-term debt</i>							
Crisis countries							
Change	n.a.	2.3	0.1	0.5	-0.7	-2.2	-1.3
Net flows	1.1	2.2	0.6	-0.3	-0.2	-0.3	-0.2
Revaluation	0.2	-0.1	-0.2	0.4	0.3	0.3	0.2
Residual	n.a.	0.2	-0.3	0.4	-0.8	-2.2	-1.3
Noncrisis countries							
Change	n.a.	0.7	0.1	0.7	0.6	0.4	-0.4
Net flows	0.5	0.7	0.1	0.7	0.7	0.4	-0.4
Revaluation	0.1	-0.1	-0.1	0.2	0.3	0.5	0.6
Residual	n.a.	0.0	0.1	-0.2	-0.4	-0.5	-0.6
<i>Short-term debt</i>							
Crisis countries							
Change	n.a.	2.3	1.4	-6.2	-1.2	-0.9	-1.0
Revaluation	0.2	-0.1	-0.2	0.3	0.2	0.2	0.1
Effective change	n.a.	2.5	1.6	-6.5	-1.4	-1.1	-1.2
Noncrisis countries							
Change	n.a.	0.3	1.3	0.2	0.3	0.2	-0.1
Revaluation	0.3	-0.1	-0.2	0.4	0.4	0.7	1.0
Effective change	n.a.	0.4	1.5	-0.3	-0.1	-0.5	-1.0

n.a. Not available.

Source: *World Debt Tables, 1987-88 Edition*. Estimates of revaluation by IEC Debt Division. Private and short-term estimates assume an identical currency composition to the public debt.

Appendix table 5-2. *Public Sector Deficits: Public Sector Borrowing Requirement, Operational, and Primary Deficits, 1979-87*
(percentage of GDP)

<i>Public sector borrowing requirement</i>	1979	1980	1981	1982	1983	1984	1985	1986	1987
<i>Crisis countries</i>									
Argentina—PSBR	6.5	7.5	13.3	15.1	16.1	12.6	6.1	4.3	7.5
—including central bank losses	n.a.	n.a.	n.a.	n.a.	n.a.	15.1	8.3	5.9	11.8
Brazil—PSBR	n.a.	n.a.	12.5	15.8	18.6	23.3	27.5	10.8	n.a.
—operational	n.a.	n.a.	5.2	7.0	3.5	2.7	4.3	3.7	5.5
Chile—PSBR	-5.0	-5.6	-0.8	3.4	3.0	4.4	2.6	1.9	0.4
—including central bank losses	n.a.	-6.6	-2.3	2.9	9.4	10.6	15.2	11.4	n.a.
Mexico—PSBR	7.4	7.6	14.1	16.9	8.5	7.1	9.6	15.6	15.2
—operational	n.a.	5.2	11.3	7.2	-1.2	-1.0	3.5	5.8	-5.4
Morocco ^a	n.a.	n.a.	13.5	9.0	10.6	9.8	8.2	4.4	3.8
Philippines	n.a.	n.a.	7.5	6.5	6.2	3.3	2.1	1.6	1.9
—including financial losses	n.a.	n.a.	n.a.	n.a.	8.9	8.4	6.4	6.4	3.2
Yugoslavia—PSBR	-0.1	0.6	-0.5	-0.5	-0.3	-0.3	-0.3	0.0	n.a.
—including national bank losses	2.2	6.1	2.1	6.8	13.4	13.2	13.6	11.5	n.a.
<i>Noncrisis countries</i>									
Colombia	0.2	2.8	5.2	6.0	7.6	6.3	3.6	-0.2	1.6
Korea, Rep. of	n.a.	n.a.	n.a.	7.3	3.6	3.9	3.9	0.3	n.a.
Thailand	5.6	7.8	6.5	7.8	5.6	4.3	7.0	4.7	2.6
Turkey	n.a.	n.a.	6.2	4.0	5.7	6.6	4.7	4.5	8.3
<i>Primary deficit</i>									
<i>Crisis countries</i>									
Argentina	3.4	4.1	5.9	4.8	10.1	7.7	0.6	0.5	3.5
Brazil	n.a.	n.a.	1.6	2.1	-2.8	-3.8	-2.4	-0.5	n.a.
Chile	-6.2	-6.4	-1.2	2.9	1.2	2.0	-0.6	-0.5	-2.5
Mexico	4.0	4.1	9.1	8.7	-3.9	-4.8	-2.4	-0.9	-4.3
Morocco	n.a.								
Philippines	n.a.	n.a.	6.7	5.5	4.9	1.4	-0.3	-2.8	-7.2
Yugoslavia	n.a.								
<i>Noncrisis countries</i>									
Colombia	-1.1	1.1	3.8	4.2	5.5	3.9	0.7	-3.2	-2.2
Korea, Rep. of	n.a.	n.a.	n.a.	5.9	2.3	2.5	2.4	-1.0	n.a.
Thailand	4.2	6.4	4.7	5.8	3.2	1.8	4.0	n.a.	n.a.
Turkey	n.a.	n.a.	-1.0	2.9	-0.7	4.0	-1.3	-1.0	n.a.

n.a. Not available.

Note: A positive figure indicates a deficit.

a. National government only.

Source: World Bank data.

Appendix table 5-3. Consolidated Public Sector Review, 1979-87
(percentage of GDP)

	1979	1980	1981	1982	1983	1984	1985	1986	1987
<i>Total revenue</i>									
Crisis countries									
Argentina	33.9	36.4	35.7	33.1	34.7	33.4	41.5	38.2	36.8
Brazil	n.a.								
Chile	43.3	43.2	38.2	40.2	41.1	41.0	43.5	40.5	41.0
Mexico	24.0	25.2	23.9	26.3	30.5	29.2	28.2	30.4	30.0
Morocco	n.a.								
Philippines	n.a.	n.a.	15.3	15.2	15.1	13.7	14.9	13.9	16.6
Yugoslavia	n.a.	32.6	31.8	30.5	29.9	28.4	27.1	n.a.	n.a.
Noncrisis countries									
Colombia	26.7	27.3	24.8	24.6	23.9	18.8	20.5	22.0	18.6
Korea, Rep. of	n.a.	n.a.	n.a.	26.9	28.0	27.0	27.1	26.9	n.a.
Thailand	14.8	15.1	14.9	15.5	16.9	18.3	17.5	19.9	20.1
Turkey	n.a.								
<i>Tax revenue</i>									
Crisis countries									
Argentina	20.6	23.3	20.3	18.7	18.6	18.2	22.0	21.9	21.7
Brazil	n.a.	23.2	23.6	25.1	24.4	21.8	n.a.	n.a.	n.a.
Chile	25.7	26.3	25.2	22.7	22.4	23.7	23.2	23.4	23.8
Mexico	11.3	10.9	10.6	9.9	10.2	10.2	10.0	11.2	10.5
Morocco	n.a.								
Philippines	n.a.	n.a.	10.9	10.5	9.3	9.7	10.5	n.a.	n.a.
Yugoslavia	n.a.	30.1	29.1	27.7	26.6	13.3	24.2	n.a.	n.a.
Noncrisis countries									
Colombia	15.2	14.5	12.9	13.0	13.3	12.4	13.7	14.5	13.6
Korea, Rep. of	n.a.	n.a.	n.a.	18.2	19.0	18.3	18.3	18.2	n.a.
Thailand	13.1	13.4	13.5	13.1	14.1	14.1	14.5	n.a.	n.a.
Turkey	n.a.	n.a.	n.a.	n.a.	n.a.	14.4	16.8	19.9	20.4
<i>Nontax revenue</i>									
Crisis countries									
Argentina	13.3	13.2	15.4	14.3	16.1	15.2	19.5	16.2	15.1
Brazil	n.a.								
Chile	17.6	16.9	13.0	17.5	18.7	17.3	20.3	17.1	17.2
Mexico	0.7	0.8	0.9	1.1	1.0	0.8	0.9	1.0	1.0
Morocco	n.a.								
Philippines	n.a.	n.a.	4.4	4.7	5.8	4.0	4.5	n.a.	n.a.
Yugoslavia	n.a.	2.6	2.7	2.8	3.3	15.1	2.9	n.a.	n.a.
Noncrisis countries									
Colombia	11.5	12.8	11.9	11.6	10.6	6.4	6.8	7.5	5.0
Korea, Rep. of	n.a.	n.a.	n.a.	8.7	9.0	8.8	8.8	8.7	n.a.
Thailand	1.7	1.7	1.4	2.4	2.8	3.8	3.0	n.a.	n.a.
Turkey	n.a.								

n.a. Not available.

Note: Consolidated public sector includes central, state, and local decentralized agencies and SOEs.

Source: World Bank data.

Appendix table 5-4. Consolidated Public Sector Expenditures, 1979-87
(percentage of GDP)

	1979	1980	1981	1982	1983	1984	1985	1986	1987
<i>Noninterest current expenditure</i>									
Crisis countries									
Argentina	19.0	21.7	21.2	20.7	24.7	23.4	25.5	22.3	23.1
Brazil	n.a.								
Chile	12.6	12.4	11.1	11.5	10.2	10.0	9.3	7.5	8.3
Mexico	17.9	20.4	20.3	25.3	18.9	17.7	19.7	23.5	20.2
Morocco	n.a.								
Philippines	n.a.	n.a.	9.2	8.9	8.8	7.1	7.6	n.a.	n.a.
Yugoslavia	n.a.								
Noncrisis countries									
Colombia	7.6	8.3	9.3	8.9	9.6	9.1	8.6	8.2	7.6
Korea, Rep. of	n.a.	n.a.	n.a.	15.6	14.9	14.1	14.5	12.5	n.a.
Thailand	12.7	12.8	12.6	13.3	13.1	13.7	14.0	n.a.	n.a.
Turkey	n.a.								
<i>Interest</i>									
Crisis countries									
Argentina	3.1	3.4	7.4	10.4	6.0	5.0	5.5	3.8	3.9
Brazil	n.a.	n.a.	10.9	13.7	21.4	27.1	29.9	11.3	n.a.
operational	n.a.	n.a.	3.6	4.9	6.3	6.5	6.7	4.2	n.a.
Chile	1.2	0.8	0.4	0.5	1.8	2.4	3.2	2.4	2.9
Mexico	3.4	3.5	5.0	8.2	12.4	11.9	12.0	16.5	19.5
operational	2.1	1.5	2.6	-0.4	5.2	5.4	5.8	6.6	4.0
Morocco	n.a.	n.a.	n.a.	n.a.	4.7	6.2	6.2	6.2	n.a.
Philippines	n.a.	n.a.	0.8	1.0	1.3	1.9	2.4	n.a.	n.a.
Yugoslavia	n.a.								
Noncrisis countries									
Colombia	1.3	1.7	1.4	1.7	2.1	2.4	2.9	3.0	3.8
Korea, Rep. of	n.a.	n.a.	n.a.	1.4	1.3	1.4	1.4	1.3	n.a.
Thailand	1.4	1.4	1.8	2.0	2.4	2.5	2.9	n.a.	n.a.
Turkey	n.a.								
<i>Capital expenditures</i>									
Crisis countries									
Argentina	10.5	9.5	9.7	8.6	9.7	7.8	7.1	7.1	7.7
Brazil	n.a.	n.a.	7.6	7.5	5.5	5.2	5.4	n.a.	n.a.
Chile	5.2	5.4	5.2	4.7	4.9	6.4	7.0	7.5	6.9
Mexico	10.0	8.9	12.7	9.7	7.7	6.7	6.0	6.0	5.5
Morocco	n.a.	n.a.	7.9	10.5	5.2	5.9	4.2	3.1	3.5
Philippines	n.a.	n.a.	8.7	6.6	7.6	4.5	3.2	3.6	5.0
Yugoslavia	n.a.								
Noncrisis countries									
Colombia	6.2	6.5	7.4	7.3	8.2	9.5	8.9	7.5	6.3
Korea, Rep. of	n.a.	n.a.	n.a.	10.9	10.3	10.1	9.9	9.0	n.a.
Thailand	6.7	8.5	7.9	8.0	7.3	6.9	7.8	7.2	6.6
Turkey	n.a.	n.a.	n.a.	n.a.	10.2	9.7	11.4	13.6	13.5

(Table continues on the following page.)

Fiscal Adjustment and Deficit Financing during the Debt Crisis

Appendix table 5-4 (continued)

	1979	1980	1981	1982	1983	1984	1985	1986	1987
<i>Net transfers</i>									
<i>Crisis countries</i>									
Argentina	7.7	9.3	10.7	8.6	10.4	9.8	9.6	9.3	9.5
Brazil	n.a.	n.a.	10.8	11.6	10.9	9.3	10.0	n.a.	n.a.
Chile	19.3	19.0	20.7	26.9	27.2	26.6	26.6	23.8	23.2
Mexico	5.3	6.4	7.6	10.8	7.2	5.8	5.1	n.a.	n.a.
Morocco	n.a.								
Philippines	n.a.	n.a.	0.8	1.4	1.1	0.7	0.8	-1.9	-1.0
Yugoslavia	n.a.								
<i>Noncrisis countries</i>									
Colombia	11.8	13.6	11.8	12.7	11.6	4.1	3.6	2.8	2.3
Korea, Rep. of	n.a.	n.a.	n.a.	3.1	2.1	2.5	2.9	2.9	n.a.
Thailand	-0.4	-0.5	-0.7	-0.4	-0.4	-0.5	-0.7	n.a.	n.a.
Turkey	n.a.								

n.a. Not available.

Note: Consolidated public sector includes central, state and local, decentralized agencies and SOEs. Operational interest refers to interest less the inflation correction on domestic debt.

Source: World Bank data.

Fiscal Adjustment and Deficit Financing during the Debt Crisis

Appendix table 5-5. *Interest rates, 1980-87*

(percent)

<i>Country</i>	<i>1980</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>
Argentina								
Real lending rate	5.1	31.2	-18.7	-22.9	-29.7	-6.3	3.9	2.7
Real deposit rate	-4.3	9.7	-27.3	-30.4	-39.0	-21.9	-12.0	-14.8
Real government rate	n.a.							
Nominal spread	9.8	19.6	11.8	10.7	15.4	20.0	18.1	20.5
Brazil								
Real lending rate	-2.5	4.9	26.2	0.2	7.5	-0.1	-0.1	n.a.
Real deposit rate	-3.6	-3.0	11.6	-1.4	10.7	-0.8	-1.8	n.a.
Real government rate	-24.3	-3.9	9.3	0.3	-0.5	2.7	-16.8	n.a.
Nominal spread	1.1	8.2	13.1	1.7	-2.9	0.7	1.8	n.a.
Chile								
Real lending rate	12.1	38.8	35.7	15.9	11.5	11.1	7.5	4.9
Real deposit rate	4.8	28.5	22.5	3.9	2.5	4.1	1.4	3.1
Real government rate	-23.8	-8.7	7.5	0.2	-2.6	-2.7	-0.7	-1.4
Nominal spread	7.0	8.0	10.8	11.6	8.8	6.7	6.1	1.8
Mexico								
Real lending rate	-1.3	6.2	-26.6	-9.8	-2.8	n.a.	n.a.	n.a.
Real deposit rate	-2.8	0.7	-23.3	-14.4	-6.8	-2.6	-10.2	n.a.
Real government rate	-5.7	1.6	-26.8	-11.9	-6.2	-0.5	-13.3	-25.8
Nominal spread	1.5	5.4	-4.3	5.4	4.3	n.a.	n.a.	n.a.
Morocco								
Real lending rate	-2.5	-5.5	0.3	-4.9	-0.5	-2.0	4.2	n.a.
Real deposit rate	-4.4	-6.4	-0.3	-5.4	-1.0	-1.9	3.9	n.a.
Real government rate	n.a.							
Nominal spread	2.0	0.9	0.6	0.5	0.5	-0.2	0.3	n.a.
Philippines								
Real lending rate	n.a.	4.2	8.9	-5.4	-15.0	21.7	17.9	n.a.
Real deposit rate	n.a.	2.7	4.8	-9.9	-19.7	12.5	11.6	n.a.
Real government rate	-2.8	2.1	5.4	-9.0	-13.5	19.9	15.9	n.a.
Nominal spread	n.a.	1.4	3.8	5.0	5.8	8.2	5.6	n.a.
Yugoslavia								
Real lending rate	-18.9	-17.5	-8.8	-13.8	-3.3	2.6	-4.5	n.a.
Real deposit rate	-23.0	-20.9	-15.6	-30.0	-14.6	-8.5	-18.8	n.a.
Real government rate	n.a.							
Nominal spread	5.3	4.3	8.0	23.2	13.2	12.1	17.6	n.a.
Colombia								
Real lending rate	n.a.	n.a.	n.a.	n.a.	n.a.	14.1	11.8	9.5
Real deposit rate	n.a.	3.9	4.4	9.7	8.8	10.5	8.2	6.0
Real government rate	n.a.							
Nominal spread	n.a.	n.a.	n.a.	n.a.	n.a.	3.3	3.3	3.3

(Table continues on the following page.)

Fiscal Adjustment and Deficit Financing during the Debt Crisis

Appendix table 5-5 (continued)

<i>Country</i>	<i>1980</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>
Indonesia								
Real lending rate	n.a.	n.a.	10.9	9.9	16.4	17.4	13.1	14.3
Real deposit rate	-2.4	8.1	5.9	4.8	9.3	12.7	5.0	7.8
Real government rate	n.a.							
Nominal spread	n.a.	n.a.	4.7	4.8	6.6	4.1	7.7	6.0
Korea, Rep. of								
Real lending rate	-12.3	5.1	6.6	7.9	7.4	6.6	8.6	n.a.
Real deposit rate	-11.2	4.0	3.0	5.9	6.6	6.6	8.6	n.a.
Real government rate	-13.5	3.8	3.0	5.9	5.4	n.a.	n.a.	n.a.
Nominal spread	-1.3	1.0	3.5	1.9	0.7	0.0	0.0	n.a.
Thailand								
Real lending rate	1.4	5.9	16.0	13.3	19.2	15.2	15.1	n.a.
Real deposit rate	-3.8	0.2	10.2	8.8	13.4	9.4	7.9	n.a.
Real government rate	-4.3	0.5	10.4	7.0	12.9	7.5	6.2	3.7
Nominal spread	5.4	5.8	5.3	4.1	5.1	5.3	6.6	n.a.
Turkey								
Real lending rate	-0.6	50.2	37.7	28.0	28.7	42.0	51.0	n.a.
Real deposit rate	-40.9	-1.4	6.5	10.8	3.1	3.5	7.9	n.a.
Real government rate	n.a.	n.a.	n.a.	n.a.	n.a.	4.2	13.8	n.a.
Nominal spread	68.3	52.3	29.3	15.5	24.9	37.2	39.9	n.a.

n.a. Not available.

Note: Real interest rates are calculated from nominal rates: $[(1+r)/(1+p) - 1] * 100$, where r is interest rate and p is the inflation rate. Spreads are calculated as $[(1+i)/(1+r) - 1] * 100$,—where i is the loan rate and r is the deposit rate. See Easterly (1989) for description of data sources.

Source: Easterly (1989).

Appendix table 5-6. *CPI Inflation Rates, 1980-87*

(December over December rate)

	<i>1980</i>	<i>1981</i>	<i>1982</i>	<i>1983</i>	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>
Crisis countries								
Argentina	88	131	210	434	688	385	82	175
Brazil	86	101	102	178	209	249	64	432
Chile	31	10	21	23	23	26	17	21
Mexico	30	29	99	81	59	64	106	159
Morocco	10	13	7	13	8	10	4	2
Philippines	16	11	8	26	51	6	0	7
Yugoslavia	37	36	33	60	53	75	92	169
Average	40	41	57	85	98	84	46	102
Noncrisis countries								
Colombia	26	26	24	17	18	22	21	24
Indonesia	17	7	10	12	9	4	9	9
Korea, Rep. of	35	12	5	2	2	3	1	6
Thailand	16	12	3	4	0	3	2	4
Turkey	86	30	36	37	50	44	31	55
Average	34	17	15	14	15	14	12	18

Note: Averages are unweighted, geometric averages.

Source: World Bank data.

Appendix table 5-7. *Aggregate Public Domestic Financing, 1971-86*
(percentage of GDP)

	Average				1982	1983	1984	1985	1986
	1971-75	1976-78	1979-81	1982-86 ^a					
Crisis countries									
Argentina ^b	14.65	13.07	6.18	14.72	28.09	17.38	17.70	6.84	3.58
Argentina ^c	5.00	-1.54	3.78	3.64	25.10	-4.60	-2.01	-0.41	0.12
Brazil	n.a.	n.a.	4.17	6.07	4.08	5.34	6.40	8.46	n.a.
Chile ^b	n.a.	3.28	0.41	2.85	4.35	2.35	1.86	n.a.	n.a.
Chile ^c	n.a.	1.19	-0.61	1.03	3.72	2.08	1.61	n.a.	n.a.
Mexico ^b	n.a.	n.a.	6.95	10.33	23.45	2.68	4.07	7.57	13.88
Mexico ^c	n.a.	n.a.	4.67	4.08	15.45	-4.69	-1.16	2.31	8.48
Morocco	2.88	3.99	1.97	3.54	1.56	3.33	0.43	3.95	8.46
Philippines	n.a.	1.85	0.50	0.68	1.60	0.24	-0.17	1.05	n.a.
Yugoslavia	n.a.	n.a.	5.50	10.19	7.09	11.13	10.25	9.71	12.77
Noncrisis countries									
Colombia	n.a.	4.91	2.72	1.98	2.50	1.14	2.28	n.a.	n.a.
Indonesia	n.a.	1.75	1.67	1.51	1.35	1.83	1.86	0.95	1.55
Korea, Rep. of	2.12	2.78	0.22	1.75	1.25	0.43	1.65	1.81	3.61
Thailand	2.36	1.74	0.93	3.04	3.30	1.31	4.48	1.38	4.72
Turkey	n.a.	4.35	2.58	3.04	2.02	1.65	4.60	5.58	1.36

n.a. Not available.

a. Period average for years for which data are available.

b. Including nominal flow of bank reserves.

c. Substituting inflation-adjusted flow of bank reserves.

Source: *International Financial Statistics*, International Monetary Fund.

Appendix table 5-8. *Tax on Financial Intermediation, 1971-86*
(percentage of GDP)

	Average				1982	1983	1984	1985	1986
	1971-75	1976-78	1979-81	1982-86 ^a					
Crisis countries									
Argentina ^b	n.a.	n.a.	5.70	15.24	7.90	29.18	26.00	7.36	5.75
Argentina ^c	n.a.	n.a.	2.73	10.22	7.47	17.09	17.15	6.09	3.29
Brazil	n.a.	n.a.	n.a.	2.27	1.25	3.27	2.54	2.03	n.a.
Chile ^b	n.a.	n.a.	2.16	1.49	2.72	0.91	0.84	n.a.	n.a.
Chile ^c	n.a.	n.a.	0.80	n.a.	1.82	0.63	0.64	n.a.	n.a.
Mexico ^b	n.a.	n.a.	3.52	11.64	16.42	13.63	8.32	6.95	12.90
Mexico ^c	n.a.	n.a.	0.83	7.12	12.74	8.23	3.95	1.76	8.90
Morocco	n.a.	n.a.	2.32	1.24	0.93	2.50	1.20	1.63	-0.07
Philippines	n.a.	0.56	1.20	0.89	0.18	2.11	3.69	-0.85	-0.70
Yugoslavia	n.a.	n.a.	7.12	10.87	6.35	12.12	10.63	12.49	12.77
Noncrisis countries									
Colombia	n.a.	1.70	2.48	1.21	2.09	0.76	0.74	1.26	n.a.
Indonesia	n.a.	0.85	1.01	0.28	0.50	0.52	0.24	-0.28	0.42
Korea, Rep. of	1.29	1.12	1.82	0.23	0.33	0.29	0.29	0.23	0.03
Thailand	n.a.	n.a.	1.31	-0.74	-0.61	-0.38	-1.25	-0.74	-0.70
Turkey	n.a.	n.a.	7.32	2.80	2.48	2.79	3.82	3.28	1.66

n.a. Not available.

a. Period average for years for which data are available.

b. Including nominal flow of bank reserves.

c. Including only negative real interest rate paid on reserves.

Sources: *International Financial Statistics*, International Monetary Fund; Easterly (1989).

Fiscal Adjustment and Deficit Financing during the Debt Crisis

Appendix table 5-9. Flows of Financial System Liabilities to the Private Sector, 1971-86
(percentage of GDP)

	<i>Average</i>				1982	1983	1984	1985	1986
	1971-75	1976-78	1979-81	1982-86 ^a					
Crisis countries									
Argentina									
currency	-0.69	-0.35	-0.31	0.06	-0.40	-0.02	-0.97	1.27	0.42
deposits	-3.08	3.41	1.71	-2.54	-9.76	-2.39	-3.32	-0.20	2.95
Brazil									
currency	0.73	-0.12	-0.24	-0.26	-0.31	-1.04	0.15	0.15	n.a.
deposits	n.a.	1.51	0.02	1.72	1.21	0.48	3.69	1.49	n.a.
Chile									
currency	n.a.	0.69	0.33	-0.31	-0.89	-0.07	0.02	n.a.	n.a.
deposits	n.a.	4.15	3.48	-0.15	2.24	-5.08	2.40	n.a.	n.a.
Mexico									
currency	0.35	0.34	0.31	-0.54	-0.61	-1.35	0.13	-0.22	-0.65
deposits	n.a.	n.a.	3.38	-3.37	-9.15	-2.60	1.42	-3.54	-2.95
Morocco									
currency	0.92	0.87	0.31	0.33	0.08	0.16	0.27	-0.19	1.34
deposits	n.a.	n.a.	1.28	3.07	2.10	3.39	0.94	3.93	4.97
Philippines									
currency	-0.06	0.37	-0.14	0.11	0.02	0.94	-1.44	0.17	0.85
deposits	n.a.	3.37	-0.18	-2.53	1.65	-4.84	-10.44	1.28	-0.29
Yugoslavia									
currency	0.38	0.27	-0.44	-0.45	0.05	-1.82	-0.74	-0.07	0.32
deposits	n.a.	n.a.	n.a.	-4.44	-0.23	-8.88	-2.49	-6.50	-4.12
Noncrisis countries									
Colombia									
currency	0.10	0.54	-0.14	-0.11	0.17	0.51	0.35	-1.49	n.a.
deposits	n.a.	1.37	2.46	1.31	-0.04	2.70	1.27	n.a.	n.a.
Indonesia									
currency	0.48	0.56	0.37	0.29	0.21	0.07	0.08	0.62	0.49
deposits	n.a.	1.33	2.02	2.11	0.47	2.84	2.22	4.13	0.88
Korea, Rep. of									
currency	0.58	1.00	-0.35	0.41	0.85	0.41	0.24	0.10	0.45
deposits	3.33	4.82	1.10	4.47	5.44	4.26	1.84	4.75	6.09
Thailand									
currency	0.25	0.47	-0.08	0.36	0.59	0.39	0.42	-0.16	0.54
deposits	2.79	6.66	1.35	8.12	8.82	8.14	10.23	5.52	7.90
Turkey									
currency	0.36	0.47	-0.80	-0.04	0.35	-0.15	-0.46	-0.18	0.24
deposits	n.a.	-0.78	0.68	1.66	3.12	-1.50	1.62	2.60	2.46

n.a. Not available.

Note: Inflation adjusted flows.

a. Period average for years for which data are available.

Source: *International Financial Statistics*, International Monetary Fund.

Fiscal Adjustment and Deficit Financing during the Debt Crisis

Appendix table 5-10. Flows of *Financial System Claims on the Public and Private Sectors, 1971-86*
(percentage of GDP)

	<i>Average</i>				1982	1983	1984	1985	1986
	1971-75	1976-78	1979-81	1982-86 ^a					
<i>Public Sector</i>									
<i>Crisis countries</i>									
Argentina	1.82	-5.29	0.89	-0.64	21.24	-10.11	-7.07	-4.73	-2.52
Brazil	n.a.	n.a.	1.37	0.71	1.11	1.23	-0.83	1.32	n.a.
Chile	n.a.	0.90	-1.53	1.84	3.87	0.94	0.70	n.a.	n.a.
Mexico	n.a.	n.a.	3.15	2.05	11.70	-6.53	-3.15	1.25	7.00
Morocco	1.03	1.71	0.18	2.10	0.59	1.47	-0.88	2.78	6.55
Philippines	n.a.	1.48	-0.82	-0.11	0.66	-1.78	-0.79	1.50	n.a.
Yugoslavia	n.a.	n.a.	-0.57	0.22	1.00	1.90	1.05	-2.47	-0.39
<i>Noncrisis countries</i>									
Colombia	n.a.	1.60	0.08	0.04	-0.73	0.33	0.50	n.a.	n.a.
Indonesia	1.09	0.28	0.31	0.73	0.77	1.00	1.41	0.03	0.46
Korea, Rep. of	0.83	0.78	-0.65	0.91	1.20	-0.71	2.17	1.55	0.36
Thailand	1.13	0.71	-0.08	2.52	2.52	0.64	4.09	1.29	4.04
Turkey	1.93	2.73	-4.07	-0.06	-1.00	-1.75	1.26	2.17	-0.99
<i>Private Sector</i>									
<i>Crisis countries</i>									
Argentina	-1.98	2.69	5.49	-4.93	-2.13	-13.22	-8.50	-0.98	0.17
Brazil	6.75	2.48	-0.66	-0.31	2.32	-3.26	2.57	-2.87	n.a.
Chile	n.a.	7.30	8.77	2.23	10.69	-8.19	4.19	n.a.	n.a.
Mexico	n.a.	-1.85	1.76	-2.55	-9.17	-2.75	2.09	-0.35	-2.58
Morocco	2.38	1.92	1.17	1.35	2.25	0.50	2.22	0.45	n.a.
Philippines	2.11	3.99	3.45	-6.31	2.36	0.51	-17.95	-8.54	-7.92
Yugoslavia	0.21	8.60	-1.64	-6.62	-4.20	-12.53	-1.72	-8.91	-5.73
<i>Noncrisis countries</i>									
Colombia	n.a.	0.88	2.24	2.97	1.83	4.07	3.03	n.a.	n.a.
Indonesia	n.a.	1.24	1.58	2.63	2.50	1.92	3.04	2.73	2.97
Korea, Rep. of	4.93	5.97	4.69	7.52	9.01	7.54	5.84	8.22	6.98
Thailand	2.76	8.08	0.73	5.66	6.02	9.65	7.53	3.51	1.61
Turkey	2.31	-0.57	0.22	1.45	1.72	1.99	-2.17	1.65	4.05

n.a. Not available. a. Period average for years for which data are available.

Note: Inflation adjusted flows. Source: *International Financial Statistics*, International Monetary Fund.

Appendix table 5-11. Sum of Central Bank Rediscounts to the Banking System and the Private Sector, 1971-86
(flows as percentage of GDP)

	<i>Average</i>				1982	1983	1984	1985	1986
	1971-75	1976-78	1979-81	1982-86 ^a					
<i>Crisis countries</i>									
Argentina ^b	10.59	3.76	3.19	n.a.	29.61	13.40	15.36	n.a.	n.a.
Brazil	n.a.	5.34	4.67	3.72	3.83	3.57	3.34	4.15	n.a.
Chile	n.a.	1.63	0.46	18.08	11.97	23.78	18.48	n.a.	n.a.
Mexico ^b	n.a.	0.38	0.23	0.37	2.77	-1.06	0.20	-0.13	0.05
Morocco	n.a.	n.a.	n.a.	1.62	0.84	0.21	1.38	1.31	4.35
Philippines ^b	1.08	0.26	2.23	0.08	1.11	1.79	1.75	0.46	-4.72
Yugoslavia	2.22	5.48	4.86	4.36	4.78	4.48	4.94	3.58	4.03
<i>Noncrisis countries</i>									
Colombia	1.28	1.46	0.46	1.34	1.01	1.91	1.23	1.22	n.a.
Indonesia	n.a.	n.a.	1.32	2.93	4.63	1.36	4.61	0.95	3.08
Korea, Rep. of ^b	1.88	1.19	1.91	2.03	1.07	1.72	2.69	2.63	2.05
Thailand ^b	0.58	0.11	0.79	0.47	0.16	0.21	0.43	0.59	0.96
Turkey ^b	n.a.	5.06	2.43	0.13	-0.35	2.26	-1.98	0.28	0.45

n.a. Not available. a. Period average for years for which data are available.

b. Rediscounts to financial system only. Source: *International Financial Statistics*, International Monetary Fund.

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Comment

Dani Rodrik

This paper serves the useful purpose of bringing together consolidated fiscal data for a dozen developing countries. The objective is to take a close look at the choices made by these countries in the wake of the cutoff in external financing in 1982. This cutoff necessitated two kinds of adjustment. First, an external transfer had to be effected, which required generating a trade surplus on the balance of payments. Second, since much of the debt is public or publicly guaranteed, an internal transfer from the private sector to the public sector was needed to generate the resources for debt service. In the years that followed, the internal transfer proved particularly tricky. The affected

countries failed to accomplish it without engendering serious macroeconomic crisis. By all indications, the binding constraint now lies on the fiscal side rather than the balance of payments side. Therefore, a paper focusing on the fiscal dimension is especially welcome.

The stylized facts about the adjustments undertaken by the crisis countries after 1982 are by now well known. There was a sharp turnaround in the current account of the order of 4 to 5 percent of GNP on average. The fiscal retrenchment, however, was less dramatic (2 to 3 percent of GNP on average) and partially reversed in later years. Fiscal deficits were reduced primarily by expenditure cutbacks, rather than revenue increases, and public investment bore the brunt of the adjustment. In the ab-

sence of foreign inflows, public sector deficits were financed at the margin by the inflation tax. In practically all countries, the immediate consequence of the debt crisis was an acceleration of inflation. High and rising inflation then caused its usual havoc, setting off financial instability, capital flight, and a collapse of private investment. In turn, as the base of the inflation tax eroded, the vicious cycle became complete.

One of the strong points of Easterly's paper is that it tries to consolidate public sector accounts, aggregating the central government with public enterprises and the central bank. Once the accounts have thus been consolidated, a meaningful story can be told. Basically, a government that faces an increased debt-service payment has five options: (1) reduce current expenditures; (2) reduce investment expenditures; (3) increase revenues; (4) borrow from the domestic private sector; or (5) generate seigniorage. As Easterly shows, the crisis countries appear to have relied disproportionately on two of these options: cutbacks in investment and seigniorage through the inflation tax.

Easterly then compares this experience with that of some noncrisis countries. This seems to me a rather empty comparison, since the comparator countries, by virtue of not having been shut off from credit markets, did not have to face similar pressures. It is no great surprise to find members of this latter group doing basically the same things that they were doing prior to 1982. That the investment collapse and increased reliance on inflation tax did not take place in the noncrisis countries establishes neither the suboptimality of the response in the crisis countries nor the presence of good management in the noncrisis countries. It would have been more meaningful to undertake a comparison with the reactions of the latter countries to their own (mini-) debt crises, where such exist: Indonesia in 1975, Turkey in 1977–78, and Korea in 1980.

Two important questions are posed by the experience of crisis countries. The first question is a normative one, on which welfare economics and traditional public finance can shed some light: what is the optimal manner in which to accommodate a shortfall in foreign funds? The second question is one for which economic analysis is less helpful: to the extent that actual policy choices differed from desirable ones, what were the reasons for the divergence?

The first question is too broad to answer in detail here, but some principles can still be enunciated. The way to think of the cutoff in foreign lending is as an increase in the effective cost of funds facing the public sector. This has two effects on the public sector: (1) a negative wealth effect, as the preexisting stock of foreign debt now has to be serviced at higher interest rates; and (2) an intertemporal price effect, as the relative price of future out-

put has fallen. If the shock is a permanent one, the first effect would call for reduced consumption and the second effect for reduced investment. Relying on domestic sources of finance to maintain expenditures at unsustainable levels would not be justified. From this perspective, the actual choices made by the governments can be faulted for having relied too little on cutbacks in current spending and too much on domestic financing. Given the increase in the effective cost of funds, the investment response per se need not have been altogether irrational, although the magnitude of the cuts can certainly be questioned.

If the shock is to be viewed as temporary, which with hindsight does not seem realistic, there would be room for domestic financing. The actual choices would then fall short on account of both the (unnecessary) investment cutback and the bias in domestic financing in favor of the inflation tax.

In either case, it is hard to justify the outcome by reference to standard guidelines drawn from welfare economics. What then explains the actual choices made by the governments? This is a difficult question, and little research has been undertaken on this issue. Yet it seems to me that we desperately need some enlightenment on this issue to be more helpful to governments that are trying to cope with the consequences of the debt crisis. That diverse countries have responded to the crisis in rather similar ways—by slashing investment and generating inflation—suggests that more than idiosyncratic factors may be at work here.

Perhaps the standard explanation for why governments reach for the capital budget whenever they are short of funds is the relative political ease of doing so. Cutbacks in current spending deprive current claimants from government largesse, while it is mostly future claimants that are affected by a reduction in investment spending. Since the unborn do not vote or engineer coups, the path of least political resistance is clear. To be sure, this line of argument is not entirely free of problems. If governments do, in effect, discount the future very heavily, how can we simultaneously explain the presence of typically bloated investment budgets prior to the crisis? Or is it that the discount rate increases only in periods of crisis? Simplistic answers, like the above, will not do.

A similar puzzle exists with inflation. Why do countries find it convenient to resort to the inflation tax rather than more conventional taxes or domestic borrowing? Since domestic debt ratios are typically small, should domestic borrowing have been used more? I think it is somewhat misleading to talk here about inflation having been a "choice." It is more correct to say that governments typically "chose" to do nothing, and that inflation was simply the result. Governments in some cases may have

explicitly decided to substitute money finance for foreign finance, but more often the cause-and-effect links must have been indirect and subtle. Resort to central bank credit will be inflationary once reserves can no longer be drawn down or the central bank cannot borrow abroad, whereas it used to be perfectly consistent with price stability before. Tinkering with reserve and liquidity requirements of commercial banks is an unavoidable temptation for raising resources in a crunch. More generally, the economy responds to unchanged claims on sharply reduced resources by generating inflation. In this sense, inflation is the ultimate balancing item on ex-ante unbalanced budgets.

There is, of course, an important political dimension here. The availability of foreign resources prior to 1982 had created entrenched claimants from both the private sector and sections of the public sector. The central political management issue in 1982 became how to reduce these claims in line with the reduced resources. This in turn required a strong central government that could coordinate the various claimants' actions. The typical pattern, of course, was that the central leadership proved inadequate for the task. The consequences have been well described by Albert Hirschman: "Where the state defers readily to all the successive demands made

on it by one group or one government department after another, inflation has the function of denying part of what the state, in its weakness, has granted . . . The state may be said to hand over to inflation the disagreeable job of saying no." (Hirschman 1985, p. 73). Chile's experience here is exemplary, in that this pitfall was avoided. Then again, Pinochet had long experience in saying no.

The key, therefore, seems to be the political paralysis in which these countries found themselves once the debt crisis struck. Even deeper questions arise at this level. Governments manage to mobilize considerable amounts of resources during wartime without losing authority and legitimacy. Why could they not do the same during the debt crisis? One answer is that the accumulation and the eventual servicing of the debt involved distributional choices that precluded the formation of a united front. Not everyone benefited from foreign indebtedness; and not everyone is sharing the burden.

Reference

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Public Debt, North and South

Helmut Reisen

Public finance provides the key for an understanding of the ongoing Latin American debt crisis. The crisis is reflected by recurrent budget deficits, triple-digit inflation, depressed domestic savings and investment, a tendency toward very high domestic interest rates, and repeated attacks on debtor countries' currencies and foreign exchange reserves. Servicing debt is seriously complicated by the fact that much of foreign debt is owed by the public sector, whereas most export earnings and an important part of foreign assets are owned by the private sector (Sjaastad 1983). The external transfer of foreign exchange from debtor countries' governments to foreign creditors entails, therefore, an internal transfer of resources from the private to the public sector. The legacy of seven years of restricted external finance and inadequate or recessionary fiscal adjustment is now reflected in demonetized economies, rapidly rising domestic public debt, and lost credibility for many governments. The recent rise in domestic public debt with high real interest rates in countries such as Brazil and Mexico imposes a heavier financial burden on governments' budgets than foreign debt. This is a new experience for developing countries, but not for Organisation for Economic Co-operation and Development (OECD) countries.

Economic theory provides little, if any, guidance on whether there is debt ratio critical for solvency. In the forefront of high-debt OECD countries—Belgium, Ireland, and Italy—public debt relative to GDP is considerably higher than in prominent developing debtor countries. Yet for these OECD countries, insolvency has not developed, although the high debt generates considerable macroeconomic problems there also. Based on the recent experience of Brazil, Mexico, the Republic of Korea, Indonesia, and the three high-debt OECD countries, this essay will provide a somewhat eclectic and anecdotal discussion on some relevant aspects of high

public debt. First, why is public debt as a fraction of GDP still on the rise in spite of rationed foreign lending and efforts at fiscal consolidation? Major debt determinants are: fiscal rigidities because of failure to broaden tax bases and to cut government consumption; high interest rates and low GDP growth, both largely explained by the nature of fiscal adjustment; massive real exchange rate devaluation (to generate the external transfer); and high swings in key currencies' value. Second, how can the rise in government debt be contained in a time consistent way and how can fiscal adjustment foster growth while minimizing real exchange rate depreciation and reducing the cost of domestic public debt? "Easy" alternatives to growth-oriented fiscal adjustment—inflationary blow-out of domestic debt, unilateral default, taxation of bond returns, and certain foreign debt reduction schemes—are dismissed as effective instruments for a sustainable reduction of total public debt.

Why Government Debt Is Still Rising

Because of different definitions of the public sector, comparisons of public debt ratios are very precarious. A comparison of changes in debt ratios is less arbitrary. Table 6-1 demonstrates for the 1980s the sharp rise in government debt as a fraction of GDP in all countries except the Republic of Korea. Except for Indonesia, where domestic debt is nonexistent, and Italy, which has almost no foreign debt, the structure of public debt is now quite similar for such countries as Brazil, Mexico, Belgium, and Ireland. At first sight the picture is puzzling: the highest debt ratio is in Belgium and Ireland, where there is no "debt crisis." In Brazil, Mexico, and Indonesia, the reduction in foreign borrowing has accompanied a rapidly rising foreign debt ratio. External transfers have done nothing to reduce government in-

Table 6-1. *Net Public Debt, 1981 and 1987*
(percentage of GDP)

Country	Changes, 1981 to 1986-87			Levels, 1986-87		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Brazil	12.2	12.1	24.3	20.5	26.1	46.6
Mexico	28.5	31.1	59.6	40.4	53.4	93.8
Indonesia	n.a.	42.7	42.7	n.a.	53.0	53.0
Korea, Rep. of	1.2	-0.8	0.4	6.1	8.3	14.4
Belgium	21.5	11.1	32.6	92.6	21.3	113.9
Ireland	21.1	19.9	41.0	78.3	51.0	129.3
Italy	32.0	1.1	33.1	74.8	2.0	76.8

Note: Foreign public debt is net of official foreign exchange reserves, Domestic debt is net of money base. For Brazil and Mexico, debt stocks at year-end have been deflated by the consumer price index (1980 = 100) at the end of each respective year. They have then been divided by real GDP in 1980 prices. Data for Italy are based on new national accounts.

Sources: Banco Central do Brasil, *Brazil Economic Program*; Banco de Mexico, *Indicadores Económicos*; World Bank data; IMF, *International Financial Statistics* (for the Republic of Korea); OECD, *Economic Surveys for Belgium, Ireland, and Italy*.

debtedness when they were prematurely imposed from abroad.

The link between the external transfer of foreign exchange from debtor countries' governments to foreign creditors and the internal transfer of resources from the private to the public sectors can be well understood by regrouping the government budget identity, which shows the link between the public borrowing requirement (fiscal deficit) and external and internal sources of finance.¹

$$(6-1) \quad (r^*b^* - \dot{b}^*)e \equiv (t-g) + (t^* - g^*)e - rb + \dot{M}/P + \dot{b}$$

where:

- r, r^* = the domestic and foreign interest rates respectively,
- b, b^* = the domestic and foreign public net debt respectively,
- \dot{b}, \dot{b}^* = new additions to the domestic and foreign public net debt respectively,
- g, g^* = noninterest public spending in the traded and nontraded goods sectors respectively,
- t, t^* = tax revenues on traded and nontraded goods respectively,
- e = the exchange rate (relative price of traded goods in terms of nontraded goods), and
- \dot{M}/P = the increase in real base money.

The left-hand side in equation (6-1) represents the external public transfer, which is given by the difference between interest payments on net foreign debt (gross debt minus foreign exchange reserves) and net new foreign lending. This quantity must equal the domestic public balance—on the right-hand side of equation (6-1)—which is composed of (i) sources of funds: taxes on

traded and nontraded goods, money creation, and new domestic debt; (ii) uses of funds: interest on domestic debt and public spending on traded or nontraded goods.²

To identify exactly where the debt problem lies, equation (6-1) must be transformed into a debt-dynamics equation:

$$(6-2) \quad x_t = x_{t-1} [(1-f)r + f(r^* + e) - n] - [(t-g) + (t^* - g^*)e] - (p+n)m$$

where:

- x = the total public debt ratio to GDP,
- f = the percentage share of foreign debt in total public debt,
- n = the growth rate of GDP,
- p = the inflation rate,
- m = the ratio of base money to GDP,

and where the other variables introduced above are now expressed in percentages of GDP. Equation (6-2) reveals that the public debt ratio rises as long as the difference between the public debt burden and GDP growth is not compensated by a surplus in noninterest surplus plus money finance.

Table 6-2 helps to explain why the debt-income ratio stopped growing in Korea and rose rapidly elsewhere during the past five years. Korea could afford a primary deficit (albeit a moderate one) because extraordinary GDP growth moved ahead of interest rates. Mexico, in contrast, was the only country to run a primary surplus (almost 4 percent of GDP), but it did not offset the combined impact of negative growth, high interest rates, and (summing up the fluctuations of its real exchange rate) heavy debt-weighted devaluation. The foreign exchange rate is an important debt determinant with two components: local currency devaluation relative to the dollar to improve external competitiveness (to generate external transfers or cope with other external shocks),

Table 6-2. Debt Determinants
(average, end-1983 to end-1987)

Country	Primary deficit (percentage of GDP) ^a	Real interest less GDP growth (percent) ^b	Real annual devaluation (percent) ^c	Share of foreign debt in total debt	Seignorage and inflation tax, end-1987 (percentage of GNP) ^d
Brazil	0.7	2.3	2.0	0.56	1.8
Mexico	-3.9	9.7	6.6	0.57	1.5
Indonesia	1.2	2.1	18.2	0.99	0.7
Korea, Rep. of	0.9	-0.8	5.1	0.58	0.4
Ireland	1.0	2.5	-5.8	0.39	0.8
Italy	3.2	2.5	n.t.	0.02	1.8

n.t. Not taken.

a. The primary deficit in Brazil excludes interest payments for foreign public debt from the operational public sector borrowing requirement. In all other cases, it excludes all interest payments from the nominal public deficit. A minus sign denotes a surplus.

b. Real interest is the weighted average of the real domestic and foreign interest rate on public debt. For Brazil and Mexico, only foreign interest has been considered.

c. Real annual devaluation is based on effective exchange rates (geometric averages based on moving currency debt weights), adjusted for domestic inflation.

d. Seignorage and inflation tax are defined as changes in the inflation-adjusted money tax times the annual rate of inflation, as a percentage of GDP in 1980 prices.

Source: See table 6-1.

and movements in the dollar value of key currencies (like the yen or the deutsche mark). The foreign exchange rate was crucial in Indonesia, where most public debt is in hard currencies (such as the yen), and where all public debt is foreign. Before 1984 (when rationed lending forced debtor countries to switch their trade balances from deficit to surplus), the exchange rate also had a major impact on public debt ratios in all problem debtor countries. Monetary finance did not help in Brazil and Mexico (despite high inflation) to transfer more real resources from the private to the public sectors as it did in Italy, where inflation returned to single-digit levels. High inflation taxes were almost outpaced by negative seignorage since the demand for real base money fell rapidly.

Tax Collection, Noninterest Spending, and Inflation

When is there a public debt problem? The intertemporal budget identity provides no answer to that question because it is compatible with cases of ever increasing indebtedness. More binding is Spaventa's definition of feasibility: "If there are perceived social and political limits to the government's ability to reduce expenditure and to increase taxation net of transfers, . . . there are also limits to the level of the debt ratio which is compatible with a credible commitment on the part of the government to meet the intertemporal constraint" (1988, p. 16).

Spaventa's definition explains why public debt is more likely to turn pathologic in many developing countries than it does in richer countries. Tax ratios of developing countries tend to be much lower—less than half of the average tax ratio of industrial countries. There have been rare instances among developing countries (like Indone-

sia) where it has been raised by several percentage points of GDP, as has happened in some developed countries like Ireland and Italy (see table 6-3).

Why has there been so little tax adjustment in problem debtor countries? There are at least three views on that question. First, supply-siders would relate disappointing tax collection to the microeconomic details of tax structures, in particular to marginal tax rates and the real income level to which these rates apply (Reynolds 1985). Table 6-4 examines this claim, showing the top marginal rates for personal income taxes, the associated taxable income threshold (in thousands of dollars), the ratio of this income to per capita GDP (as a proxy for bracket creep), and the fiscal yield of personal income tax as a percentage of GDP. Tax pressures intensified (in the sense that top tax rates were applied to lower income) in Brazil, Belgium, and Ireland, but did not raise tax revenue in Brazil. Personal income tax is an important source of revenue in OECD countries, but it is a negligible revenue source in the South. Table 6-4 also shows that reduction of top rates (Korea, Indonesia) and of bracket creep

Table 6-3. Nonoil Tax Receipts, 1981 and 1986-87
(percentage of GDP)

Country/average	1981	1986-87
Brazil	23.6	21.8
Mexico (nonoil)	10.6	10.5
Indonesia (nonoil)	5.9	8.1
Korea, Rep. of	18.2	18.2
Belgium	42.8	45.2
Ireland	38.8	44.3
Italy	32.9	38.9
OECD average	35.7	36.0

Source: Easterly (in this volume); World Bank data; OECD for OECD countries.

Table 6-4. *Personal Income Taxes: Top Rates and Fiscal Yield*

Country	Maximum individual tax rates ^a		Threshold ratio, 1987 ^b	Fiscal revenue ^c	
	1980	1987		1980	Latest
Argentina	45 (73.7)	45 (62.3)	26	0.0	0.0
Brazil	55 (76.4)	50 (15.6)	7	0.2	0.2
Mexico	55 (65.8)	60 (46.4)	27	2.4	2.0
Indonesia	50 (15.4)	35 (50.0)	86	0.4	0.7
Korea, Rep. of	89 (173.2)	55 (73.0)	25	2.0	2.4
Belgium	n.a.	67 (140.4)	10	14.1	14.3
Ireland	n.a.	58 (22.3)	3	10.9	13.1
Italy	n.a.	62 (462.9)	35	7.5	11.4

a. Maximum individual tax rates (percentages) and associated taxable income (in thousands of U.S. dollars). Exchange rates used are period averages.

b. Income at which the top rate applies divided by per capita GDP.

c. Fiscal revenues from personal income tax as a percentage of GDP.

Sources: Coopers and Lybrand, 1988 *International Tax Summaries*; IMF, *Government Finance Yearbook*.

(Indonesia) may produce more tax revenues, even though the increase has been moderate. But the table does not explain why the fiscal yield on personal income tax has been almost nonexistent in Argentina and Brazil, or why there was no adjustment during the 1980s in contrast with other sample countries, including Korea and Indonesia.

A second view holds that depressed tax revenues have in part been the immediate consequence of the debt crisis. Lower consumption, profits, wages, per capita incomes, and imports, mostly unavoidable for effectively restraining overall demand, also meant shrinking tax bases. Moreover, the Tanzi effect—important losses of real tax revenues associated with inflation acceleration—was confirmed in problem debtor countries. Since progressive income taxes represent only a small share of total tax revenue in developing countries, fiscal drag is insignificant. Much of taxes levied with specific rates and the long lags in collection lead to inflation-induced losses for the governments (Tanzi 1977). But automatic stabilizers do not tell the full story.

Low tax ratios and standard tax rates, bracket creeps and low fiscal yield suggest a third view: the failure to broaden the tax base is crucial in explaining persistent debt-servicing problems in many developing debtor countries. Administrative and technical bottlenecks in tax assessment, levying, and collection prevent tax revenues from rising and powerful interest groups have often prevented tax reform to abolish tax holidays and exemptions.³

Repeated failures of stabilization in Argentina and Brazil and interwar evidence from Europe suggest that thorough fiscal reform cannot be expected in countries in an “unstable” political situation (Alesina 1988, pp. 34-79). “In an ‘unstable’ political situation, distributive disputes over which taxes to increase (or which type of transfers to reduce) generate fiscal deadlocks which undermine the government’s ability to increase explicit tax

revenues. This situation occurs if each group has enough power to ‘block’ explicit taxes on itself but not enough political influence to impose explicit taxes on others.” This situation is to be contrasted with a “stable” situation where one political side controls economic policy decisions with a solid majority (say, Indonesia) or without polarization between political groups and is thus able to impose the public debt burden on groups not represented in the government.⁴

The distributional impact of high public debt may well differ between OECD countries and developing countries. To the extent that pension schemes claim a significant part of domestic public liabilities, as is often the case in developed countries, the taxed groups and the rentiers are identical and the distributional concern is less warranted. This constellation is to be contrasted with inflationary developing countries, where the poor in the informal sectors hold the noninterest part of the public debt (cash), which is subject to considerable inflation tax, while the rich hold the high-interest part of public debt or switch into foreign currency or real assets (for empirical evidence on Mexico, see Gil Diaz 1987). Therefore, any external debt strategy that relies on substituting high-interest domestic debt for foreign debt may be short-lived, not only because the public sector runs into insolvency but also for its social implications.

In problem debtor countries, external transfers have encouraged growing domestic public debt, and fiscal deadlocks have forced their monetization. Inflation is the residual outcome. Clark observed (1945) that in several European countries in the interwar period, there seemed to be a limit to the tax ratio. Every time this limit was reached (at about 25 percent), inflation increased. The political situation was “unstable” in Argentina and Brazil but was not so in Chile, Colombia, Indonesia, and Korea, where noninflationary fiscal adjustment could be observed (see table 6-5). Mexico was an in-between case. The year after tax ratios peaked in Argentina (1980,

Table 6-5. *Tax Ratios and Inflation, 1980-87*

Country	Year	Tax ratio		Inflation (percentage per annum)	Multiple of inflation compared to year when tax ratio peaked		
		Highest	Lowest		Year 1	Year 2	Year 3
Argentina	1980	23.3		101	1.5	2.4	4.9
	1984		18.2	627			
	1986	22.0		90	1.5	n.a.	n.a.
Brazil	1982	25.1		98	1.7	2.0	2.4
	1984		21.8	197			
Mexico (nonoil)	1986	21.4		86	1.5	n.a.	n.a.
	1983		18.7	102			
Chile	1985	43.5		31	0.6	0.6	n.a.
	1981		38.2	20			
Colombia	1980	27.3		27	1.0	0.9	0.8
Indonesia (nonoil)	1986	10.1		6	1.5	n.a.	n.a.
	1984		6.2	10			
Korea, Rep. of	1983	19.0		3	0.7	0.7	0.8
	1982		18.2	7			

Sources: Easterly (in this volume); IMF, *International Financial Statistics*; World Bank data.

1986), Brazil (1982), and Mexico (1986), again at about the level reached during interwar Europe (25 percent), inflation accelerated by 50 percent in all three countries and doubled two years after the tax ratios peaked.

Table 6-5 also confirms the Tanzi effect for high-inflation countries: the lowest tax ratio is noted when inflation had risen to triple-digits. But as table 6-2 shows, with the demand for base money falling, there were limits to the resources that governments could acquire through the inflation tax.

When interest rates exceed GDP growth, the need to pay growing interest outlays complicates cuts in overall spending (and tax burdens). This observation is widespread: it is true for the OECD (on average), particularly for the high-debt OECD countries, and there is thus little reason to believe that it should be different for developing debtor countries. But by comparing 1981 and 1987, table 6-6 reveals that cross-country differences are important. In "unstable" cases like Brazil and Italy, there were no cuts in current outlays (such as subsidies and public salaries), and the noninterest current account increased by four percentage points of GDP. The opposite was

observed in Belgium and Korea, where current public spending was reduced by about 4 percentage points of GDP, and in Mexico (2-1/2 percent). Even if cuts in noninterest public spending were important, they were rarely "growth-oriented," since they often concentrated on capital expenditure. To the extent that these cuts affect infrastructure capital rather than "white elephants," they lower the productivity of complementary private sector capital and future output growth.

Interest Rates and GDP Growth

Much of the increase in public debt ratios has been unrelated to primary deficits in the government budgets. As table 6-2 shows, since year-end 1983, the difference between real interest rates and real GDP growth accounts for one third of the relative debt in the lowest case (Italy) and for two thirds in the highest case (Mexico) increase in recent years. So for a country like Mexico, one can easily imagine a disaster scenario in spite of its primary budget surpluses: foreign debt service crowds out investment and reduces output growth and the tax base; this

Table 6-6. *Structure of Public Spending, 1981 and 1986-87*
(percentage of GDP)

Country	1981			1986-87		
	Capital	Interest	Other	Capital	Interest	Other
Brazil	7.6	10.9	8.8	5.4	11.3	12.7
Mexico	12.9	5.0	21.8	5.5	19.5	19.2
Indonesia	6.4	0.7	7.3	8.4	3.3	9.4
Korea, Rep. of	10.9	1.4	18.5	9.0	1.3	14.4
Belgium	5.0	7.9	44.4	2.8	11.1	40.1
Ireland	15.2	7.6	23.2	9.6	11.3	23.5
Italy	5.9	3.4	34.2	5.2	8.7	38.6
OECD average	3.5	2.5	33.3	3.1	3.8	34.3

Sources: See table 6-1. For OECD average, see OECD (1989b), ch. 5.

process feeds on itself until no resource base is left from which to service the public debt. It is thus important to know to what extent public finance can contribute to higher growth and lower interest rates, and to what extent it cannot.

Pooled time-series-cross-section regression estimates reported in the 1988 OECD Survey of Belgium identify the budget deficit-private saving ratio as a significant determinant of real bond yields. The ratio explains a third of the increase in bond yields from 1979 to 1983 and a third of their subsequent decline. Another third is explained by the U.S. bond yields, indicating that their determinants (like the U.S. deficit-savings ratio) are important concerns for the OECD, and more so for developing countries where the foreign share in public debt is higher.

But in countries like Mexico, real bond yields have failed to decline with falling operational deficits (which corrects for the inflation component in the government's interest outlays). Debt-income ratios have continued to increase, suggesting that debt stocks have affected interest rates more than the deficit. The savers have apparently considered the risks of imminent default and inflation by requiring correspondingly higher interest rates on domestic government debt. Since high interest rates feed public debt, they not only reflect inflationary expectations, but also determine the inflation rate. Whether the economy ends up in a situation with low interest rates and low default risk, or with high interest and high default risk, depends on the credibility of the government.⁵ After a long experience of high and variable inflation, coupled with repeated periods of negative real returns on government bonds, the risk premium in domestic interest rates is unlikely to fall rapidly. Finally, as long as a fixed exchange rate policy is not fully credible (like in Mexico's 1988 stabilization), in addition to default and inflation risks, interest rates incorporate expectations of forthcoming devaluations.

High inflation, excessive minimum reserve requirements, and forced sales of government bonds have enlarged the wedge between the interest yield for domestic savers and the interest costs for domestic borrowers. Returns on savings are often too low to mobilize saving for capital formation while credit costs are too high to finance profitable investment. The concomitant losses of efficiency and opportunities for growth are often exacerbated when rationed credit is extended to favored (big or public) enterprises at preferential interest rates.

When the public budget deficit exceeds the current account deficit, public sector borrowing must be matched by a surplus of private sector savings over investment. Public sectors then become net users of household and corporate saving, which are then unavailable for private investment. This explains why investment levels

are so depressed in many problem debtor countries (like Mexico), and why they are up in Korea (in spite of massive external transfers).

Italy's experience reveals, however, that the negative effects of fiscal deficits can be offset to some extent. This is not because of "tax discounting" (as embodied in the Ricardian Equivalence Theory) in the countries characterized above as "unstable." Taxpayers do not increase private savings to prepare for future taxes that governments will eventually have to levy to pay increased interest payments on their debt. Why should they, when they can easily evade taxation? Even in most OECD countries, the tax-discounting factor appears to be close to zero (Nicoletti 1988). But fiscal deficits can displace private consumption and lure savers into purchasing public debt when high real rates of return, offered by near substitutes of Treasury bills, are taxed (Italy) or unhedged against high inflation (Brazil). The authorities may consequently face a trade-off between high output growth (to the extent that high bond yields reduce private consumption) and high growth of domestic public debt (fed by the high bond yields). The ultimate outcome for the debt-income ratio will then depend on how quickly the government's gains in reputation translate into lower interest.

The output effect of a given fiscal deficit depends on the (incentive) structure of taxes and public spending. When countries like Argentina intensify tax pressure on export production, agriculture, and domestic financial intermediation, the disappointing performance in savings, exports, and output growth should come as no surprise (Reisen and van Trotsenburg 1988). Output growth also depends on the composition of government expenditure. Only cuts in government consumption equal to the increases in debt service succeed in maintaining the growth rate without intensifying inflationary pressures.⁶ Instead, cuts in public capital formation lower the nation's overall investment and depress private investment's profitability, which translates into lower growth, lower savings, and lower taxes.

Real Devaluation and Cross-Currency Movements

Efforts to reduce foreign debt demand a real devaluation of the exchange rate below purchasing power parity to generate the real transfer (trade surplus) for foreign debt service. Here is one of the main differences between high-debt OECD countries and Latin American debtors. While Ireland, Italy, and Belgium belong to the European Monetary System, and hence have a de facto peg with the deutsche mark, Latin American debtors can no longer borrow abroad, calling for sharp depreciations of their currencies. A large shift in real exchange rates is called for when external borrowing (putting upward pressure

on the exchange rate) and later external transfers increase in a short time period. Real effective exchange rates (trade-weighted) in major developing debtor countries are now often 40 percent below their 1980–82 average. Add to this the major swings in the value among key currencies—for example, the yen has appreciated more than 100 percent against the U.S. dollar during 1985–87—and it is obvious why changes in the foreign exchange rates have mattered so much for debt dynamics.

Problem debtor countries like Brazil and Mexico suffered the heaviest capital losses because of real devaluation during 1982–83, when their foreign public debt ratio doubled. Debt-weighted real annual devaluation also accounted for much of the rising public debt ratios during 1984–87. It explains 85 percent of the rise in the public debt ratio in Indonesia that engineered massive devaluations, where all public debt is foreign and most of it is in yen. Debt-weighted real devaluation accounts for 27 percent of the rise in the debt-income ratio during 1984–87 in Brazil and Mexico.

Devaluation also has an immediate effect on the government budget. The impact will typically be negative in the (largely inward-oriented) problem debtor country. The rise in tax receipts and new inflow of foreign finance are too limited to make up for the rise in local currency costs of servicing foreign debt after a devaluation.

While the immediate consequence of a sustained real devaluation is a proportionate rise in the real interest payments on foreign debt, its impact on the noninterest part of the government budget is much more difficult to determine. The budget is likely to be affected by devaluation because of changes in prices (price effect) or because of changes in various tax bases induced by shifts in wages, corporate income, or export and import volumes (output effect).

By definition, a sustained real devaluation raises the prices of tradable goods relative to nontradables. To analyze the price effect, it helps to break down the noninterest budget deficit (or surplus) into taxes and expenditures that depend on home prices—nontradables—and those that depend on world prices—tradables [see equation (6–1)].

For example, expenditure on nontradables includes public sector salaries, and on tradables, imported capital goods, while tax receipts fall on nontradables like taxes on labor and on tradables like trade taxes. A government of an outward-oriented economy (like Korea) or with an important public mineral sector (like Nigeria) is more likely to profit from devaluation than a government of an inward-oriented economy without a large export-oriented public sector (Brazil, for example). In the last type of country, the dollar value of tax receipts that arises in part from taxes on nontradables will tend to fall, while

the reduced dollar value of spending on nontradables does not fully offset the losses in tax receipts.

A real devaluation exerts a negative price effect on the public budget when the real interest on net external debt plus the noninterest budget deficit on tradables exceeds new net external debt.⁷ To put it differently, a real devaluation is likely to improve the fiscal situation only when the public budget on tradables is in an initial surplus or when the net foreign exchange flow (net debt minus interest) to the government is positive.⁸

Exchange rate adjustment may also worsen fiscal imbalances because of widespread multiple exchange rates. Multiple rates imply an implicit tax subsidy structure (Dornbusch 1986). Imports can be taxed by a high price of foreign exchange as can exports by a low exchange rate at which foreign exchange earnings must be surrendered. But government may also use the multiple-rate system to subsidize imports or exports with preferential rates. The net fiscal revenue from the multiple-rate structure depends on the excess proceeds from foreign exchange sales divided by the revenue from purchases.

Devaluation can reduce the differential between official and black market rates and can also be used to unify multiple rates. Eliminating the exchange rate differential leads to a sharp drop in the implicit export and import taxes when the affected government is a net seller of foreign exchange (Pinto 1987).⁹

The second component of the debt-weighted exchange rate is currency swings. In the 1980s, the currency composition of foreign debt dwarfs cross-currency differences in interest rates as a determinant for foreign debt-service costs. Because of institutional barriers or high transaction costs that prevent them from participating actively in futures markets, most developing nations are not hedged against the risks of exchange rate changes among key currencies. But they can minimize their exchange risk exposure by matching the currency mix of their debt with the currency mix of their cash flows with due consideration, if possible, of the pass-through effects of exchange rate changes on the different good markets, and of the covariance of key currencies.¹⁰

The World Bank is now the biggest net lender to highly indebted countries, but its currency pool seems particularly inadequate for almost all developing countries because it tends to increase their foreign exchange risk exposure for the benefit of a very questionable reduction in the pure interest cost of the Bank's lending.¹¹ Calculations for Indonesia show that if it had matched the currency mix of its foreign debt with the currency structure of its cash flows, it would have minimized the foreign exchange risk of cross-currency fluctuations and saved about \$10 billion during 1985–88 against its actual currency composition. But if the Indonesian government followed the World Bank's debt-management practices,

Table 6-7. *Money Base and Domestic Public Debt*
(percentage of GDP)

Country	Real money base (percentage of GDP)		Real money base (percentage of domestic public debt)	
	1981	1987	1981	1987
Brazil	3.5	2.2	42	11
Mexico	15.9	4.5	134	11
Indonesia	7.1	8.0	n.a.	n.a.
Korea, Rep. of	5.7	7.4	116	121
Belgium	10.3	7.8	14	11
Ireland	11.0	10.0	19	13
Italy	15.0	15.5	35	21

Note: Money bases at year-end have been deflated by the consumer price index (1980 = 100) at the end of each respective year and have then been divided by real GDP in 1980 prices.

Sources: Table 6-1; IMF, *International Financial Statistics*.

it would have lost about \$6 billion during the same period compared with its actual debt structure (Reisen 1988b).

How to Contain the Rise in Government Debt

"Easy" Alternatives

Easy alternatives to growth-oriented fiscal adjustment do not exist. Hyperinflation, unilateral default, taxation of domestic bond returns, and voluntary foreign debt reduction are often advocated to relieve the public budget of debtor countries. But recent evidence suggests that these devices do not work.

An unanticipated burst of inflation helped Argentina (1982) and Mexico (1983) reduce domestic public debt and the real cost of debt service. Such a strategy of "surprise" capital losses for domestic bondholders has become increasingly ineffective as a way to alleviate the public debt. First, maturities of government bonds are now extremely short term. Moreover, public debt in problem debtor countries is often contracted on a floating rate basis or fully indexed to price inflation. Second, rapid monetization of government debt is not a solution since most problem debtor countries are by now extremely demonetized (see table 6-7). The money base is now about 2 percent of GDP in Brazil (down from 3.5 percent in 1981) and 4.5 percent of GDP in Mexico (down from 15.9 percent in 1981). A policy that doubled the money base in a week (for example, through open market purchases) would reduce publicly held debt by a mere 11 percent in Brazil and Mexico. Note that the respective figures are not significantly higher for Ireland, Belgium, and Italy. An inflationary erosion of domestic public debt does not work anymore in most countries with a long history of fiscal deficits and would not justify the subsequent inflation.

Default

Outright default on foreign or domestic debt cannot prevent the growth of public debt unless tax revenues exceed noninterest spending. This condition seems only satisfied in Chile and Mexico. But default also imposes a heavy financial burden on governments. Brazil's temporary interest moratorium (from February 1987 to February 1988) has cost the country from between \$710 million (according to the government) and \$1.5 billion (according to some Brazilian economists). These figures would include higher spreads on short-term trade loans (\$140 million); the transfer of official reserves to the Bank for International Settlements (BIS) to avoid seizure (\$20 million); delayed restructuring of debt so that Brazil has had to continue paying for higher interest margins over a longer period of time (\$550 million); support for foreign affiliates of Brazilian banks that had been excluded from interbank business (\$750 million); and substantial private capital flight because of reduced confidence from the moratorium.

Domestic default may generate similar problems. Often, loss of reputation because of repeated domestic default impedes domestic government finance and stimulates capital flight (Ize 1987). But exceptional situations can develop when an old regime collapses and the new regime can credibly commit not to default again. Another difficulty is that domestic banks are often very important (captive) lenders to their government, and domestic default would severely deplete their capital and could drive them into bankruptcy. The government would then be compelled to support the domestic banking system to avoid economic chaos. Otherwise it would face negative consequences for domestic output.

Taxation of domestic bond returns would dampen debt dynamics only if the tax did not raise the bond yields required from the savers (OECD Survey of Ireland 1987). Under this unlikely condition, governments could in-

crease the tax base by the amount of public interest outlays on domestic debt. But if there is perfect foresight and if assets are perfect substitutes, taxing interest payments has no effect on budget deficits. Changes in tax rates on any assets bring about an equal change in their equilibrium returns, and hence leave after-tax yields unaltered (Giovanni 1988). But Italy may have succeeded in dampening the rise in bond yields with a total tax exemption of interest on public securities, allied to the withholding tax of near substitutes of Treasury bills like bank deposits (Spaventa 1988). Directing savings toward government debt was helped by initially high financial savings in Italy and the decline in the price of real estate.

Even foreign debt-reduction schemes do not necessarily reduce total public debt and debt-service charges when domestic bond yields largely exceed the effective cost of foreign debt. Debt-equity swaps, for example, are usually financed by the debtor government (or the central bank). If this finance does not come from printing new money, and if the swap does not increase tax collections, the government must issue new domestic debt. Reduced foreign debt, translated into local currency through the real exchange rate, will then be offset by increased domestic debt, corrected for the redemption discount. So, the government budget is likely to benefit from a debt-equity swap only if the increased interest payment on domestic debt falls short of the interest saving on foreign debt. (See Claessens and Diwan in this volume, chapter 15). When there is real appreciation, as occurred last year in Mexico, the redemption discount has to be even higher to improve the government budget.

Possible Remedies

How Much Fiscal Discipline Is Needed?

How much fiscal discipline is necessary to restore a government's creditworthiness and credibility? Because of changing market perceptions and unstable lending conventions, this question cannot be fully answered. A more modest approach is to determine the government budget needed to stabilize debt ratios and simultaneously meet other macroeconomic targets.¹²

More fiscal discipline is needed to avoid inflation and rising debt ratios when the demand for base money is low, when GDP growth is low relative to real interest rates, when public debt is high relative to GDP, and when real depreciation raises the real value of net foreign debt. Only when real GDP growth exceeds real interest rates and accumulated debt is low relative to seignorage can the government run a primary deficit without raising the debt ratio.¹³

Table 6-8 (reproduced from Reisen, forthcoming) contrasts the required noninterest surpluses in Brazil and

Mexico that would be consistent with constant debt ratios, low inflation (5 percent a year), and real interest rates high enough to make capital flight unprofitable. The last requirement would appear to be met in Brazil for early 1986, when real after-tax returns on Treasury bills were 14.5 percent and net errors and omissions in the balance of payments were small (Cardoso and Fishlow, forthcoming). In Mexico, the same conditions seem to have applied in late 1986, when the tax-free real return on Treasury bills was 15.4 percent (Dornbusch 1988). With sustained fiscal discipline, real domestic interest rates would probably find a lower equilibrium level, as government debt could be sold at a lower risk premium, reflecting more credibility for future fiscal restraint. Finally, we require an assumption about the ratio of base money to GDP. The remonetization of the Brazilian economy after the Cruzado Plan (when inflation was zero) brought the ratio up to 4.4 percent (from 2.3 percent in 1985). In Mexico the 1986 ratio of base money to GDP was very high—at 15.9 percent in 1981—but has declined continuously, falling to 4.2 percent in 1987. Without other evidence, it can be assumed that with inflation at five percent and real interest rates at 15.4 percent, the Mexican ratio of base money to GDP would have been 12 percent.

Further assumptions are that the external positions of both Brazil and Mexico require no further real devaluations of their currencies, that the real effective foreign interest rate is 7 percent, and that the real GDP growth rates are sustained at 5 percent in Brazil and 4 percent in Mexico. But private agents might deem the public debt ratios at end-1987 too high to inspire confidence in public finances, in which case the required fiscal discipline would be more harsh. Several results must be stressed:

- First, a higher noninterest surplus will be required for Mexico than for Brazil. This result is largely—but not exclusively—determined by the currently observed public debt ratio, which is approximately equal to GDP in Mexico, but only half as high in Brazil. In 1988 the Mexican authorities seem to have achieved the required fiscal adjustment (although it is too focused on cuts in public investment), while the fiscal disequilibrium in Brazil is estimated at about 3 percent of GDP.

- Second, the domestic public debt burden often matters more than the foreign debt burden, provided that further devaluation-induced increases in the real cost of servicing foreign debt can be avoided and that the interest cost of domestic debt continues to exceed the cost of foreign debt.

- Third, bringing down inflation from current levels to those observed in stable debtor countries would yield an important one-time gain in seignorage and regular tax revenues, especially in Mexico. If this gain is used to

Table 6-8. *Brazil and Mexico: Required Public Sector Non-Interest Surplus*

	Brazil			Mexico		
	1983	1984-87	From 1988	1983	1984-87	From 1988
<i>Required noninterest surplus as percentage of GDP (=)</i>	7.5	2.0	2.1	10.6	10.1	5.1
Real interest bill on domestic debt (+)	1.8	2.3	3.0	1.8	3.2	6.2
Real interest bill on foreign debt (+)	1.5	2.4	1.8	1.9	3.7	3.7
Monetary finance (-)	0.1	0.5	0.4	0.3	0.5	1.1
New domestic borrowing consistent with constant debt ratio (-)	-0.3	1.0	1.0	-0.3	-0.2	1.6
New foreign borrowing consistent with constant debt ratio (-)	-4.0	1.2	1.3	-6.9	3.4	2.1
Memo: <i>Actual</i> noninterest balance (negative sign denotes deficit)	-0.9	-0.4	-1.0 ^a	-0.9	4.1	6.9 ^b
<i>Assumptions</i>						
Ratio of money base to GDP	4.4	4.4	4.4	12.0	12.0	12.0
Annual inflation rate	5.0	5.0	5.0	5.0	5.0	5.0
Real interest rate on domestic debt (net of taxes)	14.5	14.5	14.5	15.4	15.4	15.4
<i>Observations^c</i>						
Real annual GDP growth	-2.5	6.3	5.0	-2.9	-1.2	4.0
Real annual devaluation	24.0	2.0	0.0	31.4	6.6	0.0
Real interest rate on foreign debt	10.1	8.6	7.0	9.7	8.5	7.0

a. Refers to January-March 1988

b. Refers to April-June 1988.

c. Data from 1988 are based on assumptions. Real interest rate on foreign debt refers to the effective rate net of inflation in the U.S. consumer price index.

Sources: Banco Central do Brasil, *Brazil Economic Program*; Morgan Guaranty, *World Financial Markets*; IMF, *International Financial Statistics*; Banco de Mexico, *Indicadores Económicos*; Dornbusch (1988).

amortize part of the high-cost domestic debt, the required noninterest budget surplus will be reduced.

Debt dynamics continue to impose restrictive fiscal policies on high-debt OECD countries (OECD 1989b). Calculations on debt stability requirements, based on a somewhat simpler procedure than that described for Brazil and Mexico, show that Belgium, Ireland, and Italy still have a fiscal disequilibrium with rapidly rising debt ratios. The current public borrowing requirements still exceed the level that would stabilize debt ratios, by 3.5 percent of GDP in Belgium, 2 percent in Ireland, and 3.2 percent in Italy (OECD 1989b, table 5.23).

Growth-Oriented Fiscal Adjustment

Running a certain noninterest surplus in the medium term is not enough to stabilize (then reduce) the public debt ratio. GDP growth must be fostered, real exchange rate depreciation contained, and real interest rates cut, for such a strategy to be sustainable. If fiscal adjustment is sought at the cost of lower output growth, it is more likely to be disrupted and less likely to reduce government indebtedness.

How can public finance in problem debtor countries contribute to savings, investment, and growth? More focus should go to increased tax collection and less on cuts in public spending than usually occurs. First, spending cuts have made more strides than increased taxes and cannot be expected to be further reduced, except in Brazil and Argentina. Second, effective tax ratios are low in most debtor countries, and there are nondistorting ways to increase them. Third, low effective tax rates and low import dependence suggest a high-income multiplier for government expenditure, so spending cuts have a considerable negative short-term effect on output.

The menu for tax reform would include (*World Development Report 1988*):

- Keep marginal tax rates low to strengthen incentives to work and save, but raise effective average tax rates. This means broadening tax bases and eliminating exemptions and special incentives.
- Choose a tax (like the value added tax) that is simple, enforceable, has low administrative costs, and raises substantial revenues. Successful performers, like Korea, Indonesia, Chile, and Turkey, have all successfully implemented the value added tax. But there is also room

to increase revenues from personal income tax, especially by eliminating loopholes for top income levels.

- Raise compliance and enforcement through low tax rates, high penalties on outright avoidance, and abolition of discretionary elements in tax legislation.
- Introduce effective withholding schemes on wages, dividends, and interest, and strengthen tax administration to cross-check different tax sources.
- Stop taxing exports and financial savings.
- With raised tax revenues, public spending should be shifted back toward investment, and away from consumption, without reducing its real level.
- To encourage private investment and to limit devaluation-induced capital losses on foreign debt, the priority for public spending should be on infrastructure that favors foreign trade.

Notes

1. For an extensive discussion of the link between external and internal transfers, see Reisen and van Trotsenburg (1988).
2. All variables are adjusted for domestic inflation.
3. This became particularly apparent in Brazil in late 1987 when the finance minister resigned after trying unsuccessfully to enforce a tax reform to enlarge the tax base. The architect of Mexico's tax reform, Francisco Gil Diaz (1987), reports that "considerable political resistance" has frustrated the elimination of tax shelters for truckers, agriculture, publishers and other groups—sectors to which profits are easily relocated. In Argentina, the cigarette tax alone collects 25 percent more money than the profits, capital, and net-asset taxes combined. A mere 4.8 percent of the companies that figure on the gains tax roll paid any tax at all in 1986.
4. The degree of polarization between political groups is likely to depend on the degree of income inequality, which tends to raise the pressure for redistributive policies, to enhance the power of the elites because they command more influence to resist taxes, and to reduce the size of the taxable income classes. In Brazil, for example, the richest quintile of the population earns 33 times more than the poorest quintile, while the respective ratio is only 7 in Indonesia and Korea. For an interesting link between the probability of debt rescheduling and income inequality, see Berg and Sachs (1988). Alesina's concept goes back to Keynes's Tract (1923) that was concerned with the distributional effects of a growing stock of public debt—the domestic transfer from those who pay the taxes that service the debt (workers, entrepreneurs) to those who hold the debt (rentiers).
5. See Calvo (1988) concerning the responsibility of government debt for multiple equilibria.
6. Buffie and Sangines Krause (forthcoming) demonstrate this in a formal model applied to Mexico.
7. See Reisen (forthcoming) for a formal exposition.
8. In an open economy, real interest rates on domestic debt can fall, provided the exchange rate overshoots (Ize and Ortiz 1987). If the exchange rate depreciates initially, expectations of future appreciation would create a wedge between returns in domestic and foreign currencies, which would allow debt ser-

ving on local currency debt to fall. But a devaluation will still exert a negative impact on the fiscal deficit when the foreign currency portion of public debt plus the initial tradables deficit is higher than the savings made on domestic currency denominated debt.

9. Similarly, financial losses in Mexico associated with exchange rate differentials between dollar assets and debts of nationalized banks after devaluation added 4 percent of GDP to the consolidated public deficit in 1982.

10. For a discussion of optimal hedging rules for debt-service constrained countries, see Gawronski (forthcoming).

11. The World Bank shifts exchange rate risks to debtor countries by lending the proceeds of the borrowings in the same currencies in which they were borrowed (Lonaeus 1988). Since 1980, the currencies used for disbursements are pooled, and all borrowers owe the bank the currencies in the pool in the same proportions.

12. This has been a concern for both OECD Economic Surveys (see, in particular, OECD Economic Survey of Ireland 1987) and the World Bank (Anand and van Wijnbergen 1989).

13. To see that, solve the debt-dynamics equation (6–2) for the required noninterest surplus needed to get the debt-income ratio to decline, yielding the stability condition:

$$[(t - g) + (t^* - g^*)e] > x [(1 - f)r + f(r^* + e) - n] - (p + n)m .$$

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Comments

Vito Tanzi

Reisen's paper asks three questions. First, why is the ratio of debt to GDP still rising in developing countries? Second, can hyperinflation and default prevent the debt ratio from rising over the longer run? And third, what are the remedies? Where I have disagreement with the author is where he shows that the debt-to-GDP ratio is still rising, even in countries where foreign loans have been very limited in recent years. Reisen calls attention to the important development that domestic, and more expensive, debt is replacing foreign, and cheaper, debt. He reports that the debt ratio is highest in Belgium and Ireland and very high in Italy and wonders why these

three countries are not seen as having a crisis, while many developing countries with lower debt ratios—for example, Brazil and Argentina—are generally assumed to be having economic crises.

Reisen proceeds to discuss the changes in debt ratios, calling attention to four factors: first is the growth rate of the economy. Other things being equal, the faster the growth rate, the lower the ratio. For example, the debt-to-GDP ratio in the Republic of Korea has been falling very fast in recent years, in part because of the very fast growth rate there. The second factor is the primary budgetary surplus; that is, the budget outcome when interest expenditures are netted out. The higher is the primary surplus, the lower the growth of the debt-to-GDP ratio. Third is the real interest rate, and fourth, the

real exchange rate. The role of the real exchange rate is perhaps less obvious than the other three factors. The real rate of exchange is particularly important in determining the debt-to-GDP ratio when much of the debt is external and when there are close links between the budgetary outcome and the real exchange rate. In developing countries, a substantial proportion of the public debt is external, so a devaluation tends to increase the debt-to-GDP ratio and the budget deficit by raising the domestic value of interest payments and foreign debt. But it is often forgotten that many taxes and some earnings of the public sector are closely linked and are positively influenced by the changes in the exchange rate. Therefore, as the exchange rate is devalued, the revenues that the government receives tend to increase. The links between the budget and the exchange rate are strong, and go through the tax system (in a typical developing country, maybe 50 percent of total taxes depend on the foreign sector), through noninterest expenditures abroad, and through government ownership of many exports. Reisen seems to accept these views with qualifications.

Reisen blames the public debt problem on the inability of developing countries to raise taxes. I have some serious difficulties with this. If Belgium, Italy, and Ireland could have to raise taxes beyond their present level, they would not have experienced their very heavy debt ratios. So in determining what happens to the debt ratios, tax limitation is no different between developing and industrial countries.

Reisen asks why tax levels are lower in developing countries and gives several possible explanations favoring Alesina's work, which attributes them to unstable political situations. But this seems to be rather far-fetched. The politically stable Philippines under Marcos, or Haiti under Duvalier, or Paraguay under Stroessner were not successful in raising taxation above those countries' low levels. The main reason the level of taxation is much lower in developing countries than in industrial countries is simply that their economies' structure and the quality of their tax administrations do not make a higher tax ratio possible.

Reisen also raises the ghost of Colin Clark in table 6-5, showing that once the tax level reaches 25 percent, inflation jumps. The table purports to show that taxes were very high for some developing countries when their inflation was low, but then he argues that because of the high tax level, inflation later accelerated. In my view the causation is exactly the opposite. In Argentina, Brazil, Mexico, Chile, Indonesia, and the Republic of Korea taxes went up when inflation fell. This is a relationship that one would expect. But inflation did not increase in the following years because of the increase in taxes. It increased

because the reduction in inflation was brought about artificially, and the macroeconomic policies that were pursued by the countries were not tight enough to maintain the lower inflation rates.

I also have difficulties with his discussion of inflationary finance. Like most economists who write on this topic, Reisen discusses the revenue from inflationary finance in isolation, not taking into account that inflationary finance, while generating some revenue to the government, always accelerates the inflation rate and, in turn, reduces normal tax revenue. Thus, on balance the government may lose. A proper analysis must focus on the net results from inflationary finance and tax revenue.

Reisen discusses the link between debt and the rate of growth of the economy. Higher interest payments normally require a reduction in development expenditure. If one assumes a direct link between development expenditure and the growth rate, the conclusion is that as interest payments rise, the growth rate of the country falls. Although this connection is very important and should not be underemphasized, it is equally important to remember that an improvement in the resource allocation through structural reform and through a better selection of investment projects can maintain the growth rate even when development expenditure is reduced.

A technical point concerns the relevance of the concept of operational deficit compared with the conventional definition of deficit. The conventional measure of fiscal deficits in a situation of high inflation may give misleading signals. Therefore, the operational deficit may become a better measure for assessing needed changes in economic policy. In assessing the effect of the fiscal deficit on the debt-to-GDP ratio, the operational deficit is a better measure than the conventional deficit, and the debt-to-GDP ratio is probably an important determinant of the real interest rate. But the operational deficit is not a good measure of uncertainty when the inflation rate is very high. Thus, real interest rates may rise even when the operational deficit—and probably the debt-to-GDP ratio—are falling. This will happen when the rate of inflation is very high.

Reisen also discusses the Barro equivalence for individuals when tax evasion is high. If individuals can evade taxes, he says, why should they save more when there is a growing public debt? It would have been interesting to see a similar discussion of Barro equivalence for countries with external debt and when there is high uncertainty about whether the debt will be repaid. In other words, what is the impact on economic policy of debtor countries when there is a lot of uncertainty as to future debt repayments?

The Commercial Bank Claims on Developing Countries: How Have Banks Been Affected?

Harry Huizinga

The newly announced Brady initiative calls on the commercial banks to begin serious efforts to reduce their developing-country exposure through voluntary write-offs. The banks have previously opposed such action on the grounds that it would threaten their stability, and the question arises to what extent the banks can absorb developing-country loan losses. Extending Sachs and Huizinga (1987), this chapter finds that bank stock prices to a large extent already reflect the low quality of developing-country loans. Thus no major U.S. bank goes under if it gets a return on its developing-country debt that is consistent with developing-country prices observed in the secondary market. Banks in the other major creditor countries, such as Canada, France, the Federal Republic of Germany, and Japan are shown to be less heavily exposed to developing-country debt than the main U.S. banks, and to be correspondingly less imperiled by their developing-country debt portfolio.

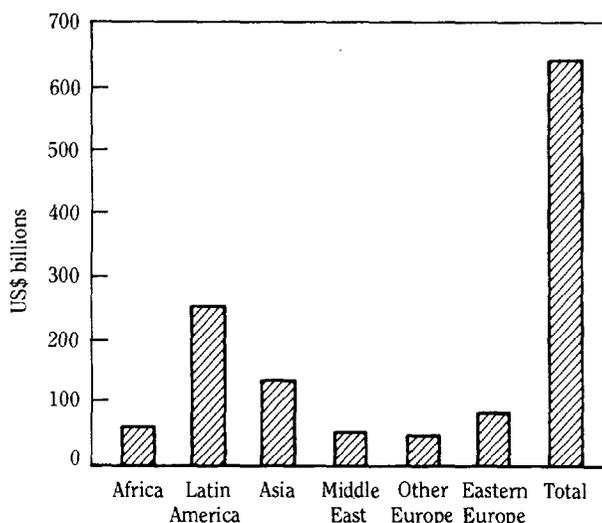
The relative safety of almost all the top creditor banks renders their unfailing insistence on full servicing of the developing-country loans less urgent and less appealing, and in principle it could open the road to partial debt forgiveness. But it also enables the banks to boycott the by now routine reschedulings and new-money packages, and at the same time withstand the accounting consequences of such a move.

Commercial bank debt constitutes the largest part of developing-country debt, and it is in some ways the most difficult to handle—both because of the large number of individual borrowers and lenders and because some of the relevant information is private. In 1987 commercial bank claims on developing countries were \$644 billion, which is approximately 57 percent of a total developing-country external debt of \$1,130 billion. Somewhat less than half of all bank lending, \$257 billion, is concentrated in Latin America, with smaller commercial bank out-

standings of \$134.8 billion in Asia and \$61 billion in Africa (figure 7-1).

Of the total bank debt of \$644 billion, \$290 billion, or roughly 45 percent, is owed by a few (17) highly indebted countries. Of these 17 countries, Brazil and Mexico stand out with commercial bank obligations of \$81 and \$74 billion respectively. These 17 highly indebted countries are those problem debtors with large absolute amounts of bank debt; they do not include debtor nations such as Liberia and Sudan that have small absolute exposures, but are beyond solvency by most people's standards.

Figure 7-1. Commercial Bank Debt of Developing Countries by Geographic Region at the End of 1987



Note: Country groupings are the World Bank's and are based on the geographical breakdown as used by the OECD.

Source: BIS, Quarterly Release.

Table 7-1. *Distribution of Bank Loans to Developing Countries among Creditor Nations*
(US\$ billions)

Country	1983	1984	1985	1986	1987	
United States	n.a.	142.2	137.2	133.5	128.8	(Q4)
United Kingdom	89.4	89.1	100.8	104.8	105.1	(Q3)
Germany	26.9	25.5	34.7	44.8	54.7	(Q4)
France	n.a.	55.8	59.2	65.2	65.2	(Q3)
Switzerland	n.a.	13.4	16.6	19.4	n.a.	n.a.
Italy	n.a.	n.a.	n.a.	5.8	7.1	(Q2)
Total	n.a.	n.a.	563.4	601.8	644.4	(Q4)

n.a. not available

Sources: World Bank data. The data are on a territorial basis and are not consolidated. The large numbers for the United Kingdom may reflect lending to developing countries by branches of non-U.K. banks located in London. The U.S. data are from the Department of the Treasury.

On the creditor side, exposure to developing countries is highly concentrated within a few countries as well. U.S. banks are the largest private creditor group, with combined claims of \$129 billion at the end of 1987, which amounts to about 20 percent of total commercial bank loans to the developing countries, down from 24 percent in 1985 (table 7-1). The United Kingdom, and Germany exposures to developing countries have increased in the last four years, to 16 and 8 percent of total developing-country bank debt in 1987, respectively, partly reflecting the depreciation of the dollar after 1985. Absent from the list of creditor nations in the table is Japan, as its combined exposure to developing countries is not precisely known. Williamson (1988) puts the Japanese proportion of developing-country commercial bank debt at 12 percent for 1986.

The chapter first reviews recent developments in the secondary market for developing-country debt. It then looks more closely at the experience of the U.S. banking system with developing-country debt, extending and updating previous work in Sachs and Huizinga (1987). As far as possible, the analysis is then replicated for the major non-U.S. banking systems. Finally, the chapter reviews some features of the creditor nations' tax and accounting rules as they relate to developing-country debt.

The Secondary Market for Developing-Country Loans

Ever since secondary market prices of developing-country loans became available a few years ago, they have been on a downward trend. Exceptions are the secondary market prices of Bolivia and Turkey (table 7-2). Claims on Bolivia regained some of their value from a depth of six cents on the dollar in early 1988 on news that Bolivia was to repurchase its debt for eleven cents on the dollar. This buyback scheme, financed with donated funds and completed in March 1988, unfortunately did not reflect Bolivian economic strength, but instead some donor governments' generosity. Turkey has traditionally also

been a large recipient of outside aid. Barring these exceptions, secondary market prices thus appear to indicate lowered market perception of the debtor countries' ability to service the debt.

Secondary market spreads between bid and ask prices differ widely across countries, indicating substantial differences in the liquidity of the loans of the various debtor countries.¹ Discarding the fluke of a mean spread of 290 percent for claims on Sudan, mean spreads range from 1

Table 7-2. *Secondary Market Prices and Spreads*

Country	Bid price at 3/11/86	Bid price at 6/9/88	Percentage change	Mean relative spread
Argentina	64	26	-59	3
Bolivia	5	11	120	24
Brazil	75	52.5	-30	2
Chile	67	60	-10	3
Colombia	84	65	-23	3
Costa Rica	53	11	-79	12
Côte d'Ivoire	74	28.5	-61	6
Dominican Republic	45	20	-56	9
Ecuador	68	27.5	-60	5
Honduras	40	22	-45	10
Jamaica	45	39	-13	11
Mexico	60	51.75	-14	2
Morocco	68	49	-28	3
Nicaragua	4	2	-50	55
Nigeria	55	28	-49	9
Panama	73	24	-67	8
Peru	19	6	-68	29
Philippines	57	53.5	-6	3
Poland	53	42	-21	3
Romania	92	85.5	-7	2
Senegal	70	40	-43	5
Sudan	10	2	-80	290
Turkey	97	98	1	1
Uruguay	63	60	-5	3
Venezuela	79	55.5	-30	2
Yugoslavia	84	45	-46	3
Zaire	25	19	-24	18

Note: The mean relative spread is calculated as the mean of the difference between the ask and bid prices divided by the bid price.

Source: Salomon Brothers.

Table 7-3. Debt Conversions on the Secondary Market for Developing-Country Debt, 1984-88

Country	1984	1985	1986	1987	1988 ^a
Debt conversions					
Argentina	31	469	-	35	1,330
Brazil	731	537	176	1,800	8,643
Bolivia	-	-	-	1	349
Chile	11	313	987	1,983	2,905
Costa Rica	-	-	7	146	17
Ecuador	-	-	-	125	258
Honduras	-	-	-	6	11
Jamaica	-	-	-	2	100
Mexico	-	769	1,023	3,804	6,670
Peru	-	-	-	-	15
Philippines	-	-	15	266	438
Uruguay	-	-	-	-	95
Venezuela	-	-	-	-	130
Yugoslavia	-	-	-	-	50
Sudan	-	-	-	-	1
Zambia	-	-	-	-	3
Total ^a	773	2,088	2,208	8,167	21,111
Debt swaps ^b	2,000	4,000	7,000	12,000	42,784

a. Debt-for-equity and domestic debt swaps, loan-to-bond conversions and debt repurchases, and other transactions, excluding interbank trading.

b. All transactions, including interbank trading.

Source: World Bank, *Quarterly Review of Financial Flows to Developing Countries*, March 1989.

percent for negotiable Turkish loans to 55 percent for rather shaky Nicaraguan loans. Mean spreads are 2 or 3 percent for the major Latin borrowers: Argentina, Brazil, Chile, and Mexico.

Sachs and Huizinga (1987) have shown that the variability of secondary market prices can partly be explained with the following variables: debt relative to GNP, the growth rate of real GNP, dummy information reflecting a country's interest payment record, and information on whether or not its loans have been judged "value-impaired" by U.S. bank regulators. Using the more recent data on secondary market prices now available, it is possible to test for the role of an additional factor: country-specific uncertainty as reflected in the volatility of the secondary market prices. The evidence shows that country-specific uncertainty tends to depress secondary market prices (see appendix A for a formulation of the regression equation).

While developing-country loan prices have dropped, the secondary market trading volume has risen substantially. Using data provided by Salomon Brothers, Merrill Lynch, and the IMF, the World Bank has managed to piece together some estimates of trading volume since 1984 for a number of debtor countries (table 7-3). In 1987 the heaviest secondary market trading was in Mexican bank debt, at \$3.8 billion, followed by trading in Chilean debt, at \$1.98 billion. Overall trading volume grew rapidly from a mere estimated \$2 billion in 1984 to a projected trading volume of \$42.7 billion for all of 1988.

As an additional measure of loan liquidity, one can construct the ratio of the estimated volume of trading in

a country's debt to its total commercial bank obligations (table 7-4). In 1987 Chilean debt was traded most intensively, with trading equal to 26 percent of indebtedness. Oddly enough, the last column of the table shows that during the first half of 1988, 56.8 percent of Bolivian bank loans changed hands, which no doubt reflects the Brazilian debt buyback of March 1988.

Secondary market trading volumes, to some extent, parallel the debt conversion and debt buyback schemes put in place by the various debtor countries. Increased trading of Argentine bank debt in 1987, for instance, may have been in anticipation of Argentina's debt conversion program, formally announced on 29 January 1988.² The scheme called for \$1.9 billion in debt to be auctioned and converted in the next five years. Countries that already had debt-conversion plans installed before 1987, like Chile and Brazil, announced further expansions of their schemes in the form of equity funds to be capitalized with the proceeds of converted bank loans and to be invested in national industries.³ Finally, in 1987 the Philippines set out to relax the rules for its existing debt-equity swap program following criticisms that the program was slow and stuck in red tape.⁴

The U.S. Bank Experience

The U.S. banking system remains the single largest national group of private creditor banks of the developing countries, despite its relative decline in the ranks of developing-country creditor banking systems. A few large banks hold most of the developing-country debt. In

Table 7-4. Debt Swaps as Percentages of Bank Claims on the Debtor Country, 1984-88

Country	1984 ^a	1985 ^a	1986 ^a	1987 ^a	1987 ^b	1988 ^{a,c}
Argentina	0.1	1.6	-	-	2.3	1.0
Brazil	1.0	0.7	0.2	0.5	1.5	3.3
Bolivia	-	-	-	-	-	56.8
Chile	-	2.3	7.0	14.4	26.4	4.4
Costa Rica	-	-	0.8	16.9	-	-
Ecuador	-	-	-	2.4	-	2.0
Honduras	-	-	-	-	-	-
Jamaica	-	-	-	0.2	-	20.3
Mexico	-	-	0.6	2.0	6.3	4.9
Peru	-	-	-	-	-	0.3
Poland	-	-	-	-	-	-
Philippines	-	-	0.1	2.0	3.3	4.7
Venezuela	-	-	-	-	2.6	1.2

a. Debt-for-equity or domestic debt swaps and debt repurchases.

b. Debt swaps, all transactions, including interbank transactions.

c. January-June 1988.

Sources: World Bank data; debt data applied to 1987 and 1988 volume data are for the third quarter of 1987 and are from the BIS, *Quarterly Release*.

fact, in 1987 the six largest U.S. banks together held \$62.1 billion in developing-country loans, which is somewhat more than half of the total developing-country exposure of the U.S. banks.⁵ Citicorp tops the list with an developing-country loan portfolio of over \$13 billion, followed by BankAmerica with loans totaling roughly \$10 billion.

To appreciate these banks' vulnerability to developing-country debt, it is useful to relate their developing-country exposure to measures of bank resources such as total bank assets, primary capital, and shareholders' equity net of loan-loss reserves. When dividing exposure to developing countries by shareholders' equity, we take the developing-country exposure net of the developing-country loan-loss reserve.⁶ For each of these three measures of relative loan exposure to developing countries, the top four banks in decreasing order of exposure are Manufacturers Hanover, BankAmerica, Chase Manhattan, and Chemical Bank (table 7-5). Manufacturers Hanover and BankAmerica show high ratios of exposure to developing countries to shareholders' equity of 2.63 and 2.45, respectively, even when exposure is adjusted for the already set aside developing-country loan-loss reserves. Citicorp, the nation's largest bank by assets, has a relatively secure developing-country exposure-to-equity ratio of 1.13.

During 1987 the top U.S. banks aggressively strengthened their developing-country loan-loss reserves. This intensified loan-loss provisioning came in two distinct waves during the second and fourth quarters of the year. The first wave was heralded by Citicorp's bellwether \$3 billion addition to its loan reserves on 19 May 1987, which established an informal industrywide developing-country loan-loss reserve coverage standard of 25 percent, soon to be emulated by other money-center banks. Bank of Boston set off the second wave of reserving in mid-December 1987 and took the loan-loss coverage

ratio well beyond the 25 percent resistance point. But this time the equity-poor money-center banks were not able to follow suit.

Money-center bank write-offs of developing-country debt were modest in 1987 (the last column of table 7-5). Write-downs as a percentage of developing-country outstandings for Citicorp and BankAmerica, for instance, were merely 1.6 percent and 2.3 percent. Some of the banks with smaller exposure, however, decided on far more aggressive write-offs. On 13 January 1988 the American Express bank, for instance, wrote off all of its private sector developing-country loans.

Debt Reduction Schemes' Impact on U.S. Bank Stock Prices

The Brady initiative calls for voluntary debt reduction in the form of an exchange of developing-country debt for cash or for newly created bonds that are partly backed by the IMF or the World Bank. Other debt reduction mechanisms, such as debt-equity swaps, also effectively lower the debt by a swap of debt for other assets. How do such debt swaps affect the banks? These swaps obviously involve book losses if the book value of the developing-country debt, which is given up, exceeds the market value of what the bank receives in exchange. The banks can benefit, despite the implied book losses, if the quality of the assets they receive is higher than the quality of the original developing-country debt. To examine how banks are affected, we first need to know the current value of developing-country debt as reflected in bank stock prices.

Developing-country debt's value implicit in bank stock prices can, in principle, differ from the explicit discounts observed in the secondary market for several reasons—

Table 7-5. *Developing-Country Exposure and Loan-Loss Coverage of Large U.S. Banks at Year-end 1987*

Bank	Developing-country exposure as a percentage of assets	Developing-country exposure as a percent of primary capital	Developing-country exposure		Charge-off in 1987 (millions)
			net of loan-loss reserves as a percent of shareholders' equity	Developing-country loan-loss reserve coverage (percent)	
Citicorp	6.5	79	113	25	214
BankAmerica Corp.	10.8	124	245	20	234
Chase Manhattan	8.7	112	171	25	78
Manufacturers Hanover	12.1	145	263	22	63
J. P. Morgan & Co.	7.2	74	81	25	149
Chemical NY	7.6	97	151	25	21
Security Pacific	3.0	39	36	54	78
First Interstate	2.7	36	34	54	150
Bankers Trust NY	7.1	80	104	25	55
First Chicago	6.6	75	98	39	91

Source: Salomon Brothers, *Review of Bank Performance, 1988 Edition*.

such as tax considerations, federal deposit insurance, and deficiencies of the secondary market itself. Sachs and Huizinga (1987) show, however, that the explicit discounts observed in the secondary market and the discounts implicit in bank stock prices have moved together fairly closely for the period 1982 to mid-1987. An updated estimate of the implicit developing-country discount (as of 31 May 1988) is 41 percent (see appendix B for a derivation).

Using this estimate, we can simulate the impact of a swap of developing-country debt for cash or marketable securities. The debt sale price paid to banks is taken to be fifty cents per dollar of developing-country debt, which is the volume-weighted secondary market price as of 9 June 1988. The simulations show that for tax rates of 0.34 and 0.20 the stock prices of the 10 major U.S. banks rise, while for tax rates of 0.15 these banks' stock prices fall (table 7-6; see appendix B for the simulation

analytics). Banks fare better with high corporate tax rates, because then loan write-offs imply large deductions from bank taxable income. Not surprisingly, the stock prices of the most heavily exposed banks (such as BankAmerica and Manufacturers Hanover) are most affected by any swap.

Let us define the critical debt sale discount as the threshold sale discount that causes a bank to have a zero theoretical market value for a given tax rate. For a tax rate of 0.34, only BankAmerica and Manufacturers Hanover have critical sale discounts of less than 100 percent, at 88 and 86 percent respectively (table 7-6). Even with hypothetically zero tax rates—which implies no tax deductibility of loan losses—only a few banks can reach a theoretical market value of zero for critical discounts that are all larger than fifty cents to the dollar. Thus, little short of the developing-country loans losing all their value can threaten the major U.S. banks.

Table 7-6. *Simulations of Cash Sales of Developing-Country Loans by U.S. Banks* (percent)

Bank	Case 1: 34 percent tax		Case 2: 20 percent tax		Case 3: 15 percent tax		Case 4: 0 percent tax	
	Change in stock price	Critical discount	Change in stock price	Critical discount	Change in stock price	Critical discount	Change in stock price	Critical discount
Citicorp	14	—	2	—	-3	—	-16	97
BankAmerica Corp.	47	88	6	72	-9	68	-53	58
Chase Manhattan	31	—	4	83	-6	78	-35	66
Manufacturers Hanover	51	86	6	71	-9	67	-57	57
J. P. Morgan & Co.	7	—	1	—	-1	—	-7	—
Chemical NY	30	—	4	84	-6	80	-34	68
Security Pacific	5	—	1	—	-1	—	-5	—
First Interstate	5	—	1	—	-1	—	-6	—
Bankers Trust NY	12	—	2	—	-2	—	-14	—
First Chicago	15	—	2	—	-3	—	-17	93

Source: Data compiled from Salomon Brothers, *Review of Bank Performance, 1988 Edition*.

How costly are debt reduction schemes to the U.S. taxpayers in forgone tax receipts? In the extreme case, if the whole U.S. developing-country bank exposure of about \$100 billion were swapped and the tax rate is taken to be 34 percent, then the U.S. Treasury would forgo about \$17 billion in tax revenues. But the U.S. Treasury is likely to incur a large cost regardless of whether there is a large-scale coordinated debt swap. Perhaps the major effect of a large sell-off of developing-country debt is that write-offs, which would otherwise be spread out over many years, all occur at the time of the swap.

Caveats

Unfortunately, the regression equation that yields our estimate of the implicit discount does not capture the valuation of a bank's off-balance-sheet assets, such as the value in off-balance-sheet banking operations and the bank's contingent claim on the Federal Deposit Insurance Corporation (FDIC). There are two reasons why the value of the FDIC's claim may be expected to rise as the value of developing-country loans declines: first, there will be a widening gap between the fixed-price deposit insurance and the true or actuarial value of deposit insurance and second, bank regulators may prove to be reluctant to actually close down the very large banks, certainly if they all become troubled simultaneously. This means that a bank that is practically insolvent will have a chance of making a comeback and thus have a positive market value.⁷

Consistent with this observation, Brickley and James (1986) find that there was a significant decrease in the comovement of savings and loans stock returns with the returns of the underlying assets held by these institutions following a relaxation of regulatory rules regarding when savings and loans institutions are to be closed. Thus the regulatory safety net may partially mitigate the impact of large actual or expected developing-country loan losses on bank stock prices, and thus the numbers in table 7-6 may overstate any negative impact of debt swaps on bank stock returns.⁸

The value of FDIC insurance to a bank is uncertain, not only because bank regulators have considerable latitude in deciding when to close down a bank, but also because it is uncertain to what extent the FDIC will protect the banks' deposit holders, debt holders, and shareholders in case of a bank failure. While FDIC insurance only guarantees deposits of under \$100,000, the FDIC in some cases has protected and reimbursed all depositors. In fact, all depositors in both the failures of Continental Illinois in 1984 and of First RepublicBank in 1988 were fully paid off. In federal bailouts, bank bondholders have also received settlements ranging from

virtually nothing to 100 percent, as in the recent First RepublicBank case.

There are several reasons why debt swaps and the implied loan losses can negatively influence the return to bank shareholders that are not quantified in our regression equation. First, the realization of loan losses implies adverse announcements of company earnings, which have historically tended to produce negative stock price reactions. Second, the fall in book capital that follows the realization of loan losses may prompt more frequent and costly bank examinations by the regulatory agencies. Third, a shortage of bank capital may force the bank to issue additional stock, which dilutes and negatively influences the interest of the original stockholders. Table 7-6 understates any potential negative impact of debt swaps on stock prices to the extent that these effects are important.

The Brazilian Moratorium

The Brazilian interest moratorium announced on 20 February 1987 has shown that the banks remain vulnerable to the vicissitudes of developing-country debt. Using the event study method, Sachs and Huizinga (1987) have shown that the announcement of an interest moratorium by Brazil adversely affected bank stock prices.⁹ Brazil's interest suspension was the major impetus behind Moody's decision to downgrade the credit ratings of most of the major banks—among them Citicorp, Bank-America, and Chase Manhattan—in early December 1987. As Moody put it, there was a "reduced commitment of borrowers to austerity programs" and a "sharp fall in secondary market prices for third world debt."¹⁰

Negotiations that were to lead to the cessation of the moratorium intensified in October 1987 with the aim of warding off a decision by U.S. bank regulators, meeting in Washington, to reclassify Brazilian loans as "value-impaired." Such a downgrading would make it much more difficult for Brazil to obtain additional credit, as private creditors would have to reserve immediately at least 10 percent for any new loan to Brazil. During the negotiations, Brazil continued to make concessions to the banks. A bank stock return regression, spanning the period from 15 December 1987 to 31 May 1988, reveals that the outcome of the negotiations was far better for the banks than bank stock investors could have hoped for (see appendix C for the regression results). There was a significant revaluation of Brazilian loans during the preceding half a year. In a parallel fashion, the secondary market price for Brazilian loans rose from a low point of thirty-eight cents on 6 October 1987 to fifty-four and a half cents on 26 May 1988.¹¹

In spite of the large transfer of wealth from Brazil to the banks implicit in the resurgence of bank stock prices

after October 1987, President Sarney of Brazil publicly confessed that the moratorium had been a mistake in early February 1988, at the time Brazil made its first postmoratorium interest payment of \$350 million. Sarney said that the interest suspension had caused Brazil to miss out on interest rate reductions accorded to other debtor countries, and that financial flows from the country had grown, while inward investment and export credits from foreign governments had stagnated.¹² These immediate drawbacks of the moratorium are no doubt real enough, but their magnitude appears small compared with the massive transfer of wealth implicit in the rise in bank stock prices and the surge in the secondary market price of Brazilian debt after the moratorium had ended.

Major Non-U.S. Creditor Banks

Non-U.S. creditor banks hold most commercial bank claims on developing countries. Japan and the European countries have banking systems that are highly concentrated within a few large banks, which in principle could make these banking systems more vulnerable to developing-country debt than the U.S. banking system. Unfortunately, the major non-U.S. banks are not subject to the stringent disclosure requirements that apply to U.S. banks, and thus data on, for instance, the exposure to developing countries of individual banks are more restricted. Exposure data for the main Canadian and British banks, however, have been fairly well publicized, but the developing-country portfolios of German, French, and Japanese banks are still strictly off the record. Interestingly, it is the banking systems with relatively low exposure to developing countries that have restricted public access to developing-country exposure data. This may reflect a wish on the part of low-exposure banks to conceal their true exposure—and their ability to handle the debt crisis—to strengthen their bargaining position in the rescheduling arena.

Since exposure data for only a few top non-U.S. banks—and then only to Brazil and Mexico—are available, it is not possible to estimate discounts on developing-country debt implicit in bank stock prices for the non-U.S. creditor banking systems individually. Implicit discounts can in principle differ internationally for several reasons, such as international differences in taxation and accounting practices. Developing-country debt write-offs, for example, are more valuable to banks in high-tax countries than to banks in low-tax countries.

Instead of estimating developing-country discounts for each of the non-U.S. creditor countries, our approach is to see how heavily exposed the top non-U.S. banks are (relative to bank resources) compared with their U.S. creditor counterparts. The non-U.S. creditor nations we

examine are Canada, France, Germany, Japan, and the United Kingdom. Exposure of these countries' top banks to Brazil and Mexico relative to either bank assets, equity, or market capitalization on the whole is lower than for the top U.S. banks. If implicit discounts on developing-country debt are not too dissimilar across countries, we can reasonably conclude that the non-U.S. banks are in less danger of crumbling under the weight of their developing-country portfolios than the U.S. banks.

Mexico's bank debt is more heavily concentrated in a few banks in the United Kingdom, Canada, France, and Germany than in the United States. The list below (compiled from World Bank data) shows the exposure to Mexico of the five top banks in each country (as a percentage of the country's creditor banking system's total exposure to Mexico as of the date listed).¹³

<i>Country</i>	<i>Percentage</i>	<i>Date</i>
United Kingdom	69 percent	December 1986
Japan	39 percent	June 1986
Canada	91 percent	December 1984
France	78 percent	December 1986
Germany	64 percent	September 1986
United States	42 percent	December 1987

In Japan, Mexico's bank debt is somewhat less heavily concentrated than in the United States, but the five major banks hold a still impressive 39 percent of the country's commercial bank exposure to Mexico. These numbers warrant a focus on the creditor nations' major banks.

Major British and Canadian banks are about as well capitalized as the chief American banks (table 7-7). The top Japanese and French banks, however, are less well capitalized and have rather low average equity-to-assets ratios of 2.3 and 2.6 percent respectively. These banks' equity falls well short of the 4 percent minimum standard for shareholders' equity as a percentage of risk assets that will be in force in each of the creditor nations mentioned here.¹⁴

Only Lloyds and Midland banks in the United Kingdom and the Bank of Montreal in Canada are shown to be as heavily exposed to Brazil and Mexico as the top U.S. banks. Exposures relative to assets for all the top Japanese, French, and German banks are much lower. Japanese exposures relative to bank resources have also declined substantially in recent years as Japanese banks have expanded rapidly, partly because of the yen's appreciation. As of year-end 1987, the world's 10 largest banks, based on deposits, were all Japanese.¹⁵

How would the major non-U.S. banks fare if their debt were sold at a discount as part of a large-scale debt reduction scheme? The answer, as with the U.S. banks, depends on the current developing-country discount implicit in bank stock prices, the potential tax benefits of

Table 7-7. Exposure of Top Banks in Major Creditor Nations to Mexico and Brazil

Country and bank	Equity as percentage of assets	Mexican exposure as percentage of		Brazilian and Mexican exposure as percentage of	
		Assets	Equity	Assets	Equity
United Kingdom					
Lloyds Bank	5.3	1.9	35.5	4.5	86.2
Barclays Group	4.7	0.8	16.1	1.3	26.8
Midland Bank	4.0	2.1	52.5	4.4	110.5
National Westminster	5.6	0.6	10.8	1.2	20.5
Standard Chartered	0.6	1.1	26.2	—	—
Average	4.7	1.3	28.2	2.9	61.0
Japan					
Bank of Tokyo	2.5	1.0	40.2	1.8	71.8
Sumitomo Bank	2.3	0.4	18.9	0.8	32.8
Dai-ichi Kangyo Bank	2.0	0.3	17.0	—	—
Sanwa Bank	2.2	0.4	8.6	—	—
Mitsubishi	2.4	0.4	14.7	0.7	29.7
Average	2.3	0.5	21.8	1.1	44.8
Canada					
Bank of Montreal	3.6	2.2	61.3	4.6	130.0
Royal Bank	4.2	1.7	41.6	3.4	81.8
Scotiabank	3.9	1.4	35.6	2.5	62.3
Canadian Imperial	4.2	1.3	31.6	2.9	68.6
Toronto Dominion	5.8	1.2	21.0	2.3	39.6
Average	4.3	1.6	38.2	3.1	76.5
France					
Société General	2.9	1.3	43.2	—	—
Banque National de Paris	2.4	0.9	41.2	—	—
Credit Lyonnais	2.4	0.9	37.1	—	—
Average	2.6	1.0	40.5	—	—
Federal Republic of Germany					
Dresdner Bank	3.2	0.7	22.1	—	—
West Landesbank	2.9	0.9	32.4	—	—
Commerzbank	2.8	0.5	18.6	—	—
Deutsche Bank	4.0	0.2	5.3	—	—
Bayerische Landesbank	2.4	0.4	14.6	—	—
Average	3.1	0.5	18.6	—	—
United States					
Citicorp	4.3	1.3	29.5	3.4	78.3
BankAmerica	3.5	2.7	76.9	5.6	159.7
Chase Manhattan	3.9	1.7	43.4	4.4	114.5
Manufacturers Hanover	3.7	2.6	71.3	5.5	149.6
J. P. Morgan & Co.	6.7	1.6	23.8	4.1	61.6
Average	4.4	2.0	49.0	4.6	112.7

Sources: World Bank data; 1986 annual reports of French banks and of West Landesbank and Bayerische Landesbank; Salomon Brothers, *Commercial Banks*, 5 July 1988, and *Review of Bank Performance, 1988 Edition*.

write-offs, the exposure relative to bank market capitalization, and the operation of deposit insurance and other regulatory safeguards.

Bank exposure (to Brazil and Mexico) relative to market capitalization is easily computed (table 7-8). If we are willing to assume that implicit developing-country discounts and tax regulations are not too different across

countries, then a debt swap's impact on bank stock returns is proportional to the ratio of loan exposure to market capitalization (see appendix B for a discussion). The table shows that exposure-to-market value ratios tend to be lower for the British, Canadian, and especially the Japanese banks, than for the top U.S. banks. In fact, exposures to developing countries relative to market

capitalizations are virtually zero for the top Japanese banks. It follows that cash sales of developing-country debt can be expected to affect the stock prices of British, Canadian, and Japanese banks less than the stock prices of U.S. banks. Only Midland Bank in the United Kingdom would be affected to about the same extent as the top U.S. banks. For the Japanese banks, the debt crisis can at best produce a small ripple in bank stock returns prices. If the many shortcuts that underlie this reasoning are accepted, we can conclude that the major non-U.S. banking systems are even less jeopardized by the debt crisis than is the U.S. banking system.

As in the United States, deposit insurance in the other major creditor nations may mitigate the link between stock returns and the value of developing-country debt. A 1977 European Community directive requires the member countries to establish deposit protection schemes.¹⁶ In response, the United Kingdom's 1979 Banking Act provides partial deposit protection for deposits up to £10,000. To preempt such legislation in Germany, the German private commercial banks established their own deposit protection scheme in 1976. The scheme is not well-funded and relies on the support of the contributory banks in case of a major bank failure. In Japan, deposit protection was established in 1977. The

Japanese protection fund is also small and offers only limited protection to individual depositors. So while the European countries and Japan do have deposit insurance, the coverage and subsidies inherent in these schemes appear to be small compared with federal deposit insurance in the United States.

Taxation, Accounting, and Other Regulations

Banks are subject to a variety of tax, accounting, and other regulatory provisions that directly affect their foreign loan profitability, and thus their ability to deal with the debt crisis. These regulations have evolved independently at the national level and vary widely internationally. This regulatory diversity makes it difficult even for the banks among themselves to reach a consensus on how best to resolve the debt crisis. Indeed, differences in the responses of U.S. and Japanese banks to Mexico's early 1988 proposal to exchange some of its bank debt for bonds, for example, can be traced partly to differences in accounting rules. As large-scale developing-country debt write-offs would cut deeply into a bank's capital, willingness on the part of the banks to embrace any such scheme depends in part on whether it involves substantial write-offs. In the Mexican offer, the Japanese Ministry of Finance ruled that Japanese banks did not have to write down the value of Mexican loans remaining on the balance sheet. Moreover, the Finance Ministry was expected to allow the inclusion of loan losses stemming from the conversion into tax calculations.¹⁷ The U.S. Securities and Exchange Commission, on the other hand, stated that increases in loan-loss reserves or write-downs of remaining Mexican debt would be required. As a result, the Japanese banks were relatively enthusiastic about the Mexican deal.

In an important way, minimum capital requirements affect the banks' ability to overcome their developing-country debt difficulties. Recently, 12 countries agreed that common capital standards be adopted by 1992 within the framework of the Basle Committee on Bank Regulations and Supervisory Practices.¹⁸ The goal of the international harmonization of capital requirements is to iron out competitive inequities that arise from different capital requirements across countries and to create an international "even playing field."

The new capital adequacy rules are based on the book values of capital and assets, as they are now on a national level. The agreed on minimum capital standard is 8 percent of risk assets. At least half of the bank capital must consist of shareholders' equity, retained earnings, or noncumulative preferred stock. The remainder can include undisclosed reserves, asset revaluation reserves (only 45 percent of unrealized gains can be counted), loan-loss provisions (up to a maximum of 1.25 percent of

Table 7-8. *Market Capitalization and Exposure of Creditor Banks*

<i>Country and bank</i>	<i>Market capitalization (US\$billions)</i>	<i>Exposure to Mexico and Brazil/market capitalization</i>
United Kingdom		
Lloyds Bank	2.5	1.4
Barclays Group	4.5	0.4
Midland Bank	2.0	2.0
National Westminster	4.4	0.4
Japan		
Bank of Tokyo	22.2	0.1
Sumitomo Bank	64.5	0.0
Mitsubishi Bank	53.5	0.0
Canada		
Bank of Montreal	2.3	1.4
Royal Bank	3.1	0.9
Scotiabank	1.9	0.8
Canadian Imperial	3.1	0.7
Toronto Dominion	3.9	0.3
United States		
Citicorp	7.5	0.9
BankAmerica	1.7	3.1
Chase Manhattan	2.2	2.0
Manufacturers Hanover	1.4	2.9
J. P. Morgan & Co.	6.5	2.0

Sources: World Bank data; company annual reports; Salomon Brothers, *Commercial Banks*, 5 July 1988, and *Review of Bank Performance, 1988 Edition*.

risk assets), and various hybrid capital instruments and subordinated debt. These various provisions represent negotiated compromises that reflect preagreement international differences in defining bank capital. The partial qualification of unrealized holding gains as capital, for instance, is meant to accommodate the Japanese financial institutions that at present carry substantial unrealized gains. The partial gearability of loan-loss reserves assists the French and U.S. banks that currently can count loan-loss reserves toward capital.

According to news reports, the new capital standards call for substantial rises in capital for the Japanese and French banks, while the U.K. banks would not see significant changes in their present position.¹⁹ It is estimated the Japanese banks will have to come up with an additional \$35 billion in capital by 1992. Federal Reserve Board officials in the United States hinted that five unidentified U.S. banks need an extra \$12 to \$15 billion in additional capital by 1992 to be in compliance with the newly adopted standards.²⁰ As noted, if new capital guidelines cause bank capital to be in short supply, then banks may prove to be more reluctant to write off their developing-country loans and participate in debt reduction schemes that involve write-downs beyond current reserving levels. Scarcity of capital will more generally limit the banks' ability to provide new lending at home and abroad.

The Basle agreement also provides for rules regarding the risk-weighting of assets that could be as important to the developing countries as overall capital requirements. The lower risk-weighting of lending to OECD governments (including Saudi Arabia) than lending to non-OECD governments could discourage banks from extending credit to the public sector debt in developing countries. The equal risk-weighting of private sector debt in OECD and non-OECD countries alike, however, precludes a bias in bank lending to either developed or developing countries.

Unfortunately, uniform international capital standards and risk-weightings of assets alone do not guarantee fair international competition among the banks. Given persisting international diversity in tax and accounting practices, harmonization of capital standards is as likely to exacerbate as to alleviate unfair banking competition. Continuing international discrepancies in tax and accounting practices may also have some unintended and unforeseen consequences for the banks' debt crisis management other than unfair interbank competition. Banks may, for example, use the secondary market for developing-country loans to rearrange their international developing-country loan portfolios to arbitrage international differences in tax and accounting rules. The secondary market can thus be a vehicle for directing developing-country loans to those countries that guar-

antee the greatest tax relief to the banks. If this were to happen, taxpayers of the various creditor countries would face rather unequal burdens in forgone corporate income tax receipts. At this point, there is no direct evidence that banks are in fact reshuffling their developing-country portfolios through the secondary market to reap maximum tax benefits. German banks, which in recent years have expanded their exposure to developing countries relative to other creditors, enjoy a favorable tax treatment of developing-country loan-loss provisions and a correspondingly high developing-country loan-loss reserve coverage.

As the debt crisis unfolds, tax and accounting rules are gradually crystalizing. Experiments like the recent Mexican offer, whether successful or not, help force bank regulators to provide formal regulatory clarity. The banks themselves are important participants in this evolution of regulatory practices. Citicorp's \$3 billion provision for loan losses in May 1987, for instance, sets an implicit developing-country loan-loss reserve coverage standard of 25 percent that was quickly followed by other major banks. Regulators, when enunciating new rules, no doubt often look attentively at leading banks' and accounting firms' existing practices.

Major features of accounting and tax regulations regarding loan-loss provisioning in the chief creditor nations are surveyed in table 7-9. The first column indicates the current levels of provisioning in the major creditor nations. Of seven national banking groups, German banks appear to have reserved most heavily against developing-country loan losses, while Japanese banks stand out for their low level of provisioning.²¹ Turning to the extent of mandatory provisioning, we see that France and Germany have not prescribed any binding guidelines as to the appropriate level of provisioning for developing-country loan losses. In the United States, the bank regulatory bodies require a loan-loss reserve level of at least 10 percent for countries whose loans have been declared "value-impaired." Canada, Japan, Switzerland, and the United Kingdom, on the other hand, have drawn up rather elaborate matrices of countries for which reserving is necessary and the corresponding minimum provisioning levels. Banks generally have already reserved beyond the mandatory reserving levels, especially in Germany. Deutsche Bank AG, for instance, had set aside reserves for 70 percent of its developing-country loans as of September 1987, according to its chief, Alfred Herrhausen.²²

Partial deductibility of loan-loss provisions for corporate income tax purposes is allowed in all the major creditor nations except the United States. Japan, however, limits the tax deductibility of provisioning to just 1 percent of rescheduled debt or increased exposure. A final regulatory issue is whether loan-loss reserves are

counted toward bank capital. The table shows loan-loss reserves currently do not qualify as regulatory bank capital in Canada, Germany, Switzerland, and the United Kingdom. In Japan only 1 percent of rescheduled debt or increased exposure can be reckoned as capital. At present, France and the United States allow loan-loss reserves to be fully counted toward bank capital. As noted, the Basle agreement will introduce a limited role for loan-loss reserves as capital in all the major creditor nations by 1992.

Conclusions

Commercial banks in creditor nations with developing-country debt appear to have weathered the debt crisis. For the U.S. banks, we find that, at present, bank stock prices reflect a high discount of developing-country debt. Thus the stock prices of U.S. banks are not expected to fall if the banks get a return on their developing-country loans roughly consistent with the prices for developing-country loans currently observed in the secondary market. The main banks in Canada, France, Japan, the United Kingdom, and Germany are shown to have relative exposure to developing-country debt equal to or smaller than their U.S. counterparts, and thus are correspondingly less imperiled by the debt crisis than the U.S. banks.

It remains to be seen whether the commercial banks' current strength and stability will be helpful in reestab-

lishing normal credit relationships between the private banks and the developing countries. Although it may take time, a combination of self-interest and public policy should, in the end, help overcome the current impasse in the debt crisis. Debt swaps and reductions involving guarantees by a public agency is one way that, as we have shown, the banks can withstand very well. Although still in an embryonic stage, the Brady initiative clearly moves in this direction. At present, a similar strategy is already being implemented bilaterally in small steps and in a variety of guises, such as debt conversions and debt buybacks.

Notes

1. The mean spread is computed as the difference between offer and bid prices divided by the bid price. The mean spread data are based on 48 separate price quotations, with about two-week intervals, during the period from 11 March 1986 to 9 June 1988.

2. *Financial Times*, 21 January 1988.

3. *Financial Times*, 19 October 1987 and 4 February 1988.

4. *Wall Street Journal*, 7 October 1987.

5. From "Review of Bank Performance," Salomon Brothers, 1988 edition.

6. As an accounting rule, provisioning for loan-loss reserves involves a balance sheet transfer from shareholders' equity to the loan-loss reserve. Thus, by taking developing-country exposure net of the loan-loss reserve, the measures of developing-

Table 7-9. Selected Industrial Countries: Regulation on Commercial Bank Provisioning against Claims on Developing Countries at End-1987

Country	Level of provisioning ^a	Mandatory provisioning	Tax deductibility of provisioning	Gearability ^b
Canada	30-40	Yes; 30-40 percent against a basket of 34 countries	Yes	No
France	30-40	No ^c	Yes; but for provisioning in excess of average provisions on a case-by-case basis	Yes
Germany, Federal Republic of	30-70	No ^d	Yes; but case-by-case	No
Japan	5	Yes; 1-5 percent for 36 countries	Yes; but limited to 1 percent of rescheduled debt and increased exposure	Partly ^e
Switzerland	30-50	Yes; 30 percent against a group of countries	Yes; but for provisioning in excess of mandatory provision on a case-by-case basis	No
United Kingdom	25-35	Bank of England guideline: 5-100 percent, depending on country	Yes; 80 percent of the provisioning value derived from Bank of England matrix	No
United States	25-60 ^f	No ^g	No ^g	Yes

a. In percentage of relevant exposure; numbers indicate ranges for major banks.

b. Indicates whether provisions are included in the capital base used to monitor capital-asset ratios.

c. Provisioning suggested against a number of countries with payment difficulties.

d. Adequacy judged against industry average.

e. Only the non-tax-deductible portion is included.

f. Some regional U.S. banks have substantially higher provisions.

g. Except when loans are determined to be "value-impaired."

Source: IMF data.

country exposure and of bank equity are both net of previous reserving, and double counting is avoided.

7. In the United States, bank closure decisions are made by the comptroller of the currency.

8. As a related matter, the relationship between off-balance-sheet assets (including federal guarantees) and interest rates has been unstable and changed sign during the 1975–86 period (Unal and Kane 1987).

9. Using the same technique, Bruner and Simms (1987) have shown that bank stock returns were negatively affected by Mexico's announcement in August 1982 that it could not fully service its debt. Debt reschedulings materially affect bank stock values (Özler 1988).

10. *Financial Times*, 7 December 1987.

11. From "Indicative Prices for Less Developed Country Bank Loans," Salomon Brothers.

12. *Financial Times*, 4 February 1988.

13. The top banks for each of the countries are in table 7–7. The French banks also include Credit Agricole and Indosuez.

14. These relative equity figures, however, do not reveal hidden bank resources, such as the unrealized real estate and stock gains that are nowhere to be found on the balance sheets of Japanese banks.

15. *New York Times*, 20 July 1988.

16. The information in this paragraph is from pp. 24, 80, and 127 of Mullineux (1987).

17. *Wall Street Journal*, 26 January 1988. The only other occasion where Japanese banks were allowed to deduct loan losses was at the creation of an offshore factoring company that concentrated some of the Mexican exposure of Japanese banks.

18. The countries are Belgium, United Kingdom, Canada, France, Italy, Japan, Luxembourg, the Netherlands, Sweden, Switzerland, the United States, and Germany.

19. *Wall Street Journal*, 30 September 1987.

20. *New York Times*, 13 July 1988.

21. The high level of reserving by the German banks partly reflects a drop in the deutsche-mark value of developing-country loans following the depreciation of the dollar after 1985.

22. *Wall Street Journal*, 30 September 1987.

Appendix A: Secondary Market Price Regression

As one of the regressors, we take an indicator of secondary market price volatility, constructed as the standard error (*SE*) of auxiliary regressions of the bid price on a linear time trend for each country. Other included explanatory variables are *ARR*, which is a dummy variable set equal to 1 if the country has commercial bank arrears as of July 1988, public debt relative to GNP (*PD/GNP*), and the growth rate of real GNP (*GNPGROWTH*). Public debt rather than total debt relative to GNP is included, as secondary market quotations primarily reflect the value of public sector obligations. The dependent variable is a cross-section of secondary market prices for 9 June 1988. The regression results are:

<i>C</i>	<i>ARR</i>	<i>PD/GN</i>	<i>GNP- GROWTH</i>	<i>SE</i>	<i>N</i>	<i>R</i> ²
82.281	-15.520	-0.232	1.300	-2.111	25	0.81
(12.52)	(-6.39)	(-4.55)	(1.30)	(-4.12)		

where parentheses indicate *t*-statistics. The negative coefficient on the *SE* variable indicates that secondary market price uncertainty tends to depress the secondary market price.

Appendix B: Implicit Debt Discounts and the Impact of Debt Swaps on Bank Stock Prices

The appendix describes how the discount on developing-country loans implicit in stock prices is estimated. Using publicly available information, it is possible to construct a reasonably complete picture of exposure of about 40 large banks to the five major Latin borrowers: Argentina, Brazil, Chile, Mexico, and Venezuela.¹ The regression equation that yields an estimate of the developing-country loan discount implicit in stock prices is as in Sachs and Huizinga (1987).² To derive the equation, first note that the market value of a bank's assets should be equal to the market value of its liabilities and of its equity. Then let the market value of a bank's liabilities be approximated by its book value (this is reasonable as most of a bank's liabilities are short-term instruments such as bank deposits). Also proxy the book value of preferred equity for its market value. Assets are taken to be assets reported on the balance sheet, which excludes off-balance-sheet assets such as the bank's contingent claim on the FDIC. Some of the limitations of this omission are discussed in more detail in the main text. Let θ_1 and θ_2 stand for the market values of one dollar of developing-country loans and of one dollar of non-developing-country assets. We can now write the balance sheet identity as follows:

$$MV_C + BV_P + BV_1 = \theta_1 A_{dc} + \theta_2 A_o .$$

Where:

- MV_C = market value of common equity,
- BV_P = book value of preferred equity,
- BV_1 = book value of liabilities,
- A_{dc} = book value of developing-country loans,
- and
- A_o = book value of other assets.

Both sides of the above expression can be divided by a bank's total assets, denoted by A_{total} (with $A_{total} = A_{dc} + A_o$), which gives us the following equation to be estimated:

Table 7-B1. Asset Value Regression Results

Date	Constant	Exposure/ assets	R ²	N
30 November 1987	0.998 (232.50)	-0.541 (-4.36)	0.33	41
31 May 1988	1.007 (222.99)	-0.617 (-4.63)	0.36	41

Note: The dependent variable is the sum of the market value of common stock and the book values of preferred stock and total liabilities, divided by total assets, computed as the sum of book assets and loan-loss reserves. Exposure/assets stands for exposure to Argentina, Brazil, Chile, Mexico, and Venezuela divided by assets, calculated as mentioned. Parentheses indicate *t*-statistics.

Source: Author calculations.

$$\frac{MV_c + BV_p + BV_l}{A_{total}} = \alpha + \beta \frac{A_{ldc}}{A_{total}}$$

Where:

$$\alpha = \theta_2, \text{ and}$$

$$\beta = \theta_1 - \theta_2.$$

Here α is again the market value of one dollar of non-developing-country assets, and β is the discount of developing-country loans in relation to non-developing-country assets implicit in stock prices. The above equation is estimated using bank stock prices for two separate dates: 31 May 1987 and 31 November 1987. Because of data limitations, the A_{ldc} variable is limited to bank loans to Argentina, Brazil, Chile, Mexico, and Venezuela.³ The regression results are reported in table 7-B1. Note that the constant term, which estimates the market value of a bank's non-developing-country assets, is very close to 1 in both regressions. The estimate of the developing-country discount β is 54 percent for 31 November 1987 and a somewhat higher 62 percent for 31 May 1988.

Unfortunately, the estimate of the discount β is likely to be biased, as the A_{ldc} variable only measures loan exposure to the big five Latin debtor nations. In particular, the estimated discount is likely to be larger than the real discount if a bank's exposure to the big Latin five is positively correlated with its other developing-country bank exposure. To adjust for the bias, note that U.S. banks' exposure to the Latin five amounted to 67 percent of the total developing-country exposure of U.S. banks at year-end 1987.⁴ If it were true that each bank's exposure to the five Latin borrowers were perfectly correlated with other developing-country exposure, then an unbiased estimate of the discount would be 67 percent of 62, or 41. The correct discount probably lies between 41 and 64 percent.

Using an estimate of the implicit discount, it is possible to simulate the stock price effect of any exchange of the banks' developing-country loans portfolio for cash or other securities. Let δ_i be the estimated implicit market

discount so that a bank's developing-country exposure, denoted Exp , currently contributes $(1 - \delta_i) Exp$ to a bank's stock market value. Let us assume that the bank sells or exchanges its developing-country loans at a discount δ_s , or equivalently that it receives $1 - \delta_s$ dollars in cash or marketable securities for each dollar of developing-country loans. Let τ denote the bank's marginal corporate income tax rate. As realized loan losses are tax deductible, the debt exchange will reduce the bank's tax liability by $\delta_s \tau$. Adding up, we see that the transaction has changed the bank's market value MV by:

$$dMV = [1 - \delta_s + \delta_s \tau - (1 - \delta_i)] =$$

$$[\delta_i - \delta_s (1 - \tau)] Exp$$

The initial market value of a bank, MV , can be calculated as the product of the number of stocks outstanding and the common stock price. Using the above expression for the change dMV , we see that the relative change in a bank's stock market value following a swap is simply given by:

$$\frac{dMV}{MV} = \frac{[\delta_i - \delta_s (1 - \tau)] Exp}{MV}$$

Let the implicit discount δ_i be 0.41, which as discussed above is the lower bound for the regression estimate of δ_i . As the relative stock price change dMV / MV is shown to be positively related to the value of the implicit discount δ_i , setting δ_i equal to 0.41 will give lower bounds for the estimated relative stock market changes resulting from debt swaps.

The relative stock price change can be evaluated for any number of individual banks and values for the variables δ_s and τ . As a benchmark case for the sale discount δ_s , let us take the volume-weighted discount observed in the secondary market as of 9 June 1988, which was 50 percent.⁵ There is no deep reason why actual debt swaps should be transacted at observed secondary market prices, but for the purpose of illustration secondary market prices will suffice.

There is also some ambiguity as to the appropriate tax rate τ , as it is unclear to what extent banks will be able to write off loan losses against taxable income. After the U.S. tax reform act of 1986, the top corporate rate was reduced to 34 percent.⁶ But in practice, banks may be able to reduce their tax liability by less than 34 percent of loan losses if they have insufficient past, present, or future taxable income to deduct realized loan losses from. At present, banks are allowed to carry such losses resulting from bad debt back for 10 years, while they can carry such losses forward for 5 years.⁷

Table 7-B2. Taxes Paid and Market Capitalization of Large U.S. Banks

Bank	Income taxes paid, 1983-87 (millions of \$)	Income taxes paid/developing-country exposure	Market value of common stock (millions of \$)	Developing-country exposure/market value
Citicorp	3,337	0.25	7,508	1.77
BankAmerica Corp.	594	0.06	1,701	5.88
Chase Manhattan	741	0.09	2,189	3.93
Manufacturers Hanover	708	0.08	1,408	6.32
J. P. Morgan & Co.	1,457	0.27	6,547	0.82
Chemical NY	353	0.16	1,581	3.73
Security Pacific	461	0.34	3,829	0.57
Bankers Trust NY	597	0.15	2,607	1.53
First Chicago	223	0.08	1,520	1.91

Note: Bank market value is calculated as the product of the stock price at 31 May 1988 and the number of stocks outstanding at year-end 1987.

Source: Salomon Brothers, *Review of Bank Performance, 1988 Edition*.

The banks' potential to carry loan losses back is easy to assess, as it is known how much tax they have actually paid in the recent past. Corporate income taxes paid by each the 10 major U.S. banks for the 5-year period 1983-87 are reported in table 7-B2. The table also calculates these taxes paid as a share of each bank's developing-country loan exposure. Note that a write-off of half of the developing-country debt (as is implicit in a 50 percent sale discount) can, at most, reduce a bank's tax liability by the tax rate (that is, 34 percent) times 50 or seventeen cents per dollar of debt. Citicorp and Morgan are shown to have paid taxes equivalent to 25 and 27 percent, respectively, of developing-country exposure, and thus appear to have sufficient loan-loss carry-back potential to realize all the potential tax benefits from developing-country loan write-offs. Manufacturers Hanover, First Chicago, and especially BankAmerica have somewhat more limited loan-loss carry-back capabilities. But as loan losses can be spread out for tax purposes over 15 years (rather than only 5 years), it appears that all banks can realize sizable tax benefits following developing-country debt write-offs.

Estimates of the top 10 banks' market capitalizations, *MV*, are also reported in table 7-B2. The last column of the table divides developing-country loan exposure by market capitalization to arrive at values of the ratio *Exp/MV*.⁸

At this point we can evaluate stock price changes resulting from a debt swap. The discount δ_s is taken to be 0.50 throughout. As the appropriate bank tax rate remains somewhat ambiguous, we do the evaluations for four different tax rate values: 0.34, 0.20, 0.15, and 0. The results in table 7-6 indicate that for tax rates of 0.34 and

0.20 all 10 major banks will see their stocks rise in value, while for tax rates of 0.15 and 0 stock prices for all banks go down. Not surprisingly, the stock prices of the most heavily exposed banks (such as BankAmerica and Manufacturers Hanover) are most affected by any swap.

Using the expression for dMV/MV , we can derive the threshold sale discount δ_s that causes a bank to have a zero market value for any given tax rate τ . In symbols, this critical discount is found by setting dMV/MV equal to -1. Table 7-6 reports the borderline discounts δ_s for the top 10 banks for each of the tax rates 0.34, 0.20, 0.15, and 0. Obviously, the higher the tax rate τ the larger the discount δ_s that a bank can sustain without reaching zero market value. The table shows that with a tax rate of 0.34 only BankAmerica and Manufacturers Hanover will reach the folding point for unrealistically high critical discounts of 88 and 86 percent respectively. Even for the hypothetical case of zero tax rates, which implies there is no tax deductibility of loan losses, only a limited number of banks can theoretically reach the zero value mark for critical discounts that in all cases are larger than the currently observed average secondary market discount of 50 percent. This indicates that little short of the developing-country loans becoming completely worthless can push the major U.S. banks over the edge.

Appendix C: Excess Return Regression and the Termination of the Brazilian Moratorium

The dependent variable is the percentage stock price appreciation minus the bank's beta times the percentage appreciation of the S & P 500 stock index for the period from 15 December 1987 to 31 May 1988. The explanatory variables are a bank's exposure to Brazil divided by shareholders' equity (*BRA*), and its exposure to Argentina, Chile, Mexico, and Venezuela divided by shareholders' equity (*OTHER*). The regression results are:

C	BRA	OTHER	R ²	N
0.042	0.612	-0.247	0.17	39
(1.09)	(2.18)	(-1.70)		

Parentheses indicate *t*-statistics. The positive coefficient for the *BRA* variable indicates a revaluation of Brazilian loans as perceived by bank stock investors.

Notes

1. U.S. banks are required to disclose their loan exposure to any foreign country if it exceeds 1 percent of book assets.
2. Sachs and Kyle (1984) use a slightly different specification to analyze the links of stock market prices and developing-country debt for data through the third quarter of 1933.

3. Except for the stock price information, the two regressions use the same data, which is mostly for year-end 1987. Some data on numbers of stocks outstanding are from Keefe & Bruyette's 18 January 1988 newsletter.

4. All developing-country exposure is computed as the sum of exposures to OPEC and non-OPEC Africa, Asia, and Latin America.

5. Exposure data is for year-end 1987.

6. As pointed out by Buynak (1987), the effective tax rate for banks may actually have been raised by the 1986 tax reform act, as banks now face tighter restrictions on foreign tax offsets; a higher alternative minimum tax, at 20 percent; and a reduced net operating loss carry-back, from 10 years previously to 3 years now.

7. General operating losses can instead be carried back for 3 years and carried forward for 15 years.

8. The numbers for *Exp/MV* in the table are quite large as they divide the book value of developing-country loans, which have hardly been written down so far, by a stock market measure that already reflects developing-country loan discounting.

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Comment

Anthony Saunders

This paper analyzes the ability of U.S. and other commercial banks to withstand future write-offs on developing-country loans and the extent to which bank stock prices already reflect a discount for the loans. That is, whether the stock market—as an efficient market—has already impounded into current stock prices the expected value of future write-offs. If these expectations are correct, and since positive (and in some cases rising) prices, for bank stocks still exist, then Huizinga argues that banks have managed to withstand the debt crisis and can reasonably engage in forgiveness programs. But has the market impounded the risk of developing-country

loans in stock prices, or are there some missing offsetting effects?

There are some very important and valuable subsidies available to bank stockholders that may have increased in value (in a contingent claim sense) as developing-country debt exposures have worsened. These offsetting subsidies are the explicit and implicit guarantees provided by regulators to large banks in the form of mispriced deposit insurance and forbearance over capital adequacy rules and closure. Bank stockholders, especially in the United States, have a valuable claim on the taxpayers' purse. Being too big to fail creates an expectation of rising subsidies and guarantees that directly offsets and mitigates worsening developing-country debt positions. To put it more simply, U.S. taxpayers are un-

derwriting a lower bound to U.S. bank stock prices. This is important for Huizinga's empirical work since it ignores the changing value of these guarantees. More specifically Huizinga writes the market value of bank equity (MV_e) as the difference between the market value of bank assets and the market value of bank liabilities.

But the market value of bank equity depends on at least two other factors: (1) the value of explicit and implicit insurance guarantees and subsidies provided by regulators, and (2) the net value of off-balance-sheet contingent assets and liabilities such as letters of credit, swaps, options, and futures—or the so-called invisible bank that is for large U.S. banks many times the size of the on-balance-sheet visible bank.

If debt exposure to developing countries worsens, on-balance-sheet net worth will worsen, but this is likely to be offset by an increased expected value of subsidies and guarantees. Thus there is no unitary or constant correspondence between the market value of equity and the market value of balance-sheet net worth, as Huizinga's empirical analysis implies. While Huizinga recognizes these problems, he does not carry out sensitivity tests to see how important these are, such as running his regression over different subperiods and examining the stability of his "beta" coefficient. Consequently his analysis probably sets an upper bound on large bank stockholders' exposure.

Unfortunately, Huizinga's analysis also tends to direct attention away from the true social welfare question that needs to be asked—not the exposure of U.S. bank stockholders but the exposure of U.S. bank regulators and taxpayers. In particular, what is the size of the current wealth transfer from U.S. taxpayers through the FDIC to bank stockholders, depositors, and developing countries?

The developing-country debt crisis and exposure issues bear an uncomfortable resemblance to the current crisis among U.S. savings and loans, where there is no doubt that the U.S. taxpayer has implicitly underwritten (and will pay the eventual cost of) their risky lending activities. One might also ask—as with the current savings and loan crisis—does the U.S. taxpayer know the size of his potential developing-country debt-related liability and, if he does know, would he be willing to forgive developing-country borrowers some of their servicing requirements? I would not be terribly optimistic!

A second important aspect of the Huizinga paper is his comparison of the discount for developing-country debt impounded in stock prices (as implied by his regression) with the tax-adjusted discount on developing-country debt observed in the secondary market. An important question for analysts of financial markets is why, if markets are efficient, does not the implied discount on equity (δ_i) equal the tax-adjusted discount on developing-country debt in the secondary market $\delta_s (1 - \tau)$? If this con-

dition does not hold, Huizinga argues that arbitrage profits may exist, and by using the secondary market to sell loans, banks can actually make an unexpected wealth gain for their stockholders.

But do such differences imply arbitrage profits or do they reflect unarbitragable barriers and transaction costs? One obvious reason for the arbitrage condition to fail is mismeasurement errors in the author's analysis. But there are also many analytical reasons to believe that such differences are due to transaction costs and barriers.

For example:

- Market thinness in the secondary developing countries' loan market might lead to a transaction risk premium being impounded in secondary prices.
- There are such barriers as the Bank Holding Company Act that limit the ability of nonbank firms to buy banking company shares and thus a direct claim on developing-country loans. But nonbank firms can, and do, buy developing-country loans in the secondary market. Indeed nonbank firms are major participants in debt-equity swaps.
- The Bank Holding Company Act and other regulations limit U.S. banks' ability to directly engage in debt-equity swaps. There are severe limitations on banks holding direct equity stakes in developing countries, and there is a very limited number of swap programs.
- When bank loans are sold to nonbank firms, explicit and implicit regulator guarantees and subsidies are lost. (That is, they are not transferred to nonbanks.)
- There may be negative information effects of cash exchanges for loans at discounted prices. In particular the stock market may take a discounted cash exchange as negative information regarding the bank's other assets and impound a greater discount in stock prices than implied by the pure discount in the secondary market. Alternatively, regulators may require a wholesale write-down of the book values of a bank's developing country debt and costly new equity to be raised.

Thus, it is unclear whether differences between δ_i and $\delta_s (1 - \tau)$ imply arbitrage gains to shareholders—as in Huizinga's analysis—or reflect unarbitragable or equilibrium prices because of transaction costs and binding constraints and barriers. That is, a difference between δ_i and $\delta_s (1 - \tau)$ may imply no potential wealth gains to stockholders from loan sales.

A third issue is how will the new risk-based capital adequacy ratios adopted by OECD countries affect the developing-country problem? Huizinga is correct in identifying some concerns. While in principle it is a good thing that Japanese, U.S., German, and other banks with the same developing-country exposures should be required to hold the same equity capital on both solvency

grounds and “level playing field” grounds, at least three problems remain:

- These capital requirements are still based on book rather than market values and so do not fully reflect the true value of bank equity or net worth.

- It is very unclear how these risk weights were computed. For example, credit lines or loan commitments are generally given a 50 percent credit-risk rating (these are off-balance-sheet), loans to government-sponsored agencies are given a weighting left to national discretion while private foreign loans are given 100 percent risk weighting. More generally, are Treasury bills only 10 percent as risky as loans?

To the extent that these fixed ratios are either overpriced or underpriced in reflecting true risk exposure, arbitrage opportunities will exist for banks to rearrange their portfolios to reduce their capital adequacy taxes. Apparently many U.S. banks are already doing this as the new capital requirements are phased in. For example, we might expect to see banks continue to switch away from (capital costly) direct finance or lending to developing countries to off-balance-sheet activities such as loan commitments, letters of credit, loan sales, and asset securitization.

- Normally we think of risk in a portfolio context—that is, diversification across a portfolio of developing-country loans is less risky than investment in a single

developing country or area. But these risk weights do not take into account this convexity aspect of risk in that the new risk-based capital requirements ignore covariances among developing countries and other loans and assets and use a simple linear risk measure.

The fourth and last point is the trend toward loan securitization and its potential dangers. The developing-country debt crisis has created a flight by banks to quality borrowers, and this is best indicated by the growth in loan substitutes such as note issuance facilities (NIF) and revolving underwriting facilities (RUF) and the very small margins earned on this business. At the same time there has been a growth in developing-country loan sales and continuing incentives to move off the balance sheet.

What does this imply about the quality of banks who still make orthodox developing-country loans? Surely it implies some type of adverse selection effect in that those banks who do not or are unable to go after the NIF-RUF business or the off-balance-sheet credit guarantee and enhancement business are left with a declining pool of low-quality high-risk borrowers. Thus almost by a process of self-selection those banks who continue to make orthodox developing-country loans may be signaling that they are in turn low-quality banks. This flight to quality-adverse selection effect may well pose added problems for regulators in the not too distant future.

The Rise of the Market-Based “Menu” Approach and Its Limitations

Michel H. Bouchet and Jonathan Hay

Concerted new-money packages were a central component of the international debt strategy from 1982 to the end of 1986. But during the last two years, the scope for further concerted lending has been substantially modified by growing competitive and regulatory pressure on commercial banks to reduce exposure to developing countries and strengthen capital ratios. As a result, recent financing packages have offered commercial banks financial instruments tailored to their different regulatory, accounting, and tax environments, as well as long-term business interests. This new emphasis on including a wide variety of instruments in financing packages has been called the “market-based ‘menu’ approach.”

The menu approach is, in many respects, a positive development. It is the financial markets’ pragmatic response to the convergent interests between debtors and creditors. Its main objective is to adopt a truly case-by-case approach and to tune each financial package to the specific needs of the debtor country and the specific interests and constraints of commercial banks. The menu approach tries to provide countries with both time and debt relief, including, in some cases, a negotiated reduction of debt obligations. The menu also encourages market-oriented economic policies as part of debt management: it involves liberalizing commercial and financial markets, privatization programs (including debt-conversion facilities), onlending and relending activities that channel external funds to private sector entities, real exchange rate management to repatriate flight capital, and an opening up to direct investment.

While the menu approach has worthy objectives, its success as a debt management tool is by no means assured. Four factors should contribute to the greater success of the menu approach.

First is the quality of economic adjustment programs in developing countries. Commercial banks’ strength-

ened financial position means that the creditor banks will become even more selective with respect to borrowers, investment sectors, and financial instruments. There will be fewer substitutes for credible adjustment programs.

Second is the quality of debt management in the debtor countries. The menu approach imposes heavy demands on debt negotiators and requires sophisticated institutional and technical asset-liability management. The menu has been monopolized by a few debt heavyweights in Latin America, but a growing number of less financially sophisticated low- and middle-income countries will probably require these management techniques if they are to develop their own negotiating expertise and take full advantage of the menu approach.

Third is the need for a gradual relaxation of the legal framework in which debt restructuring takes place. Thus far, a rigid legal framework in loan and restructuring agreements has produced centrifugal forces, resulting in a growing number of “free riders” that are able to continue receiving interest payments without participating in new-money exercises. The number of internationally committed banks is likely to shrink in the future, and banks that are not involved for the long run in developing countries will be reluctant to provide additional balance of payments support. So countries would benefit from restructuring their debt stock and their community of bank creditors by facilitating the exit of banks with small exposure. An important step would be including clauses in debt-restructuring agreements that would allow large-scale exit bonds and debt-conversion programs.

The fourth factor concerns the regulatory and tax incentives for banks to participate in financing packages. Following U.S. Treasury Secretary Brady’s initiative presented on 10 March 1989, voluntary debt reduction is likely to be an increasingly key component of the menu, but the current policy environment does not stimulate

commercial bank participation in voluntary schemes. Removing the accounting benefits from transactions that effectively recycle interest payments and requiring banks to realize tax losses might be ways to provide banks with incentives to participate in voluntary debt reduction.

The menu approach faces significant obstacles to its success. The rigidity of loan agreements, internal tensions between new money and debt reduction, and disincentives created by regulatory and accounting policies may prevent the market-based approach from moving more rapidly than it has in alleviating the debt problems of developing countries. Without more incentives for commercial bank participation in market-based debt reduction, it is probably fair to be somewhat pessimistic about the speed with which this gradual approach can address the debt problems developing countries face.

The Self-Limiting Character of the Concerted Approach

The concerted debt strategy achieved significant results in the early phase of the debt crisis, but this strategy was unlikely to be sustainable beyond a few years without greater accommodation to the different and changing attitudes and interests of commercial creditors.¹

First, the threat of an international financial collapse could only temporarily override differences between banks. As the financial condition of banks improved, banks regained some autonomy to pursue individual objectives defined by specific business interests, country evaluations, and tax and regulatory regimes. The ratio of net exposure to Latin America to equity of the world's top 100 banks declined to 57 percent in 1987 from 125 percent in 1982 (Monroe-Davies 1989). But the banking industry's strengthened financial position masks the problems of some of the larger banks. For example, the U.S. money-center banks' net exposure to developing countries as a percentage of equity dropped to 90 percent at year-end 1988 compared to more than 140 percent in June of 1987. Specific bank data, however, show that J. P. Morgan's developing-country exposure-equity ratio reached a comfortable 60 percent at end-1988 whereas, at the other end of the spectrum, Manufacturers Hanover's ratio was 217 percent. The strengthening of the U.S. banks' position is reflected in the evolving size of their claims on Africa and Latin America in proportion to their total capital: this proportion dropped to less than 50 percent at year-end 1988 from 110 percent in 1983. Figure 8-1 illustrates the evolution of U.S. banks' capital ratios during the 1982-88 period.

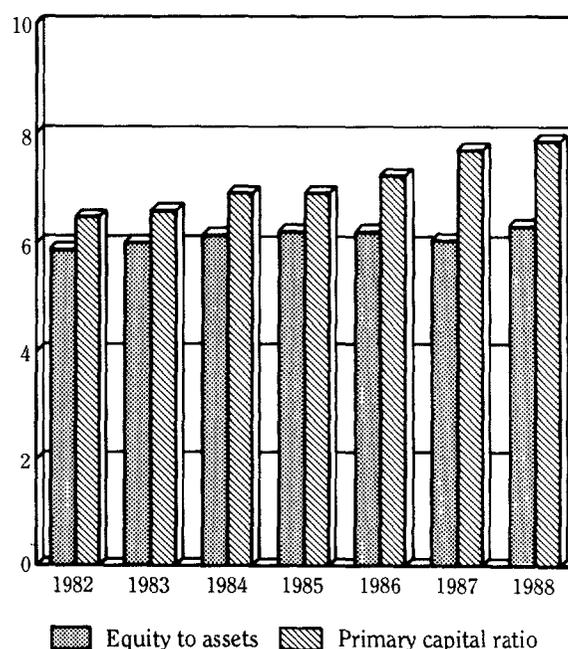
The sharp drop of developing-country bank loans in proportion to total assets and total equity has substantially modified the parameters of the concerted new-

money approach. Today, the commercial banking industry no longer considers the debt problem of the highly indebted countries as its most pressing concern. The strengthening of the financial health of many banking institutions leads these banks to return to more traditional banking business, that is, transactional and specific purpose financing.

Second, as banks became stronger, much of the systemic pressure for defensive lending disappeared. Creditor governments were less willing (or able) to enforce bank participation in financing packages than they had been in the initial phase of the debt crisis under the "system's order." The ability to recycle interest payments, keep existing assets current, and thereby delay the recognition of loss was to become less of an incentive to participate in financing packages as the healthier banks sought to return to equity markets.²

Banks face intensified regulatory and competitive pressure to strengthen their balance sheets. Many banks that participated previously in concerted lending now show little interest in new-money facilities that are taxed by loan-loss provisions and penalized by secondary market discounts. In Europe, mandatory reserves on new loans levy a heavy burden on banks' before-tax income while, in the United States, commercial banks face competition to maintain reserves close to those of the banking industry. Moreover, additional exposure is immedi-

Figure 8-1. Capital Ratios of U.S. Commercial Banks, 1982-88 (percent)



Source: FDIC.

ately contaminated by large discounts since secondary markets do not differentiate between existing assets and new money. In some cases, banks are prepared to endure protracted arrears instead of seeking new money. Debtor countries with protracted arrears to banks in 1988 included Brazil, Ecuador, Côte d'Ivoire, Argentina, Peru, Bolivia, and Costa Rica. As of mid-1989, only Brazil has benefited from an interest refinancing package.

Third, the legal framework that held commercial creditors together precluded any mechanism to prevent commercial banks from "free riding" on new-money agreements. All loan and restructuring agreements contain clauses designed to ensure that banks share receipts on a pro rata basis and preserve the equal ranking of claims. The sharing clause's objective is to achieve what has been called "syndicate democracy" (Wood 1980). But in the context of concerted lending, the sharing clause precludes any mechanism to prevent free riding by legally enabling some banks to benefit from other banks' contributions to interest-refinancing operations.

Fourth, concerted lending was designed to overcome a temporary liquidity gap, restoring debtors to creditworthy status within a short period (two to three years). As time passed, it became increasingly clear that most, if not all, economies of troubled debtors had major structural weaknesses that would take many years to correct. Even with optimistic scenarios, the trends in debt indicators and domestic political difficulties in implementing reform programs suggest that restoring creditworthiness and renewed access to markets will be long and uneven. Banks' willingness to participate in concerted packages is flagging, and countries are increasingly reluctant to embark on socially difficult adjustment programs, in part because of shrinking net external financing support.

Fifth, creditor governments took different approaches to improving their banks' financial condition. European supervisors, for example, began to encourage and, in some cases, require reserving against developing-country assets early in the debt crisis. In certain cases, tax authorities granted deductibility of these loan-loss reserves to encourage stronger capital-asset ratios without direct injection of additional funds. But in the United States, regulators put pressure on banks to improve their capital-asset ratios, and the tax deductibility of provisions was not allowed except in limited cases. The 1986 Tax Reform Act in the United States removed the deductibility of general provisions that existed earlier. At first these differences in the tax and regulatory environments had little effect on commercial bank response, because it took time for banks to respond to supervisory initiatives like reserving. But the sense of urgency brought by the crisis encouraged commercial banks to play by a set of clear rules. Over time, however, as the crisis subsided, differences in the tax and regulatory environment were more

likely to be reflected in divergent bank behavior toward the debt crisis.

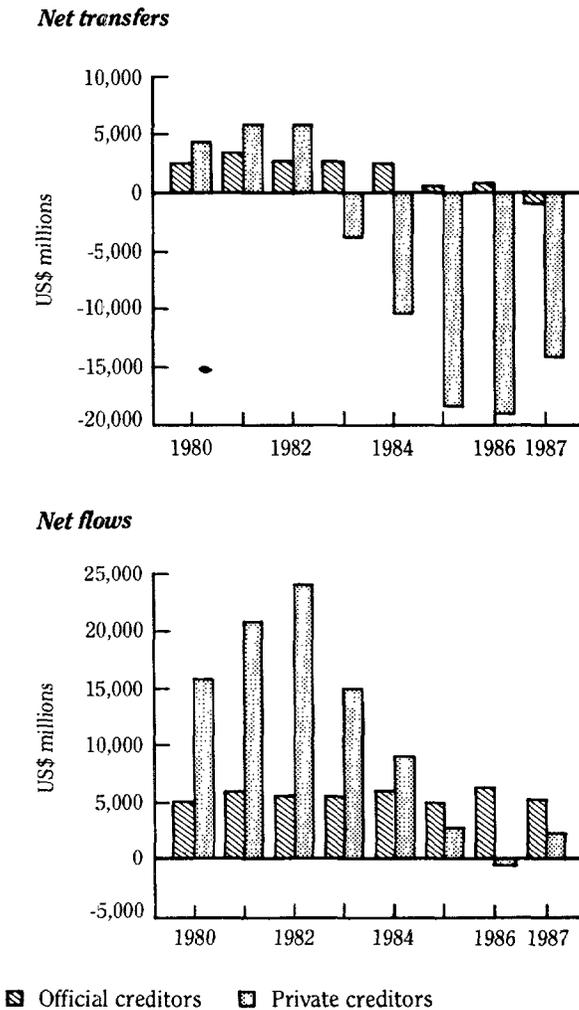
These five factors illustrate the self-limiting character of the concerted lending approach. Since the approach succeeded in giving banks time to improve their financial condition, it was likely to become more difficult to secure bank participation in the strategy. Individual bank behavior is thus increasingly driven by accounting, regulatory, and fiscal considerations. As a result, the syndication of new-money loans is complicated and subject to long delays. For example, it took seven months to complete the April 1987 Mexico package, and refinancing operations for Colombia in 1988 and 1989 have faced similar strains when several banks backed out of the transactions. Brazil's 1988 debt-restructuring and new-money package was an exception because Brazil's well-diversified menu of options and the favorable ratio of interest income compared with new lending facilitated a prompt agreement, though only 60 percent of the country's creditor banks signed the refinancing agreement.

The Gradual Erosion in International Banking Cohesion

Involuntary lending in 1982–86 emerged because of the need to protect existing assets through more "defensive lending." During the last few years, however, commercial banks have cut their exposure as their financial position recovers and as debtor countries' adjustment programs reduce external borrowing requirements. As a result, there has been very little correlation between developing countries' current economic status and access to refinancing. Colombia, for example, experienced severe difficulties with refinancing principal payments coming due in 1988–90, whereas Morocco has not obtained any net new financing since the early 1980s. Several debtor countries might conclude that "adjustment does not pay off," since no timely external financing support for growth-oriented adjustment programs is forthcoming from the financial markets.

Some commercial banks no longer deem balance of payments financing a traditional banking practice compatible with their "fiduciary obligations" (Institute of International Finance 1987). Instead, they strive to return to transactional and investment finance lending, while they claim that more general purpose financing must be provided by official creditors (Institute of International Finance 1989). Because of the banks' growing reluctance to provide more financing, their share of the total debt of the Baker 15 countries has fallen from 67 percent in 1982 to 56 percent in 1988, with a corresponding rise in the official creditors' share. The burden of meeting country financing needs is being shifted to official sectors, as evidenced by figure 8–2.

Figure 8-2. Net Transfers and Net Flows to Highly Indebted Countries, 1980-87



Source: World Bank.

The rapid decline in the number of commercial banks participating in new-money packages reflects the limitations of the concerted lending approach. The community of active creditor banks keeps shrinking as more institutions refuse to contribute to new-money exercises. The decline in the number of active international banks is reflected in a growing concentration of exposure in a small number of large banks. In the United States, the share of the nine money-center banks in the 185 banking institutions with exposure to developing countries increased 10 percent between 1982 and 1988. The change in U.S. banks' exposure to the eight largest debtor countries between 1982 and 1988 shows that the money-center banks increased their exposure by 12 percent, whereas the small regional banks reduced their assets by 65 percent. This trend was evident in Brazil's \$5.2 billion

June 1988 new-money facility; only 308 commercial banks of about 500 creditors signed the agreement, which has been widely regarded as the ultimate "menu" of financial options composed of exit bonds and various conversion features. The attractiveness of the financing package stems from the interest-income-new-money ratio. Over the three years 1987-89, banks are to receive \$20.9 billion in interest income compared with new lending of \$5.2 billion; that is, a 4:1 ratio in favor of the banks.

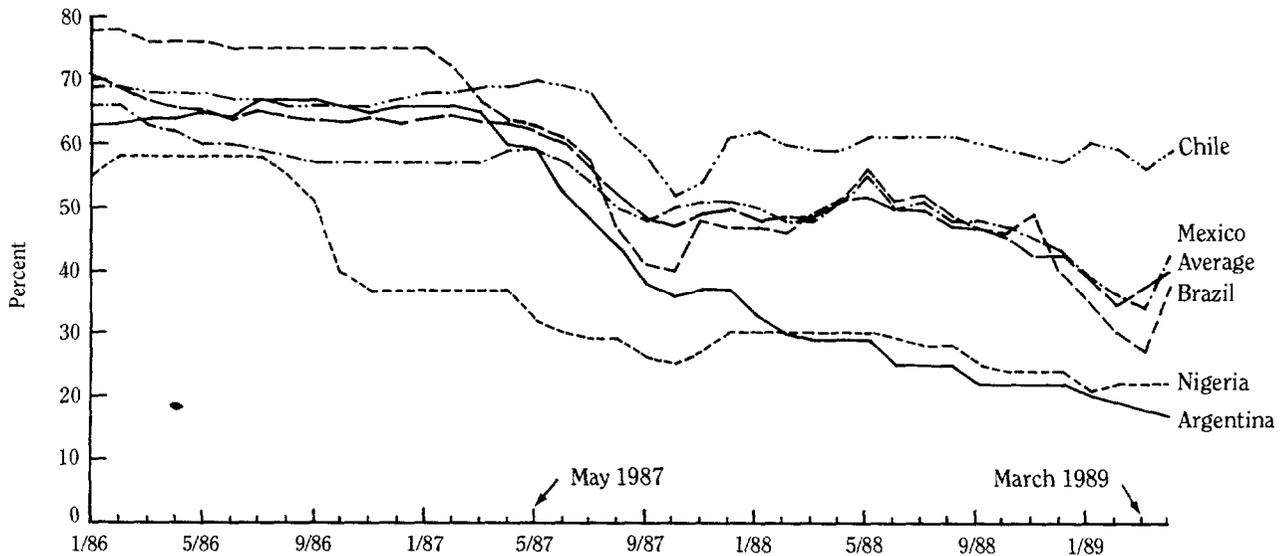
Even the more creditworthy highly indebted countries are having difficulty raising needed financing. In Colombia, for instance, Bank for International Settlements (BIS) banks' claims decreased in nominal terms between year-end 1983 and year-end 1988 despite a substantial increase in external liabilities caused by a change in exchange rate valuation. Even though Colombia has serviced both principal and interest payments on its commercial bank debt, the refinancing of maturities due in 1988 proved to be a very challenging enterprise. The original target of \$1.06 billion was not achieved by the January 1988 signing, and an aggressive marketing effort yielded only \$950 million—requiring the lead banks to "top up" to \$1 billion. While Colombia's efforts to refinance maturities coming due in 1989-90 were eventually successful, its recent experience indicates growing bank reluctance to provide new money and stabilize exposure.

Another indicator of the eroding credibility of the concerted new-money process is the significant decline in secondary market prices (see figure 8-3). Citicorp's decision in May 1987 to establish a \$3 billion loan-loss reserve against its developing-country loan portfolio led to a more active involvement in the secondary markets. Because of this decision (and similar moves by money-center and regional banks), a perceived surplus of developing-country loans has developed, causing prices to drop. Commercial banks' willingness to sell their developing-country loans at lower prices in part stems from improved financial condition, from the response of the stock markets to developing-country asset reduction, and from rising tensions surrounding the concerted new-money approach in relation to developing countries' debt-servicing prospects.

Because of their large long-term business interests in developing countries and their considerable exposure of total assets and equity, the international banks of the steering committees have tried to circumvent the free-rider problem by legal novations and blacklisting debt.

In two countries (Nigeria and Côte d'Ivoire) the banks' steering committees have designed legal features to induce full participation of banks in a new-money agreement and to reduce the free-rider problem. In Côte d'Ivoire, the steering committee included a "legal novation" in the April 1988 new-money debt-restructuring

Figure 8-3. Indicative Prices for Bank Loans to Developing Countries, 1986-89



Source: Salomon Brothers.

package—a package that has not, however, been submitted for approval to Côte d'Ivoire's commercial creditors because of an interruption of the negotiations in March 1988. The 250 creditor banks were to be invited to contribute on a pro rata basis to the F860 million interest-arrears refinancing facility and the multiyear rescheduling agreement (MYRA). Participation in the new money was to be a precondition for participating in the MYRA. Those banks declining to sign the new-money agreement were to be offered the opportunity to convert their existing claims into exit bonds with a concessional fixed interest rate, long-term bullet maturity. The other option for refinancing the interest arrears was "offsetting or substituting" the amount of participation by a capitalization of interest payments due.

To induce participation in the transaction, the steering committee agreed to rearrange the debt of Côte d'Ivoire through a new refinancing credit agreement that would substitute new obligations and would be a novation to all of the previous agreements. This scheme ensured that free riders do not receive interest payments from new resources made available by the participating banks. The novation was intended to establish a legal basis for claiming that the banks participating in the new MYRA with new money are no longer parties to the prior agreements. The fate of such novation techniques is still unclear. Legal opinions differ as to the feasibility of this approach.

Another practice that banks and countries have resorted to is the practice of "blacklisting" debt. Blacklisted loans are loans made by banks that have in the past refused to participate in new-money facilities. According to traders, many large money centers refuse to accept

blacklisted debt in any transaction. Blacklisted debt trades, in some cases, at a significant discount below nonblacklisted debt.

The Emergence of the Menu

In response to increasing strains, a "market rationale" is being substituted for the "system rationale," the prevalent mode from the outset of the debt crisis (Bouchet 1988). The market-based menu attempts to overcome the self-limiting character of the concerted approach by designing financing options that recognize the diversity of commercial banks' motivations and constraints. In relying on voluntary bank participation, the menu approach implicitly reflects the longer-term nature of the problems facing the highly indebted countries. But this reliance on voluntary participation also makes the legal, regulatory, accounting, and fiscal incentives for participating in financing packages of great importance.

Table 8-1. Sources of Net Financing for the Highly Indebted Countries

	1980-84	1985-87	1988 (estimated)	1989-91 (projected)
Financing requirements	27.8	10.9	10.7	18.21
Medium- and long-term financing	27.6	8.1	2.0	12.16
Official	4.6	5.1	5.2	5.9
Private	23.0	3.0	-3.2	7

Source: World Bank, (1988a).

The menu approach attempts to obtain voluntary bank participation in financing packages in two ways. First, by providing implicit enhancements of new money, it seeks to make instruments that involve increases in commercial bank exposure more attractive. For example, currency switching, relending, and new-money bonds are enhancements included in recent menus to reflect the fact that banks find it easier to walk away from new-money packages—even if it means withstanding protracted arrears. Second, the menu tries to provide a structured way for some banks to participate in a package designed to meet a country's financing requirements and still reduce their exposure. Debt-equity conversions, exchange offers, buybacks, and exit bonds are examples. Designers of the market-based menu hoped that offering a wide menu of options would stem the rise of free riders and provide a framework for negotiating debt workouts over a long period of time. The menu emerged during the negotiation of Argentina's 1987 debt restructuring. More recently, the August 1988 comprehensive debt restructuring for Brazil included attractive features aimed at encouraging a prompt response from commercial banks. The upcoming debt reduction operations in Secretary Brady's proposal are likely to include a wide range of financing instruments with a variety of enhancements.

The "Brady plan" recognizes that commercial creditors are increasingly reluctant to provide new financing on conventional terms. The menu was initially designed to overcome this by providing enhancements to new money like currency switching and onlending rights. But the number of banks interested in contributing new money and the size of achievable financing packages is likely to keep declining. Table 8-1 shows the substantial decline in the London Club's financing contribution.

Although the number of banks willing to participate is declining, new money is likely to remain an important component of many financing packages for the immediate future. In spite of widespread improvements in financial condition, a small number of large banks are relatively less-well capitalized and still have large exposure to developing countries in relation to their equity. New money continues to provide these banks with a mechanism for keeping assets current that otherwise might have to be treated as nonperforming and written down. Exposure to highly indebted developing countries remains well over 100 percent of total equity for a small number of large U.S. banks. For these banks, the costs of increasing their exposure to maintain full servicing of existing developing-country assets will probably remain less than the costs of formally recognizing losses. But this is probably not true for many other banks, as exhibited by the decline in banks participating in new-money agreements and their corresponding increased willingness to endure arrears.

For many other banks, delaying the formal recognition of loss on developing-country loans is much less important—some have already recognized losses through charge-offs. The willingness of these banks to engage in new-money exercises designed to keep bad assets looking good is understandably much less apparent. These banks may, for example, be much more concerned about the effect of increasing exposure to developing countries on their stock prices than they are about the formal recognition of loss that the absence of a new-money package might entail. As time passes, more and more banks might be expected to record comparable improvements in their financial condition and become less and less willing to participate in new-money exercises.

The two negotiated alternatives to new lending are interest capitalization and voluntary debt reduction. Interest capitalization may play an important role in the menu, but it probably does not represent a long-term solution since it only pushes the problem into the future. Another difficulty with interest capitalization is that it may be difficult to combine with new money. This is because it may be no more attractive than free riding to the growing number of banks that wish to avoid new-money exercises. Such banks may legally refuse to capitalize interest and insist on sharing in the interest payments from the new loans to the debtor country. Another option might be to replace new money entirely with interest capitalization. This could potentially deal with the free-rider problem, not addressed by interest capitalization combined with new money. But the most heavily exposed U.S. banks (still the dominant members of many steering committees) would find this unattractive because they cannot recognize capitalized interest as income (Office of the Comptroller of the Currency 1985).³ Consequently, interest capitalization (without changes in regulatory policies) in combination with new money, or as a replacement for new money, will probably not solve the difficulties of the concerted approach.

Given the limitations of new money and interest capitalization, voluntary debt reduction must play a larger role in determining long-term solutions to overindebtedness. As more banks are prepared to abandon concerted new money, the success of the market-based menu may depend increasingly on how voluntary debt reduction can be successfully incorporated into financing packages. Because they perceive its role as key in new financing packages, more authors (Krugman 1988, Williamson 1988, Lamdany 1988a, and Diwan and Claessens in this volume) are analyzing voluntary debt reduction. The recently announced Brady initiative has given official support to the centrality of voluntary debt reduction to the international debt strategy.

Problems and Limitations of the Menu Approach

Although the market-based menu approach has achieved significant results in Chile, Brazil, Mexico, and a few other countries, it is making slow progress.⁴ According to estimates (Morgan Guaranty 1988), cumulative voluntary debt reduction has retired approximately \$27 billion in claims on the highly indebted countries since 1982. This represents about 11 percent of outstanding long-term commercial claims on these countries. But several observations should be made to put this number in perspective. First, voluntary debt reduction has achieved very little current financing for the highly indebted countries. Since as much as 85 percent of this reduction was accomplished through buybacks and debt-equity swaps, it may have actually increased short-term financing requirements. Second, about \$13 billion of this reduction was in the form of debt-equity swaps. When the \$13 billion in retired debt is netted against the present value of future profit repatriation, the actual reduction in external liabilities of the indebted countries may be substantially less than \$13 billion. Third, about \$10 billion of the reduction was in the form of buybacks, mostly carried out by cash-rich firms. Prospects for expanding this type of debt reduction are severely limited by the structure of indebtedness. Almost 90 percent of the commercial debt of the highly indebted countries is public sector debt (World Bank 1988a). Given past experience, it is difficult to be optimistic about how much debt reduction can be achieved through buybacks of public sector debt. Bolivia and Chile are the only two countries since 1982 to reduce debt through buybacks. These operations accomplished at most \$650 million in total debt reduction, about 0.1 percent of the public and publicly guaranteed debt of the highly indebted countries.

As currently conceived, the market-based menu approach faces several serious obstacles, some of which may limit the success of the recently announced Brady initiative. Among these obstacles are the continuing legal obstacles to voluntary debt reduction, the political dominance of steering committees by banks that have the least flexibility in managing their developing-country loan portfolios, difficulties in combining voluntary debt reduction with new money, the cost of voluntary debt reduction to the debtor, and tax, accounting, and regulatory policies that discourage voluntary debt reduction. Each of these factors is considered below.

Legal Framework for Voluntary Debt Reduction

The Negative Pledge Clause. Several loan restructuring agreements since 1985–86 have included flexibility to allow voluntary market-based transactions to reduce the developing countries' external liabilities to commer-

cial banks. One important illustration of this flexibility is modification of the negative pledge clause. The negative pledge clause, a pervasive covenant in international loans, is designed to prevent discrimination by selectively pledging assets. It establishes equality between creditors of the same class on the principle of "same claim, same treatment."

The Chilean restructuring agreement in September 1988 made important, if limited, modifications of the negative pledge clause. The new Chilean debt documentation stipulated that debt-exchange offers may be secured by pledging the assets of a borrower under specific conditions. Private assets may be used as collateral only with consent of banks holding more than 50 percent of the credits. Debt collateralized with public sector assets requires approval of banks holding two-thirds of the credits and must be offered to all creditors on a pro rata basis. The combined debt repurchases and collateral for debt exchanges cannot exceed \$500 million unless all creditors consent. In addition, exceptions to the negative pledge clause are allowed so that Chile can collateralize future new money with an overall aggregate limit of \$500 million outstanding.

In 1988, Mexico required waivers of the negative pledge clause in its loan agreements with commercial banks to exchange collateralized bonds for existing claims on the government of Mexico. Mexico was able to obtain the necessary waivers in a little over a month.

The Mandatory Repayment Clause. The mandatory repayment clause (which stipulates that rescheduled debt prepaid before maturity must be paid on a ratable basis) is another legal rigidity that has been made more flexible in recent debt-restructuring agreements. These provisions typically apply to public sector borrowers so that prepayment of one credit by one borrower would accelerate all loans on a proportionate basis to all borrowers, thus triggering mandatory prepayment by all the public sector borrowers to all lenders on a pro rata basis. These clauses are of particular importance because they can be interpreted to prohibit debt-reducing transactions including buybacks, debt-equity conversions, and exchange offers.

Buybacks. Mandatory prepayment (and sharing provisions) implies that borrowers' repurchases of sovereign credits in the secondary markets are not possible according to the contractual terms. Buybacks or cash repurchases typically require that all concerned external debt creditors waive these provisions. In July 1987, Bolivia and its commercial lenders agreed to allow the country to repurchase all or part of its bank debt. An amendment to a 1981 refinancing agreement was required to permit the Banco Central to purchase foreign currency debt owed by public sector obligors from lenders of record.

Bolivia requested the IMF's involvement in implementing this transaction to assure bank creditors that the funds received for the buyback came from donor governments and not from the country's international reserves. The February 1987 amendment stipulated that the Central Bank of Bolivia could use foreign currency to voluntarily purchase external debt owed or guaranteed by the government if the same offer was made to all banks and if the funds were from other countries, provided exclusively for buying back debt.

On 18 March 1988, Bolivia announced that 53 of its creditor banks tendered over \$335 million of eligible debt, almost \$270 million in exchange for cash and about \$65 million in exchange for investment bonds. This transaction required \$28 million from the IMF trust account and extinguished more than 40 percent of Bolivia's commercial bank debt.

Similarly, in April 1988, Chile and its Bank Advisory Committee negotiated amendments to Chilean debt documentation to introduce additional flexibility to permit peso repayments and debt-for-debt and cash-for-debt exchanges. These amendments were declared effective on 14 September 1988. They provide that any foreign currency denominated prepayment of debt must be offered to all creditors on a pro rata basis. Banks holding two-third of the claims must consent to the proposed transactions. Repayments in Chilean currency need not be offered on a pro rata basis and would not trigger the sharing or mandatory prepayment clauses. The buybacks could be funded with no more than \$500 million from revenues of the Copper Stabilization Fund. After receiving bids from its creditors, Chile announced on 10 November 1988 that it was buying back \$299 million of foreign bank debt for \$168 million at a weighted average price of fifty-six cents.

Debt-Equity Conversions. Debt-equity conversions are another important transaction that may be prohibited by prepayment clauses in standard debt-restructuring agreements. These transactions require specific accommodative covenants because they can be considered the legal equivalent to debt prepayments. Debt-equity swaps enable creditors to settle foreign currency claims before contractual maturity in return for the payment of local currency. Special amendments have been included in many loan agreements to ensure that the new debt-conversion provisions will not trigger mandatory prepayment clauses. In addition, compared with the banks participating in new-money or restructuring agreements, capital and dividend repatriation restrictions provide that debt conversions will not lead to preferential payment to a specific creditor. For example, Section 5.11 of Chile's 1985 new-money agreement stipulates that "all or a portion of the Advances held by banks can be used

to make qualified investments, that is, equity investments in Chile or purchase of certain assets from Public Sector Borrowers and financial institutions. Those Advances that are converted into Qualified Investments shall no longer be considered 'External Indebtedness.'"

Exchange Offers. Exchange offers seem to be prohibited by the original loan agreements because the exchange of a new asset for an existing asset could be interpreted legally as a prepayment. Moreover, if the terms of the new asset exchanged can be interpreted as better than those of the existing asset, an exchange offer could also violate the sharing provisions. Section 5.11 of Mexico's March 1987 multifacility agreement stipulates that "any exchange of a claim shall not constitute receipt of a payment, shall not give rise to a prepayment obligation nor shall be subject to the contractual sharing requirements." These new provisions enabled the passage of legislation for Mexico's February 1988 collateralized debt exchange offer. A total of \$3.7 billion was converted from 95 banks through an auction, at an average price of 69.8 percent of loan value. This required that \$2.65 billion of Mexican bonds be used, backed by the purchase of \$532 million of U.S. zero-coupon bonds.

Political Dominance

Exposure to developing countries is concentrated among banks that have the least flexibility in managing that exposure. U.S. money-center banks increased their exposure to the eight largest debtor countries by 12 percent between 1982 and 1988. But small regional banks reduced their exposure by 65 percent in the same period! Many banks with large exposure to developing countries are also banks that are constrained by a lack of regulatory capital, operating at or near the minimum capital-asset ratio allowed by banking regulators. For example, the BIS guidelines require banks to maintain tier 1 capital equal to 4 percent of risk-weighted assets. In June of 1988 Salomon Brothers made the following estimates of year-end 1988 capital-asset ratios: Chase Manhattan Bank, 4.1 percent; Chemical Bank, 3.5 percent; Citicorp, 4.1 percent; and Manufacturers Hanover, 4.0 percent. While these banks do not technically need to satisfy the Basle guidelines until year-end 1990, commercial banks may have an incentive to meet the guidelines early—meeting the BIS guidelines will probably be a precondition for the regulatory approval of many new business initiatives (Gurwitz and Dudley 1988). The consequence of this capital constraint is that banks with large exposure to developing countries may still find it too costly to pursue any strategy that does not involve keeping existing assets current and performing. It should not be surprising, therefore, that the menu remains tied

to the original concerted new-money concept with a few minor modifications.

Voluntary Debt Reduction and New Money

Combining significant debt reduction with a new-money package is difficult. For voluntary debt reduction to occur, the consent of at least a majority, and usually a unanimity, of a country's commercial creditors is required.⁵ As a result, most voluntary debt-reduction operations cannot proceed without the approval of many banks which are likely to remain committed at least in the short term to the new-money approach. For these banks to be willing to provide the needed waivers for the transactions to go forward, they must, at a minimum, believe that the transactions will not reduce the value of their existing claims or new-money loans.

A growing number of papers (for example, Krugman 1988, Williamson 1988, Diwan and Claessens in this volume, and Lamdany 1988a) attempt to establish a framework for analyzing the theoretical conditions for voluntary debt reduction to occur since any successful operation must appeal to the debtor country and both participating and nonparticipating banks. But it is perhaps easiest to appreciate these conditions by noting how recent operations have been structured. In each of the recent voluntary debt-reduction operations, creditors have insisted on severely constraining the operation's scope to ensure that the value of claims not exchanged is not reduced. For example, in Bolivia, creditors insisted that only donor funds be used in the buyback and that it take place in a specified four-month period. In Chile, 100 percent creditor approval was required to undertake exchange offers in excess of the \$500 million of the windfall increase in export receipts from the rise in copper prices. In each case, creditors placed stringent restrictions on the use of debtor resources in debt-reducing transactions. This is, in part, because many banks currently committed to the new-money process believe that their own strategies in relation to the debtor are threatened by debt-reducing transactions on a large scale. As long as this is the case, voluntary debt reduction is likely to proceed slowly.

Another of the menu's shortcomings is that many debt-reducing transactions involve the debtor's current resources. This is true of buybacks, debt-equity swaps, and collateralized exchange offers. Buybacks and collateralized exchange offers (without additional funds) require debtors to use scarce foreign exchange. A debt-equity swap requires that domestic resources be mobilized to prepay participating creditors for their claims. Since a debtor's current resources are limited, the pace at which such transactions can take place is also limited. Moreover, the opportunity cost of using current re-

sources to extinguish debt rather than to increase investment may be quite high (see Froot 1989 and Claessens and Diwan, chapter 12 in this volume).

Tax, Accounting, and Regulatory Policies

Tax and regulatory policies that are most likely to influence bank participation in financing packages are those that affect the timing of loss recognition for regulatory and tax purposes. Among these specific tax, accounting, and regulatory issues are the regulatory and tax treatment of interest capitalization, reduced-rate loans, provisions, losses, nonaccruing loans, principal insurance funds, and contamination issues. A consideration of each of these issues is beyond the space limitations of this paper.⁶ But the manner in which tax and regulatory policies create incentives can be illustrated by examining the regulatory and tax treatment of loan-loss reserves in greater detail (see table 8-2 for summary).

Regulatory and Tax Treatment of Loan-Loss Reserves. The regulatory treatment of loan-loss reserves is important because it can influence the banks' willingness to accept restructuring options that involve loss recognition. When reserves are included in a bank's reported regulatory capital, banks may be discouraged from participating in voluntary debt reduction that involves the recognition of loss. Recognizing losses by writing down assets against reserves reduces a banks' reported capital-asset ratio when the reserves against which the asset is written down are included in the bank's regulatory capital. Most banks would prefer to delay recognition of capital losses as long as possible to avoid having to show a reduced capital-asset ratio. Assuming banks fully leverage their regulatory capital, the benefit of delaying the

Table 8-2. Tax and Accounting Treatment of Loan-Loss Reserves

<i>Country</i>	<i>Reserve level</i>	<i>Capital inclusion</i>	<i>Tax deductibility</i>
Canada	45%	No	Yes, up to 45%
France	52% (large banks)	Yes	Yes
Germany	58%	No	Yes
Japan	15%	Yes, up to 14%	Only 1%
United Kingdom	35%	No	Up to matrix levels
U.S. money centers	30%	Yes	No
U.S. regionals	55%	Yes	No

Source: Hay and Bouchet (1989).

recognition of loss for regulatory and book purposes may be considerable.⁷

When loan-loss reserves are excluded from capital, banks recognize no further capital loss when assets are written off against reserves. Instead, loss of regulatory capital is recognized when reserves are created. In this situation a bank may have less incentive to keep current its existing exposure to developing countries, because keeping developing-country assets current will be a less effective way to delay the recognition of capital loss. Consequently, excluding loan-loss reserves from regulatory capital may increase bank participation in voluntary debt reduction.

One possible objection to this analysis of the incentives created by the regulatory treatment of loan-loss reserves emphasizes the efficiency of equity and capital markets in responding to a bank's true capital position. According to this argument, delaying the recognition of capital loss provides a bank with no economic benefits since a bank's share price and cost of funds adjust efficiently to its true capital position.

But two factors make this objection unpersuasive. First, it does not explain why banks are so reluctant to recognize losses. According to the above objection, banks should be indifferent about whether or not they should recognize losses. This is clearly not the case. Second, as many have argued, the cost of funds to large banks does not respond fully to increased risk on their balance sheets because of explicit and implicit forms of deposit insurance. As a result, shareholders should be able to maximize the return on their equity by increasing their leverage to the maximum allowed by regulators.

The tax treatment of loan-loss provisions also creates incentives for banks by determining how they can recognize tax losses without disposing of their assets. Where banks are able to recognize tax losses through charge-

offs or provisioning, they have no tax incentive to dispose of their loans through exchanges or sales.⁸

In those countries where tax-deductible provisions are more limited (for example, the United States and Japan) the possibility of charging off a loan for tax purposes also exists. In the United States, the Internal Revenue Service (IRS) code states that "in determining whether a debt is worthless in whole or in part the district director will consider all pertinent evidence" (IRS Reg. 1.166-2 Evidence of Worthlessness) in assessing the worthlessness of a loan. But the IRS code and case law do not provide clear guidance on determining the worthlessness of a loan. IRS regulations allow banks to deduct losses that are recognized after an Interagency Exposure Review Committee (ICERC) has categorized the loan as value-impaired. U.S. banks are sometimes required by the ICERC to establish specific reserves (ATRRs) that are excluded from capital and are tax deductible. But ICERC in general has been reluctant to impose this requirement. Currently only eight countries are known to be subject to ATRR requirements. It is interesting that the 1989 U.S. interagency report on accounting and regulatory issues (Office of the Comptroller of the Currency 1989) addresses the income effects of reserving, but does not deal directly with the incentives created by treatment of loan-loss reserves as an element of regulatory capital. In Japan the Ministry of Finance (MOF) bank inspectors must issue a certificate of loss to the bank before it can charge off a loan for tax purposes (Peat Marwick 1988).

There are four basic policy possibilities with respect to the tax and regulatory treatment of provisions against country risk. A brief discussion of these possibilities helps to understand the incentives at work.

- *Case I:* Tax-deductible provisions that are included in capital (France).

Table 8-3. *Loan-Loss Reserves (LLR) and Capital-Asset Ratios, U.S. Banks*

Bank	Total risk-weighted assets (millions)	Total LLRs (millions)	LLRs as percent of risk assets	Tier-1 capital/asset ratio	Tier-2 capital/asset ratio	LLRs in excess of 1990 rule ^a
Bankers Trust	58,195	1,298	2.2	6.7	2.8	425
Chase Manhattan	106,284	2,719	2.6	4.1	4.1	1,125
Chemical Bank	86,832	2,106	2.4	3.5	3.5	804
Citicorp	240,396	4,618	1.9	4.1	4.1	1,012
Manufacturers Hanover	78,545	2,653	3.4	4.0	4.0	1,475
J. P. Morgan	73,260	1,708	2.3	3.2	3.2	609
Bank of Boston	35,513	733	2.1	5.8	4.0	200
BankAmerica	98,165	3,221	3.3	3.4	3.4	1,749

a. This column shows loan-loss reserves that could not be counted as part of capital according to the 1990 target established by the Basle agreement, which limits loan-loss reserves to 1.5 percent of risk-weighted assets. Consequently, this column gives some indication of the size of losses that these banks could recognize with no further capital loss.

Source: Salomon Brothers (1988).

- *Case 2:* Non-tax-deductible provisions that are included in capital (U.S. General Reserves, Japan).⁹
- *Case 3:* Tax-deductible provisions that are excluded from capital (United Kingdom, Germany, Switzerland, U.S. mandatory ATRRs, Japan).¹⁰
- *Case 4:* Non-tax-deductible provisions that are excluded from capital.

Banks should be least interested in recognizing losses in Case 1 where provisions are both tax-deductible and included in capital. In this case recognizing losses for regulatory purposes produces no tax benefits but has a capital cost. Banks in Case 2 (like those in the United States) also have little incentive to recognize losses because they would have to write down reserves that are part of regulatory capital. But disincentive to recognize losses is less strong than in Case 1 because a tax deduction has not been claimed from reserving. A higher tax rate would mean lower costs of taking losses. While banks in Case 2 should be reluctant to recognize losses, they should be less reluctant than banks in Case 1.¹¹

For banks in Cases 3 (for example, Germany) and 4, the level of loan-loss reserves is crucial. To the extent that loan-loss reserves have been established, these banks are able to recognize losses with no further capital loss. When losses are recognized in excess of reserve levels, these banks must recognize capital losses. In Case 3, tax-deductible provisions are excluded from capital. To the extent that loan-loss reserves have been established, the recognition of loss has neither tax nor regulatory consequences for these banks.

Banks in Case 4 that have established loan-loss reserves may have an incentive to recognize losses. The recognition of loss, up to reserve levels, involves no capital loss because loan-loss reserves have already been excluded from capital. But since no tax losses have been realized by provisioning, they might be realized by participating in voluntary debt reduction.

None of the major creditor countries treats loan-loss reserves, like Case 4, as taxable and excluded from capital. But non-capital-constrained banks that have not recognized tax benefits upon provisioning might, to some extent, be placed in this category (for example, U.S. regional banks). U.S. banks cannot deduct loan-loss provisions from taxable income. Most U.S. regionals are reserving at high levels against their exposure to developing countries. These banks, because of their expansionary objectives and competitive pressures, are anxious to meet the 1990–92 guidelines as early as possible.

Moreover, these banks may be much more sensitive to the effect of exposure to developing countries on their share price because they have easier access to equity markets and can rely to a greater extent on share issues to realize growth objectives. These factors suggest that loan-loss reserves may not be as important a part of

capital for U.S. regionals as they are for the money-center banks, which may help to explain why regionals tend to have much higher capital-asset ratios for regulatory purposes than do U.S. money-center banks. This suggests that these banks have an incentive to participate in transactions that involve the recognition of loss to capture tax benefits, since no further capital loss is required.

The new capital guidelines in the Basle agreement complicate the discussion of the current status of loan-loss reserves. The agreement, which excludes loan-loss reserves in excess of 1.5 percent of risk-weighted assets from capital, will impose near uniformity of treatment of loan-loss reserves for regulatory purposes by the end of 1990. Assuming modest asset expansion and limited loan charge-offs, many banks will have loan-loss reserves in excess of the amount allowed in the Basle agreement. This suggests that while additions to reserves may be treated as capital throughout 1989, as year-end 1990 approaches an increasing number of U.S. (see table 8–3 below), French, and (to some extent) Japanese banks will consider additions to loan-loss reserves to be a capital loss. If regulators do not reduce reserve requirements against claims on troubled debtors, the Basle agreement may remove some of the current regulatory disincentives to voluntary debt reduction. But the full implementation of the agreement is still four years away. In the meantime, significant differences in the regulatory treatment of loan-loss reserves will persist. Moreover, at least one country (France) has signaled its intention to exploit a provision in the Basle agreement that allows banks to “temporarily and exceptionally” include loan-loss reserves in regulatory capital up to 2.25 percent of risk-weighted assets.

This analysis of tax and regulatory treatment of loan-loss reserves may help to explain how some banks manage their developing-country debt. U.S. regional banks, for example, have reduced their exposure to the highly indebted countries by 65 percent since 1982. Gross German bank exposure to developing countries has remained relatively constant over the same time period, even after exchange rate adjustments. German banks have reserve levels against exposure to developing countries very similar to those found in U.S. regionals, yet they are apparently much less interested in disposing of these claims in the secondary market. One explanation is that German banks have enjoyed the full tax deductibility of provisions. They seem to prefer to hold on to the maximum-size claim and recognize losses by establishing provisions. The tax deductibility of provisions has discouraged German banks from widely considering debt-reducing alternatives. Many German banks are “over-provisioned” and would be forced to recognize a capital gain upon disposing of a highly indebted country claim in the secondary market.

A close correlation exists between the strictness of tax policy with respect to developing-country debt and the speed with which banks in different countries have reduced their exposure. Since 1985, France has reduced its home-currency exposure to developing countries by 12 percent, Germany by 6 percent, the United Kingdom by 19 percent, and the United States by almost 23 percent (1988 World Bank data).

Tax policy on provisioning is most stringent in the United States, where only a small portion of reserves against developing-country risk is currently tax-deductible. In the United States, banks have reduced exposure by more than in any of the other three countries. In the United Kingdom, tax policy is somewhat more lenient. Banks will probably be allowed to deduct provisions up to the levels required by the Bank of England's matrix. But the matrix levels are quite low, averaging about 25 percent against exposure to developing countries. Tax-deductible provisions are much lower in the United Kingdom than in France, where banks have been allowed to deduct much more provisioning from taxable income. Of these four countries, tax policy is the most lenient in Germany, where banks enjoy the full tax deductibility of very high levels of provisioning. German banks have had the smallest reduction (0.6 percent) in exposure to developing countries since 1985.

This analysis may explain large French banks' reluctance to participate in the Mexico-Morgan collateralized bond exchange. The exchange created no tax benefits for French banks, while it would have required a write-down of reserves to some extent. The write-down of reserves would have resulted in a capital loss for these banks. U.S. money-center banks, however, may have been more interested in the Mexico-Morgan bond exchange because they could recognize tax deductions from losses incurred in the exchange.

The analysis may also help to explain the growth and quality of the secondary loan market. Some U.S. banks find the secondary loan market attractive for structuring transactions that take advantage of their regulatory and tax environment. Although it may be difficult for U.S. banks to recognize tax losses by charging off loans, a debt swap in the secondary loan market can create a tax loss so long as the asset received is "materially different in kind or extent" (IRS Code Section 1091) from the asset given. When a bank has difficulty charging off its claims on Mexico for tax purposes, it may be able to exchange a claim on Mexico for a claim on Brazil and recognize a tax loss. Two-thirds of the transactions in the secondary loan market are debt-for-debt swaps. Some banks have also apparently engaged in transactions that allow them to swap a claim on a developing country for another claim on the same country where the bank recognizes no book

loss but does claim a tax deduction. There is some case law to support this practice in the United States.¹²

Currently the tax and regulatory treatment of loan-loss reserves discourages market-based debt reduction and presents a major obstacle to the success of the Brady initiative. Including loan-loss reserves in capital encourages banks to hold and reserve against their existing claims instead of restructuring or reducing claims. In other countries the exclusion of loan-loss reserves from capital has discouraged the new-money process but has not offered any alternatives. For example, tax deductibility of provisions in most European countries removes an important potential incentive for banks to participate in market-based debt reduction. If tax deductions can be realized by provisioning, there is no tax incentive to negotiate restructurings. The tax losses that could provide incentives for creditor participation in a market-based debt restructuring have already been realized by provisioning. This may help to explain many European banks' indifference to proposals for market-based debt reduction.

The same can be said about tax policies that allow banks to take tax deductions for secondary market transactions that produce no benefits for the debtor country, such as debt-for-debt swaps between creditors. Allowing banks to realize tax losses by swapping debt discourages market-based debt reduction. In 1988 the debt-for-debt secondary loans market for developing-country debt was estimated at about \$18 billion. If banks realized tax losses equal to 30 percent of face value on one-half of these trades, the cost to the U.S. Treasury was about \$2 billion. Of course, the U.S. taxpayer would probably have had to pay this price eventually, but the point is that the U.S. Treasury paid out \$2 billion and produced little or no benefit for debtor countries. With appropriately structured tax incentives, the \$2 billion could have been used to provide incentives for voluntary market-based transactions designed to ease the debt problems of developing countries.

Conclusions

The market-based menu was in many ways a natural evolution of the debt strategy as the tensions inherent within the concerted lending approach became more manifest. While the market-based menu approach is a positive development and should be welcomed as a creative way of appealing to the divergent interests, strategies, and financial positions of different creditors, its ability to enable creditors and debtors to reach cooperative solutions is by no means ensured. A difficult collective action problem remains. The dominance of certain banks in the committee negotiating process, legal rigidities, and tax and regulatory disincentives suggest that

the menu approach will face significant obstacles. The recently announced Brady initiative recognizes the need for some additional financial incentive to support the cooperative approach to resolving situations of over-indebtedness. It remains to be seen whether sufficient resources will be forthcoming to provide such incentives. Without such resources, a more aggressive approach to altering the tax and regulatory environment in which banks manage their claims on the highly indebted countries should be seriously considered as a way of producing the needed incentives for wide bank participation in negotiated debt-reduction operations and of leveraging limited official funding.

Notes

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1. Commercial banks have restructured about \$320 billion of maturities since 1980 for more than 40 developing countries; in addition, banks have assembled \$48 billion of new-money facilities and have maintained short-term credit lines of about \$36 billion.

2. The reserving actions of 1987 can to some extent be interpreted as efforts by commercial banks to show that they were in a sound enough financial position to recognize losses.

3. The importance of the ability to recognize income can be appreciated by noting the expected effect of the Brazilian package on revenue of U.S. banks. The package is expected to increase Citicorp's revenues by \$688 million, BankAmerica's by \$360 million, and Manufacturers Hanover's by \$304 million.

4. For example, the Mexico-Morgan bond exchange, although disappointing to many, provided Mexico with about \$1 billion of debt relief in present value terms (Lamdany 1988a). The Bolivian buyback cut Bolivia's commercial debt by nearly half. Chile has been able to cut its foreign commercial debt by about 30 percent through liberal debt-equity conversion plus other voluntary, market-related programs (Morgan Guaranty 1988). The 1988 Brazilian financing package also illustrated what the market-based approach could achieve when applied to a large restructuring (see Lamdany in this volume).

5. One hundred percent creditor approval is usually required to modify sharing and prepayment clauses. Waivers of negative pledge usually require only 50 percent creditor approval.

6. They are considered in more detail in Hay and Bouchet (1989).

7. The value of delaying the loss of \$1 of capital for n years will be roughly:

$$\frac{(1+r)^n-1}{(1+D)^n}$$

Where r = the after-tax rate of return on equity, D = the appropriate discount rate, and n = the number of years over which the loss is delayed. For example, if the after-tax rate of return on equity is 15 percent and the after-tax discount rate is 12 percent, the value of delaying the loss of \$1 of capital for five years is about fourteen cents. The ability to delay the recogni-

tion of loss for regulatory purposes can be valuable assuming that banks fully leverage their regulatory capital. It is assumed here that the timing of the tax benefit is independent of the timing of losses for regulatory purposes.

8. Loan-loss provisions are currently tax deductible in Germany, France, Canada, Switzerland, to a large extent in the United Kingdom, and to a very limited extent (up to 1 percent of developing-country exposure) in Japan. The most important exception is the United States, where loan-loss reserves are not generally tax deductible.

9. The MOF puts a ceiling on loan-loss reserves of 15 percent of developing-country exposure. Loan-loss provisions are only deductible in an amount up to 1 percent of this exposure.

10. Most U.K. banks believe that U.K. tax authorities will allow the deductibility of provisions up to the floor provisioning levels prescribed by the Bank of England's matrix.

11. Banks may be required to partly replenish their provisions if they write down an asset against reserves. To the extent this is true, there will still be capital cost for a write-down of an asset against provisions in a regulatory environment in which loan-loss reserves are excluded from capital. But even if provisions are replenished so that they are maintained in a constant proportion to assets, the capital cost of a write-off against reserves will be less when reserves are excluded from capital than when they are not.

12. See, for example, *First Federal Savings and Loan Association of Temple vs. United States*, No. W-86-CA-117, 7/26/88 or *Centennial Savings Bank FSB, Plaintiff vs. United States of America*, No. CA3-86-1396-H, United States District Court for the Northern District of Texas, Dallas Division.

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Comments

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This paper attempts to systematically analyze the market-based menu approach to debt restructuring and developing-country financing. It illustrates the diversity of the environment banks face for making decisions regarding their developing-country portfolios by comparing the treatment of loan-loss provisions and tax benefits and by reviewing the legal framework of restructuring agreements in the main creditor countries. By emphasizing the wide variety of conditions banks face, the paper emphasizes the need for flexible options for banks participating in debt restructurings.

These specific comments will point out some issues that may be raised by commercial bank creditors.

The authors state that there are self-limitations in the concerted lending approach and that concerted lending was bound to run into trouble. There is no denying that concerted lending is difficult, but it can be argued that these difficulties stem in great part from unsatisfactory policy and payments performance of the debtor countries, which have reduced banks' willingness to provide fresh funds. Policies are needed to improve the macroeconomic stability and the long-term international competitiveness of debtor countries' economies. Weak payments performance, which may include arrears, and

continuous threats of nonpayment and mandatory debt forgiveness also hinder the concerted lending process.

The paper also implies that banks do not properly differentiate among countries, and that even the more creditworthy countries have difficulty raising needed financing, such as Colombia's \$1 billion loan in 1988. It is true that syndications of such magnitude are, in most cases, complex transactions, and such packages must be designed with flexibility to make them attractive to commercial banks. For instance, the lack of attractive investment projects and World Bank cofinancing funds (apparently unavailable because of the narrow interpretation of the Colombia bank loan as a refinancing) made the Colombian syndication more difficult.

The authors state that new money will remain the centerpiece of many financing packages for the immediate future because some banks still have a large exposure in relation to their equity. This comment is unfair since banks recognize that requests for financing in countries pursuing far-ranging structural and macroeconomic policy reforms must be given serious consideration. A recent report of The Institute of International Finance, "The Way Forward for Middle-Income Countries" (1989), stated that many banks will consider multiyear financing commitments to support productive investments as part of a coordinated process with the IMF and the World Bank.

The paper contrasts new money with debt reduction and indicates the difficulty designing a package that contains both significant debt reduction and new financing. But the 1988 Brazilian package, in addition to providing a large amount of new money, also provided many options that facilitate voluntary debt reduction through equity and local currency conversions (see Lamdany in this volume). Also central to the paper is the issue of up-front debt reduction, such as buybacks, but not the flexible menu of options that would be exercised over time, like those included in the Brazilian program of 1988. Achieving simultaneous debt-reduction and new money in a single package is difficult, and requires a satisfactory resolution of many issues: a) differentiation between old and new money; b) how to ensure future policy improvements in the country when the benefits from debt reduction are front-loaded; c) the appropriate pricing of the menu components, and d) the accounting and regulatory treatment of a package with simultaneous new money and debt reduction.

A central conclusion of the paper is that the tax and regulatory treatment of reserves may make a difference in the way banks value market-based debt restructurings. This is valid, but should not be overemphasized. For instance, in the United States the alternative minimum tax effectively limits tax benefits. Analysis of specific transactions such as the Mexican debt-for-debt conversion of February 1988 indicates that although tax considerations are involved, they are not usually a central factor in the decisionmaking process within individual banks.

The paper has an interesting discussion on how loan-loss provisions affect bank decisions regarding their exposure to developing countries. It suggests that including loan-loss provisions in capital encourages banks to hold and reserve their existing claims instead of restructuring or reducing them. This can be disputed, because many banks believe additional provisions provide more flexibility for managing their portfolios, allowing them more freedom to engage in voluntary transactions that

lead to debt reduction. Evidence of this is the boost in voluntary sales of developing-country assets after many banks markedly increased their reserves in 1987. But the need to set aside provisions against problem loans is costly and has adversely affected banks' willingness to make new loans to troubled countries. This is particularly costly when regulators require that additional reserves be established when concerted new loans are made.

The policy suggestion to disallow banks' tax losses for provisioning or for secondary transactions that do not realistically restructure a debtor country's obligations should be approached with caution. It is impractical and could greatly reduce banks' ability to finance innovative operations and to restructure their portfolios. The authors point out correctly that there is potential moral hazard in this proposal because of the policy's ineffectiveness in distinguishing among countries that have performed differently. Also, disallowing banks to count so-called recycled interest payments as income would be very detrimental to raising new money for those countries following proper policies.

In sum, the question of bank decisionmaking concerning debt restructuring and concerted lending is significantly more complex than this paper recognizes.

Although the concerted lending process keeps evolving, the market-based menu is not a substitute but a complement to the concerted approach. Troubled debtors will continue to need new money, and policy recommendations to modify regulatory, tax, and accounting treatments should not promote debt reduction in such a way as to make new money more costly for lenders.

Reference

Institute of International Finance. 1989. "The Way Forward for Middle-Income Countries." Report by the Board of Directors of the Institute of International Finance. Washington, D.C. (January).

Richard E. Feinberg

Bouchet and Hay lucidly and cogently analyze the balance sheets of the international banks to explain why the concerted new-money package approach broke down and, with greater originality and purposefulness, why a purely market-based or voluntary debt reduction approach is likely to proceed too slowly. They delve into some of the regulatory, tax, and accounting regimes to

determine whether new policies could make a difference and stimulate banks to more actively participate in voluntary debt reduction. Their tentative answer is "yes, but . . ." The "but" is that industrial country governments and regulatory authorities are not likely to adopt the appropriate policies because they would tend to undermine other, more important objectives. So the chapter

ends with a sudden swerve toward credit enhancement by official agencies as a more politically feasible and efficient solution.

Bouchet and Hay, in my view, give up prematurely. Regulatory, tax, and accounting policies should not be seen as alternatives to official credit enhancement but instead as complementary instruments harnessed to a concerted effort to reduce the net resource transfer that is undermining development in the highly indebted nations. Regulatory regimes should not be designed in isolation from objectives. Once the policy is clear, then, and only then, can the details of a supportive regulatory regime be engineered.

Bouchet and Hay would move beyond a "market-based" solution to one where official agencies play an active role in enhancing restructured bank claims. But the paper does not present a full-blown picture of how the public sector might orchestrate the more rapid debt reduction that the authors correctly prefer.

Bouchet and Hay escape, albeit only partially, from a flaw common to many World Bank analyses of Third World debt. While the debt crisis' severity is emphasized, the proposed solutions too often seem half-hearted. Analytically, the situation is considered urgent; the debt overhang is impeding recovery and distorting adjustment. Prescriptively, the answer is gradual voluntary debt reduction that probably has limited potential. To reconcile these disparities, the IFIs (the International Monetary Fund, World Bank, and Inter-American Development Bank) are being forced into another round of rosy projections, showing high volumes of voluntary debt reduction and, simultaneously, rapid and sustained developing-country recovery.

This common emphasis on undirected voluntarism for creditors contradicts the observation that the developing countries need greater certainty for financial planning. The World Bank also needs more certainty to design its structural adjustment loans, as does the IMF to design its reborn extended fund facility (EFF). Moreover, unmediated voluntarism contradicts the observation that creditors' cartelization and the debtor fragmentation has contributed to the large net resource transfer that impedes adjustment. This implies that the IFIs should work harder to correct that bargaining imbalance.

What direction should the international community and the World Bank take? Net resource transfer reduction should be the strategy, replacing for many countries the illusory objective of a near-term resumption of creditworthiness. This could be accomplished by "guided" instead of undirected voluntarism. Guided voluntarism implies free choice with constraints. Briefly defined, "guided voluntarism" is as follows:

The IFIs work with the debtor governments to lay out a multiyear financing plan consistent with a solid adjust-

ment program. Together they select net resource transfer targets consistent with short- and medium-term macroeconomic objectives. The official creditors hold a pledging session, then the debtor government, shepherded by the IFIs, and with OECD backing, informs the banks of the maximum net resource transfer that they can expect. Within that target, each bank can choose between new lending and debt-service reduction instruments, in accordance with its business strategy. The arrangement should include interest rate caps that limit debt service if rates spike, and it could also include warrants or other contingency claims that allow creditors to benefit from an upturn. This is a case-by-case approach, but within an overall "adjustment with growth" strategy, consistent net resource transfer reduction objectives, and the supportive tactics of guided voluntarism.

Besides setting net resource transfer targets, how else can the IFIs support this approach? When a developing country is seriously committed to reforms, the IFIs can sometimes withhold their own resources until the critical mass of financial assurances is determined, as in the past; or, when the developing country is using arrears to reduce its net resource transfer, the IFIs can be willing to lend into arrears to private creditors. This could stimulate private creditors to act responsibly and place their accounts in order.

The IFIs can provide surveillance of debt conversions by checking them against fiscal-monetary targets and short- and medium-term balance of payments projections. The IFIs can demonstrate a willingness to allow their own resources to be eligible (directly or indirectly) for conversions, but only when in the public's interest.

They can more vigorously gather information on the tax, regulatory, and accounting regimes that govern the capital markets of the various industrial countries and propose policies that would harness these policy instruments to a new debt strategy. In this sense, the work by Bouchet and Hay is a fine example.

To have credibility, the IFIs will have to provide positive net resource transfers to performing countries. Otherwise they will become targets for debt reduction. Unfortunately, current projections for the World Bank and the IMF indicate continuing reverse flows rather than positive contributions.

Can the banks afford this? And can governments persuade them to participate? Banks are now stronger, without a doubt. There is assurance from some quarters (including some U.S. regulators) that all major U.S. banks are out of danger and that their capital exceeds their exposure to the developing countries. But these assessments are misleading. First, such calculations fail to take into account nonperforming domestic loans. Second, the issue is not whether a few dollars would remain after a developing-country meltdown, but whether banks

would have sufficient capital to retain confidence. To provide this confidence, the Basle Committee instituted new capital adequacy guidelines. In our article in *Challenge*, coauthor Gordon Hansen and I calculate that several major U.S. banks may not be able to simultaneously take a 40 percent loss on developing-country long-term debt while taking losses on nonperforming domestic assets, and still meet the 1992 capital requirements. So regulators will continue to be concerned about developing-country debt, and the banking system will need to take action to assure smooth adjustment.

But the essential truth is that banks are financially stronger today in relation to developing-country debt. So greater weight can be given to the interests of other parties.

OECD governments sometimes respond that they lack leverage over their banking systems. They may lack the willpower, but it is naive to argue that they lack the instruments of influence. Beyond moral suasion, there are several tangible levers mentioned by Bouchet and Hay and in other papers in this volume: risk weighting of assets, tax treatment of provisions, and accounting of losses. In the United States, clarification of the applicability of FAS 15 to interest rate caps would expand the menu of options immediately.¹

So there are other carrots and sticks that could stimulate commercial bank compliance with an agreed-on net resource transfer reduction strategy, while allowing banks to make choices among financial instruments consistent with their individual business strategies.

To conclude, taking Latin America as the example, to reduce the net resource transfer by \$20 billion—a bit short of the average over the last several years—the burden could be divided roughly equally between the IFIs and the commercial banks. The IFIs could contribute about \$8 billion by transforming the projected \$3 billion drain into a positive \$5 billion flow, through more gen-

erous grace periods, larger structural adjustment loans, and quicker disbursements. The commercial banks could reduce net intake by about \$12 billion through country-by-country combinations of new lending and debt-service reduction. This policy recommendation is similar to Bill Cline's, except some differences exist in the magnitude of the recommended flows, the more equitable burden sharing between the public and private sectors, and the greater certainty of participation by private creditors that I propose.

This strategy would be consistent with the World Bank's own sense of urgency about the problem, and it would provide direction to the banks without bankrupting them. It would also give the debtors a chance to implement programs of adjustment with growth.

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Note

1. Financial Accounting Standard (FAS) 15 is the directive on accounting for troubled debt restructuring issued by the Financial Accounting Standards Board in 1977. It states that a restructured loan should continue to be carried by a bank at its previously recorded value, as long as the sum of interest and principal cash payments expected to be received over the life of the restructured loan are at least equal to the bank's carrying amount (Office of the Comptroller of the Currency 1989).

The Market-Based Menu Approach in Action: The 1988 Brazilian Financing Package

Ruben Lamdany

The 1988 Brazilian financing package was the first financial package specifically structured along the lines of what has been called the market-based menu approach to sovereign debt workouts. This approach was first advocated by U.S. Treasury Secretary Baker and by Brazil's Finance Minister Dilson Funaro in April 1987. The approach tailors participation in the package to the different needs and preferences of different banks. The development and the mechanics of many of the options in the menu, including most of the options in the Brazilian package, are discussed in Cline (1987), World Bank (1988), and Bouchet and Hay (in this volume).

The 1988 Brazilian financing package has four basic components:

- Restructuring \$62 billion of outstanding debt into a single deposit facility in Brazil's central bank,
- five new-money packages totaling \$5.2 billion,
- renewal of trade and interbank credit lines, and
- an exit option that can substitute for both restructuring and new money.

Each component was structured to allow for many different options, referred to as "bells and whistles," which are attractive to different banks. The instruments and options were tailored to the regulatory and tax needs of banks in different jurisdictions. In addition, the disbursement of new money is linked in different forms to actions by the World Bank and the IMF, which banks expect will enable them to treat the new money differently from the old. These factors may explain the creditors' favorable response to the package.¹

This paper analyzes the economic and financial effects of some of the instruments and facilities included in the package. Two important observations must be borne in mind. First, each clause and option in any agreement is negotiated between the debtor and its creditors. So, even

though the inclusion of a particular option in the package had a negative effect on the debtor, it does not imply that the debtor erred in allowing such an option. To determine if the option's inclusion was an error it is necessary to compare the costs related to the option with the benefits that the debtor may have received in compensation. This assessment requires an analysis of the bargaining process, which, however, is beyond the scope of this paper. Second, it is necessary to be very careful while trying to apply the conclusions of this paper to other situations, since the analysis depends on many factors that are "country specific." So, in each case careful attention should be paid to differences in the restrictions on the current and capital accounts of the balance of payments, public finances, and the structure of the domestic capital market.

The following section describes the structure and main components of the 1988 Brazilian financing package. Subsequent sections discuss the effects of certain options and facilities in the package: currency switching, interest retiming, relending, debt-equity swaps, and exit bonds.

Main Components of the Brazilian Financing Package

The main components of the financing package are the restructuring of existing debt, the new-money package, and the commitments pertaining to trade and interbank credit lines. In June 1988, Brazil and its Bank Advisory Committee reached an agreement on a financing package for 1988-89, which formally terminated the moratorium declared by Brazil in February 1987. More than 90 percent of the new money was committed by August 5, the deadline to receive an early participation fee of three-eighths of a percentage point. In September 1988 the

agreement was signed by Brazil's creditors, and in November 1988 the first \$4 billion of the new-money loans was disbursed.

Restructuring Existing Debt

The main terms of the restructuring agreement are:

- The outstanding claims of each participating creditor bank will be converted, as they become due, into a deposit account on the bank's behalf in the Brazilian central bank. These deposits are consolidated into a multiyear deposit facility (MYDF), which by 1993 will total \$62 billion and will account for 95 percent of Brazil's outstanding medium-term external debt owed to commercial creditors. This facility includes the deposits under the 1983, 1984, and 1985 deposit facility agreements and all maturities due up to 1993.

- The MYDF has a tenor of 20 years, and a grace period of 7 years.² The principal of the MYDF will be repaid in 26 semiannual installments. The installments increase over time, from 1 percent for the first two, to 5 percent for the last four installments.

- The interest rate on the MYDF is set at thirteen-sixteenths of a percentage point over the six-month London Interbank Offered Rate (LIBOR). Alternatively, creditors can opt for a similar spread over an agreed-on domestic rate or for an equivalent fixed rate. The repricing leads to an average reduction in the cost of funds for Brazil of over three-sixteenths of a percentage point, which becomes effective as the claims become part of the MYDF. The annual savings for Brazil rise from about \$90 million in 1989 to more than \$115 million annually after 1993.

- Each bank may choose to denominate its claims either in U.S. dollars or in its "home currency" through currency switching.

- Interest payments are retimed and shifted from a quarterly to a semiannual basis.

- All deposits will be available for relending.

- Deposits in the MYDF will be eligible for debt-equity conversions in accordance with the resolution that regulates conversion of existing deposits.

- Brazil undertakes to have in place an IMF-supported program until 1994 and will make all purchases authorized under such program. If for any reason a program is not in place, Brazil will request that the IMF implement the Article IV procedures as promptly as is practicable. This clause is tailored to fit regulatory requirements faced by some creditor banks.

- The interest on amounts in arrears due to the moratorium was set at thirteen-sixteenths of a percentage point over LIBOR. Creditors waived their rights to receive penalty interest on the amounts overdue because of the moratorium.

- Exit bonds. Brazil undertook to issue up to \$5 billion of Brazilian investment bonds, but only about \$1 billion were subscribed. The bonds are exempt from this and any future new-money requirements.

New-Money Package

Each creditor bank was expected to commit 11.4 percent of its outstanding exposure to Brazil as of the base date.³ This was the first major concerted new-money package in which the original base date was changed, from December 1982 to March 1987. The change in the base date benefited those banks that were active in disposing of their exposure through sales or conversions, like American regional banks. But the change in the base date hurt those banks with exposure denominated in currencies that appreciated since 1983, especially Japanese banks.

Banks were allowed certain flexibility in deciding what they would commit to each of the five new-money facilities. The new money will be disbursed in three tranches, and each is linked in some form to World Bank or IMF actions. The first tranche of \$4 billion was disbursed on 1 November 1988, and the rest will be disbursed by mid-1989. Four of the facilities have a tenor of 12 years, a grace period of 5 years, and are repayable in equal semiannual installments; the trade facility has a bullet maturity of 9 years. They all carry an interest rate equal to thirteen-sixteenths of a percentage point over LIBOR and are eligible for debt-equity conversion under Resolution 1460 on the same terms as the MYDF.

The five new-money facilities are:

- The parallel new-money facility. This facility is for \$2.85 billion plus any amount lenders decide to commit in lieu of committing under the other facilities. All funds under this facility are eligible for relending. And beginning in August 1989 and for three years thereafter, these loans are eligible for debt-equity conversion at par at a rate of \$50 million a month (\$1.8 billion in conversions).

- Two cofinancing facilities (\$750 million in total). Disbursements under these two facilities are closely linked to disbursement by the World Bank under certain Bank loans.

- New-money bonds. Brazil will issue up to \$1 billion of bonds carrying the same terms as the parallel facility. Banks can purchase bonds for up to 20 percent of their commitments or \$5 million, whichever is less (or total commitments if less than \$1.3 million). The bonds will be issued in bearer form, which may enhance their marketability and may immunize them from future new-money requests. This may lead some banks to prefer the bonds to the other facilities. But other banks may rather increase their commitments to the parallel facility, since

the bonds are not eligible for debt-equity conversions at par or, obviously, for relending. Furthermore, regulators may ask banks to mark the bonds to market if a market for these bonds develops in the future.

- **New-money trade deposit facility (\$600 million).** Funds under this facility will be available for trade financing after an initial deposit period of one year at the central bank. Individual loans within the facility will have a tenor of at least one year.

New and Additional Trade and Interbank Commitments

Participating banks will commit to renew trade and interbank credit lines to the level agreed on in the 1986 commitment, approximately \$15 billion. To enforce this commitment, Brazil will require that banks comply with their commitments under these facilities and with the new-money trade deposit facility to be able to relend under the MYDF or the parallel new-money facility agreements. The same is true for the right to convert loans under the parallel new-money facility to equity at par.

Currency Switching

The agreement established that each creditor bank may choose to denominate its claims in U.S. dollars or its "home currency." Banks have the option to switch between these two currencies at certain times, for instance upon relending or on the last interest date before the grace period ends. The interest rate was set at thirteen-sixteenths of a percentage point over LIBOR or over a comparable and agreed upon domestic interest rate. The spread over the base rate is the same for all currencies, regardless of the base rate.

Some type of currency-switching option was included in most restructuring agreements since 1984, including those of Argentina, Chile, Mexico, and Brazil's previous 1986 rescheduling agreements. In all cases the decision to change the currency denomination was the option of the creditor banks, implying that including this option can only improve banks' situation. But most debtors have strongly opposed the inclusion of this option because they perceived that it could raise the cost and riskiness of the loans.

The currency-switching option enables non-American banks to denominate the loans in the same currency as their capital and reserves, therefore immunizing their capital-asset ratios from exchange rate fluctuations. In addition, by denominating their claims in the same currency as their deposit base, they may be able to reduce

the average cost of funding the loans. There are other important considerations that banks should take into account in deciding on whether to switch currencies: the duration of the loans, the effect on future new-money requirements, and the relative interest rate spread on the loans.

"Strong currency" loans have a longer duration (average maturity) than dollar loans.⁴ This is because a larger part of the total loan proceeds are expected to be paid as principal at maturity, rather than as interest payments. But these loans may carry a greater credit risk than dollar loans.

A bank switching to a "stronger currency" faces another risk if Brazil requires an additional new-money loan in the future. Over time, as its currency appreciates, the dollar value of the principal of its loans will increase. So the share of the switching banks' loans to Brazil will increase relative to the share of those banks whose loans are denominated in dollars. If the base date for future new-money loans is changed, switching banks will have to provide more such new-money loans, since commitments to these loans are assessed as a proportion of principal outstanding.

The interest rate spread is the same in all currencies. But a spread of thirteen-sixteenths of a percentage point yields a higher income in an appreciating (low interest rate) currency than in a depreciating (high interest rate) currency. Banks that switch to stronger currencies can expect to receive larger payments over the life of the loan, as long as Brazil services its debt according to the contractual terms. To some extent, the larger payment compensates the banks for the loan's extended maturity.

Switching some of its long-term liabilities to stronger currencies is likely to be beneficial from Brazil's viewpoint. The switch extends the duration of the loans, which provides cash flow relief in the short and medium term. Also, lengthening the duration reduces the present value of the loans, as evaluated by Brazil. This is true as long as Brazil's rate of discount is higher than the (exchange-rate-adjusted) interest rate on the loans, which is very likely to be the case.

An additional, though probably less important, effect of the currency switching is its effect on Brazil's exposure to unexpected fluctuations in exchange rates (which represent deviations from covered interest rate parity). The currency-switching option, if exercised, leads to changes in the currency composition of Brazil's liabilities, and therefore modifies Brazil's immunization to unexpected exchange rate fluctuations. This change can increase or reduce the volatility in Brazil's ability to pay depending on if U.S. dollar-denominated liabilities in

Brazil's total liabilities before the switching are higher or lower than the "optimal" share (Claessens 1988).⁵

Retiming Interest Payments

Restructuring and new-money agreements include interest retiming clauses. Interest payments on the MYDF and the new-money facilities will be paid on a semiannual basis. This represents a shift for the 75 percent of the commercial bank loans that were serviced on a quarterly basis. The interest rate on the loans was shifted accordingly from the three-month to the six-month LIBOR. Interest retiming clauses have been included in other debt-restructuring agreements. The 1987 credit agreement between Chile and its creditor banks shifted interest payments from six months to one year, beginning in the second half of 1988. Under the agreement, interest payments would revert gradually to a six-month schedule between 1991 and 1993.

The main reason for including retiming in the package is that it reduces Brazil's financial requirements for the years 1988–89, by moving the equivalent of one quarterly interest payment beyond the period covered by the agreement. In this way the retiming reduced Brazil's financial requirements for the period 1988–89 by over \$1 billion, which is a substantial amount, since it represents over 20 percent of the new-money package. In this way the retiming facilitated raising the new money by reducing its size (but increasing Brazil's financial requirements beyond the period covered by this agreement). The retiming has an immediate positive cash flow effect on Brazil that is reflected in its balance of payments (since the balance of payments is calculated on a cash basis). But the retiming does not affect the banks' income statements, which are computed on an accrual basis. This has more to do with accounting practices than with changes in the transfer of real resources.

Retiming may also have an important effect on the real debt-service burden on the restructured loans, as it may change the present value of the loans as evaluated by Brazil. Although retiming extends immediate cash flow relief by postponing interest payments, it may actually increase the debt-service burden caused by the corresponding move on the yield curve that, on average, is upward sloping, that is, the longer-term rate is generally higher than the shorter-term rate. The total effect on the present value of the debt will be positive or negative depending on which of these two effects dominates. Retiming reduces the present value of the outstanding loans if the relief (caused by stretching out interest payments) is larger than the additional cost (caused by the movement on the yield curve) evaluated using the debtor's rate of discount. If the effect of the higher

interest rates is greater, the debtor ends up with a larger interest burden.

Estimates of the effect on the present value of the MYDF contractual debt service caused by retiming from three to six months are presented in table 9–1. The calculations are made under different assumptions for LIBOR, Brazil's rate of discount, and the term structure of interest rates. Loans (with and without the retiming) are assumed to carry a spread over LIBOR of thirteen-sixteenths of a percentage point, and to be repaid according to the repayment schedule agreed on for the MYDF in the financing package. The figures represent the change in the present value of Brazil's service payments over the 20 years of the loan per \$1,000 of face value of debt, and the change in the present value of debt service per \$1,000 of present value of debt.

In the calculations, Brazil's rate of discount was placed between 12 percent and 15 percent. Benefits for Brazil are greater, the higher its discount rate. Different factors determine the difference between the three- and the six-month rates. Six-month rates tend to be higher because of the liquidity premium. Also, interest rates may be different (in either direction) because of expectations of future developments in credit markets. In the calculations, differences between the three- and the six-month rates were between 0 percent and 0.15 percent. These differences capture only the liquidity premium, since it is assumed that the "expectations effect" will have no effect on the cost of borrowing. As table 9–1 shows, a given absolute difference between the three- and six-month rates is smaller as the LIBOR rises. We assumed that the two LIBORs remain constant over the 20-year

Table 9–1. *Interest Retiming in Brazil*

LIBOR 3-month	LIBOR 6-month	Brazil's discount rate (percent)	
		12	15
8	8.00	-2.2	-3.6
		(-2.7)	(-5.5)
	8.075	2.8	0.7
9	8.15	(3.5)	(1.0)
		7.7	4.9
	8.15	(9.7)	(7.5)
9	9.00	-1.6	-3.3
		(-1.9)	(-4.7)
	9.075	3.3	0.9
9	9.15	(3.8)	(1.3)
		8.2	5.2
	9.15	(9.6)	(7.3)

Note: All loans carry a spread over the corresponding LIBOR of thirteen-sixteenths of a percentage point. Figures represent change in present value of debt service per \$1,000 of face value of loan. Negative numbers indicate savings; positive numbers indicate additional costs. The figures in parentheses represent change in the net present value of debt service per \$1,000 of the loans.

Source: Author calculations.

period covered by the agreement at about 8 percent and 9 percent.

The retiming reduces the present value of debt service by between \$2 and \$3 per \$1,000 of face value of Brazil's debt, assuming that the difference between three- and six-month LIBOR is almost zero over the duration of the loan. Since the loans' present value is only 65 percent of their face value when evaluated using discount rates of 12 percent to 15 percent, this represents a reduction in future debt service of about \$2.5 to \$5.5 per \$1,000 present value of the loans. Over 20 years this implies savings in debt service of between \$90 million and \$135 million on the \$45 billion of debt affected by the retiming.

But as the difference between the three- and six-month LIBOR increases, the positive effects of the retiming are greatly reduced. When the difference between these rates is 0.075 percent, the retiming becomes negative. As the difference approaches 0.15 percent, the retiming costs become quite substantial; the present value of debt service increases by between \$4 and \$8 per \$1,000 of face value, and by about \$7 and \$10 per \$1,000 of present value of the loans of Brazil's debt. Evaluating retiming over shorter periods reduces its effects, but does not change whether these effects are positive or negative. Over a two-year period the present value of Brazil's debt service increases by between \$1.5 and \$4.4 per \$1,000 of face value of Brazil's loans as the difference between the three- and six-month LIBOR approaches 0.15 percent. Therefore, retiming could be very costly for Brazil, as it could imply an increase in debt service of between \$180 million and \$360 million over 20 years.

For the creditor banks retiming of interest payments has no direct costs, since they can switch the funding of the loans accordingly, from three- to six-month deposits. Retiming reduces the number of payment dates, reducing administrative costs, and allows banks to match more closely the disbursement of new money with interest payments.

The Relending Facility

The agreement establishes that all amounts in the MYDF and the parallel new-money facility will be available for relending subject to central bank approval. Relending facilities were also provided for as part of all previous concerted lending packages for Brazil.⁶ The actual amounts of onlending or relending were \$2.5 billion in 1983, \$7.9 billion in 1984, \$5.9 billion in 1985, and declined to \$0.6 billion by 1986. In 1987 total relending amounted to \$1.7 billion, and from January to April 1988 it amounted to \$0.5 billion. Relending facilities were also present in the restructuring or new-money

packages of Argentina, Chile, the Philippines, and Venezuela.

Relending was created in the context of the Brazilian rescheduling in 1982–83. While Brazilian debtors had the cruzeiros to repay their foreign debts (at the going exchange rate), the central bank was unwilling or unable to provide foreign currency. Instead, the government took over the foreign liability and asked original borrowers to repay the equivalent in domestic currency to the central bank. The foreign creditor became the owner of an account in the central bank denominated in foreign exchange. Therefore, a large and increasing portion of commercial banks' loans to Brazilian enterprises were converted into central bank deposits, sometimes exceeding the amount that individual creditor banks were allowed to lend to a single borrower under their national regulatory regimes. The relending facility allowed banks to reallocate these funds as new loans among different public and private sector entities while deferring the outflow of foreign currency from Brazil.

Relending gives creditor banks the right to use their central bank deposits (from the MYDF) to fund loans to different borrowers in Brazil. As Brazilian borrowers repay their loans to the MYDF, the creditor bank can again relend those funds within Brazil. Although the new borrower appears to get a foreign currency loan, he actually receives a loan in cruzados that is linked to the exchange rate. So the borrower of relend funds bears the exchange rate risk of the loan but cannot use its proceeds to import or pay other debts abroad because of foreign currency restriction. The funds available for relending will diminish as the MYDF gets repaid.

Creditors prefer to relend to the private sector since this enables them to collect higher fees, to develop business relationships, and to fund their own subsidiaries at a preferred effective exchange rate. They can also sell the loans at a premium in the secondary market. But the government of Brazil, which has to authorize each transaction, prefers to limit relending, particularly to the private sector, to minimize whatever effect this may have on the expansion of domestic credit and on the allocation of credit. Thus, as a compromise, the agreement establishes that the central bank will authorize at least minimum annual private sector relending quotas, which banks can be expected to use fully. After the MYDF becomes effective, the agreed on minimum of authorized relending to the private sector would be \$100 million a month for the rest of 1988. In 1989–90 the minimum annual quotas would be about \$1.5 billion. Thereafter, the amounts available for relending to the private sector will be at least equal to the principal maturities repaid by private sector borrowers each year.

Loans relend to public sector borrowers must have a tenor of at least 12 years and will carry an interest rate

equal to that applicable to the MYDF. Loans to the private sector must have a tenor of at least seven years and an interest of fifteen-sixteenths of a percentage point over LIBOR. All relendings made before 1994 must have a grace period of at least five years.

Benefits for the Creditor Banks

For commercial banks the main benefits of a relending facility are:

- Relending enables creditor banks to circumvent the legal limit on the amount they can lend to a single borrower. This is especially important for nationally chartered American banks (for instance, Citibank and Chase Manhattan) and for some European banks.
- Relending to the private sector enables banks to charge higher spreads than they receive on the deposits in the central banks, which in part reflect the additional credit risk.
- Relending enables banks to maintain or develop business relationships with clients in the borrower country. Without cross-border lending, this is the only way to develop these relationships, which are especially important for those banks with subsidiaries in the borrower country. Relending allows operations of the subsidiary to expand without having to expand its capital (which would increase the country exposure). The relend funds are not counted as assets of the subsidiary and therefore do not require capital. But all the operations are processed by the subsidiary, which receives commissions and expands its market share.
- Banks tend to relend to firms where they may get related business, for instance opening of letters of credit or conducting a feasibility study on investments. This allows them to charge fees that firms are often entitled to pay in foreign currency.
- Loans that can be relent to the private sector sell in secondary markets at a premium of 15 percent or more over other loans. The reason is these loans enable investors to fund investments in Brazil at preferential terms. A multinational company with subsidiaries in Brazil can buy relendable loans and later extend these loans to the subsidiary. The parent company can then fund its subsidiary at a preferential exchange rate (for instance, with a secondary market discount of 50 percent on Brazil's loans, the effective exchange rate is twice as high as the official one). The parent company will be repaid in foreign currency (at the official exchange rate) on the same terms as all other rescheduled debt. Also, creditor banks or other investors (including Brazilians) may use a similar mechanism to invest in Brazilian firms at a preferred exchange rate, thus these quasi debt-equity swaps circumvent the restrictions on debt-equity swaps.⁷

- Finally, banks claim that they prefer to lend to firms that engage in productive activities, especially export-oriented ones. They claim that this will improve Brazil's creditworthiness and indirectly increase the probability of being repaid. These arguments are mostly for public relations purposes because relending has a small effect on the overall allocation of credit.

The Effects on Brazil

Three main issues need to be addressed to assess relending's effects from Brazil's perspective: the effect on the timing and size of the external resource transfer, the effect on the domestic credit expansion (and therefore on inflation), and the effect on credit allocation in Brazil.

First, the relending facility will probably have only a minor effect on the size and the timing of the external transfer. The transfer can be indirectly accelerated by the factors described above, for example, quasi debt-equity swaps. But the introduction of relending in the package may have contributed to delaying the external transfer by enabling Brazil to obtain better rescheduling terms and a larger new-money package than it would have obtained otherwise.

Second, the main objection to relending raised by Brazil's government (and by other debtor countries' governments) is that it is inflationary. Relending has an expansionary effect on domestic credit. The difficulties that the Brazilian government faces in trying to offset this depend on the size of the facility, the distribution of the relend funds between the private and the public sector, and the initial situation in credit markets.

Quotas on private sector relending limit its size to about 2 percent of the outstanding domestic credit to the private sector (or less than 1 percent of total outstanding domestic credit) for each of the next three years.⁸ Whether the government is willing or able to sterilize this expansion is hard to assess. In any case, the effect of such an expansion on Brazil's inflation can only be limited. But the government can control the amount of relending to the public sector by controlling the demand for credit from public agencies and parastatals. In addition, the central bank can offset part of the credit expansion caused by relending by reducing its direct credit lines to these public agencies and parastatals. Overall, relending may have some inflationary impact, but in Brazil this is unlikely to be a major effect.

Finally, an important consideration for Brazil is how relending affects the allocation of credit; that is, if credit flows to more or less productive sectors and firms than would otherwise have been the case. But if the central bank accommodates the "credit needs" of government agencies, parastatals, and "preferred sectors," relending will only have a minor effect on credit allocation. It is

highly unlikely that this facility would have any sizable "general equilibrium" effect on the allocation of credit in Brazil, even for a given level of domestic credit expansion.

Two extreme cases explain this effect. In an economy with relatively free financial markets (and barring subsidies) firms would substitute the "relending" loans for other types of credit without much change in the overall allocation. But, in an economy where the government administratively allocates credit, it is very likely that the government will offset the effects of relending through the reduction of other credit lines. In either case, the government can also affect the allocation of credit through its control on the demand for relend funds by public sector borrowers. Finally, whether the allocation of credit is affected or not, it is impossible to assess, in advance, if any such change would have a positive or negative welfare effect.

Costs and Benefits for Brazilian Enterprises and Banks

In many cases, the borrower in the relending operation is the same as the original borrower. These new loans are the only way in which these borrowers may share benefits from rescheduling of the foreign debt. Borrowers also benefit because relending is almost the only source of long- or medium-term credit available in Brazil. In addition, these loans are currently cheaper than most other credit lines. But borrowers are exposed to foreign exchange risk, since the debt is linked to the currency designated in the agreement between the central bank and the foreign creditor.

Relending enables subsidiaries of foreign banks to expand their operations, and the government protects the market share and "profitability" of official banks. So domestic private banks are prime candidates to be "crowded out" by this facility. This effect has been attenuated by partnerships formed between foreign banks and Brazilian banks to handle both relending and debt-conversion operations.

Relending provisions render important benefits to creditor banks, although they have only minor effects on the economy of debtor countries. Thus, it is likely that relending provisions will be included in most future agreements, because banks should be able to compensate debtor countries for any negative effects by sharing the benefits. In Brazil's case relending in the financing package facilitated negotiations with the banks and enabled Brazil to obtain better terms than it would have otherwise. For instance, relending was made contingent on maintaining certain interbank and trade lines. An additional way in which governments of debtor countries can share benefits that creditors obtain from relending pro-

visions is by charging a facility fee to either the borrower or the creditor or auctioning the relending rights.

Debt-Equity Conversion

Deposits in the MYDF, the debt held under the different new-money facilities, and the Brazilian investment bonds will be eligible for conversion into equity under Resolution 1460.⁹ This resolution, issued February 1988, sets the terms and conditions for conversions, permitted investments, and the limitations on capital and profit repatriation. Under different programs during the past decade, over \$3 billion of foreign debt was converted to equity in Brazil. Most of the swaps involved multinationals converting intercompany loans into equity holdings.

Conversions under Resolution 1460 take place through two monthly auctions: one for investments in "incentivated" areas (that is, the less developed areas in northeast Brazil), the other for all other projects. In each auction, the government offers the cruzado equivalent (at the official exchange rate) of \$75 million. Investors bid for those funds in terms of outstanding foreign debt, for instance \$1.33 of loans (face value) for the equivalent of \$1 in cruzados. The banks offering the highest bids (the larger discounts) receive the auctioned cruzados in exchange for their debt. These funds are then used in prespecified investments, which can be new projects, expansion of existing business, or special capital conversion mutual funds. The auctions are used to convert private debt (or formerly private sector loans converted into central bank deposits) into equity in private firms.

Resolution 1460 sets several restrictions on the swap operations:

- The converted proceeds cannot be repatriated for 12 years.
- Dividend remittances of over 12 percent of registered capital are restricted, as is all other foreign investment.
- Foreign investors cannot acquire control over a Brazilian firm through swaps.
- Conversion funds may not acquire more than 20 percent of Brazilian-owned companies (5 percent of the voting capital).
- Public sector debt can only be invested in public sector companies or used to cancel debt to these companies. These conversions are assessed by the government on a case-by-case basis.

The Effects on Commercial Banks

Commercial banks support debt-equity swap programs because these programs create a demand for sovereign loans outside the financial institutions, which

increases the secondary market price of these loans. This demand by "ultimate users" of debt instruments provides a floor for the price of the loans and has a stabilizing effect on secondary market trading. Debt-equity swap programs also create a vehicle for banks to diversify their exposure to Brazil between equity and debt.

The Effects on Brazil

To analyze the effects of debt-equity swaps on the Brazilian economy, it helps to separate the operation into two parts: the "prepayment" of Brazil's debt at a discount, and a subsidy to direct foreign investment in the form of a "preferential" exchange rate. It is as though the government applied a preferential exchange rate to buy foreign currency from a foreign investor, and then used the proceeds to buy back its debt in the secondary market. The main difference between this "two-stage operation" and debt-equity swaps is that, while buybacks are legally restricted, swaps are not only legal but are also encouraged by creditor banks.

As with direct foreign investment, the main concern for the government should be that investment goes to industries in which Brazil has comparative advantage and that are not motivated by distorting regulations, as with highly protected industries. Two other important issues from Brazil's viewpoint are the size and timing of the resource transfer abroad. The "prepayment" of debt takes place at a substantial discount. In the first five "nonincentivated" auctions, Brazil paid the cruzado equivalent of \$375 million (at the official exchange rate) to retire almost \$500 million of debt. Brazil's savings are larger than this 25 percent discount because the effective dollar value of the domestic currency the government used to "buy back" the debt is lower than implied by the official exchange rate, as hinted by a parallel market premium of over 50 percent. Since the exchange rate is likely to move closer to the "true scarcity value" of foreign currency, foreign investors will have to repatriate their profits and capital at those higher exchange rates. Taking this into account, the implied buyback renders Brazil an annual rate of return of about 20 percent over 20 years relative to debt service on contractual terms.

An alternative way to assess the swap is by looking at the difference between the expected debt service and the expected profits and capital repatriation from the swap-related foreign investment. The assets acquired by the foreign investors are likely to render a rate of return (calculated over the face value of the loans) that is much smaller than the debt-servicing cost.¹⁰ Actually, prepayment through debt-equity swaps consists of an asset exchange in which Brazil trades one type of foreign claim on its resources, like external debt, for a different foreign claim, like future profit and capital repatriation. Looking

at debt-equity swaps in this way, it becomes clear that swaps do not necessarily accelerate the transfer abroad of Brazil's official foreign currency reserves. Whether debt-equity swaps accelerate or delay the transfer depends on two factors:

- First is the degree of additionality in foreign investment achieved through the swaps. By the degree of additionality we mean to what extent the foreign investment that takes place through the swaps would have occurred even without the "subsidy," in which case the swap would be replacing the direct inflow of capital (and reducing the inflow to the extent of the preferential exchange rate). This is an empirical issue that is difficult to assess. About \$2 billion a year of foreign investment can take place through the auction over the next three years. But during 1983-87 gross direct foreign investment (including portfolio investment, but excluding conversions) averaged about \$500 million a year, and net foreign investment (gross minus capital repatriation) has been nonexistent. Therefore, a substantial part of the investment that will take place through the swaps will probably be "additional." This expected increase will be mainly caused by the preferential exchange rate, and creditor banks can be expected to spend considerable resources to promote investment in Brazil among their clients.

- Second is the path of profit and capital repatriation relative to that of debt servicing. During the coming seven years (when debt service consists only of interest payments), debt service and swaps would lead to the same resource transfer as long as LIBOR is about 8 percent, the average discount in the auctions is at least 25 percent, and the repatriation of profits on the swap-related investment is about 12 percent a year (the maximum unrestricted transfer). A higher LIBOR, or a larger discount in the auctions, or lower profit repatriation would make the transfer under the swap lower than the transfer under the rescheduled debt-service profile during this period. After the grace period on debt repayment and up to year 12, swaps will probably reduce the transfer since Brazil is scheduled to repay part of the principal on the rescheduled debt, while investors would not be allowed to repatriate capital invested through swaps. At some point after year 12, the transfer under the swap will become larger than the service of the rescheduled loan. Overall, the swap may end up lengthening (rather than shortening) the de facto duration of Brazil's foreign liabilities.

Each individual investor may accelerate transfer of its own capital by purchasing foreign currency in the parallel market. This is usually called "round tripping." "Round tripping" would not affect Brazil's official currency reserves, as long as the foreign currency comes from other foreign investors or from capital repatriation

by domestic residents (again, subject to the additional-ity). But "round tripping" puts pressure on the parallel market and may increase false invoicing in trade, which would affect Brazil's official reserves.

The "incentivated swaps" took place at a much lower discount. But the discount is less important in assessing the welfare effects of these swaps, since they are used by Brazil to achieve different goals. The difference in the discount obtained in the two auctions should be seen as a subsidy to the projects in the "incentivated" area, and it is probable that without the swap program, the government would subsidize the projects in some other way.

Debt-equity swaps also give creditors a positive signal on Brazil's willingness to service its debt (see Acharya and Diwan 1988). Thus, a debt-equity swap program facilitated the negotiations on the package and reduced the likelihood of retaliatory measures should Brazil need to renegotiate the terms of the loans.

Monetary Effects

The main argument in Brazil against debt-equity swaps is that they can exacerbate Brazil's already high inflation. This is because the government uses domestic currency to purchase foreign debt, therefore expanding the money supply. Analysis here indicates that the Brazilian conversion program may be less inflationary than alternative ways of financing debt service. And, because of their expected size, swaps could lead to an annual expansion of at most 1 percent in outstanding domestic credit.

First, consider, for example, the monetary effects of a swap of \$100 of central bank deposits for private assets, and compare the effect on the money supply of a swap with servicing the foreign debt on its contractual terms. The foreign investor (the creditor bank or an investor that purchased the debt from the bank) participates in the auction and exchanges with Brazil's central bank the \$100 debt for \$75 of cruzados. The investor then uses the cruzados to buy equity in the investment project and the money supply increases by the equivalent of \$75. The reason for the expansion in the central bank's net liabilities to the private sector (in the form of monetary expansion) is that it indirectly used private domestic assets to pay for public external debt.¹¹

Still, the inflationary effect of the swap option could be smaller than it would be if the central bank services the foreign debt as scheduled. In that case, the central bank would have to purchase dollars with cruzados from exporters to service the debt (interest plus principal), therefore increasing the money supply by the equivalent of \$100 plus interest. Whether this monetary expansion is easier to sterilize or more or less inflationary than the monetary expansion taking place under the swap de-

pends on how these two options affect the private sector's demand for domestic currency assets and money.

Debt-equity swaps have two opposite effects on the money supply (relative to what the public perceived as the future path of monetary policy before the swap). They expand the present money supply, but they reduce it in the future. The present expansion of the money supply is smaller than the present value of the future contraction because of the discount that the government collects in the auction. So swaps should reduce the private sector's expectations of future monetary expansion, therefore reducing expectations of future inflation, other things being equal. This should lead to an increase in the demand for money (offsetting in part the increase in the money supply) and to an increase in the demand for domestic-currency-denominated assets (making it easier to sterilize the nonoffset part). Thus, whether all these changes are inflationary or not depends on the public's evaluation of future changes in the money supply relative to present changes in the money supply (and its effect on the demand for domestic currency assets and money).

Several factors may make the public reluctant to increase its demand for domestic currency assets. First, the public may believe that without swaps the debtor would end up paying less of its debt in present value terms, for example, because of partial defaults or refinancing at concessional terms. Second, the public may believe that after the discounted swap the government might increase its expenditures or reduce taxes in a way that would maintain the future rate of monetary expansion. Under these circumstances swaps would have an inflationary effect.¹²

Discounted swaps of private debt are less likely to cause inflation than swaps of public debt, since they are basically an exchange of assets within the private sector and their effects are easier to sterilize.¹³ With these swaps, an investor participates in the auction and exchanges \$100 of debt for \$75 of cruzados, which he then uses to buy equity in an investment project. Although the money supply increases by \$75, the government's net liabilities to the private sector fall by the difference between \$75 and the present value of the \$100 loan, approximately by \$25. Eventually, as the debtor services its debt (now held by the central bank), the money supply will contract by the amounts paid, principal plus the interest payments. Therefore, the swap causes an increase in the money supply in the present, and a larger contraction in the future. So the effect on inflation depends on how the private sector discounts the future contraction relative to the immediate increase. Actually, the central bank could sterilize the immediate expansion by selling the loans that it acquires in the auction; and the swap can end up having a contractionary effect if the loans are sold

at a lower discount than the one obtained from the foreign bank.

Banks are also permitted to use the proceeds of the auction to invest in equity in public firms, in which case the operation does not have any immediate monetary effect. The effects on future monetary expansion depend on whether the public firm pays the private investor higher or lower dividends than the original interest payments. If the tendered debt is private sector external debt, the money supply would contract in the future, as the private debtor repays its debt to the government, which has acquired this claim through the swap.

In sum, debt-equity swaps are cheaper for Brazil than servicing debt on its contractual terms. To a large extent, the opposition to swaps is based on the belief that without them Brazil will service a much smaller fraction of its external debt.¹⁴ Swaps of public debt for private assets have two opposite effects on the money supply: they expand the money supply in the present, but they reduce it in the future. These changes are in comparison with what the public would otherwise perceive as the future path of monetary policy before the swap. Because of the discount that the government collects in the auction, the present expansion of the money supply is smaller than the present value of the future contraction. Whether the combined effect of these two changes is inflationary or not depends on their effects on the demand for domestic-currency-denominated assets and money. Discounted swaps of private debt are less likely to cause inflation than public debt-swaps, since they are basically an exchange of assets within the private sector and their effects are easier to sterilize.

Exit Bonds

Exit bonds, called Brazil Investment Bonds (BIBs), were included in the package to deal with "free-rider" banks. These are banks, usually with small exposure, that do not lend any new money in the expectation that Brazil will pay them from other banks' lending. Exit bonds were designed to create a mechanism that gives these banks a formal exit from concerted lending while ensuring adequate burden sharing, a lower contractual interest rate, and longer maturity. The main problem with this approach is that for most banks that can afford and intend to free ride, the formal exemption from new money calls is not very valuable and does not represent enough of an incentive to accept a lower return. Several additional features were added to the BIBs to make them more attractive and prevent the disappointing response received by the Argentine exit bonds.¹⁵ But exit bonds can only work if, in conjunction with their offer, potential free riders are pressured from other creditor banks or

regulators. No exit instrument that ensures some degree of burden sharing can be more valuable than free riding.

Brazil Investment Bonds have a 25-year tenor and a grace period of ten years. They are exempt from new-money requirements, which gives them *de facto* seniority, but they carry a concessional fixed interest rate of 6 percent. They are eligible for debt-equity conversions on the same terms as deposits in the parallel facility and the MYDF. The main additional enhancement of BIBs is that they are exchangeable, at any time, for cruzado-denominated instruments (called OTNs), with a repayment schedule similar to the remaining schedule of the investment bond. These OTNs will pay a tax-free interest rate of 6 percent plus a "monetary correction," which over the long run should be equivalent to a 6 percent real return in cruzados. Upon each maturity the holder can choose whether he wants the principal adjusted by the monetary correction or by the U.S. dollar exchange rate. Because of the OTN option, BIBs have a lower credit risk than Brazilian loans, since Brazil is unlikely to default on a cruzado-denominated instrument. BIBs will also be eligible for swaps for nontraditional exports, if such a program ever becomes effective.¹⁶

Because of these enhancing features, exit bonds may be attractive to banks that want to diversify their exposure across different instruments. For instance, BIBs become an attractive option for those banks that want to dispose of their exposure to Brazil when their secondary market price is higher than the secondary price of the deposit facility agreement (the original loan) minus the difference between the face value and the secondary market value of the new money loan. BIBs may also be attractive as a speculative instrument for those banks that expect large fluctuations in Brazil's real exchange rate.

To price the BIBs we can look at them as convertible securities with a main component (a stream of dollar claims) and two conversion options (to OTNs and to equity). The BIBs' secondary market price will be at a premium over the highest market value of each of its components. The value of the "dollar claims" depends on the rate of discount the market uses to evaluate future payments. Using the discount rate implied by the secondary market price of Brazilian debt (over 20 percent), these claims are worth about 30 percent of the BIBs' face value. BIBs' market yield is likely to be lower than the one on deposit facility agreements (DFAs), given their implicit seniority and lower credit risk. The market discount rate would have to be less than 15 percent for the value of the "dollar claims" to be around the secondary market price of DFAs.

The dollar value of the OTN option depends on two factors: the cruzado price of the OTNs and the parallel foreign exchange market premium. The cruzado price of

an OTN is inversely related to its real market yield. It is difficult to estimate the OTNs' yields since presently there are no long-term securities in Brazil for comparison. The effective dollar value of the OTNs is inversely related to the premium in the parallel market over the official exchange rate, since the seller of an OTN will not have access to foreign exchange at the official rate. For example, the cruzado price of the OTNs would be about 60 percent of their face value, assuming a market yield of 10 percent in real terms. In this case, and assuming a parallel market premium of 40 percent, the dollar price of the OTN would be less than 45 percent of the face value of the original BIB.

The financing agreement established that Brazil would issue up to \$5 billion of BIBs. The BIB was relatively successful, with over \$1 billion subscribed. Initially banks could subscribe for up to \$15 million, but later they were allowed to increase their subscription as the target of \$5 billion was not reached (the largest subscriber was for \$50 million). Of over 300 banks that signed the restructuring agreement, 108 subscribed to the BIBs. Some of these banks may have been potential free riders or are banks that expect to exit completely from Brazil, as is indicated by the fact that about 50 of the subscribers converted their entire portfolios. But most of the bonds were purchased by banks trying to diversify their exposure to Brazil across different instruments. From Brazil's viewpoint, placing \$1 billion of BIBs will render annual savings of over \$30 million, which combined with the effects of a longer maturity will result in a reduction in the net present value of debt service of over \$200 million over 25 years (evaluated at discount rates of 10 percent to 15 percent).

Notes

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1. All this said, it is possible that almost any package would have been well received by most creditors, given their large exposures in Brazil, that this package ends the moratorium, and that a large share of the new money would go to repay the banks that participated in the Interim Agreement of November 1987.

2. Excluded from these terms is \$1.7 billion of the MYDF that will be paid according to their original maturities over the period 1991–93.

3. Past new-money participations, exit bonds, and debt that has been either assigned, paid in cruzados, or forgiven before 15 July 1988 are not counted as part of the base. The "old new money" was also excluded from the base.

4. "Strong currency" as used here refers to currencies, like the yen and the Deutsche mark, which pay a lower interest rate in the expectation of an appreciation. There is no covered interest rate differential between these currencies and the dol-

lar; that is, the market instantly closes any arbitrage opportunities. So loans in all currencies yield the same total return when evaluated at the risk-free discount rate.

5. The U.S. dollar share in Brazil's total debt is about 70 percent, which at first glance may look too high.

6. The 1983 and 1984–86 deposit facility agreements specified that lenders could relend to private and public sector borrowers the amounts that were due during the life of the agreements. The 1983 and 1984 new-money packages provided for onlending on similar terms. Onlending is the same as relending but in the context of a new money loan.

7. Some of the transactions described are not allowed under Brazilian law.

8. Part of these relend funds actually offsets the initial contraction that occurs as Brazilian firms service their outstanding foreign loans, by depositing cruzados in the central bank. This is also true for relending to the public sector.

9. This paper does not analyze "informal" conversions—that is, operations outside the formal auction.

10. The swap may still be a profitable venture for the investor, as long as he purchases Brazil's debt at a substantial discount over its face value.

11. It is important to recall that this monetary expansion matches the contraction of \$100 that takes place when private borrowers pay their foreign debt into a deposit account in the central bank.

12. Actually, a swap would cause an immediate jump in the price level followed by an inflation rate similar to the one that would have prevailed in its absence.

13. If the debtor and the investment project are in the same firm, the swap becomes a capitalization of debt, with the central bank playing only a marginal role.

14. Under those circumstances swaps are obviously "expensive" and "inflationary." This argument assumes that Brazil will be willing and able to renege on part of its debt, but that it will not be able to expropriate foreign investments or substantially restrict repatriation of profits and capital in other ways.

15. The 1987 financing package for Argentina included an exit bond option, which proved to be a failure, as only two banks subscribed to it. Those bonds carried a 4 percent interest rate and had a maturity of 25 years.

16. Although several banks (including some official Brazilian banks) are working on designing such programs, it is unlikely they will be implemented in the near future.

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Comment

Silvina Vatnick

Lamdany analyzes comprehensively the main—and more innovative—features of the 1988 Brazilian Financing Package. The topic is quite relevant at present, when most highly indebted developing countries are seeking alternatives to lower their external transfers and to regain, eventually, access to voluntary credit markets.

Brazil signed its first multiyear agreement with commercial creditors in 1983, following the emergence of widespread debt-servicing difficulties in the highly indebted countries. Two other agreements followed in 1984 and 1986 that included some provisions for relending, debt conversion, and currency switching. Brazil's international reserves were about \$7.8 billion in May 1986 and \$3.7 billion in January 1987, because of the domestic currency appreciation provoked by the Cruzado plan. The two options available to Brazil at the time were to request a bridge loan from the U.S. Treasury, which would have implied restarting negotiations with the IMF (highly undesirable politically) or to declare a moratorium on interest payments to commercial banks. Brazil opted for the latter, declaring a moratorium on 20 February 1987, suspending interest payments on the medium- and long-term external debt to commercial banks and freezing all existing trade and interbank deposits at the foreign branches of Brazilian banks. An Interim Financing Agreement was announced in November 1987 as the first step toward the financing agreement reached with the banks' Advisory Committee on 22 June 1988 and signed on 22 September 1988.

Lamdany discusses the effects of relending and debt-equity conversions on the creditor banks and Brazil. Although he describes quite clearly the structure of each of those mechanisms, I disagree with his conclusions about their monetary impact. Relending to the private sector has an expansionary effect on domestic credit. The difficulties the government faces in trying to sterilize that effect depend on the amount of relending, the efficiency of domestic credit markets, and monetary policy. In an effort to reduce monetary pressures, relending operations to the private sector have been suspended for

one year and formal debt-equity conversions have been slowed down.

Even though the amount of relending to the private sector agreed to in the financing package represented only 2 percent of the outstanding domestic credit to the private sector in 1988, this added up to the relending funds to the public sector, the released funds from the formal debt-equity conversion program, and the effects of the informal conversions. There were about \$8 billion of Brazilian external debt conversions into equity in 1988, of which 50 percent were informal conversions.

The funds available for relending and debt-equity conversion offset the initial monetary contraction that occurs when private or public sector external debt matures and becomes deposits at the central bank. There has not been a perfect matching of those flows in 1988. Therefore, evidence exists that both relending and debt-equity conversions have caused a net monetary expansion. Demonetization influenced the conduct of monetary policy in 1988 in Brazil. Sterilization of the monetary impact of external trade flows, relending, and debt-equity conversions would have required more active monetary policy and higher interest rates. A more active monetary policy started in January 1989.

The package includes such elements of external debt reduction as an extended debt profile, further opportunities for debt conversions, and a lower spread. The last would yield current account savings of about \$200 million a year, even though it is not yet clear that the retiming of interest payments will benefit Brazil. The external transfer of resources abroad is not binding for Brazil under the present external debt strategy, while the internal fiscal transfer represents the most relevant priority for the Brazilian policymakers. The substitution of internal for external debt, which debt-equity conversion or the exit bond with a convertibility option to a domestic instrument imply, will worsen the government's budgetary position as long as the real domestic interest rate is higher than the real foreign interest rate (corrected for real exchange rate depreciation). The current ratio of net internal debt to GDP is 21 percent when all the debt has short maturity (compounding the effect of any change in the real interest rate).¹ The expected real domestic inter-

est rate was at least 5 percentage points higher than the average real cost of external debt in 1988, and it is even higher under the Summer Plan. As a result, a 1 percent increase in the domestic real interest rate caused by financing such substitution will raise the fiscal deficit by 0.15 percent of GDP. Furthermore, the interest rate impact of domestic bond financing—including debt conversions consistent with an operational fiscal deficit of 4 percent, a 2 percent growth rate, and a monthly inflation rate of 20 percent—is 4 percentage points as opposed to 1.33 percentage points (excluding debt conversions). The inflationary impact of domestic monetary financing is 2 percent a month under the assumptions described above.²

The debt crisis has recently entered a distinct new stage characterized by external debt reduction. But some

of the instruments of the “menu approach” imply a trade-off between external debt reduction and internal debt increase. The effects of this substitution in the composition of a debtor country’s liabilities should be evaluated whenever the policy decisions are made. In particular, the downside risks of exacerbating the already existing domestic disequilibria should be considered.

Notes

1. For the last six years the reduced availability of external savings, coupled with large fiscal deficits, forced an increased reliance on domestic financial resources.
2. These estimates reflect the underlying consistency model used in Brazil’s Macroeconomic Assessment Report, World Bank, December 1988.

The Baker Plan and Brady Reformulation: An Evaluation

William R. Cline

Origins

After the suspension of Mexican debt payments in August of 1982 through 1983, the debt problem was addressed on a basis of short-term crisis management. Banks rescheduled payments and provided new loans, countries adopted adjustment programs, international financial agencies (especially the IMF) provided leadership to the banks and funding and policy guidance to the countries, and the industrial countries rescheduled export credits in the Paris Club and provided bridge loans. The objective was to avoid a collapse of the international banking system and to permit adjustment and renewed development in the debtor countries.

Extremely high interest rates and severe global recession had played a major role in precipitating the debt crisis. Buoyant recovery by 1984 (with industrial country growth at 5 percent) and a reduction of interest rates (as LIBOR, the London Interbank Offered Rate, ebbed from 19 percent at its 1981 peak to 11 percent) led to considerable optimism in that year that the debt crisis was on its way to resolution. Key debtors ran large current account surpluses, and economic growth in Latin America again turned positive (3.7 percent, versus -1.2 percent in 1982 and -2.6 percent in 1983).

By 1985 the mood began to swing once again towards pessimism. Latin American policymakers were facing intensifying political pressure as a result of the lagged effect of severe recession in 1983. Moreover, they were beginning to conclude that bank lending could be expected to remain frozen over the near term, despite adjustment progress. Governments had shifted from military to civilian rule in Argentina and Brazil, and in both countries there were temporary breaks with the formula of IMF-led adjustment that had dominated the initial response to the debt crisis.

In U.S. policy circles, new Treasury Secretary James Baker favored a more active government role as illustrated by his Plaza agreement in September 1985 to reduce the value of the overly strong dollar to avoid protectionism. In debt, Mexico provided reason for this Texan's concern, as that country experienced fiscal erosion, rising inflation, weakening oil prices, and a devastating earthquake. Mexico would once again need to borrow from the banks as its large 1984 current account surplus evaporated with a partial recovery in imports and lower oil exports. Yet the banking community was in no mood to renew lending.

Design

Although Mexico was an important catalyst, the Baker team prepared a broader attack on the debt problem—a global indicative plan.

Strategy and Targets

The new initiative called for banks to extend new lending of about \$7 billion annually (\$20 billion over three years), or 2.5 percent of existing exposure each year, to 15 major developing countries with debt difficulties (later augmented to include Costa Rica and Jamaica; see table 10-2 for country list). This target was conceived of as a net disbursements concept, above and beyond amortization of principal (but not net of interest payments). This goal for bank lending served notice that absence of major new-money programs in 1984-85, which had been possible because of the greater than expected increases in trade surpluses of debtor countries, could not be expected to continue over the medium term.

The plan called for structural reform by debtor countries by trade liberalization, liberalization of direct for-

eign investment, and state enterprise sector reform, including through privatization.

Industrial countries were to provide more support, increasing net loan disbursements of multilateral development banks (MDBs) by \$3 billion annually (\$9 billion over three years). Baker indicated that successful implementation by all parties was the condition for U.S. support for a substantial increase in World Bank capital—a measure that, however, U.S. authorities were not yet prepared to endorse. Added to the 1985 base of net disbursements by MDBs, the expansion meant total net capital flows (excluding interest) of approximately \$7 billion annually from these agencies, or almost the same as the \$20 billion asked of the banks over three years. Private bank–public sector symmetry therefore seemed present.

The Baker plan provided a more concrete formulation of existing strategy on the debt problem without changing fundamental assumptions of that strategy. From the outset the debt strategy rejected a bankruptcy approach in which major portions of existing debt would be forgiven by coercion. The plan's architects judged that forced forgiveness would "admit defeat" and cut off borrowers from capital markets for many years.

The plan instead continued the policy that principal debtor countries could grow their way out of debt and could expand their exports enough to reduce their relative debt burdens to levels compatible with a return to normal credit market access. The new initiative also continued financial support by foreign official creditors and bank creditors, matched by adjustment in debtor countries.

Strengths

The plan made an important shift in emphasis, however, stressing that the official community recognized that the debt problem would take a long time to address, and that it was foremost an economic development problem. This change was widely interpreted as a move away from short-term balance of payments stabilization, particularly through contractionary programs, to longer-term development objectives. The institutional shift was from the IMF to the World Bank as the leading institution in debt management. This new emphasis was timely in view of the costly recessions of 1982–83.

The plan was also correctly oriented in encouraging new bank lending. The free-rider problem—whereby individual banks could avoid new lending and still benefit from the country's ability to survive the crisis because of new loans by other banks—could cause bank lending to grind to a halt. Orientation from a central force was necessary to deal with this problem. The IMF provided

this direction early in the crisis, and the Baker plan targets sought to continue this strategy.

The initiative also implicitly confirmed industrial country governments' responsibility in the solution to the debt problem. The public sector was to act primarily through the MDBs. This commitment was important in an environment in which popular political criticism dictated that the public sector should not bail out the banks.

The plan was broadly correct in its priority for structural reforms in debtor countries. Excessive protection and inefficient and extreme import-substituting industrialization increased Latin America's vulnerability to debt, as this development strategy left an export base much weaker than that developed in the East Asian newly industrialized countries (NICs). Similarly, the fiscal fragility that encouraged much foreign borrowing was aggravated by chronic deficits of state enterprises. Direct investment was also needed to reverse the swing in the 1970s from risk capital inflows to borrowing abroad.

Weaknesses

The Baker initiative did not address the difficult transition from "concerted" (or "involuntary") lending through "new-money packages"—in which all banks were pressured to lend additional amounts in proportion to their exposure at the outset of the debt crisis—back to voluntary capital flows. The more pressure applied in pursuing bank lending targets, the more resentment was likely, and the longer the delay of voluntary lending. At the same time, the official sector had only moral suasion to ensure that the private sector met the plan's lending targets.

The initiative was misleading in its capital flow targets for the public sector by not taking an integrated approach to all official lending, and by remaining silent on the IMF's role. The IMF's shift from an active new lending role early in the crisis to minimal (or negative) new lending meant that the targets for lending expansion by MDBs overstated the net capital contribution that could be expected from the international institutions. It was argued that the IMF was not a "development agency" and thus could not be expected to continue indefinitely its high level of net lending, but from the broader development objectives of the Baker plan, a comprehensive view of public sector financing for the debt problem was necessary. This also applied to bilateral export-credit agencies, which had provided considerable financing before the debt crisis but cut back—much like the private banks—after its onset.

Seeming interventionism by industrial country governments into internal affairs of the debtor countries was awkward. Although liberalization of imports and foreign investment and slimming of the state sector were desir-

able in many debtor countries, adjustment and growth could have been possible through other fiscal correction and increased state firm efficiency according to each country's political traditions. There were delays in new lending mobilization in early 1986 as each major debtor waited for others to sign up in the program first, for fear of appearing to accept foreign conditions in areas more fundamental than macroeconomic guidelines familiar in IMF programs.

There was also considerable doubt about the capital flow targets of the Baker plan. From 1981 to 1985 the net transfer of resources (capital inflow less net payments of interest and profits abroad) to highly indebted countries in the Baker plan fell from \$18.3 billion to -\$26.5 billion (World Bank 1988, vol. I, p. xvii), a decline of almost \$45 billion. The 1981 flows were seriously exaggerated by excess demand in key countries such as Mexico. The 1985 flows were artificially small because of transitory high current account balances in major debtor countries such as Mexico and Brazil, which accordingly did not ask for new money. Nonetheless, reversal of only one-fourth of the decline in resource transfers (through an increase of \$10 billion annually between the banks and the MDBs) was too modest a policy goal, and many analysts argued that the objective should be at least twice as large. There was an inherent tension between new lending and reduction of the debt burden to more sustainable levels, which many critics of the Baker plan—who attacked the lending target as too low and the debt buildup as too high—failed to recognize.

Midterm Evolution

Brazil's moratorium in early 1987 triggered widespread loan-loss provisions by U.S. banks. Both events led to a market psychology that drove secondary market prices for the debt of major Latin American countries from sixty to eighty cents on the dollar to the forty to sixty cent level. Banks, especially regional ones that were involved in Latin American lending for a brief period in the late 1970s, increasingly wanted to be rid of their loan portfolios to debtor countries. Lengthy delay in the \$7.7 billion new-money package for Mexico in late 1986 led many to question if there could be any further new lending programs.

At the annual meetings of the IMF and World Bank in September 1987, Secretary Baker suggested further development of his initiative, calling for a "menu approach" to tailor bank participation in support of debtor countries to individual bank interests. The approach included more attractive vehicles for new money (bonds to confer implicit seniority, rights to convert new loans into equity) and alternative options for banks desiring to exit from the new-money process ("exit bonds").¹ Secretary Baker

backed the new approach more concretely by blessing Mexico's exit bond, designed with Morgan Guaranty, which used Mexican reserves to purchase zero-coupon U.S. Treasury bonds as collateral for twenty-year bonds paying LIBOR plus 1⁵/₈ percent. Mexico hoped banks would convert existing claims at close to the secondary market price of fifty cents on the dollar in return for this more secure instrument. Although some did convert, the total volume exchanged was limited (\$3 billion) as was the discount (which turned out to be 30 percent rather than 50 percent), because the bonds had a guarantee only for distant maturity and none for ongoing interest payments. Also, banks credited the menu approach with mobilizing \$5.2 billion in new lending for Brazil in 1988, but when Brazil launched its new anti-inflation program in January 1989 its negotiators informed the banks that some attractive features ("relending" and debt-equity conversion) would have to be suspended or temporarily scaled back.

Results of the Strategy

By the end of the Baker plan's original three-year target, its results as the core international strategy for the debt problem were mixed. They were considerably more positive, however, than suggested by the image of widespread failure conveyed by some media, some entities representing developing countries, and some academic, legislative, and business figures. The Baker initiative can be reviewed according to several criteria.

Economic Growth

The Baker plan was to restore economic growth in debtor countries. Ironically, their growth rates were higher in the two years before the plan than after its implementation. Thus, Latin America achieved growth of 3.7 percent in 1984 and 3.6 percent in 1985. Although the rate was approximately the same at 3.9 percent in 1986, the region's real GNP growth decelerated to 2.5 percent in 1987 and only 0.7 percent in 1988 (CEPAL 1988). However, as discussed below, the primary source of this decline was not the external debt problem but adverse growth effects of high domestic inflation. Countries that achieved favorable performance on domestic adjustment had relatively high growth in the Baker plan period (1986-88).

International Environment

The Baker plan assumed that the international economy would not collapse, making it impossible for debtor countries to increase their exports and "grow their way out" of debt. Industrial countries more than fulfilled this

prerequisite. Average growth in industrial countries in 1986–88 was 3.3 percent, comfortably above the 3 percent (or, after LIBOR fell to single digits, 2.5 percent or lower) that was considered necessary for progress on debt (IMF 1988, p. 59; Cline 1985).

International interest rates also remained in a range compatible with emergence from the debt problem. For 1986–88, LIBOR averaged 7.3 percent, less than half the 1981–82 rates. Although the rate rose 200 basis points from the fourth quarter of 1987 to the fourth quarter of 1988 (when it was 8.9 percent), in part because of attempts to stabilize the dollar, U.S. inflation was also up—from –3 percent in 1986 and 2.6 percent in 1987 to 4.1 percent in 1988 (wholesale price index)—so that real international interest rates were not much different at the end of 1988 (and were lower than in 1986).

International commodity prices (especially oil) were the principal area of difficulty in the Baker plan period. The dollar price of oil fell by half in 1986, and after a modest recovery in 1987, in 1988 was not much higher than the low 1986 level (figure 10–1). Several of the Baker 17 debtor countries depend heavily on oil, especially Mexico, Venezuela, Nigeria, and Ecuador. Because oil is a smaller share of imports for such oil-importing debtors as Brazil than it is of exports for the oil-exporting countries, the collapse of oil prices in the period was a severe blow to the strategy.

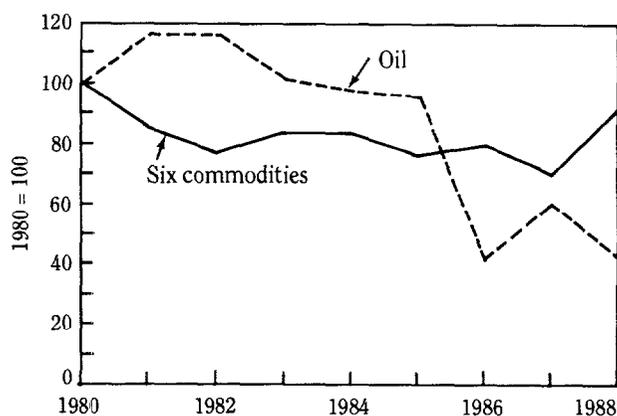
Other commodity prices were weak but less so. An index of nominal dollar prices for six commodities weighted by their shares in Latin America's exports showed promising recovery in prices of these raw materials as they rose by 9 percent from 1982 to 1984 (figure 10–1).² But from 1984 to 1987 these commodity prices

fell by 16 percent, dominated by excess supply in the world grain and coffee trade. Dollar commodity prices were expected to rise once the dollar fell, and signs of this began with higher copper prices by 1987. By 1988 there was a much broader commodity price increase, as the index for the six raw materials rose by 30 percent from 1987 and stood 10 percent above the 1984 level. U.S. drought spurred grain prices, and a world boom in production and trade added more upward pressures.

Debt Indicators

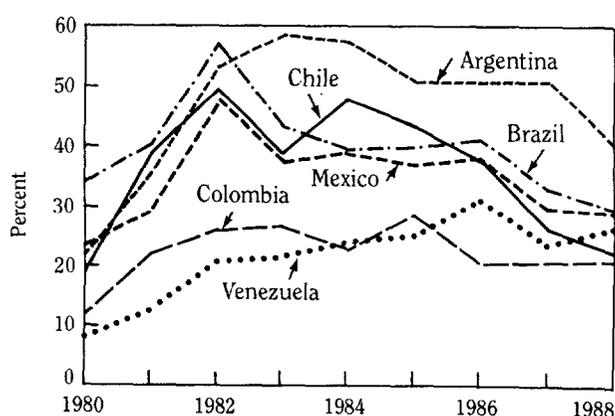
In a hospitable world economic environment (except for oil prices), the debt indicators for major debtor countries were showing significant improvement by 1988. The six largest Latin American debtor countries account for 69 percent of external debt of the Baker 17 countries. By 1988 the most important indicator of the debt burden—the ratio of interest payments to exports of goods and services—was lower than its highest past year in all six countries (figure 10–2). From their peak for the 1980s, the interest-export ratios declined from 57 percent to 30 percent in Brazil, 47 percent to 29 percent in Mexico (despite the oil price collapse), 58 percent to 40 percent in Argentina, 31 percent to 26 percent in Venezuela, 50 percent to 23 percent in Chile, and 27 percent to 21 percent in Colombia. By 1988 the interest-export ratio was not only lower than in the crisis year 1982 but also lower than or equal to the ratio in the precrisis year of 1981 for Brazil, Mexico, Chile, and Colombia. For Latin America, by 1988 the ratio returned to the same level (28 percent) as in 1981 and stood well below the 1982 peak of 41 percent (CEPAL 1988, table 17).

Figure 10-1. Commodity Price Indexes for Latin American Exports, 1980–88



Source: IMF, *International Financial Statistics*.

Figure 10-2. Ratio of Interest Paid (Accrual Basis) to Exports of Goods and Services, 1980–88



Source: Economic Commission for Latin America.

The overall level of debt and the ratio of debt to exports and goods and services (the latter of which fails to take account of the sharp decrease in the price of debt, the interest rate) showed moderating trends by 1988. In 1988 the dollar value of total external debt for Latin America fell (from \$410 billion to \$401 billion) because of debt-equity conversions and substantial discounted debt buybacks in the private sector. In real terms (deflating by U.S. wholesale prices), by 1988 debt for the six countries was only 14 percent above the 1982 level, for average annual growth of only 2 percent. And the ratio of debt to exports of goods and services declined from its 1986 peak for the six countries at 424 percent to only 339 percent, a level moderately lower than in 1982 (354 percent) and not far from the precrisis 1981 level (331 percent).

In view of these trends, the World Bank's 1988 debt report was misleading:

Most of the indebted countries are still no better off than in 1982—when the debt crisis erupted. Debt disbursed and outstanding has doubled, and debt service payments on a cash basis are one-third higher (World Bank 1988, vol. I, p. xi).

Aggregating debt for all developing countries seriously obscured progress in major Latin American debtor countries that had been (and remain) the systemic core of the debt crisis. Thus the debt increase in the 17 highly indebted countries (the original Baker 15 plus Costa Rica and Jamaica) was much smaller than in other developing countries—34.8 percent compared with 63.2 percent (table 10-1). Moreover, large debt increases in other developing countries occurred in countries well capable of carrying debt. Had they not been, debt would not have increased as it did. The largest percentage increase in debt occurred in China. Other large increases occurred in Greece, Hungary, India, Indonesia, Malaysia, Thailand, and Turkey, many of which have remained outside the debt crisis (and Turkey overcame its earlier crisis to achieve new access to credit).³

In short, for major Latin American debtors there has been more improvement in key debt indicators than is generally recognized. Large debt increases in countries such as China, India, Greece, and Portugal are evidence that the capital markets for developing countries continue to function despite the Latin American problem, not that the world debt problem has grown worse.

Capital Flows

Many think private banks fell far short of their lending targets under the Baker plan. They did lend less than the plan called for, but the shortfall was about one-third. Less recognized is that, on a consolidated basis, capital flows from the public sector to the Baker countries fell by

Table 10-1. Total External Debt, 1982 and 1987

	1982 (US\$ billions)	1987 (US\$ billions)	Percentage change
All developing countries	781.2	1,167.1	49.0
Highly indebted countries	391.2	527.3	34.8
Other countries	392.1	639.9	63.2
Algeria	16.7	22.9	37.1
China	8.4	30.2	259.5
Egypt	26.2	40.3	53.8
Greece	11.2	23.1	106.3
Hungary	9.0	19.0	111.1
India	25.6	46.4	81.2
Indonesia	26.5	52.6	98.5
Malaysia	11.3	21.7	92.0
Pakistan	11.6	16.3	40.5
Poland ^a	31.0	42.1	35.8
Portugal	13.6	18.2	33.8
Thailand	12.2	20.7	69.7
Turkey	19.7	40.8	107.1
Subtotal	223.0	394.3	76.8
Latin America			
World Bank	332.8	442.0	32.8
ECLA	331.0	410.5	24.0
Latin America, six major countries			
World Bank	281.2	363.3	29.2
ECLA	285.1	331.3	16.2

a. Initial year is 1985.

Source: Calculated from World Bank (1988), vol. 2; CEPAL, *Balance Preliminar* (1987 and 1988).

approximately \$4 billion annually, rather than rising by the plan's targeted \$3 billion. The public sector shortfall was because decreases in IMF and bilateral (mainly export credit agency) lending were not offset by increases in lending by MDBs.

Banks achieved capital flows of approximately \$13 billion over the Baker plan period, or about two-thirds of the \$20 billion target for these countries (table 10-2).⁴ It is clear, however, that the flows were concentrated in major debtor countries. Smaller countries typically were unable to mobilize new-money packages. This pattern reflected the large debtors' importance to the banks, and implicitly the bargaining power that these countries had in new-money negotiations.

Multilateral development banks achieved average net disbursements of \$4.2 billion annually during the same period. This represented a massive shortfall from the plan's targeted increase in annual net disbursements by \$3 billion. Considering the annual average for 1983-85 of \$3.86 billion (table 10-3), the actual increase achieved was only about \$300 million annually, or one-tenth of the target.⁵

The outcome was worse in IMF lending. For 1986-88, the IMF received a net total of \$2.7 billion from the Baker

Table 10-2. *Capital Flows under the Baker Plan, 1986-88*
(US\$ millions)

Country	Banks ^a	Public sector				Total	Total
		Multilateral	Bilateral	IMF	Total		
Argentina	2,607	1,680	716	844	3,240	5,847	
Bolivia	0	555	230	111	896	896	
Brazil	4,000	1,556	-385	-2,032	-861	3,139	
Chile	215	1,132	87	-3	1,216	1,431	
Colombia	0 ^b	952	286	0	1,238	1,238	
Costa Rica	0	134	-17	-146	-29	-29	
Côte d'Ivoire	0	502	357	-226	633	633	
Ecuador	0	858	264	-39	1,083	1,083	
Jamaica	0	154	110	-327	-63	-63	
Mexico	5,472	2,190	2,301	1,166	5,657	11,129	
Morocco	0	949	553	-495	1,007	1,007	
Nigeria	0	1,009	704	0	1,713	1,713	
Peru	0	314	180	-52	442	442	
Philippines	525	355	928	-185	1,098	1,623	
Uruguay	0	174	-9	-113	52	52	
Venezuela	0	145	-215	0	-70	-70	
Yugoslavia	0	-59	-280	-1,171	-1,510	-1,510	
Total	12,819	12,601	5,809	-2,667	15,742	28,562	

a. Disbursements under new-money packages.

b. Excludes \$1.96 billion in concerted lending because of use to cover amortization.

Source: World Bank (1988), vol. 1, p. ixliii, and vol. 2; IMF, *International Financial Statistics*, January 1989; and World Bank data. Estimates include bank lending of \$4 billion to Brazil completed in late 1988.

countries. The largest net repayments were from Brazil and Yugoslavia, but of the 17 countries in question, 11 had negative capital flows from the IMF over the period.

Disbursements from banks averaged \$4.3 billion annually in 1986-88, modestly lower than in 1985 but less than half the rate of the early debt crisis years of 1983-84 (\$12 billion) and even further below the more than \$20 billion in 1981-82 (table 10-3). Nonetheless, the banks met approximately two-thirds of their new lending target.

For the public sector, capital flows to Baker countries averaged \$5.2 billion annually in 1986-88, sharply lower than the average of \$9.3 billion in 1983-85. This decline was because of the reduction in IMF flows (from \$6.5 billion in 1983 to -\$1.1 billion in 1988, a swing of \$7.6 billion). Flows from bilateral credit agencies averaged \$1.9 billion annually in 1986-88, and thus showed a

significant recovery from the low point of less than \$700 million in 1987 (although the 1986-88 average still remained below the \$2.5 billion annual rate in 1981-83). Overall, the failure of MDB lending to rise by the target amount, and the limited recovery of bilateral lending, meant that the large decline in net IMF lending placed consolidated official sector lending in the period sharply below the average of the preceding three years.

There were good reasons for part of this decline. Countries such as Brazil that chose not to enter an IMF program faced large repayments of earlier IMF credits. And in the very design of the Baker plan, the IMF was regarded as a "revolving credit" agency rather than an aid institution, and international officials did not deem reflows to the IMF inappropriate. The broader problem, however, was that the original design of the Baker plan failed to treat the official sector on a consolidated basis.

Table 10-3. *Capital Flows to Highly Indebted Countries, 1981-88*
(US\$ millions)

	1981	1982	1983	1984	1985	1986	1987	1988
Public sector								
Multilateral	2,719	3,881	3,069	4,522	3,997	5,150	3,370	4,082
Bilateral	3,158	1,719	2,539	1,525	697	1,158	1,919	2,738
IMF	1,213	2,110	6,517	3,334	1,686	-206	-1,384	-1,077
Total	7,000	7,710	12,125	9,381	6,380	6,102	3,905	5,743
Banks ^a	20,205	23,263	13,575	10,427	5,345	2,447	4,922	5,450
Total	27,205	30,973	25,700	19,808	11,725	8,600	8,836	11,193

a. For 1981-82, net disbursements from "financial markets"; for 1983-88, disbursements under new-money packages.

Source: World Bank (1988), vol. 1, pp. xliii, 30-31; World Bank data; table 10-2.

The lending increase targeted for MDBs should have included expected reflows to the IMF and anticipated declines in bilateral lending. Limitation of the Baker plan target for official sector lending to the MDBs alone sent a misleading signal. Unfortunately, not even that (already low) target was achieved.

The record on capital flows to the Baker countries in 1986–88 shows that both private and public sectors fell short of their goals. The public sector shortfall was considerably greater than that of the banks, especially if the IMF and bilateral institutions are included. This suggests that increased official sector financing of debt is appropriate.

Structural Reform

There has been significant structural reform under the Baker plan, although presumably less than its authors envisioned. The most far-reaching reforms are in Mexico, probably because it faced one of the largest fiscal and external shocks (from the collapse in oil prices) and has a political regime with strong control from the top. In 1986 Mexico broke tradition and joined the General Agreement on Tariffs and Trade (GATT). By the end of 1988, it had cut its maximum tariffs to 20 percent (and average tariffs to 10 percent) and reduced imported products under quantitative restrictions from 100 percent in 1982 to only 23 percent. In the state sector, the Mexican government reduced state firms from 1,200 in 1982 to less than 500 by 1988. Although many privatizations or closures involved small entities, by late 1988 the government privatized such large enterprises as the airline Aerovias de Mexico and the copper firm Mexicana de Cobre. There was also progress toward trade liberalization and privatization in Argentina (where by late 1988 the government planned to sell 40 percent of the state telephone company to a Spanish telephone entity and 40 percent of Aerolineas Argentinas to Scandinavian Airline Systems). Even in Brazil, where import protection remained relatively unchanged and there was a tradition of strong state enterprises, in late 1988 the government announced freeing of half of 2,500 import categories under import prohibition, and in early 1989 the government's new anti-inflation plan included a pledge to reduce government employment by tens of thousands.⁶

Bank Vulnerability

From the onset of the debt crisis in 1982, a major policy goal was to avoid a severe disturbance to the world economy from an international banking crisis. By the

advent of the Baker plan, the debt problem's focus had already shifted from bank vulnerability to sustaining growth in debtor countries. By the end of 1988, the international banking system was even less vulnerable. European banks had set aside large provisions on Latin American debt. U.S. banks continued to build capital and, after Brazil declared its moratorium in early 1987, set aside sizable loan-loss reserves. By late 1988, U.S. banks reduced their ratio of exposure to the 15 Baker countries to primary capital from 136 percent in 1982 to 58 percent. For the nine money-center banks, the ratio of total developing-country loans to primary capital fell from 191 percent in 1982 to 85 percent in 1987. Bank regulators testifying before Congress in early 1988 indicated that third world debt was no longer an impending threat to the banking system.⁷

Political Fatigue

By the end of its first three years, the Baker plan had failed to dispel the debtor countries' perception that debt was condemning their economies to stagnation. Elections were pending in 1989 in both Argentina and Brazil. The front-runner in Argentina, Peronist Carlos Menem, spoke of a five-year "negotiated" moratorium on debt payments. Two leading presidential candidates in Brazil, leftists Leonel Brizola and Luis Inacio da Silva (the labor leader "Lula"), called for a moratorium as well. Even in Mexico, the new president, Carlos Salinas de Gortari, faced unprecedented domestic opposition over the debt issue, and he emphasized the need for debt reduction (but not through moratorium or confrontation). And the new president of Venezuela, Carlos Andres Perez, took a similarly tough line on debt.

Political debt fatigue is easy to understand. In Mexico, real wages in 1987 were almost 30 percent below their 1980 level. Inflation reached unprecedented dimensions in Latin America in 1987–88. Per capita income for the region in 1988 was 6.6 percent below its 1981 level (CEPAL 1988, table 3). The understandable (but simplistic) reaction was to blame external debt for all economic ills. An equally simplistic and dangerous tendency was to infer that radical debt relief would renew growth and stabilize prices.

Confrontational attempts to reduce the debt burden were counterproductive. In Peru, a unilateral ceiling on debt payments was followed by a short-lived boom and then recession and high inflation, and by 1988 the country had to adopt austerity measures and renew ties with the IMF. In Brazil, a debt moratorium in 1987 was subsequently characterized as a mistake by the president and

the finance minister, and the loss of credit lines alone may have cost the country at least \$1.5 billion.

The Debt-Inflation-Growth Nexus

The experience of major Latin American debtors in the past six years is not that debt condemns them to stagnation and inflation; instead, countries that adopted appropriate economic policies achieved economic growth, relative price stability, and reductions in relative debt burdens. Stagnation in 1987–88 was primarily from domestic policy distortions and high inflation, not debt. Nor was inflation caused mainly by debt.

Resource Transfers and Growth

In traditional simple development models (such as Harrod-Domar), growth is determined by resources available for investment. These resources equal domestic saving plus saving from abroad. As capital inflows fell below interest payments on external debt after the debt crisis, foreign saving turned negative, and the standard saving-investment model suggested lower growth. Similarly, in the “two-gap” model, in which foreign exchange for critical imported inputs and capital goods may be required for development, reducing net foreign exchange availability can slow growth.

The “resource transfer” argument becomes less relevant, however, when production is below full capacity, as has been true in recent years in many debtor countries. Output can be expanded for a time without much new investment. Similarly, where domestic savings rates are abnormally low, domestic policy correction to boost saving can substitute for foreign saving. At the same time, export expansion can serve as an engine of economic growth, so that high exports and thus high outward transfer of resources may be associated with high growth. The extraordinary trade surpluses of Taiwan and the Republic of Korea, coupled with their high growth rates, are vivid examples.

Data for the six main Latin American debtor countries (Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela) do not support the view that the outward resource transfer imposed by the debt crisis caused a collapse in growth. Average real GNP growth in the Baker period (1986–88) may be compared against average outward transfer of resources as a percentage of GNP for these countries.⁸ If the resource constraint were binding, one would expect the countries with the highest ratio of outward transfer of resources to GNP to have the lowest growth. Instead, there is no such pattern (and if Mexico is excluded, just the opposite appears to be the case). In 1986–88, Chile and Venezuela had the highest ratios of outward resource transfer to GNP among the six main

Latin American debtor countries. Chile, Venezuela, and Colombia together had an unweighted average outward transfer of 4.6 percent of GNP, yet they achieved relatively favorable growth rates (averaging 5.2 percent annually). In contrast, Argentina and Brazil had lower outward resource transfers, and Mexico’s was lower than the ratio for Venezuela and Chile. Yet the three large countries (with an average outward resource transfer of 3.6 percent of GNP, or 1 percentage point lower than that of the three other countries) nonetheless had lower growth as well (an average of 1.9 percent annually). Although few would conclude that larger outward resource transfers generate faster growth (although the notion of export-led growth tends in that direction), the data contradict the view that outward resource transfers are causing economic stagnation in Latin America.

Resource Transfers and Inflation

Recent low growth in countries such as Brazil and Argentina has been primarily caused by their governments’ inability to control inflation. High inflation—several hundred percent annually—is inimical to growth, making investment decisions difficult because of unstable economic projections. Among the same six Latin American debtors, those with the lowest inflation in 1985–87 had the highest growth in 1986–88. In Chile, Colombia, and Venezuela, where inflation averaged 23.5 percent annually in 1985–87, economic growth averaged 5.2 percent annually in 1986–88. In contrast, in Argentina, Brazil, and Mexico, inflation averaged 177 percent annually in 1985–87; growth averaged 1.9 percent.

There is, however, a popular perception and an economic argument that high inflation has been caused by debt. The popular perception is that debt has been the major cause of all economic disturbances. The economic argument is that, first, external adjustments have required exchange rate devaluation, and devaluation boosts cost-push inflation. Second, the debt crisis suddenly thrust governments into fiscal crisis because they could not mobilize the internal resource transfer from the private sector to the public sector to replace the former inward transfer from foreign creditors to the domestic public sector. The internal transfer problem thus necessitated a higher inflation tax.

Mexico is the best example of debt-imposed inflation. The government adopted sharp exchange rate devaluation in 1986 when oil prices collapsed, and the devaluation in part caused inflation to accelerate from 65 percent to, by 1987, 160 percent. In Argentina and Brazil, however, triple-digit inflation has been because of high domestic fiscal deficits (4 to 8 percent of GNP in real terms, and over 30 percent in Brazil in nominal terms) and indexation mechanisms that perpetuate each successive

plateau of inflation. The real exchange rate was almost constant in Brazil from 1983 through 1987 and actually appreciated by almost 10 percent in 1988. Similarly, although there was a large real devaluation of the Argentine currency in 1982 after major overvaluation earlier, the real exchange rate in 1986–88 was not much different from that in 1982.

The internal transfer argument is more ambiguous. The issue is whether countries should sustain large fiscal deficits over several years. Since all principal Latin American governments have concluded that high fiscal deficits are incompatible with growth and reduced inflation, it would stretch a point to imply that if the debt crisis had not occurred, countries could have maintained fiscal deficits with high foreign financing.

Once again, evidence from the Baker plan period does not support the theory that debt caused inflation. Instead, some principal debtor countries achieved relatively low inflation and (usually) fiscal adjustment despite high debt burdens. Colombia, Venezuela, and Chile had high resource transfers (averaging 4.6 percent of GNP in 1986–88) and still had relatively moderate inflation (averaging 22.9 percent annually for the same period), whereas Argentina, Brazil, and Mexico, with lower outward resource transfers (an average of 3.6 percent of GNP), encountered extremely high inflation (an average of 245 percent annually for 1986–88). In short, cross-country evidence suggests that it is possible to control inflation despite the debt burden if proper domestic policies are pursued.⁹

The Next Phase

Because there has been considerable improvement in the key debt indicators, and because countries that have achieved domestic adjustment and moderate inflation have been able to sustain growth despite high debt burdens, there is no reason to change the central strategic premise of the Baker plan. Principal debtors can achieve renewed growth and continue to manage their debt on a market-related basis, and forced forgiveness of principal or interest is in most cases unnecessary and counterproductive for the countries' growth. However, there is a need for a more intensified effort in the future.

For the banks and the capital markets, the next phase in the strategy should be threefold: multiyear new-money programs, voluntary debt reduction, and return to voluntary lending using more attractive instruments. For the public sector, the objective must be considerably higher actual net lending. For debtor countries, the objective must be adjustment, centered on fiscal balance for domestic stability and appropriate real exchange rates for export growth.

Despite the evidence that domestic destabilization rather than outward resource transfer has been the primary cause of recent stagnation in some major debtor countries, it is time for a more determined international effort to increase net capital flows to the debtor countries. In 1981 and 1982, the net resource transfer to the Baker 17 countries was an annual average of \$8.9 billion.¹⁰ In the first three years after the debt crisis, the average annual resource transfer was an outflow of \$38.4 billion. In 1986–88, the annual outward resource transfer from these countries averaged \$28.6 billion. With domestic stabilization and renewed growth, excess capacity would eventually be exhausted. Higher resource inflows can contribute to future growth even though stagnation in Latin America in 1988 was not primarily because of external debt or outward resource transfers.

Elimination of the outward transfer could be too ambitious over the next three to five years, as it would mean a sufficiently more rapid buildup of debt that improvement in debt indicators could be halted prematurely. However, a reasonable goal would be to cut the outward resource transfer in half, to about \$15 billion annually in the next three years. This objective would require increasing net capital flows from foreign private and official creditors to debtors by \$15 billion annually over the average under the Baker plan.

Multiyear New Money

Debtor country governments could plan more accurately if banks could agree to new lending programs over three-year or even five-year periods.¹¹ Ideally, new bank money would decline (for example, from a benchmark in the first year equivalent to half of interest due, to 30 percent by the third, and to 10 percent by the fifth), with a progressive shift to voluntary private capital and to official lending sources. To the extent possible, countries should make new-money options attractive to banks (debt-equity conversion rights, relending rights, new-money bonds) to facilitate mobilization (as in Brazil's 1988 program). Moreover, those banks (primarily in Europe) that prefer for tax or regulatory reasons to participate by capitalizing interest rather than providing new money could be permitted to do so. But such banks would have no basis for insisting that all other banks also capitalize. That could initiate unilateral insistence by the country that specified fractions of interest be capitalized each year.

Voluntary Debt Reduction

By the end of the three-year Baker plan target, the principal changes from what its authors anticipated were the low value of debt in secondary markets, and corre-

sponding activity in debt-equity conversions and discounted debt repurchases. Secondary market prices for Argentine debt were close to twenty to twenty-five cents on the dollar; for Brazil, forty cents; for Mexico, forty-four cents; for Chile, fifty-eight cents; and for Venezuela, forty-two cents (Salomon Brothers 1988).

Low secondary market prices offer the opportunity for mutually beneficial voluntary debt reduction operations between the countries and banks desiring to exit. Banks are not monolithic, and many smaller ones will accept fifty cents on the dollar (or less) if the asset they receive is secure, even if other banks (particularly experienced ones with local branches in the countries) anticipate eventual recovery of the countries' economies and consider their claims much closer to face value than the secondary market indicates. Yet banks with more favorable long-term expectations typically are not in a position to buy up the debt from banks seeking immediate exit because of their own exposure limits in the countries.

Much debt reduction has already occurred. Mexico reduced its private sector debt from \$22.5 billion in 1983 to \$10 billion at the end of 1988, primarily through debt-equity conversions and discounted debt repurchases. The Institute of International Finance estimates that \$26 billion in external debt of the Baker 17 countries has been eliminated by voluntary debt reduction, with \$17 billion occurring in 1988 alone (Institute of International Finance 1989, p. 22). Approximately three-fifths of this occurred in debt-equity and local currency conversions, one-third in private sector restructuring with a relief component, and a small portion in debt buybacks and debt exchange into exit bonds.¹²

Countries with adequate reserves can make discounted debt repurchases, as Chile did in late 1988 with its windfall gains from higher copper prices. Other countries can conduct debt-equity conversion programs, although Mexico and—by early 1989—Brazil's experience suggests that sensitivity to monetary expansion under these programs can limit their dimensions.

The most promising debt-reduction instrument would be an "enhanced exit bond." These convert the bank's existing claim into other assets that are valued closer to the secondary market price. This alleviates a country's debt, gives banks greater security for the asset, and removes the expectation that the bank will provide additional lending as part of future concerted new lending packages.

The problem with these instruments so far has been their lack of blue-chip security. This problem was evident in both the early 1988 Mexico-Morgan Guaranty exit bond (which converted some \$3 billion into long-term bonds with principal but not interest guaranteed by U.S. Treasury zero-coupon bonds and sold at a price of seventy cents on the dollar) and the 1988 Brazil exit bond (which

converted about \$1 billion into bonds paying 6 percent over 25 years). In particular, creditors continue to doubt that the reduced instruments will be fully honored by the government. The Mexico-Morgan Guaranty bond sold at a price that attributed confidence only to the zero-coupon-backed principal but continued to discount unguaranteed interest at the going secondary market rate for Mexican obligations.

One important potential change in the strategy over the medium term would be joint action by banks and the public sector in industrial countries to provide effective guarantees to exit bonds. If these instruments were fully reliable, it is conceivable that banks representing about 30 to 40 percent of the claims on debtor countries would be willing to accept them at fifty cents or less on the dollar to make a clean exit from the debt problem.

So far the public sector has been unwilling to back exit bonds. Political concern has been that to do so would appear to be "bailing out the banks." It is time to discard this false argument. Any bank that accepted an exit bond worth, say, fifty cents or less on the dollar would by definition already be absorbing massive losses up front. Public sector guarantees of the instrument would not necessarily make good the losses that the bank should otherwise absorb.

Two measures would make exit bonds secure. First, the banks should agree that exit bonds have seniority over other claims. Those choosing to retain their full claims would benefit from the reduced burden on the country accorded by the banks choosing to exit at a cost. For this purpose, serious consideration should be given to new legislation permitting a two-thirds majority of bank creditors of a sovereign nation (by value of claims outstanding) to grant senior status (over their existing claims) to specific new instruments. The legislation would provide for carefully controlled conditions, such as a program approved by the IMF. Moreover, the banking community could authorize such instruments for specific amounts over specified periods. Once it became clear that exit bonds were at the head of the queue, the instruments would have a high reliability.

Because most Latin American debt contracts specify New York as the jurisdictional area, U.S. law might be able to make this change, although a similar law in the United Kingdom would cover the rest of the debt's jurisdiction. Although initially such laws could not be iron-clad assurance against constitutional challenge by a dissident bank and issues of extraterritoriality could arise, the class whose interests could be injured by the granting of such senior status—the banking community—would by law be directly represented in the decision on a two-thirds majority basis. As a result, the standing of such a plaintiff would be questionable. In this regard, seniority by a majority of banks would be different from attempts

to legislate mandatory debt forgiveness, because the affected parties would (in their majority) approve in the first case and disapprove in the second.¹³ Moreover, there is precedent in domestic bankruptcy law for joint action by a class of creditors that supersedes claims of dissident individual members.

The second step to make exit bonds secure instruments would be guarantees by the World Bank and Inter-American Development Bank (see Williamson 1988). Because the senior status accorded by the banks would already make the instruments relatively secure, it would be appropriate to count only a fraction, such as 20 percent, of the exit bonds against the capital of the institutions, rather than require one-for-one capital backing as is the usual case for lending by these institutions.

Exit bonds would usually need to be relatively long-term (such as 20 to 25 years). Otherwise, the payments on the instruments would be as high as the interest payments on existing bank claims.¹⁴ Yet for most countries voluntary debt reduction must make a contribution to near-term cash flow as well as to long-term balance-sheet improvement.

In September 1988 Japanese authorities proposed establishing a window at the IMF that would take reserve deposits from debtor countries for collateral for exit bonds. The Japanese apparently had in mind parallel lending from industrial countries to debtor countries that would provide the reserves required for this purpose. This was moving in the direction of official support to enhance exit bonds. Although industrial country officials have disavowed the use of World Bank guarantees for this purpose, a reconsideration is in order, especially under the condition that the banking community would minimize the risk to the World Bank by granting seniority to the instruments.

The World Bank and other official lenders could in principle contribute to voluntary debt reduction by making policy-related (nonproject) lending available for country debt repurchases from the secondary market at a discount. However, any such lending would have to be in addition to official flows that would otherwise occur. If lending for buybacks were not additional, the net effect for the country would be a negative cash-flow impact for the first five years or so.¹⁵

A big push for voluntary debt reduction by banks and international financial institutions could reduce debt owed to banks by perhaps 15 to 20 percent. This reduction would be important economically and perhaps even more important politically, as it would enable leaders in debtor countries to point to an important supportive shift by creditors. If the debt problem were as intractable as many believe, this amount of reduction would not be

enough; more relief of a bankruptcy nature would be required. But as analyzed above, at least for the principal debtors the progress to date is compatible with the moderate alleviation that voluntary debt reduction offers rather than requiring more radical measures.

One important side-effect of more energetic voluntary debt reduction would be an increase in the secondary market price. The secondary market is extremely thin, and voluntary debt relief would boost the demand substantially. Sometimes officials and analysts in debtor countries express concern that debt-equity conversion and other voluntary measures would raise the secondary market price; their implicit fear is that somehow the country would lose the opportunity to cancel the debt at low prices, such as thirty to fifty cents on the dollar, if the secondary market price rebounded to the sixty to eighty cent level. The flaw here is that in the absence of conversion, debt continues to accrue interest at the full face rate regardless of its low secondary market price, so that the seemingly lost opportunity is in fact not a loss at all. Instead, the proper way to view the rising secondary market price likely to follow voluntary debt relief is as a sign of restored health and return toward creditworthiness. Until the secondary market price returns much closer to the eighty cent to one hundred cent range, it will be difficult to reestablish truly voluntary capital flows.

New Voluntary Mechanisms

The third track for capital flows in the near term should be instruments designed to revive voluntary lending even as the secondary market price rises. Direct investment is a crucial component of these flows. Reduction of high domestic inflation and more normal conditions in domestic economies would help spur renewed foreign interest. But, in addition, liberalization of restrictions (in such countries as Mexico) could help.

For existing bank creditors, it makes sense to supplement new-money packages that involve all creditors (except those choosing exit bonds) with club loans involving fewer principal players. These loans would ideally have elements to make them attractive so that they would not have to be coerced. One example would be issuing bonds convertible into commodities as the instrument for club deals. Banks could thus anticipate some profit, while actual convertibility (for instance, into oil at \$20 per barrel if the current price is \$15) would provide inherent collateral (in this example, equivalent to seventy-five cents on the dollar, well above the secondary market price for standard obligations of the country). It would

be desirable to bring new actors, such as insurance companies, into the club operations.

Public Sector Lending

Beyond these approaches for bank lending, it will be necessary in the next phase of international debt strategy to make good on the promise of increased official support in the original Baker plan. Using 1983–85 as a base, net capital flows from the consolidated public sector (IMF, MDBs, and bilateral export credit agencies) fell from \$9.3 billion annually to only \$5.2 billion annually. The public sector could well seek increased net disbursements to the large debtors of some \$10 billion annually, of which half would be merely returning to 1983–85 levels. Private capital flows could then pick up the other \$5 billion of the \$15 billion increase in net flows to the highly indebted countries as the increment required to cut their outward resource transfers in half.

Capital Flow Objectives

Net disbursements by MDBs could double to approximately \$8 billion annually; export credit and other bilateral agencies could increase net flows to \$4 billion annually, with perhaps an especially large rise by the Japanese (table 10–4). Private banks would double the new-money equivalent of their lending and debt-reduction efforts, returning their net flows to slightly below the 1983–85 average. Some further expansion in direct investment would be expected, bringing the total increase to the \$15 billion needed to cut outward resource transfers by half. These objectives are feasible, although they would require an intensified commitment by the multilateral agencies (but not necessarily immediate increases in capital, except for the Inter-American Development Bank) and increased dynamism in new-money arrange-

ments, voluntary debt reduction, and club loans and other voluntary finance from the banks.

Above all, however, sound economic policies in the debtor countries will determine the feasibility of such a program. With poor policies, official donors will be unprepared to move ahead, and banks may allow arrears to build and set aside more reserves rather than provide additional new money or voluntary debt relief. With sound policies in debtor countries, there is reason to believe that financing in the ranges shown in the table could be mobilized, and more broadly, that most of the debtor countries will be able to achieve politically acceptable economic growth and moderate inflation while continuing to make progress in restoring external creditworthiness.

Epilogue: The Brady Plan

The initial version of this paper was completed in January 1989. On 10 March 1989 U.S. Treasury Secretary Nicholas Brady announced a new debt strategy that would emphasize voluntary debt reduction. The new plan contained many of the elements proposed in the main text here. By early June, Mexico was on the verge of being the first country to benefit from the plan. The following discussion presents an initial assessment of the potential for the new plan.

On 17 March 1989 U.S. Treasury Undersecretary David Mulford told Congress that the Brady plan might cut the bank debt of debtor countries by approximately 20 percent (or by \$70 billion of the \$340 billion owed to banks by 39 developing countries), although he indicated the reduction for Mexico might be greater (*Washington Post*, 17 March 1989). His estimates implicitly indicated that the Brady plan concurred with the diagnosis above in this essay: that although additional reinforcement was necessary, there had been sufficient progress to warrant adherence to the basic market-related strategy of debt management, rather than any collapse requiring the radical alternative of massive mandatory forgiveness. Otherwise, 20 percent debt reduction would be inadequate.

By May it became clear that the public sector was prepared to place some \$28 billion in resources to provide enhancements for voluntary debt reduction. The IMF and World Bank were to set aside one-fourth of policy-based lending for discounted debt buybacks (or, according to some interpretations, for collateralization of debt-reduction instruments). These funds were expected to amount to \$12 billion over three years. After considerable initial opposition from some European governments, the two institutions also approved the use of a comparable amount of resources for the purpose of supporting interest on debt-reduction instruments. The IMF Executive

Table 10–4. Annual Average Capital Flows to Highly Indebted Countries, 1983–91
(US\$ billions)

	1983–85	1986–88	1989–91
Public			
Multilateral			
banks	3.9	4.2	8
Bilateral	1.6	1.9	4
IMF	3.8	–0.9	2
Total	9.3	5.2	14
Private			
Banks	9.8	4.3	9
Direct			
investment	14.5	8.1	10
Total	33.6	17.6	33

Source: IMF (1988), p. 115, table 3 (for “non-debt-creating” flows).

Board indicated that up to 40 percent of quota could be used for this purpose, and again it was expected that the World Bank would provide a matching amount, for another \$12 billion over three years. In addition, the Japanese government indicated that it would provide up to \$4.5 billion in support of debt reduction. A crucial breakthrough had thus occurred: the official sector had overcome the shibboleth that any support of debt reduction would amount to bailing out the banks. Nonetheless, a central question was whether the resources envisioned were sufficient to support debt reduction of a meaningful magnitude.

This issue in turn depended on the resolution of a fundamental ambiguity in the Brady plan. In principle the plan was presented as a voluntary program. But as the Mexican negotiations illustrated, at times the official community seemed to be leaning away from voluntarism as it compared the debt reduction the banks seemed prepared to offer against the amounts country officials and IMF staff deemed appropriate.¹⁶

At one level the problem was resources. Banks considered the amounts of collateralization being offered too slim to warrant deep discounts on any wide scale. At a more fundamental level, the problem was conceptual. At times the official community appeared not to have a clear perception as to whether the essence of the Brady plan was to achieve some "minimum required debt reduction" down to some threshold level that would permit countries to grow, or whether instead the exercise was premised on mobilizing the rent inherent in the secondary market discount while permitting the market to determine how much debt would be forgiven as a result. Country negotiators and, at least some of the time, staff of official agencies appeared to tend toward the former interpretation; yet there was little empirical basis for it.

In particular, there was no evidence that countries such as Mexico lay on the adverse leg of the "debt Laffer curve," where reduction of nominal bank claims (horizontal axis) would actually increase the expected value of the debt to the banks (vertical axis) by raising the probability of repayment more than proportionately.¹⁷ Yet only in this region would uniform voluntary forgiveness by all banks make sense. In contrast, voluntary debt reduction tailored to different risk-reward preferences and alternative long-term strategies among different banks did make sense even with the country not in the adverse Laffer curve zone.

Importantly, there was some risk that country negotiators and official agencies would lose sight of the fact that a voluntary scheme would indeed have to be oriented to two distinct groups of banks, with enhanced debt-reduction instruments aimed at the banks seeking "exit," and new money (or, for some European banks preferring it, interest capitalization) the preferred mechanism for par-

ticipation for the banks seeking to remain in the country over the longer term. Attempts to enforce a uniform forgiveness across all banks would inevitably yield either minimal reduction or a transition to mandated forgiveness. Nor would the latter result be solely the consequence of inadequate enhancements. In addition it would stem from the view of banks representing a major block of debt that the country in question could in fact honor a considerably higher proportion of its debt than reflected by currently distressed secondary market prices, so that even if fifty cents on the dollar were paid in cold cash it would not be accepted on a voluntary basis by these banks.

Even if properly implemented, did the Brady plan offer enough resources to make a significant difference? My tentative answer is yes. The resources of some \$30 billion should be sufficient to reduce debt by close to the \$70 billion target stated by Undersecretary Mulford.

In the Mexico-Morgan Guaranty conversion bond discussed above, Mexico tried to leverage \$1 in enhancement resources into backing \$5 of face value of the exit instrument. That leveraging proved to be too ambitious. But leveraging of 1-to-1 would seem unnecessarily rich. Moreover, the presence of the IMF and World Bank in the Brady enhancement mechanisms should provide some "umbrella" effect that gives the banks comfort that the instruments involved have de facto seniority, because of the great reluctance of countries to default against the international financial agencies. On this basis, it should be possible to leverage \$30 billion in official support into adequate backing for some \$60 billion to \$70 billion in conversion bonds. Assuming that debt is converted at fifty cents on the dollar, the original claims corresponding to these instruments would be as much as \$140 billion, or 40 percent of debtor-country obligations to the banks.

Consider in particular the following instrument. Zero-coupon Treasury bonds are used to collateralize a thirty-year conversion bond (as in the Mexico-Morgan Guaranty model). This step costs some twenty cents for each dollar of bond value. Then, in addition, three years of "rolling interest guarantees" would be added, requiring approximately another thirty cents per dollar of face value of the bond.¹⁸ The total enhancement required would stand at half of the value of the instrument, so that \$30 billion in official resources could back \$60 billion in debt conversion bonds.¹⁹ On this basis, the resources identified to date would come close to making the announced objectives of the Brady plan feasible.

It would be desirable to increase the Brady plan resources to the range of \$50 billion. This amount could back some \$100 billion in conversion bonds, and permit a reduction of a \$200 billion block of existing debt to \$100 billion in converted instruments, thereby saving the

debtor countries approximately \$10 billion annually in interest payments. In this way, officially backed debt reduction could reduce the outward transfer of resources from the debtor countries by about one-third (and contribute a major portion of the cash-flow improvement suggested in this essay).

At the same time, new money will remain important. Banks have criticized the Brady plan for giving short shrift to new lending from the banks that decide to stay rather than exit at a discount. Yet clearly new money will be needed. The illustrative Mulford figures reviewed above imply that 60 percent of preexisting bank debt is not converted, and new lending will be required to help finance the interest coming due on this unconverted debt. Similarly, the Mexico proposal sought total cash-flow improvement from the banks amounting to \$4.5 billion. Yet only \$5 billion has been identified in Brady plan enhancements for Mexico (of which \$2 billion would be from the Japanese). At 2-to-1 leveraging, these enhancements would back only \$10 billion of conversion bonds, corresponding to a reduction by half on preexisting debt of \$20 billion (or only 36 percent of the medium-term total) and permitting a cash-flow savings of only \$1 billion annually (the interest on the \$10 billion eliminated). Even if a more modest total cash-flow target of \$3 billion were accepted, two-thirds would have to be raised in new money.

The banks have sought World Bank cofinancing with at least limited cross-default clauses as the enhancement needed for new money. World Bank lawyers should be capable of tightly circumscribing the amount of World Bank liability so that no more is involved than a commitment to sharing of receipts on the specific loans in question (rather than the full World Bank portfolio on the country). The Inter-American Development Bank could provide similar cofinancing. With such arrangements in hand, the banks could with a clearer conscience make new loans without setting aside the same proportional reserve losses as on old loans. At the very least, regulators in countries now requiring high loan-loss reserves could waive reserves for new money that is contributed as part of a Brady plan program.

In the end, however, gold plating is probably not necessary to encourage new money. The basic calculus of new money remains intact: so long as the reduction in the probability of default achieved by lending, multiplied by the existing debt stock, exceeds the terminal probability of default multiplied by the amount of the new loan, the banks have an incentive to extend additional finance. Moreover, potential sanctions within the banking family have so far proved sufficient to suppress major leakage to free riders. There does come a point where the feasibility of new money becomes more questionable, however: when the amount being requested begins to reach close

to the full amount of interest falling due. At that point the banks increasingly see the operation as a Ponzi scheme. Before that point they can reason that by lending a dollar, they receive more in interest payments and so end up with a positive net transfer.²⁰

Other features of the emerging Brady plan also warrant comment. The decision to set IMF funds available for interest support at a specific fraction of quota is overly rigid. The share of countries such as Mexico and Brazil in external debt is much larger than their share in IMF quotas among developing countries, and there should be more flexible treatment that more closely relates availability of enhancement resources to debt shares.

Another key element of the new plan is the decision that the IMF can "lend into arrears." That is, if a country has not worked out an agreement with the banks, the IMF is no longer to act as "policeman for the banks" by withholding its own disbursements. For the IMF (and World Bank), this solution has the benefit of avoiding country arrears to the official agencies themselves. However, this new flexibility should be used with great caution. If it encouraged more rigid negotiating demands and prompted otherwise avoidable entry into arrears, the results could be destabilizing. For example, in Mexico, where the chief objective of the debt negotiations is to foster domestic confidence so that interest rates can decline to levels compatible with growth, entry into arrears could instead trigger a run on the peso and have the opposite effect.

In sum, the Brady plan holds the potential to make an important contribution to international debt management. Ideally the plan requires more public sector resources. It is essential that in implementation the international official sector not mislead country authorities as to the amount and depth of debt forgiveness that could be achieved in view of the enhancement resources available. There has already been an initial wave of exaggerated expectations about the scope of debt reduction that can be accomplished. It is also important that the plan remain voluntary rather than slide toward mandated forgiveness. Otherwise the objective of minimizing long-term damage to country access to world credit markets, which has been pursued at great cost since 1982, could be seriously jeopardized. In that case there could be negative spillover to capital flows to other developing countries so far not caught up in the debt crisis. Correspondingly, it is up to the banks to show that they can mobilize voluntary participation, through conversion at a discount by banks seeking exit and through reasonable amounts of new money from those planning to remain active in the country.

Governments of the debtor countries need to pursue economic policies that would qualify them for participation in the Brady plan. For their part, governments of

industrial countries need to follow economic policies compatible with a stable international economy. In particular, the rise in U.S. (and international) interest rates by almost 300 basis points from late 1987 to early 1989 threatens to wipe out any debtor-country interest savings that could be generated by even a highly successful Brady plan. Serious fiscal adjustment in the United States is necessary to restore more normal interest rates.

Notes

1. Several of these options and alternatives, such as discounted debt buybacks, are examined in Cline (1987).

2. Price series are from IMF, *International Financial Statistics*; trade shares are: coffee, 32.6 percent; soybeans, 25.8 percent; copper, 22.8 percent; corn, 9.1 percent; sugar, 5.9 percent; and beef, 3.9 percent. Calculated from Inter-American Development Bank (1987), pp. 474–75.

3. The World Bank data, which only extend through 1987, do not capture the reduction in Latin American debt that occurred in 1988. Note also that the World Bank shows larger 1987 debt than does the Economic Commission for Latin America (table 10–1).

4. Table 10–2 reports capital flows (net disbursements) to the Baker countries in 1986–88. For private banks, the figures refer to actual disbursements under the agreed new-money packages. Because outstanding principal was typically rolled over in this period, net disbursements are approximately the same as gross disbursements. The major exception is Venezuela, where there were repayments of principal of about \$1 billion annually. However, the Venezuelan government chose to repay principal rather than enter an IMF adjustment program, the condition the banks insisted on for complete rescheduling and new money. In any event, overstatement of the effort made by the banks from the standpoint of not deducting Venezuelan repayments is approximately offset by understatement from the standpoint of commitments undertaken by the banks but not disbursed because of changes in circumstances. Thus, the banks pledged up to \$7.7 billion to Mexico in the 1986–87 new-money package, but because oil prices recovered, the full amount was not activated. For the IMF, net flows are calculated by multiplying the change in the number of SDRs in outstanding “use of Fund credit” at the end of each year by the average dollar-SDR exchange rate for the year. Note also that where principal repayments did occur (except for Venezuela), they typically involved debt relief in the form of discounted repurchases, especially by 1987–88. It is misleading to charge such repayments, which can be part of the solution to the debt problem, against the banks’ performance under the Baker plan objectives. For further discussion of the lending data for banks, see appendix.

5. The World Bank made net disbursements to Latin America of \$1.8 billion in FY88. This was below the institution’s average of \$2.4 billion annually in FY84–88. For its part, the Inter-American Development Bank faced paralysis in net lending because of an impasse with the United States over U.S. veto power.

6. Note that the close timing of Mexico’s acceleration of privatizations in late 1988 and the October announcement by U.S. authorities of a \$3.5 billion credit line to Mexico suggested that linkage of financial support to structural reform under the Baker plan had concrete content. Similarly, there have been large World Bank loans to Argentina and Mexico for trade sector reform (Cline and Roett 1988).

7. The Comptroller of the Currency testified that “the vulnerability of the U.S. banking system to LDC debt performance has lessened significantly,” while the chairman of the Federal Deposit Insurance Corporation stated that “at this time we cannot foresee any bank failures resulting from LDC exposure alone.” *Washington Post*, 6 January 1989; *New York Times*, 6 January 1989.

8. The resource transfer estimates refer to the excess of net payments of interest and profits over net inflows of capital. The data are from CEPAL (1988).

9. A variant of the inflation argument warrants further attention. In Brazil, the finance minister has complained that the need for the central bank to buy up a large trade surplus has led to excessive money expansion. And there has been great criticism of the bank package for Brazil because of its use of debt-equity conversions, under the perception that these feed excessive money expansion and thus inflation. But the central bank could reduce money growth from the trade surplus by permitting exporters to sell foreign exchange to firms seeking to buy back external debt at a discount, instead of requiring that all of it be turned in to the central bank in exchange for local currency (and it could afford to do so because the trade surplus in 1988 well exceeded the amount required to service debt). As for debt-equity conversion, the amounts in Brazil in 1988 that passed through formal operations, and thus potentially affected the money supply, amounted to less than 3 percent of total money and quasi-money, including overnight holdings of government paper—hardly the source of quadruple-digit inflation.

10. Estimated as the difference between the current account deficit (assumed to be equal to capital inflow, abstracting from reserve changes) and net payments of interest and profits. Calculated from IMF data (1988, p. 104).

11. President Carlos Salinas de Gortari of Mexico stated as one of his four principles on debt that the country should be assured multiyear access to new loans. His three other principles were reduction of the outward resource transfer, reduction of the stock of debt to closer to its secondary market value, and reduction of the debt-GNP ratio during his regime (*Wall Street Journal*, 6 December 1988).

12. However, much of the “local currency conversion” also includes debt buybacks, as recipients then use the local currency to purchase dollars on the parallel exchange market.

13. The Institute of International Finance has recently warned that mandatory cancellation of debt would be “unconstitutional taking of property” and “would be contested in the courts” (Institute of International Finance 1989, p. 20).

14. For instance, seven-year bonds bearing 9 percent interest would involve cash outflow equal to 23 percent of face value in the first year. Even if the face value were set at one-half the original loan, the resulting payments would stand at 11.5 percent of original loan value, higher than interest payments on the original claims (with all principal rolled over).

15. Suppose that in case A the country would receive fast-disbursing policy lending that it would use for general purposes, while in case B it would dedicate the same funds to debt buybacks. In case A there would be \$1 of freely available foreign exchange for each \$1 of World Bank policy lending. In case B, the country would spend the dollar to repurchase \$2 of debt owed to the banks. The interest on the \$2 debt would be some twenty cents for the current year. The net effect on cash flow for the country would be \$1 in case A but only twenty cents in case B. Unless the secondary market price falls to the interest rate level (that is, ten cents on the dollar), buybacks have negative cash flow in the first year.

16. Thus, in late May 1989, Undersecretary Mulford told a congressional panel that if banks did not cooperate with debt reduction they might find it forced on them by legislation, and IMF Managing Director Michel Camdessus made a speech that the press headlined as "IMF Chief Blames Banks for Stalled Brady Plan" (*Washington Post*, 25 May and 1 June 1989).

17. Thus, Sachs and Huizinga (1987) estimated the following equation for the secondary market price of debt (fraction of face value): $p = .772 - .096A - .172S - .15(D/Y) - 2.2g$, where A and S were dummy variables for regulator classification and moratorium, D was face value of debt, Y was GNP, and g was growth rate. Although not noted by the authors, the equation

implied that the derivative of expected value of debt to creditors with respect to face value turned negative only once the debt-GNP ratio exceeded a range of 1.8 to 2.7. (That is: $V = pD$, where V is market value of debt; and $dV/dD = k - .3(D/Y)$, where k depends on A and S .) Yet Mexican debt is only about 0.6 Y , and few countries have debt-GNP ratios in the range of 2 or higher.

18. This discussion assumes that principal is cut but market interest is paid on the reduced principal. The economics of fractional collateralization should hold as well for the alternative of reducing interest on unchanged principal, however.

19. For countries such as Argentina where the secondary market price is extremely low (some sixteen cents on the dollar), it would be attractive to use the simpler alternative of outright buybacks. Each dollar of Brady plan resources could retire \$6 of debt and save sixty cents in interest annually.

20. In this regard, the Mexican proposal of May 1989 came close to the Ponzi point. The \$4.5 billion amounted to only 60 percent of total interest on Mexico's \$67 billion bank debt. But excluding short-term trade credit and interbank loans, the debt base was only \$55 billion, and of this amount some 10 to 20 percent would be hard to locate because of secondary market sales (including to Mexican banks). Relending of \$4.5 billion could come close to 100 percent of the interest on the rest.

Appendix. Alternative Measures of Private and Multilateral Lending during the Baker Plan Period

The analysis of this study applies disbursements under new-money packages as the best measure of net disbursements from banks to the highly indebted countries during the Baker plan years. In contrast, unadjusted data on debt stocks or flows in the World Bank's *World Debt Tables* give an impression that is considerably more favorable to lending performance of the multilateral banks, and less or more favorable to that of the commercial banks depending on whether flow or stock data are applied.

The stock data indicate the following trends. From the end of 1985 to the end of 1988 the outstanding stock of multilateral development bank (MDB) claims on the highly indebted countries rose from \$35.8 billion to an estimated \$64.7 billion, or by 80.7 percent, while claims of private creditors on (or guaranteed by) governments rose from \$231.3 billion to \$280.2 billion. Although the absolute rise was larger for private creditors (\$48.9 billion versus \$28.9 billion for MDBs), the percentage increase was smaller (21.1 percent). Moreover, if non-guaranteed claims on the private sector are included (and attributed entirely to private creditors), the comparison was even less favorable to the banks: an increase of only 8.6 percent—from \$301.3 billion to \$327.3 billion (World

Bank 1988, vol. 1, pp. 30–33, and by communication). Nonetheless, this increment exceeded the \$20 billion target of the Baker plan.

Two adjustments are essential to make these stock estimates meaningful. First, the ballooning of MDB claims by virtue of the rise in strong currencies against the dollar should be eliminated. At the end of 1985, of \$41.4 billion in World Bank claims outstanding, 26 percent were denominated in Swiss francs, 22 percent in deutsche marks, and 24 percent in yen (World Bank 1986, p. 171). From the end of 1985 to the end of 1988 these three currencies rose against the dollar by 38.1 percent, 38.3 percent, and 59.4 percent, respectively (IMF, *International Financial Statistics*, March 1989). Applying these changes to the 1985 base of World Bank claims on the highly indebted countries, the strengthening of these three currencies against the dollar added \$7.6 billion to the value of World Bank claims on these countries, in a change that represented a windfall loss (in return for the earlier benefit of lower interest rates on these currencies) rather than a gain in actual current capital flows. If this increment is removed from the 1988 MDB stock of claims on the highly indebted countries, the estimate declines from \$64.7 billion to \$57.1 billion, and the MDB expan-

sion of exposure during the Baker plan period was 59.5 percent rather than 80.7 percent. If instead the adjusted 1988 debt stock is estimated by adding actual net disbursements of the MDBs in 1986–88 to the year-end 1985 stock, the estimate amounts to \$51.5 billion, and the increase in exposure over the period was 43.9 percent.

In contrast, proper evaluation requires adjusting the stock data on bank exposure upward. The bulk of these claims is in dollars, and currency valuation is not the main issue.¹ Instead, it is necessary to add back into the bank claim totals a sizable amount of voluntary debt reduction that took place in this period. The Institute of International Finance (IFI) estimates that in 1986–88 commercial banks reduced their claims on the highly indebted countries by \$25.9 billion through conversion into equity or local currency (\$15.5 billion), exit bonds (\$1 billion), buybacks (\$1 billion), and discounted restructurings (\$8 billion) (Institute of International Finance 1989, p. 22).

A proper evaluation of bank lending performance should treat this debt reduction as maintenance of exposure. In the case of conversion into equity, the bank clearly does not withdraw its principal. Discounted buybacks, exit bonds, and discounted restructurings all reflect operations that convey a windfall gain to the country that would have been absent otherwise, and in most of these cases the country would have had the option of rolling over the full principal instead. In short, the \$26 billion in voluntary debt conversion and reduction carried out by the banks for the highly indebted countries in the Baker plan period should be included in estimation of the terminal debt stock for policy purposes of assessing bank participation in the solution to the debt problem. The only exception would be amortization at full face value, which is excluded from the IIF data (and is likely to have been minimal on medium-term debt).

On this basis, the stock of debt held by private creditors at the end of 1988 (including private unguaranteed) may be adjusted upward to \$353.2 billion, for an increase over three years by 17.2 percent. The shortfall in the percentage increase of private sector exposure from that by the MDBs is considerably less (17 percent compared with a range of 44 to 60 percent) than in the unadjusted debt stock data (9 percent compared with 81 percent). Moreover, the extent to which the absolute increase in private creditor exposure exceeds that of the MDBs is greater than in the unadjusted data: \$51.9 billion by private creditors versus a range of \$15.7 to \$21.3 billion (instead of \$26 billion versus \$28.9 billion, respectively, in the unadjusted data). These comparisons emphasize that because the base of private creditor claims is so much larger than that of MDBs (a ratio of 8 to 1 at the end of 1985), even modest proportionate rises in private credi-

tor exposure can swamp increases in MDB exposure that are high in proportionate terms.

The data on net capital flows (instead of stocks) provide another alternative evaluation of relative lending performance. The World Bank debt tables (World Bank 1988) indicate that, from the end of 1985 to the end of 1988, net flows from MDBs to the highly indebted countries amounted to \$12.6 billion (table 10–2). The same source reports that net capital flows from private creditors to the highly indebted countries were \$4.66 billion for loans to public and publicly guaranteed recipients, but net flows were –\$6.4 billion for private nonguaranteed loans, placing the total at –\$1.7 billion over the three years (World Bank 1988, vol. 1, p. 31, and by communication). But once again a proper evaluation requires adding back the \$26 billion in voluntary debt conversion and reduction discussed above. That is, the debt statistics treat a debt-equity conversion as a repayment of principal (counted as a negative entry in net capital flows) combined with a new inflow on direct investment (not counted in the net flows for private financial creditors), and similarly in economic terms discounted buybacks and restructurings are likely to be more favorable for the country than simple rollover of the entire principal. If the \$26 billion of these operations identified by the IIF is added in, net flows from private creditors to the highly indebted countries under the Baker plan period amounted to approximately \$24 billion, larger than the plan's target.

In sum, if proper account is taken of voluntary debt reduction and conversion, the World Bank data for private creditor debt stocks and flows give larger rather than smaller figures for net new lending by the banks than those used in the main text (the sum of new-money package amounts), reinforcing the central analysis of this study with respect to bank performance under the Baker Plan. This review nonetheless does underscore the great caution that is required in interpreting the debt data. More important, it highlights the fact that private banks will need to continue to participate in resolving the debt problem, either through new lending or voluntary debt reduction. The initial base of MDB lending to the highly indebted countries is so small relative to that from the private banks (only one-sixth, at the end of 1988) that even highly ambitious rates of expansion for the MDBs cannot compensate if private creditor participation fails.

Notes

1. Thus, for Brazil, external debt denominated in yen, deutsche mark, and Swiss francs accounts for 21.9 percent of the total. After taking account of the portion owed to the World Bank, only about 16 percent of the remainder of Brazilian debt is in these three currencies (Brazil 1988, p. 93–94).

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Comments

John Shilling

In evaluating the Baker plan, Cline rightly notes that the international environment has largely been as favorable as the plan's designers assumed. OECD growth has continued strong, and its markets have remained open to exports from developing countries. Commodity prices have not risen but—except for oil, which declined sharply after early 1986—have not dropped either. The net effect of the oil price decline on the highly indebted countries is about nil, but there are strong differential effects between the oil exporters (negative) and oil importers (positive). Interest rates have risen in nominal terms in 1988 by about 2 percentage points, which has cost the highly indebted countries an additional \$5 billion in interest payments in 1988. Although Cline argues that accelerating inflation in the developed countries may have maintained real interest rates, rising inflation cannot be viewed with equanimity given the likely reaction of monetary authorities in the industrial countries to tighten monetary policy, raising interest rates further and slowing growth—both would be detrimental to the interests of the debtor countries.

The Baker plan's contribution to the debt strategy's analytic basis was to emphasize the medium-term development context rather than the short-term liquidity issues that dominated the first phase of the strategy. Cline presents a useful analysis of the adjustment objectives he attributes to the Baker plan: "trade liberaliza-

tion, liberalization of direct foreign investment, and state enterprise sector reform, including its privatization." Countries pursuing adjustment have generally made significant progress in these areas, which Cline applauds. It should be noted that the first two objectives are concerned primarily with improving the ability of the economy to transfer resources abroad. The third objective is more controversial, has a large ideological content, and can only be implemented successfully with more far-reaching reforms of industrial policy, the public sector's role, and price-setting policy for public enterprises. Success in this area on long-term economic growth remains to be fully analyzed.¹

Cline cites the inability to mobilize sufficient domestic resources and maintain adequate fiscal policy in major debtor countries as reasons for disappointing performance under the Baker plan. I agree and would also fault the analytic basis of the Baker plan for insufficient emphasis on domestic fiscal policy and the internal transfer problem in the plan's design.² It focused excessively on the external transfer problem, reflecting perhaps a greater concern for assuring repayment to the commercial banks than a sensitivity to the internal problems faced by the debtors. This unfortunately echoes a similar lack of sensitivity of the commercial banks, who actively promoted syndicated loans in the late 1970s and early 1980s when there was mounting evidence that the debt burden exceeded the medium-term servicing capacity of the debtors.

Missing in both Cline's comments in this paper and in the Baker plan is any consideration of investment's role in restoring growth to these debtor countries.³ Their investment shares of GDP have fallen on average from 25 percent to 15 percent between 1980 and 1988. This decline is because of shortfalls on domestic resource mobilization and low net disbursements of foreign capital (or large negative net transfers). Investment fell because reducing public investment expenditures was easier than reducing current expenditures or raising revenues in stabilization programs and because the combination of stabilization, inflation, and declining real incomes reduced private investment. Without raising investment levels, it is difficult to see how these countries will be able to grow out of their debt crises.

In these circumstances, one must agree with Cline that political fatigue, or "adjustment fatigue" as it is frequently called, is a problem that cannot be overlooked. If the electorates in the debtor countries do not believe that more adjustment will bring them relief from declining per capita incomes, they are not likely to support governments publicly committed to continued adjustment with continued austerity. Demonstrating positive growth results will depend on increasing investment, which may depend on generating adequate capital inflows.

On the results of the strategy, Cline correctly notes that the international financial system and most of the commercial banks are effectively out of danger. By raising capital, increasing loan-loss provisions, and reducing their exposure to developing countries, most commercial banks are no longer threatened by nonperformance of the highly indebted countries. Unfortunately, this also reduces the pressures to participate in any concerted debt workout not perceived to be in their interest. The banks' posture is reinforced by attractive profit opportunities in their markets: interstate banking and further deregulation in the United States, expanded domestic commercial and consumption lending in Japan, and integration in 1992 in Europe.

I would have welcomed a deeper discussion of the growth determinants in debtor countries in relation to foreign capital inflows, investment, and domestic resource mobilization. The question still lacks a satisfactory explanation, and it is critical in designing future phases of the debt strategy to understand how to restore growth in the debtor countries. The countries Cline used to demonstrate that low growth was more because of domestic inflation than lack of foreign capital were exactly those countries that benefited most from net capital inflows from the commercial banks. According to the data in Cline's table 10-2, Argentina, Brazil, and Mexico received 94 percent of commercial bank net disbursements, and 70 percent of total net disbursements (77

percent excluding the IMF). More than 70 percent of their debt is owed to commercial banks, but in recent years only about 45 percent of the net disbursements have come from commercial sources. I doubt that we want to conclude that higher capital flows contributed to the fiscal laxity and inflation, or that lack of access to private foreign capital spurs growth. The answer will undoubtedly be more complex.

The question of the amount of capital flows and from whom turns out to be a disputable one in Cline's paper. It involves more than just a review of the numbers. Without being too defensive, let me try to present the data and interpretations as I understand them. The Baker plan called for the commercial banks to provide new money to increase their exposure by about 2.5 percent a year in 1986-88, equivalent to net flows of about \$20 billion over the three years.⁴ The multilateral development banks (MDBs) were supposed to increase their net disbursements by about \$3 billion per year, which, added to the existing base of nearly \$4 billion per year, would amount to total disbursements of about \$20 billion over the three-year period, achieving rough parity with the commercial banks on total net disbursements.⁵ Bilateral agencies were also assumed to contribute \$2-3 billion per year, though this was less explicit. There were no assumptions about the IMF. In total, net disbursements were to have been about \$47 billion, and the commercial bank share would have been about 42 percent. This already implied a dynamic shift in risk to the public sector since the commercial banks held about 60 percent of the medium- and long-term debt outstanding of the highly indebted countries at the end of 1985.

Cline argues that the banks met nearly two-thirds of their target while the MDBs only met 10 percent, and the public sector did even more poorly because of the net repurchases of the IMF of \$2.7 billion. In addition he questions the failure to include the IMF in the initial allocation of responsibility in the Baker plan. His conclusion rests on some arguably inappropriate comparisons. First, the commercial bank target was for total net disbursements, while the target for the MDBs was expressed as an increment over their then current level of disbursements. Using his data for total net disbursements in table 10-2, the commercial banks provided \$12.8 billion, compared to \$12.6 billion for the MDBs and \$15.7 billion for the whole public sector, including the IMF. These levels are close to the proportions foreseen by the Baker plan; the commercial banks provided 45 percent of the net disbursements.

But Cline estimates the net disbursements of the commercial banks to be the total disbursements under new-money packages, assuming other flows are minimal or net out. The official flows are all actual net flows taking account of all gross disbursements and all repayments.

Is Cline correct in his commercial bank figures? Actual data on net flows from commercial sources are considerably less positive than those on new-money disbursements. The *World Debt Tables* (the same source of data as he uses for the official sector) show that for the private sector, there was a net outflow of \$4.2 billion from the highly indebted countries to all private sources in 1986–88. This includes nonguaranteed as well as guaranteed debt, but not short-term trade credits.⁶ Looking only at the category of financial markets for publicly guaranteed medium- and long-term debt, there were average net disbursements of \$1.2 billion a year. But it should be noted that this includes both sovereign lending and export credits guaranteed by export credit agencies, in which the banks have much less risk. For example, a country like Morocco has received no new money from the Baker plan, despite relatively successful adjustment, but it has received some guaranteed export credits.

Overall, how successful the commercial banks were in meeting the Baker plan targets depends on whether one looks only at new-money disbursements or their total net disbursements. But Cline is right, noting that less than expected disbursements for both private and public lenders were due to inadequate adjustment efforts as well as reluctance to lend.

The distribution of the new-money disbursements raises another question. To what extent has the availability of new money been related to successful performance in the areas identified by the Baker plan? Cline's table 10–2 shows that nearly all the new money went to three countries: Argentina, Brazil, and Mexico, with Chile and the Philippines picking up a little. Since these countries together hold about two-thirds of the debt of the highly indebted countries, and the banks met over two-thirds of their target (on Cline's terms), could one not argue that the banks succeeded entirely for one-third of the countries, and failed completely for the rest? This is not quite fair. Some of the remaining countries were not deserving of any new lending (Peru), and others did not need it (Venezuela). But it does illustrate that the Baker plan has been much more directed at the major debtors and offered little to the others.

The allocation of commercial new money bears little relation to country performance, rhetoric notwithstanding. Countries that have managed successful adjustments and have respectable growth rates—such as Morocco and Chile—have not recently been able to gain access to private markets for commercial loans. Colombia had protracted negotiations just to roll over most of the maturities falling due in 1989–90. The public sector picked up the burden in these countries and deserves more credit than Cline's aggregate numbers indicate.

As for the future evolution of the debt strategy, I fully support Cline's recommendation of multiyear financing

packages. These countries need the assurance of sustained external support to undertake real structural adjustment. And their officials need to spend more time managing domestic policies and less in protracted negotiations with the foreign financial community.

Voluntary debt reduction will form an important part of future debt negotiations. Cline suggests some possibilities here, and many more options are likely to appear on the menu. It is worth noting that not all transactions classified as debt reduction are also liability reductions. Debt-equity swaps only reduce liability to the extent that the swap occurs at less than face value. For the rest, the equity remains a liability for the country, albeit a contingent one. But in view of the priority given to profit remittances in most of these countries, the burden of the external transfer problem remains. Cline's proposal for seniority on a class of exit bonds is an interesting one, which the banks themselves must decide, with perhaps some encouragement from regulatory authorities. Guarantees on converted assets reflecting debt reduction also deserve further reflection. They may represent an important instrument in the next stage of the debt strategy. But in analyzing debt reduction and guarantee options, greater consideration should be given to alternatives that reduce the debt service or cash-flow burden in the short term than to debt reduction instruments that may have a short-term cash-flow cost or little cash-flow benefit.

Cline closes by recommending that more capital is needed than has been available in recent years, particularly when interest payments are taken into account. And again, one can only support him. He proposes annual net disbursements of \$5 billion for the commercial banks and \$10 billion for the official sector, for a total of \$15 billion a year. Since the average for 1986–88 was only \$10 billion, this is a welcome increase, but not necessarily enough. Although the incremental effort is great for both the banks and the official sector, the implied shift of the burden to the public sector is greater than under the Baker plan. The commercial banks' share of incremental financing falls to one-third. Given past performance, perhaps this is all that can be expected of the private sector, but it is not encouraging unless it is accompanied by substantial debt-service reduction.

Notes

1. Studies in several countries have failed to yield conclusive evidence that public enterprises are systematically run less efficiently than private sector companies. Nor is it clear that a privatization program will divest the government of the least efficient companies. This is not to say that privatization is not desirable in many cases, but it is not the panacea that many proponents claim.

2. Perhaps the difficulty the United States was facing in keeping its own budget deficit under control prevented Baker

from speaking out more strongly on this issue. Or perhaps he really did not believe it was a problem. The U.S. consolidated budget deficit was 3.3 percent of GNP in 1985, and the central budget deficit was 5.3 percent of GNP.

3. But Cline treats this important question in his other work on debt problems.

4. Although partly expressed in exposure terms, one must concentrate on the flow data, since the net change in exposure

figures are confounded by exchange rate fluctuations, secondary market sales, and conversions.

5. Commercial banks net disbursements in 1983-85 averaged \$8 billion a year, so the Baker plan called for a reduction on average of \$3 billion a year. But compared to net disbursements of \$2.6 billion in 1985, the increase was great.

6. Trade credits pose a problem in this analysis because debtors often run up arrears on these accounts that then are incorporated in future new-money packages.

Simon Teitel

Mr. Cline has produced, as usual, a good paper. But it is seriously biased in its defense of the Baker initiative, and particularly of the commercial banks' role. In view of his earlier work on external debt, this is rather surprising.¹ It also flies in the face of the available evidence, which shows that the Baker plan, while correct in its broad diagnosis, failed to mobilize the required resources for its implementation. Moreover, since the plan's main purpose was to facilitate repayment to the banks, it seems disingenuous to blame the public sector and the debtors for its failure.

Adjustment and Structural Reforms

The adjustment with structural reform programs have had highly undesirable outcomes. Investment has fallen drastically among major borrowing countries (including those in Latin America), and the temporarily attained trade surpluses were in many cases the result of substantial decreases in imports. Nevertheless, and although the paper deprecates the borrowers' export performance, it has been quite significant in Latin America, with exports

increasing by almost 50 percent in constant dollars between 1980 and 1987, while at the same time imports fell by almost 25 percent (table 10C-1).

Moreover, as shown in table 10C-2, while the amount of Latin America's exports increased from 1980 to 1988 by 56 percent, the value increased by only 15 percent. So the problem was really not with the export supply performance (which was excellent) but with the rest of the international scenario, including the terms of trade. In fact, assuming that the increase in the value of exports had kept pace with the amount, there would have been an additional \$40 billion (approximately) of Latin American exports in 1988.

It should also be noted that although the paper is concerned with commodity export prices, more than 50 percent of Latin American exports are already manufactured goods (IDB 1982, chapter 5). Also, recent studies of the demand for manufactured goods from developing countries consistently show export income elasticity estimates much higher than those for import elasticity (Faini, Pritchett, and Clavijo 1988; Faini, Clavijo, and Senhadji-Semlali 1988; Marquez and McNeilly 1986;

Table 10C-1. Latin America: Imports, Exports, Investments, and GDP, Selected Years
(1986 \$US)

	1960	1970	1980	1983	1987 ^a
Value of imports of goods and nonfactor services (in millions)	37,134	68,813	139,558	93,293	107,091
Imports as a percentage of GDP	14.1	14.0	17.2	11.8	11.9
Value of exports and nonfactor services (in millions)	45,919	80,429	116,720	131,993	154,454
Exports as a percentage of GDP	17.4	17.6	14.4	16.7	17.1
Investment (millions)	47,830	95,679	192,367	122,209	140,905
Investment as a percentage of GDP	18.1	21.0	23.7	15.5	15.6
GDP (in millions)	263,438	456,131	812,234	789,273	901,650
GDP per capita (\$)	1,274	1,675	2,340	2,141	2,223

a. Preliminary estimate.

Source: Inter-American Development Bank (1988, statistical appendix).

Table 10C-2. Latin America: Export Growth, 1980-88 (1980=100)

	Unit value	Amount	Value
Latin America	74	156	115
Oil-exporting countries	58	152	87
Non-oil-exporting countries	87	159	139

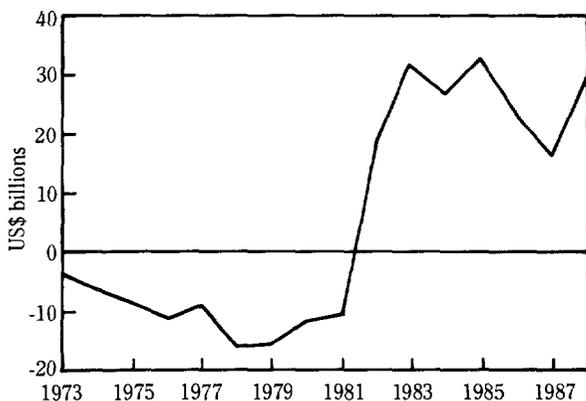
Note: Exports; preliminary estimate.
Source: CEPAL (1988, table 8).

Moran 1988), thus clearly indicating the long-run potential for export growth and a trade surplus. While higher exports of manufactures were, in a number of cases, the result of better capacity utilization (as the paper notes), some new investments to expand exports have also been carried out in several Latin American countries.

Evidence from the adjustment programs carried out in borrowing countries shows that, besides the trade surpluses, debt servicing at the high levels prescribed by these programs has induced growth in the fiscal deficit and capital flight. As to the effect of the advocated sharp curtailment in public spending, it is difficult to expect a one-to-one correspondence between reduced domestic spending and its counterpart contribution to a trade surplus. This is because cuts in public expenditures—particularly in such nontradables as health, education, and so on—do not free resources immediately transformable into exportables. So a reduction in the size and a change in the structure of the government's intervention in the economy will generally not have the expected properties of quickly stimulating confidence, new private investment, repatriation of flight capital, and so on.

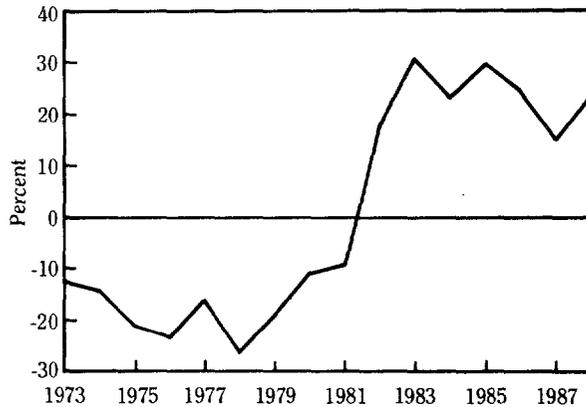
Furthermore, the promoted cuts in domestic expenditures are of such magnitude that they can not be sustained. The shift to tradables also has limits; among them, the reduction in real wages, which have already

Figure 10C-1. Latin America: Transfer of Resources, 1973-88



Source: CEPAL 1988, table 15.

Figure 10C-2. Latin America: Transfer of Resources, as a Percentage of Exports of Goods and Services, 1973-88



Source: CEPAL 1988, table 15.

attained historical lows in many Latin American countries.² Thus, it seems to make little sense to continue advocating such adjustment programs.³

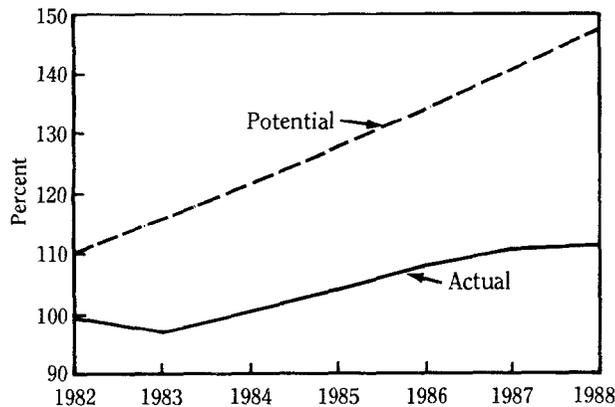
The only rationale remaining seems to be that the deep domestic structural reforms included in the adjustment programs, although justifiable in some cases in long-term development programs, could only be agreed on at a time when debtor developing countries suffer from greatly diminished bargaining power. Besides being politically unpalatable (which even Cline seems to admit in his paper), it is not clear that they are generally required to attain long-term economic growth. The record of the region for 1950-80 speaks otherwise, since, on average, GDP increased by slightly above 5 percent a year through the period (Syrquin 1986).

Solution: Debt Relief

After six years of adjustment, the situation in Latin America is so bad that, with the exception of a few countries, any further adjustment seems unfeasible, at least in the short run. In particular, the drastic reductions in imports and investment limit any future growth originally projected as part of the Baker plan. Because the debt servicing presently required of the Latin American debtors is, in most cases, not compatible with the long-term economic growth required to attain social and political stability, it must consequently be reduced. This would diminish the fiscal deficit, provide funds for investment, and restore confidence in these economies' future.

Figures 10C-1 and 10C-2 show the value of the total capital transfer from Latin America between 1982 and 1988, which was almost \$179 billion. Thus, the discussion about the extent to which parties in the Baker plan

Figure 10C-3. Latin America: Potential and Actual GDP, with Potential Based on 5 Percent Growth, 1982-88 (1980 = 100)



Source: CEPAL 1988, table 1.

failed to meet their obligations—which Cline addresses at some length—is inconsequential given the massive transfer of capital from the highly indebted countries to its creditors.⁴

Figure 10C-3 shows the loss in GDP since 1982 because of the region's failure to grow at the historic rate (5 percent yearly increase in GDP). The approximate \$1,350 billion of accumulated loss in income is three times larger than the present stock of disbursed external debt for the region (CEPAL 1988, table 16).

A growing consensus now exists that a solution to the external debt problem is required to avoid further stagnation in Latin America with its undesirable repercussions on the world economy (Husain 1989), and the international financial system is not at risk due to a strengthening of the financial condition of the major commercial banks. A lower level of debt servicing (attained by some form of debt relief), compatible with higher economic growth, is by now mandatory. Fortunately, recent steps taken by the IMF and the World Bank point precisely in this direction.

A simulation exercise for the region, conducted under fairly conventional assumptions, shows that a reduction in the debt-service-to-exports ratio of approximately one-third will reduce the net transfer of resources from the external debt-to-export ratio to the appropriate level required for Latin America to grow at recent historic rates (5-5.5 percent GDP growth a year) (Orlando and Teitel 1986).

Intervention by major lenders' governments will be required to prod the large commercial banks to be more flexible, which, in the long run, would also be in their own interest.

Notes

1. See Cline (1983).
2. For recent data on real wages in several Latin American countries, see CEPAL 1988, tables 6 and 7.
3. See Teitel (1983) for an early plea in the same direction.
4. Morgan (1988, p. 5) states: "They . . . have engaged in a variety of debt-reducing transactions, which . . . make it impossible to assess how close the banks may have come to the Baker initiative's target of \$20 billion in net lending to the 15 countries for the period since 1985. Still, given that the Baker 15 are paying in excess of \$20 billion interest to commercial banks this year, it is clear that the banks, like the multilateral institutions, are receiving sizable net transfers from the major debtors."

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Future Financing Needs of the Highly Indebted Countries

Ishrat Husain and Saumya Mitra

The external financing prospects of 17 highly indebted countries for 1989–95 fall considerably short of the requirements if a steady rate of growth is to be achieved. The most significant shortfall is in commercial bank lending. Without adequate burden sharing, it is unlikely that official creditors, particularly the multilateral institutions, will assume a disproportionately large exposure in these countries. With sound adjustment policies in the debtor countries, a combination of concerted lending, debt reduction, reflows of flight capital, and some intermittent accumulation of interest arrears will be the principal means of financing.

Some countries—such as Mexico, Venezuela, Nigeria, and Ecuador—need external finance to offset their worsening terms of trade; others need it to restore productive investment at reasonable levels. At least some countries should be able to work their way out of the debt crisis—because their resource requirements are feasible and commercial bank creditors will probably respond favorably. Others will have to balance the finance from official and private creditors. Others still will be unable, even under the most stringent conditions and most sensible policies, to grow out of their difficulties without some reduction in the stock or servicing of their debt.

The lumping together of good and bad debtors is repulsing efforts of countries that should have access to voluntary lending. The main actors should begin by abandoning the concept of a homogeneous group of 15 or 17 highly indebted countries. The contagion effect should not deter the creditors from differentiating between countries in the same continent that have managed their economies well and are close to creditworthiness from those whose economic policies and management are of questionable quality. The next logical step is to develop a cooperative framework that channels money through equitable burden sharing and promotes

credit enhancement, debt reduction, and other innovative financing techniques in support of growth-oriented adjustment programs. The alternative is continued stagnation in the highly indebted countries—which could mean political and social unrest, a greater reluctance to maintain orderly debtor-creditor relations, and a disruption of debt servicing even in countries that have carried out their obligations unflinchingly.

The Record

The net flows to highly indebted countries declined precipitously from an annual average of \$41 billion during 1980–82 to about \$8 billion a year during 1986–88 (table 11–1).¹ In the earlier years, private lending provided three-fourths of the resources to these countries. In recent years, official lending and transfers account for the bulk of the resources. The picture becomes

Table 11–1. *Highly Indebted Countries Aggregate Net Resource Flows, 1980–88*
(annual averages in US\$ billions)

	1980–82	1983–85	1986–88
Official transfers	0.4	0.8	1.4
Private direct			
investment	4.0	3.5	2.5
Official lending (net)	6.7	8.2	4.4
Bilateral	2.2	1.6	1.6
Multilateral	3.1	3.8	3.9
IMF	1.4	3.8	–1.1
Private lending (net)	30.1	7.3	–0.5
Aggregate net flows	41.2	19.8	7.8
<i>Memo item</i>			
Aggregate net transfers	15.9	–20.8	–29.0

Sources: World Bank, OECD, and IMF data.

Table 11-2. Highly Indebted Countries: Net Lending by Commercial Banks, 1982-88
(US\$ billions)

	1982	1985	1986	1987	1988
Disbursements	48.8	13.5	10.5	10.6	11.7
Principal					
repayments	21.0	12.3	12.6	10.0	12.6
Net lending	27.8	1.2	-2.1	0.6	-0.9
Interest					
payments	27.5	27.9	25.6	21.3	28.9
Net lending as percentage of interest payments	101.1	4.3	-8.2	2.8	-3.1

Source: World Bank data.

bleaker if net transfers are examined. From an aggregate net annual transfer of \$16 billion in 1980-82, net transfers started to turn negative in 1982 and accelerated to an average outflow of about \$29 billion a year in the last three years.²

Because commercial banks accounted for most of the external financing to highly indebted countries, the dramatic decline in their net flows from \$28 billion in 1982 to \$1 billion in 1988 is quite revealing (table 11-2). In 1982 net lending by these banks financed almost 100 percent of interest payments due to them. By 1988 internally generated resources of highly indebted countries financed 100 percent of interest payments and even a small fraction of amortization. During the same period, the domestic savings rate of these 17 countries remained almost unchanged at around 21 percent of GDP, showing that domestic savings were financing both domestic investment and external outflows.

Multilateral institutions are still the major source of positive net flows, but the volume has shrunk considerably due to repayments of large borrowings from the IMF during 1982-85 (table 11-3), as the Fund's resources are revolving and for temporary support only. The World

Table 11-3. Highly Indebted Countries: Net Lending by Multilateral Institutions^a
(US\$ billions)

	1982	1985	1986	1987	1988
Disbursements	7.7	8.9	10.7	10.2	10.8
Principal					
repayments	1.5	3.3	5.9	8.2	9.2
Net lending	6.2	5.6	4.8	2.0	1.6
Interest					
payments	1.9	3.7	4.8	5.6	5.5
Net lending as percentage of interest payments	326	151	100	35.7	29.1

a. Includes IMF.

Source: World Bank data.

Bank has stepped up its adjustment lending, and in 1985-88 it was about the only identifiable source of net new funds to these countries, with average net disbursements of \$2.9 billion annually. Net lending by multilateral institutions accounted for about 29 percent of interest payments in 1988, much lower than the 326 percent in 1982.

As the debt indicators show, most highly indebted countries are no better placed than when the debt crisis erupted six years ago—signaling the need to depart from the present approach. The stock of outstanding debt grew one-third during this period, and the debt-GNP ratio and debt-export ratio have almost doubled (table 11-4). Total debt servicing, despite repeated reschedulings, accounted for 43 percent of their exports in 1988, up from 37 percent in 1982. The interest-to-export ratio has eased only marginally and only because of rising arrears. The ratio of interest payments to exports in 1988 was still as high as 26 percent, despite the highly indebted countries' expansion of export volumes by almost 3 percent a year for the last six years. So, despite net resource transfers of 3 to 4 percent of their GDP to creditors—by compressing imports and generating a trade surplus—the highly indebted countries could not reduce their debt ratios, and they have paid a heavy price in forgone economic growth.

To sum up, the past six years for the highly indebted countries have not been favorable. Per capita incomes and real wages have declined, inflationary pressures have intensified, net investment rates are abysmally low, the debt burden has risen, and external financing flows have turned negative. This setting augurs poorly for a speedy, sustained recovery by these countries in the near future. The rest of this paper examines the external financing needs of these 17 countries for the next six years. How much do they need to resume modest growth in their per capita incomes? And what are the prospects for, and constraints on, this financing?

External Financing Needs

Two scenarios underlie the estimates here of the highly indebted countries' external financing requirements through 1995. The scenarios differ in the assumptions

Table 11-4. Highly Indebted Countries: Debt Indicators

	1980	1982	1985	1986	1987	1988
Total external debt (US\$ billions)	289	391	454	482	527	512
Debt-GNP ratio	33	45	59	62	63	61
Debt-export ratio	171	259	296	353	357	321
Debt service ratio	26	34	39	43	36	43
Interest-export ratio	12	20	26	27	22	26

n.a. Not available.

Source: Author calculations.

about the GDP growth of the highly indebted countries' trading partners and about developments in interest rates and the terms of trade. The effect of a slowdown in industrial countries' growth in 1989–90 and higher real interest rates on the external financing requirement is discussed, but no effort is made to trace the effects of a lesser adjustment effort by the highly indebted countries. (The underlying assumption is that the countries that are not prepared to undertake strong adjustment efforts are not eligible for external financing support.) This scenario may seem to err on the pessimistic side, but it is intended to provide a possibly higher bound measure of the external financing needed to support growth in a "stagflationary" environment similar to that of 1979–82. The GDP growth rate of the highly indebted countries is projected at 4.5 percent for 1988–95—ranging from 5.5 percent for Brazil and the Philippines to 2 percent for Yugoslavia.

The Base Scenario

The projections under the base scenario have three assumptions: (1) continued annual growth in the GDP of the highly indebted countries' trading partners of 2.5 to 3 percent to 1995, enabling annual increases in the highly indebted countries' export volumes of about 5 percent; (2) some recovery in the terms of trade from the historic lows of 1986 and 1987; and (3) nominal LIBORs of 8.5 percent until 1991, then gradually falling to 7 percent in 1995. The aggregate projections are comprised of individual countries (given the common external environment for growth, prices, and interest rates) that utilize the IBRD's Revised Minimum Standard Model (RMSM). This model contains a close relationship between the rate of investment within an economy and the rate of growth of output. This simple specification permits the use of this approach across countries. It is widely familiar to individual country economists and is the central tool in formulating projections in the World Bank. It has the disadvantage of failing to capture other (important) elements that influence growth, but it is judged that for medium-term analysis the robustness is sufficiently great to project financing requirements required to support growth. Once the investment requirements are identified (through incremental capital-output ratios) and the domestic savings performance is specified, the external financing requirement is obtained as a residual. In most cases an improvement in the domestic marginal savings effort has been postulated (presumed to occur because of policy improvements as adjustment programs proceed); this helps to avoid a possible overstatement of the external financing requirement. The country projections also hinge on a fiscal

policy correction to realize high marginal savings rates for domestic growth. Implicit in the projections is that external flows are required to finance the investment and imports needed for a successful export-led growth strategy. In all of the above cases, the projections are based on the successful implementation of strong adjustment programs.

The improvements in export performance are striking, with the debt-to-export ratio falling substantially by 1995. The dangers to this strategy are twofold. First, the domestic adjustment may be insufficient to redirect the required resources to the export and investment sectors. Second, the external financing may fall short of what is required. Later in this paper the likelihood of the external financing requirement is assessed at some length.

The required net external long-term flows (net disbursements) are projected to rise sharply from \$1 billion in 1988 to a range between \$14 and \$17 billion a year during 1989–95 for the highly indebted countries (table 11–5). Given the identified sources of financing from the official sector, the expected contribution from commercial banks required to cover the external financing requirement, which amounted to a net outflow of \$4 billion in 1988, amounts to \$9 billion a year in 1989–91 and \$12 billion a year in 1992–95.

Lending on such a scale from commercial sources is fraught with uncertainty. It implies a significant increase in exposure and in the implicit capitalization of interest.³ The implicit interest capitalization was only 19 percent in 1983–86; and net flows were only marginally positive in 1987.⁴ The projections imply interest capitalizations of 35 percent for 1989–91 and 37 percent for 1992–95, clearly large.

The external payments positions, including reserve holdings, of these countries differ considerably, as does the degree of macroeconomic or structural adjustment of their economies. For some countries (Chile, Uruguay) a return to voluntary access to private markets is within grasp if adjustment policies are sustained. For others the financing requirements from the commercial banks remain high, even under tough adjustment programs. For another group of countries exceptionally high net flows are required from both commercial banks and official creditors. And a few need heavy support from official creditors.

An examination of the projections for individual countries (that underlie the aggregate projections in table 11–5) shows that the 17 highly indebted countries can be divided roughly into three categories. Four countries, which account for 10 percent of total highly indebted country debt, require external financing over the period to 1995 that is modest in absolute terms or in light of recent history. For these few countries a strategy of growth-oriented adjustment based mainly on largely vol-

11-5. External Financing of Highly Indebted Countries, Base Scenario, 1982-95
(annual averages in US\$ billions)

	1982	1983-86	1987	1988	1989-91	1992-95
Current account deficit	51.3	8.7	7.9	8.2	16.0	17.0
Addition to reserves ^a	-21.3	5.4	9.7	-5.5	4.0	6.0
Financing requirement	30.0	14.1	17.6	2.7	20.0	23.0
Non-debt-creating flows ^b	7.5	4.5	5.6	5.3	6.0	7.0
Net LT flows	36.9	13.5	6.2	1.0	14.5	17.0
IBRD/IDA	1.9	2.9	2.3	1.5	3.0	1.5
Other multilateral	4.1	4.3	1.1	1.6	1.0	1.0
Bilateral	2.0	1.3	1.9	2.1	1.5	1.5
Total official	8.0	8.5	5.3	5.2	5.5	4.0
Private ^c	28.9	5.1	0.9	-4.2	9.1	12.0
Short-term flows	-16.6	-6.7	7.1	-3.7	-0.5	-1.0
Net IMF	2.2	2.8	-1.3	0.1	—	—
<i>Memo items</i>						
Net flows as percentage of interest payments to creditors						
Official	245	166	51	62	58	46
Private	103	19	4	2	35	37

a. Includes statistical discrepancy.

b. Principally foreign investment and official transfers.

c. Includes financing via arrears.

Source: Author calculations.

untary new-money packages is unlikely to be constrained by the external financing availability. Five more countries account for 35 percent of total highly indebted country debt that is large in absolute terms or in light of recent history and require external financial flows from official or private sources. The final category has holders of over half of total highly indebted country debt. They face a heavy financing requirement, in all cases except one from the private sector; the exception is the Philippines, which has the option of an officially sponsored "Marshall Aid."

For several highly indebted countries, especially ones that are not major debtors, the limits of the debt strategy prevailing in 1988 were clear to the market, making it extremely difficult to arrange financing packages. When financing packages have been negotiated, they have required greatly increased participation by official creditors. For several of these countries prolonged interest arrears have become a large source of financing from commercial banks. The forced burden sharing by banks in new lending has meant a shift toward a unilateral approach—hindering other (trade-related) flows and rising costs and uncertainties.

The Low Scenario

Growth in the industrial world in 1988 and thus far in 1989 has exceeded initial forecasts, with the United States, the Federal Republic of Germany, and Japan in particular experiencing a strong rise in domestic demand. But there is some risk of a marked slowdown in 1990 and 1991, to less than the 2.75 percent of GDP

growth assumption. Such a temporary slowdown would, besides lowering the demand for imports from the highly indebted countries, mean less improvement in the highly indebted countries terms of trade than that projected in the base scenario. This slowdown is triggered by an officially induced rise in nominal and real interest rates of two percentage points compared to base case projections on the assumption that, as in early 1989, authorities react to accelerated inflation. This rise in interest rates would not only raise the cost of the highly indebted countries' floating rate debt, but would also—through reduced inventories and a fall-off in domestic demand in industrial countries—dampen the highly indebted countries' growth and tend to soften their terms of trade. In the simulations in table 11-6 it is assumed that growth in highly indebted countries' export volumes is dampened by two percentage points in 1989 and one percentage point in 1990 and that their terms of trade worsen by two percentage points in 1989-90. These adverse shocks are temporary, recovering to the parameters in the base scenario in 1992.

This scenario shows how much the financing requirements of the highly indebted countries would increase. The net annual flows required rise to \$30 billion for 1989-91 and \$24 billion for 1992-95 (see tables 11-5 and 11-6). Even on the assumptions that the multilateral and official lenders step up their lending, that the IBRD lends amounts equivalent to the maximum exposure permitted, and that other official lenders greatly raise the amounts extended over the base case, the contributions of the private sector would have to be greatly enlarged. The required net flows between 1989 and 1995 would

11-6. Deterioration in External Financing of Highly Indebted Countries Caused by a Weaker External Environment, 1989-95

(annual averages in US\$ billions)

	1989-91	1992-95
Change in current account balance (- = weakening)	-12	-8
Change in net flows (+ = increase)	8	6
Official	2	2
Private	6	4
<i>Memo items</i>		
Total net flows as percentage of interest payments to creditors		
Official	75	66
Private	55	66

Source: Author calculations.

amount to high rates of interest capitalization by banks. In light of both recent history and the current lending attitudes of the commercial banks, such financing requirements are large.

None of the 17 highly indebted countries is likely to obtain the additional external financing required if there is a 1989-90 recession. Brazil's new-money requirements would increase by \$3.5 billion a year during 1989-91, with interest capitalization of more than 50 percent overall and about 80 percent from private sources. Chile would require commercial bank interest capitalization of about 70 percent. Mexico is perhaps a little more robust, but its commercial bank interest capitalization would still be about 40 percent. Morocco and Nigeria would need extremely heavy "new-money" support in 1989-91.

Prospects for Financing

Private Direct Investment

Private direct investment flows to the highly indebted countries have been slowing significantly since the beginning of the decade. But because of higher growth, better policies, an improved investment climate, and the sometimes strong incentives of debt-equity conversion programs, this trend may be reversed. These flows could recover strongly if countries implement programs that improve incentives to the private sector, liberalize trade and investment regimes, privatize public activities, and reform and develop financial markets. Such reforms are central to the objectives of World Bank assistance, and the expansion of this assistance beyond levels currently planned can have favorable effects on the flow of private equity capital as well. At a minimum, it would seem reasonable to expect net direct investment flows of \$4-\$5 billion a year (including debt-equity conversions) over the next few years. The same policy measures—with higher growth rates and specific steps to encourage cap-

ital repatriation—should also facilitate a return of residents' holdings abroad, or at least reduce the capital outflow from these countries, now about \$9 billion a year.

Net Official Transfers

Net official transfers (including bilateral aid) to the highly indebted countries have averaged \$1-\$2 billion a year and seem likely to be sustained at this level. Except for Bolivia (and perhaps Nigeria, Jamaica, Philippines, and Costa Rica), there is little possibility that official aid flows to the 17 highly indebted countries as a group will be stepped up. The continuing budget deficits in industrial countries, the growing attention to Sub-Saharan African countries, and the relatively high level of per capita income in the highly indebted countries make it difficult to expect any significant change in the attitude of official donors.

Bilateral Lending

Bilateral net lending to the highly indebted countries, including export credits and mixed credits, has also averaged about \$2 billion a year. Although there will be some variation in the availability of these credits, depending on the country situation and the political and strategic attractiveness to creditor governments, the aggregate sums are unlikely to be substantially higher than before. The net flows from export credit agencies have been disappointing in recent years—reflecting their difficult financial situations and the decline in borrowing countries' demand for imported capital goods and other imports. Net new lending from these agencies has picked up somewhat, but more net flows from them in the next few years will be needed, as well as further financial relief through rescheduling and refinancing of interest.⁵

The exception to this pattern is Japan, which has been playing a prominent role. The recent actions by Japan's Export-Import Bank to make large sums of untied funds available suggest the way in which the lending policies of export credit agencies should be adapted to suit the highly indebted countries' special circumstances. A combination of some increase in Official Development Assistance (ODA) and untied loans by the Export-Import Bank of Japan may boost Japan's net lending to the highly indebted countries as much as \$1 billion a year in the near term. But the reallocation of concessional lending to Sub-Saharan Africa and export credits to more credit-worthy countries in Asia by other bilateral creditors may offset some of these gains. It is therefore safe to assume an annual net inflow of \$1.5 billion from bilateral sources.

Multilateral Lending

During 1986–88, the share of the World Bank and the other multilateral development banks (MDBs) was 50 percent of total medium- and long-term flows, up from roughly 12 percent in 1980–82. If adjustment programs and economic performance develop as assumed, net flows from the IBRD to the highly indebted countries can be expected to be about \$3 billion a year over the next five years. A further \$1 billion, at a minimum, in net flows is likely to be available to these countries from the other Multilateral Development Banks (MDBs).

Commercial Banks

Commercial banks continue to lend to a handful of creditworthy borrowers (mainly in Asia), and some concerted loans are still arranged for such highly indebted countries as Brazil and Mexico. But loan charge-offs, debt conversions, swaps, buybacks, and sales have all contributed to the declining bank claims on highly indebted countries. An estimated \$12.3 billion of commercial bank debt was taken off the books in the first half of 1988 alone, and the process is gaining momentum. This outcome is a major reason for pessimism about securing adequate net flows from commercial banks. It is not likely that the commercial banks' attitudes toward the indebted countries will be reversed soon. True, there will be reschedulings of principal, reduction in spreads and fees, and some concerted new-money packages, mainly to finance retroactive interest arrears.⁶ But no significant new flows for balance of payments support are likely before 1995.

Constraints on Action

Debtor Adjustment Efforts

The highly indebted countries and their creditors disagree about the nature, extent, and outcome of adjustment efforts. Most creditors believe that the economic plight of the highly indebted countries has much to do with their weak commitment to reforms and with their policy slippages. The highly indebted countries have found it easier to cut investment than to tax or reduce the consumption of powerful high-income groups. The stop-go cycle of economic policies has also eroded the credibility of adjustment policies. But political leaders of the debtor countries, particularly in the new democracies, argue that a decade of continuous decline in per capita income and consumption has generated enormous social and political tensions and stretched the feasibility of these reforms to the maximum. Further reforms to pay off their debts to foreigners—reforms that impose even greater sacrifice on the population—will

pose real constraints. Even in the best of circumstances, structural reforms meet formidable political obstacles across the board.

The political problem is that the costs of adjustment are immediate, while the diffuse benefits materialize only gradually, far beyond the horizon of political leaders. George Schultz, when U.S. secretary of state, observed: "If the immediate visible impact of changes in economic policy is hardship at home to keep up service on the debt, then that debt service can have the effect of a marginal tax on economic reform. Any effort taxed at 100 percent, or at only excessively high rates, will be discouraged and become politically difficult to sustain (U.S. Department of State 1988).

Is it feasible to achieve some minimal acceptable growth in output and consumption and simultaneously improve creditworthiness? Most of the highly indebted countries cannot restore creditworthiness or gain access to capital markets even with strong adjustment policies. Moreover, the sharp cuts in investment, maintenance expenditure, and imported inputs disrupt the supply responses to better relative prices and make output gains—normally assumed as a result of successful adjustment programs—difficult. Another problem is that, in assuming private sector debt, governments have had to increase their budgetary outlays on interest payments. Financing the growing public deficits by internal borrowing or expansion of money supply has exacerbated the inflationary pressures, generated high real domestic interest rates, and added to the interest bill.

External Environment

The ability of highly indebted countries to grow out of debt also depends on the markets for their main export products. The major debtors have increased the volume of their exports substantially since 1982, but terms of trade losses eroded the dollar gains. The value of their exports in nominal terms remains unchanged—at \$150.0 billion a year.

The GDP growth rates of the G-7 countries have been reasonably high, but the spillover to the highly indebted countries has been modest. The situation may get worse. Instead of averaging 3 percent or more, the major industrial economies are expected to grow at 2.5 percent annually for some time. And if the United States is serious about reducing its huge trade deficit, the chances of its taking a large increase in exports from the highly indebted countries are slim. Nor is it obvious that Japan and Germany, always reluctant to stimulate and open their economies, will absorb substantially more exports from the highly indebted countries. Their combined GDP exceeds the U.S. GDP by more than 60 percent, but they absorb far fewer exports of manufactured goods from

Latin America. Another potent threat to the highly indebted countries is the growing market share of the newly industrializing economies in Asia.

The price prospects of debtor countries' major commodities are also unpromising. Real prices for most primary commodities will remain depressed because of structural and cyclical demand factors. And the heavy subsidies the industrial countries give to their relatively high-cost producers will continue to depress basic food prices.

Another uncertainty is the movement of real interest rates, which remain high. Almost two-thirds of the highly indebted countries' debt is tied to variable interest rates, opening them to interest rate shocks. Every percentage point rise will add \$3.5 billion to their debt servicing, creating larger demand for new capital inflows or debt reduction. The policies of the United States and its major trading partners will determine the interest rate, exchange rates, and the debt-servicing capacity of the highly indebted countries. For example, a fall of the U.S. dollar could drive interest rates way up and push the U.S. economy into a recession.

A combination of slower OECD growth, collapsing commodity prices, and rising real interest rates could wreck the highly indebted countries' economic prospects.

Commercial Finance

The total likely to be available from all known and identified sources of finance—private investment; official transfers; bilateral, multilateral, and export credits—will not exceed \$6–\$7 billion a year. The financing gap during 1989–95 remains about \$9–\$10 billion. Private commercial banks traditionally supplied the bulk of financing to the highly indebted countries, but the constraints on their lending have intensified in recent years for five reasons.

First, skepticism is growing about the near-term prospects for improved creditworthiness in the debtor countries. Bankers know that restoring creditworthiness will be a long and uneven process. They know, too, that the domestic political difficulties of implementing reform programs reduce the likelihood of success. To make matters worse, interest arrears are increasing, some because of unilateral moratoriums on debt-service payments.

Second, banks face intensified pressures, both regulatory and competitive, to strengthen their balance sheets. The regulatory authorities in many industrial countries are adopting more conservative guidelines, presenting banks with stricter and more comprehensive capital requirements. As a result, they are realigning their strategies to strengthen their capital base, restrain asset

growth, focus on fee-based activities, cut exposure to developing countries, and improve profitability.

Third, the effect of depressed secondary market prices for developing country loans has damaged the share prices of banks that have large exposures. Prices in the secondary market suggest a reserve level of about 50 percent. If the reserves are increased that much, the regulatory capital position of the U.S. money-center banks will get worse, probably costing them substantial losses. Moreover, banks face the prospect of additional provisioning on new lending, making participation in concerted new-money packages expensive and at best marginally profitable. Intercountry differences make matters worse. Even though the loan-loss provisions by the U.S. banks appear to be in line with other major banking systems, the burden and risk for the U.S. banks is greater. They have a higher concentration of lending to highly indebted countries and much weaker capitalization. Banks in Japan and the United States, unlike their European counterparts, receive no major tax benefits for creating reserves. The depreciation of the U.S. dollar has also reduced the relative exposure of non-U.S. banks in developing countries. The reluctance of U.S. money-center banks and Japanese banks to increase their exposure to highly indebted countries is thus understandable.

Fourth, the long-term business interests of commercial banks are once again diverging. The universal (or critical-mass) participation in concerted lending—the *modus operandi* in the early years of the debt crisis—was made possible by the banks' shared interest in protecting the international financial system and in buying time to reduce exposures. Except for the large international banks, this phase has ended, and the underlying differences in exposures and business strategies are determining the decisions of individual banks to participate in lending new money. Many regional and small-exposure banks are redirecting their lending to traditional domestic and trade financing. Even among the larger banks, there are differences in financial interests and objectives. Those with multinational corporate clients—and, in some cases, with significant domestic banking operations in developing countries—can be expected to maintain direct interest in improving the liquidity of specific debtor countries. But other banks are trying to leave the debt-restructuring process, even at the cost of significant write-downs.

Fifth, sustaining the concerted new-money process will require adaptations and new approaches whose success is as yet uncertain. Restructuring agreements have consolidated most of (formerly independent) debt obligations and established a uniform legal standing for all commercial creditors' claims. The sharing clauses in these agreements make it possible, however, for some

creditors to collect full interest due on their outstanding claims without contributing to the fresh-money loans that help provide the resources to pay that interest. This free-rider (or recalcitrant bank) problem has become much greater as the new-money participation rates have fallen.⁷ As a result, the ability and willingness of the larger banks to continue to lend is subject to additional stress. Exit instruments thus far have not sustained the burden sharing concept that was part of the original restructuring, for reasons that have perhaps less to do with the design of the instrument than with the extremely complex legal issues surrounding attempts to close off the free-rider opportunity.

It will thus be extremely difficult—perhaps impossible—to generate aggregate net flows for the highly indebted countries in the needed amounts exclusively through the concerted new-money approach. Banks still hold about two-thirds of total medium- and long-term claims on the highly indebted countries, but the pressures not to lend will grow, forcing selectivity and strong reluctance to accept exposure increases that in other circumstances might look reasonable (2 to 3 percent on average, roughly a quarter to a third of interest due). The number of banks participating in new-money packages is likely to narrow further, as is the number of countries for which such financing can be arranged. Banks will likely concentrate any new exposure on countries where their financial and long-term business interests are substantial and where the prospects for a successful workout are reasonably good. Smaller countries, particularly those with weak adjustment programs, will continue to find it difficult to arrange concerted support (though not necessarily continued restructurings of principal).

Scope for Action

The constraints to mobilizing adequate flows of new money, especially from the commercial banks, are likely to remain strong. Part of the reason for this is that when a systemic payments problem arises, markets tend to experience “revulsion,” and credit volumes become paralyzed by a neighborhood problem—good and bad debtors are lumped together (Eichengreen 1989). Colombia has not had a debt problem as such in the 1980s, but its efforts to secure truly voluntary syndicated loans has nevertheless been severely frustrated.

If the net flows from commercial banks are unlikely to rise significantly, what other means would meet the financing requirements of this group of countries? There is no clear-cut or simple answer. Needless to say, the debtor countries themselves have to continue taking primary responsibility for their fate through further adjustment, however painful and politically difficult it may be in the short term. The more flexible and responsive

their economies are, the more resilient they become in facing unexpected economic shocks and in improving their creditworthiness. Favorable economic policies and good economic management will attract both new project and trade financing, multilateral lending, export credits, and direct equity investment. So, sound policies are essential for capital inflows and for other alternative financing. The other possible means for filling the financing gaps include reduction in the stock of debt or debt servicing followed by reflows of flight. And in cases where the debt reduction achieved is not sufficient to fill in the gap and the country is pursuing sound adjustment policies, consensual or sanctioned accumulation of interest arrears could supplement.

Debt Reduction

Why is debt reduction then a preferred option for the highly indebted countries to fill in their external financing requirements in pursuit of a reasonable level of growth? The negative net transfers have lowered the investment ratios, which have reduced output growth and exports, and in turn their capacity to fully service their debt. The reversal of the negative net transfers can be achieved by increasing new flows of money, but, as we have examined earlier, the probability of new-money flows to highly indebted countries in the next five years or so, especially from the commercial banks, is very limited. The other option is to reduce debt or debt servicing. The general argument in favor of debt reduction rather than new money is that many debtor countries have been unable to return to growth in the presence of very large debts. One reason for the persistence of slow growth is that debt overhang acts as a tax on increases in current and future income. If for example, a country is able to increase its exports as a result of policy reforms or more investment, a large share of the benefits is likely to accrue to creditors rather than to the country itself. This will depress the returns to the country from fixed capital investment and thereby weaken the incentive to invest even if finance is available. By reducing the creditors' share of the benefits from the adoption of adjustment policies and by reducing the uncertainty surrounding the sustainability of adjustment, debt reduction encourages investment and the incentive to implement better policies that, in turn, boost exports and debt-servicing capacity. In this case, debt reduction could make both debtors and creditors better off.

The IMF (1989) has found supporting empirical evidence for the debt overhang hypothesis. When external financial flows dried up after 1981, debtors were forced to run trade surpluses in order to service their debt. Adjustment in the trade balance can be achieved by reducing the consumption-output ratio or the invest-

ment-output ratio. In the highly indebted countries, the consumption-output ratio has not only failed to decline in proportion to the investment-output ratio but has actually risen on average between 1982–87.

The second piece of evidence of the existence of these disincentives is the contrast in the behavior of investment-output ratio between groups of countries with and without recent debt-servicing problems. For countries with debt-servicing problems, the average investment ratio fell from about 25 percent in 1980–81 to about 18.5 percent in 1987. By contrast, the group of countries without debt-servicing problems experienced very little change in its investment-output ratio, from about 28 percent in 1980–81 to 27.25 percent in 1987.

A third indication of this phenomenon is provided by changes in the composition of investment in the indebted countries. If debt service depends on overall macroeconomic performance, disincentives should apply to both the private and public sectors. Empirical estimates of disaggregated behavior of investment in a sample of debt-problem countries show that both public and private investment ratios drop from 1981 to 1984.

The cumulative thrust of the evidence reviewed in the IMF study—that is, the behavior of the consumption-output ratio in the debt-problem countries, the contrast between the investment-output ratio in these countries and in countries without debt-problems, and the sectoral evolution of investment between the public and private sectors—is broadly consistent with the presence of debt overhang disincentives.

Debt-reduction measures can be divided in several categories: (a) exchange of foreign debt against domestic assets (debt-equity conversion); (b) exchange of foreign debt against another foreign asset at a discount; (c) debt buybacks, and (d) debt-servicing reduction through reduced interest rates.

In the first approach, the original lender (or another party) has bought the debt at a discount on a secondary market, takes a loan to the country, and obtains in exchange local currency for the full face value of the official exchange rate. This local currency is used for purchase of local equity, relending, and so on. The advantage for lenders is that they find a use for their loans at a face value, while the advantage to the borrower is reduced debt. But if the assets acquired by the creditor are private and the debt is held by the government, which is the case in most highly indebted countries, this type of conversion contributes to accelerating inflation and higher real interest rates if the government is already facing fiscal deficits. In that case, to redeem the foreign debt, the government increases its internal borrowing or prints money.

The exchange of debt for other debt instruments at a discount, such as bonds and exit bonds, requires that the

new instrument is a more secured asset, and the probability of the borrower fully servicing this asset is larger than with the old debt. This usually requires that the new asset is backed by collateral for the principal or a guarantee for interest, or both. To purchase the collateral the country must have excess reserves that it can use or borrow, or obtain the resources from other sources. In the Mexican deal, although Mexico provided collateral for the ultimate repayment of principal (zero-coupon U.S. bonds it had bought for cash), the outcome was disappointing since the additional value placed by creditors on the new instrument did not exceed the present value of the collateral.

In the third type of operation, a country buys back its debt at a discount for cash. Bolivia and Chile are two such examples. Countries in debt difficulties rarely have much cash lying about: the Bolivian operation had to be financed by aid agencies. Chile was able to accumulate some reserves in the Copper Stabilization Fund due to unanticipated increases in the price of copper. In both cases, there were exceptional circumstances that facilitated the debt buybacks. In the literature, persuasive arguments support this.

The fourth type of debt reduction, that is, reduced interest rates on existing debt instruments, has not so far been put into practice. The reduced interest rate option is attractive from the debtors' viewpoint as they receive a substantial relief in cash flow. As the reduced interest rate is tied to economic performance, the fear of moral hazard is also, to a large extent, neutralized. A case-by-case approach to interest rate reduction negotiated in the framework of an agreed structural adjustment program can make a significant dent if the accounting and tax rules are modified to strengthen the incentives for the commercial banks.

The present tax and accounting rules do not provide any incentive for the banks to agree to reduction in interest rates. A variant of reduced interest rates that is attractive is analogous to warrants attached to bond issues. If the country's major export commodities register an upward swing relative to the threshold, the creditors participate in the gains proportionately and the interest rate reduction granted earlier is brought closer to the market rate in accordance with the country's payment capacity.

It has also been suggested that reflows of flight capital to the highly indebted countries can also fill their external financing gap. Estimates of flight capital vary greatly, but the pool may be as large as \$300 billion (Morgan Guaranty 1988). The conditions under which flight capital finds its way back are not necessarily conducive to the financial stability of the country. Those willing to bring back their flight capital require higher risk premiums, which result in high economywide real interest

rates. They choose to keep the assets in a highly liquid form and do not always invest in the expansion of productive capacity. And at the first possible indication of political or economic uncertainty, these financial assets leave the shores of the country, accentuating financial destabilization. While foreign debt is guaranteed by the debtor's government and thus safe from default risk, domestic investments by residents face expropriation risk (Khan and Haque 1985). This gives developing-country residents further incentives to place their funds in riskless savings accounts abroad, and it gives foreigners a comparative advantage in lending for domestic investment. If this expropriation asymmetry persists and an uncertain economic policy environment persists, there is little hope for substantial reflows of flight capital in the near term. Unless the country is able to eliminate debt overhang, reduce economic uncertainty, and stabilize the economic environment, there is very little hope for significant inflows of flight capital.

This finally leads to the question that has been the stumbling block for the success of voluntary debt reduction, that is, free-riding banks that do not wish to participate in voluntary debt reduction, hoping others will. These banks hold out, expecting that the value of their claims will be strengthened and pushed back to par value by the exit of other creditors. The regulatory authorities can play an important role in this regard by treating the nonparticipants differentially and harshly compared to those participating in the debt reduction. The key to the future direction of debt reduction therefore lies in the way the sticks and carrots are allocated.

The Brady Initiative

The Brady initiative, announced in March 1989, departs significantly from the existing debt strategy by allowing the use of financial resources of the International Financial Institutions (IFIs), that is, the World Bank and the IMF, in support of debt and debt-service reduction in countries pursuing strong adjustment policies. Although this is a step in the right direction, the voluntary choice given to the commercial banks for participation under the existing ground rules and the limited resources likely to be available from the IFIs have raised some skepticism as to whether the size of the debt reduction would be sufficient to offset the debt overhang. The voluntary market-based, case-by-case approach is an adequate response if the tax, regulatory, and accounting rules provide incentives to commercial banks for participation and penalties for free-riders or nonparticipants.

The existing rules and precedents were set to facilitate new-money flows. Debt reduction, beyond a certain limited scale, would impose additional financial costs on the commercial banks. The credit enhancement or the re-

sources for debt buybacks provided by IFIs would not be sufficient to make a significant difference in the larger debtor countries. Thus the Brady initiative may be able to assist the smaller countries, but it appears that the expectations that have been aroused about its impact in the larger countries are at present exaggerated.

Notes

The authors are grateful to Don Hanna for his assistance in the preparation of this study.

1. Aggregate net flows consist of net disbursements of official transfers, direct and equity investment, and short-, medium-, and long-term loans from all sources to the private and public sectors in a country. Net flows, as defined in the *World Debt Tables* and elsewhere, consist only of net disbursements of short-, medium-, and long-term loans and exclude other components of resource flows.

2. Aggregate net transfers are defined as aggregate net flows minus interest payments. This concept differs from the definition of net transfers that is used in the *World Debt Tables* and elsewhere in so far as it covers both debt-creating and non-debt-creating flows.

3. A measure of net transfer, implicit interest capitalization is the ratio of net lending by a creditor (say, private banks) to the interest payments due to it in any period.

4. The aggregate figure masks large differences. Through concerted lending packages, generally supported by Fund arrangements, certain countries (Argentina, Brazil, Chile) were able to obtain increases in commercial bank exposure, but others suffered a withdrawal of commercial bank lending.

5. Some \$61 billion in debt relief was provided by Paris Club members to developing countries during 1983–87, compared with only \$19 billion in 1976–82.

6. Since the inception of the debt crisis, commercial banks have restructured about \$300 billion in outstanding principal; they have assembled \$40 billion of new-money packages and have arranged special short-term credit lines on the order of \$36 billion. The figures for new financing from commercial sources in individual country situations through new-money packages do not take account of the outflows to commercial creditors in some countries. Hence, the total new money that must be raised in the market could be somewhat larger than the aggregate net financing requirements.

7. In Colombia, for instance, only 112 of about 175 creditor banks participated in the January 1988 new-money facility, which had to be reduced to complete the deal.

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Comment

Mohsin S. Khan

This interesting and useful overview paper discusses the main issues of debt and external financing problems of the highly indebted countries. It addresses three questions. First, what has been happening to financial flows to indebted countries since the onset of the debt crisis? Second, what flows will these countries need in the next few years to achieve satisfactory economic growth? Third, will these countries obtain the external financing they apparently need?

I happen to agree broadly with both the analysis in the paper and its conclusions. Few economists could disagree with the bottom line of the paper—that is, external flows to indebted countries in the 1980s are sharply down; these countries need a lot of external financing to revive their growth rates; and they are unlikely to get it unless something radical (perhaps along the lines suggested in a number of the papers in this volume) is done.

I will focus on the central parts of the paper—external financing needs and the scope for action. My comments on the calculation of external financing needs can be divided into those dealing with method and those relating to the estimates for 1989-95.

The estimates are based on the much-maligned, but much-loved, RMSM model of the Bank. For those not familiar with the RMSM model, it is an open-economy variant of the fixed-coefficient Harrod-Domar model. One problem of the model has a direct bearing on the estimates of external financing needs. This model attributes any fall in growth exclusively to the investment decline, and, given unchanged domestic policies, all the investment decline to the lack of external financing. Consequently, a dollar increase in external financing leads to a dollar increase in investment, and thus a dollar (times the inverse of the incremental capital-output ratio) increase in output.

How reasonable is the assumption that the fall in growth during the 1980s in indebted countries was because of the decline in investment? During 1975-81, the growth rate of real output for the 15 highly indebted countries averaged about 4.6 percent a year. This declined to about an average of 1.5 percent a year during

1982-87. How much of this 3.1 percent a year shortfall can be explained by the fall in investment? Eduardo Borensztein and Peter Montiel at the IMF have found that even under the best set of circumstances, such as an ICOR of 2.5, the decline in investment can only account for about 1 percentage point of the 3.1 percent shortfall (Borensztein and Montiel 1989).

There must be other explanations for the decline in growth rates other than the supply-side effect of the fall in investment rates. Possible candidates include restrictive demand-management policies and import-compression policies that were adopted in the pursuit of trade balance improvement by the indebted countries. If the slowdown in growth rates was because of the fall in investment, deficient demand, and the negative effects on productivity created by distortionary trade policies, then simply raising investment rates to precrisis levels will not raise growth rates sufficiently.

The fall in investment was not solely because of the sharply reduced external financing flows. Factors such as terms of trade deterioration, high real interest rates, cutbacks in public investment, and the disincentive effects of the debt overhang were also important and they are not taken into account in this type of model. For example, if the fall in (private) investment is because of the debt overhang, an increase in lending could decrease investment if it did not generate a commensurate increase in government revenues or in the tax base. Simply increasing external financing may, thus, not be enough to raise investment rates.

So the estimates can be seriously off if one uses the fixed-coefficient RMSM model without care. Think of what this model would have shown in 1981 about 1982-88 growth rates, assuming that private external financing fell from around \$30 billion to zero. If the model could predict accurately, then one could be more comfortable with the estimates. But it is doubtful if this model could have the actual growth rates observed in the past six years or so.

Having said that, the estimates provided in the paper do not seem all that unusual. Under the optimistic scenario, indebted countries will need \$16-\$20 billion a year during 1989-95. The pessimistic scenario results are

more alarming, with these countries needing about \$30 billion a year—about what they were receiving in the heyday of international lending. There are two questions about the pessimistic scenario: first, why assume the same target growth rate for developing countries as in the optimistic scenario? And second, is the growth rate for industrial countries an assumption or a projection? Concerning the second, why is there likely to be a monetary shock in 1990–91 that causes a fall in the growth rate in the United States, Germany, and Japan and simultaneously leads to an increase in nominal and real interest rates? This scenario is not too convincing.

The prospects for needed flows (even under the optimistic scenario) are pretty dismal. The paper goes through various options in a careful and reasonably objective manner, and while one can quibble about some of the numbers, that is, that private direct investment will go up \$4–\$5 billion a year but that there will be no return of flight capital when both are presumably affected by similar factors, the arguments made in the paper seem sensible. The outlook for renewed lending by commercial banks (even to a scale of about one-third of lending in 1980–82) is bleak.

What can be done to fill this financing gap? The paper seems to imply that economies are already suffering from adjustment fatigue so that one cannot expect much more. But since the authors do not spell out the assumptions made about domestic adjustment underlying the calculations—the improvement in fiscal deficits, the reduction in monetary growth, and the change in the exchange rate—it is difficult to judge whether the adjustment is the maximum possible or whether the countries could still do more. I agree that reflows of flight capital are unlikely to provide much to fill the financing gap. But it is always tempting to think of ways to get this money back—at the end of 1988, private nonbank deposits of the 15 indebted countries in the major financial countries were over \$70 billion. Finally, unless things change sig-

nificantly, debt-equity swaps, exit bonds, and securitization of debt do not seem to offer much reprieve.

Since most of the options are not expected to cover the gap, it would be interesting to see the exercise in reverse. Suppose the banks did not come in, so that the amount of external financing was limited to official flows—what would the average growth rates be? Some simple calculations indicate that if net capital inflows were about \$10 billion a year (from official sources), and sensible macroeconomic and structural policies were in place, the per capita growth rates of the indebted countries would average about 2.5 percent a year. This is certainly below average per capita growth rates observed in the 1970s, and well below desirable growth rates, but the picture is not as horrendous as some would make out. A similar exercise conducted by using the model in this paper would yield more negative results, but that is because the model does not capture other growth enhancing factors.

This paper takes an aggregative approach and naturally implies systemic solutions. But all countries are not in the same boat. The paper concludes by favoring the case-by-case approach to the debt strategy, based on the argument that there are intercountry differences, but does not elaborate on these differences. There is much variation across the indebted countries, and more in the paper on the financing needs of different countries—particularly if we are being asked to accept the present case-by-case debt strategy—would have been useful.

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Part III

Debt Reduction and Recontracting

Liquidity, Debt Relief, and Conditionality

Stijn Claessens and Ishac Diwan

How do the amount and structure of liquidity and debt relief affect the welfare of a debtor country and the payoffs of its creditors? The framework that the chapter develops helps in understanding how various combinations of new money, interest capitalizations, and debt and debt-service reductions affect a debtor country's growth and debt repayments. Most important, the analysis distinguishes between debtor countries that are willing and able to precommit credibly to an adjustment program and those that are not. This allows for a discussion of possible roles for the International Financial Institutions (IFIs) in the debt crisis.

Building on recent literature, the chapter contrasts two channels through which the burden of external public debt depresses capital formation and lowers economic growth below its potential. First, current resources must be divided over some combination of domestic consumption, investment, and current external transfers. After years of austerity and low output, many debtor countries cannot afford to lower consumption to achieve an external transfer and thus shift more of the burden of external adjustment onto investment. This shift is exacerbated when liquidity is scarce—that is, when current debt obligations are large, new loans are scarce, and income is low—and when consumption is close to a minimum acceptable level. Often, this “liquidity effect” is manifested by crowding out private sector investment.¹ In an extreme situation, a liquidity trap can develop, with consumption taking an increasingly larger share of output, just as a temporary grain shortage can become self-perpetuating, causing a permanent famine in a rural island.

Second, expectations of future debt burdens tend to reduce the incentives for current investment and adjustment. Debtor-country governments' incentives to reform get dampened, because current austerity for future growth becomes less attractive the larger the share of future marginal output that has to be transferred abroad.

Moreover, to the extent that the private sector in indebted countries expects the governments to operate a large transfer from this sector, private investment also gets distorted, as these expectations are transmitted through the economy in the form of large expected taxes. This negative incentive effect on investment can be expected to be particularly pronounced in the sectors most likely to be tapped for public financing, be it the monetary and financial systems, the manufacturing sector, or trade activities.²

Both the liquidity and incentive effects can pull highly indebted economies in a downward spiral, in spite of productive—but unexploited—investment opportunities. But the country's creditors also suffer from the lack of growth when it depresses their payoffs. If the low investment status quo is maintained, creditors and debtors lose, as in an inefficient prisoner's dilemma equilibrium.

Creditors and debtors can offer to improve the status-quo allocation. Offers with different combinations of liquidity and future debt-service relief imply different degrees of productive efficiency and sharing of the debtor's output. Since unexploited investment opportunities exist in the status quo, there are offers that represent Pareto improvements.

But because of the intertemporal nature of credit relations, each side will not move first unless convinced that the other side will do its share. Both parties must commit simultaneously to some action to improve on the status quo: creditors must provide liquidity and commit not to extract too large future repayments, and the debtor must credibly commit to invest a large share of any additional resources made available by relief. Both parties have access to some—albeit imperfect—commitment mechanisms in the real world: banks can commit to reduce future debt-service obligations by recontracting and agreeing to debt write-offs, debt exchanges, and low interest rates on rescheduled debt; and debtors can

commit to invest and adjust before receiving new liquidity by taking part in IFIs' conditionality programs. The debtor's commitment to more efficient investment will lead the creditors to provide additional liquidity since their returns become more secure. As a result, a larger pie will be available for division between the debtor and the creditors, and Pareto improvements are possible.

The analysis leads to a typology of debt crises. It defines a debt overhang as a situation where outstanding debt is so large that investment will be inefficiently low without new money or debt and debt-service reductions. A mild debt overhang can be resolved with new money alone: this is called a liquidity trap. Otherwise, a debt overhang requires debt or debt-service reductions unless the debtor uses a commitment mechanism. When a debtor experiencing a debt overhang that is more severe than a liquidity trap is willing to commit to an adjustment program against the provision of liquidity alone, the situation is called a "weak" debt overhang. In such a situation, the commitment mechanism and new money resolve the crisis without the need to reduce debt and debt service. But a "strong" debt overhang cannot be resolved without debt and debt-service reductions: the debtor will be unwilling to commit to a large investment program without debt reduction, even if large amounts of liquidity are made available.

Liquidity, Debt Stock, and Repayment

To highlight the effect of liquidity and debt on productive efficiency, the analysis is cast in terms of a simple two-period certainty model (see Claessens and Diwan 1989 and the appendix). Consider a small, one-good, open economy. In each period the country is endowed with an exogenous supply of a good, which can be used for consumption, repayment of loans, or investment, and is a price-taker in the international goods and credit markets. The inherited stock of foreign debt is denoted by D_0 .³

The country is governed by a central planner, who maximizes a welfare function subject to resource constraints. Decisions must be made regarding new external borrowing and the allocation of current resources among domestic investment, consumption, and external transfers. The timing is as follows: in the first period, the planner may borrow abroad subject to supply constraints. The available resources are then divided between investment and consumption. In the second period, the country makes transfers to the creditors from its endowment and the return on its first-period investment and consumes the remaining resources.⁴ To sharpen the analysis, assume that the creditors have a "gunboat" mechanism for capturing all of the country's

second-period resources in case output falls short of the debt service due.⁵

The economy can be represented by the following five equations:

$$(12-1) \quad W = U(C_1) + bC_2$$

$$(12-2) \quad C_1 = E + L - I$$

$$(12-3) \quad C_2 = E + f(I) - R$$

$$(12-4) \quad R = \min [E + f(I), D_0 + L]$$

$$(12-5) \quad P = R - L$$

where

- E = the country's endowment in each period,
- C_i = aggregate consumption in period $i = (1, 2)$,
- I = the investment level in period 1,
- $f(I)$ = the return on investment⁶ in period 2,
- L = the amount of resources lent in period 1,
- R = the actual repayment,
- D_0 = the inherited debt in period 1,
- P = the creditors' intertemporal payoff,
- W = the debtor's intertemporal welfare, and
- b = the debtor's discount factor.

The debtor's welfare is a linear combination of utility of consumption today $U(C_1)$ and the present value of consumption in the future bC_2 . The first-period utility function, $U(C_1)$, satisfies the usual concavity and Inada conditions. So the model recognizes that lowering consumption becomes increasingly painful. For analytic convenience, second-period utility is chosen to be linear, and b is the country's discount factor. This avoids, among other things, having to deal with risk-sharing considerations and simplifies the analysis. Take the world interest rate to be zero. To reflect the relative scarcity of capital in the debtor's country, the country's discount factor is assumed to be below the world's discount factor—that is, $b < 1$. The creditors' net payoff, equation (12-5), is the difference between the amount actually repaid in the future and the amount of resources lent today.

In a world with perfect capital mobility, the debtor country's investment and consumption decisions are separable. All investment projects with a rate of return above the world's interest rate are undertaken, resulting in an aggregate efficient investment level of I^{**} . If the

resources available for current consumption are too low in relation to future expected output, the country can reallocate consumption intertemporally by borrowing from abroad, which results in the equalization of the marginal rate of substitution of intertemporal consumption with the discount factor b .

But with a large inherited debt, the separation between investment and consumption decisions no longer holds. Investment responds to two additional considerations, a liquidity and an incentive constraint. As a result, the level of investment chosen by the country can be represented by a function $I^*(L, D)$ that increases with liquidity L and decreases with outstanding debt D . In this stylized model, it is best to think of investment as being determined in two stages: first, the country must decide if it is strategically desirable to invest at all; and second, it must decide how much to invest—if at all—according to its liquidity situation.

The Incentive Effect of a Large Debt

With a large inherited debt, investment decisions obey strategic considerations. To illustrate, consider an extreme situation where external debt is infinitely large. Because of the gunboat technology assumed in the model, the debtor can rationally expect that all its future returns from investment will be expropriated. It then becomes irrational to sacrifice any current consumption for investment, since all the resulting increase in future output will benefit the country's creditors, but not the residents.

More generally, when the amount of future contractual obligations falling due is large, the associated future repayment obligation can act as a tax on investment since a share of the return will go to creditors. It then becomes rational for a high-debt country to underinvest (relative

to the efficient investment level I^{**}) and to overconsume (or engage in capital flight).⁷

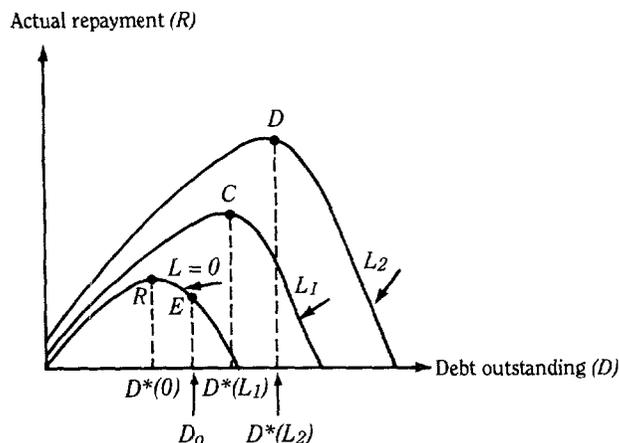
The relationship between debt stock and repayments can be represented in the form of the debt Laffer curve for a given level of liquidity L .⁸ In figure 12-1, the actual repayment R is depicted as a function of the debt obligation D_0 by the curve L_0 when no new liquidity is made available to the country. The repayment function initially increases one-to-one with indebtedness, but after a certain level of debt not all debt is repaid, and the repayment function curves down, reaching a maximum at $D^*(L_0)$. Past this maximum, an increase in debt obligations reduces actual repayment.⁹

Liquidity Considerations

The opportunity cost of investment increases with the scarcity of current resources. As a result, the country's effective rate of time preference becomes larger than the world interest rate, rendering investment opportunities that are valuable by international standards—whose rate of return is above the world interest rate—unattractive. The investment level chosen, I^* , will then be too low from a world efficiency viewpoint. Only when enough new resources are made available will investment be efficient: $I^* = I^{**}$.

For each level of debt obligations, the country will invest and repay more, the larger the available liquidity. As a result, a debt Laffer curve exists for each level of liquidity. In figure 12-1, this is depicted by a family of Laffer curves, one corresponding to each level of liquidity. As liquidity increases (from 0 to L_1 to L_2), the country retains its creditworthiness for higher levels of debt, and the tops of the Laffer curves correspond to larger amounts of nominal debt obligation—that is, $D^*(0) > D^*(L_1) > D^*(L_2)$.

Figure 12-1. Laffer Curves and Liquidity



The Maximum Repayment Function

The important implication of the dual liquidity and tax effect on investment is that, in general, the incentive for investment will depend on the amount of liquidity provided and on the amount of debt repayments, D , that the creditors are expected to ask for in the future. The debtor will invest I^* , and repay D only when D is smaller than some threshold level $D^*(L)$, with D^* increasing in the amount of liquidity provided (L). If the creditors are expected to ask for a repayment larger than $D^*(L)$, investment is optimally set to zero, and creditors can at most expropriate the country's endowment, E , in the future. If the creditors instead asked for $D^*(L)$, the country would invest and be willing to pay $D^*(L)$.

Figure 12-1 can be used to derive the maximum amount creditors can expect to get as a function of the amount of new liquidity they provide, assuming that they adjust the level of contractual future debt obligations to get the maximum possible repayment $D^*(L)$ (as given by the tops of the corresponding Laffer curves). This can be seen in figure 12-2, where the curve RR' depicts the maximum repayment frontier that implicitly embodies the optimal creditors' action regarding D at each level of liquidity. On the frontier RR' , the creditors always take the debtor's trade-offs regarding investments and consumption into account and collectively write down the debt to the level at which their collective returns are maximized. Therefore, the disincentive effect is eliminated in all the allocations on RR' , and the gross return is maximized.¹⁰ In figure 12-2, points C , D , and R correspond to the maximum future repayment that can be secured with new loans of size L_1 , L_2 , and zero, respectively.

Optimal Provision of Liquidity without Commitment

Define a debt overhang as a situation where initial debt D_0 is larger than $D^*(0)$. The rest of the paper will concentrate on cases of debt overhang—that is, will assume that $D_0 > D^*(0)$.

In figure 12-2, the status quo (no debt relief, no new liquidity, and no new investment) is depicted by point S that lies below the maximum repayment frontier. Assuming creditors act collectively, they can make offers to the debtor to try to improve their net return. By writing down debt from D_0 to $D^*(0)$, banks can increase their return (to point R in figure 12-2) without providing new liquidity. But larger net payoffs are generally possible with more liquidity. The debtor can similarly make an offer to the

creditors of different amounts of liquidity and debt repayment to try to improve its welfare level.

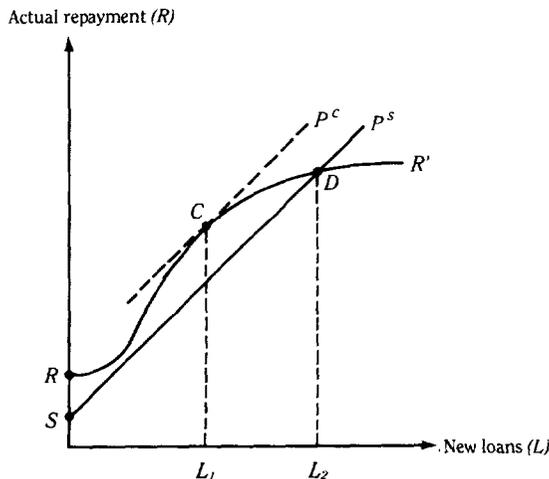
What kind of deals, pairs (L, D) , are feasible between the two parties? For each level of liquidity L , the two parties know that it would be in their joint interest that future debt obligations be written down to $D^*(L)$.¹¹ Current negotiations can therefore be viewed as centering on the issue of picking a pair $(L, D^*(L))$; that is, a point on the maximum repayment frontier RR' .

Existing foreign creditors may want to finance new profitable investments to increase the size of the economic pie to be divided in the next period between themselves and the country. But the creditors need to be assured that (part of) their new loans will be used for investment. Since the country decides after receiving the new loans how to allocate these new resources between investment and consumption, creditors can rationally expect that only part of those resources will be invested, especially when the tax and liquidity effects are strong. The creditors will take the debtor's ex-post trade-off into account in making their ex-ante decision regarding new loans. This time-consistency problem (or ex ante compared to ex post) limits the offers the creditors can make to the debtor, or the debtor can make to the creditors. In terms of figure 12-2, debt offers of (R, L) above the maximum repayment curve RR' are not credible because they are not time-consistent. Only offers on or below RR' are time-consistent and thus credible. The credibility problem increases with the scarcity of liquidity, since the debtor is more likely to consume the new resources. This is reflected in figure 12-2 by the very flat slope of the maximum repayment function RR' near the origin: initially, increasing liquidity has very little effect on investment, and thus on maximum repayment, and the slope of RR' is almost zero.

It is possible to plot in the space (R, L) in figure 12-2 the indifference curves of the creditors. They care about their net return, P , where net return is the future expected repayment, R , minus the amount provided this period, L . Their indifference curves are thus straight lines, whose slope is equal to their discount factor.¹² For example, the creditors are indifferent between the status quo allocation, S , and all the allocations on the line P^S : larger new loans are compensated by larger future repayments. The creditors would refuse any offer on RR' that yields a payoff smaller than in S , implying that they would find offers to the right of line P^S unacceptable but would accept offers to the left of P^S .¹³

The debtor would prefer to be as much on the right on RR' as possible: after all, more liquidity cannot hurt, given that the investment decision is freely reached after loans are disbursed. An offer at point R (no new money but a debt write-off to $D^*(0)$) is preferable to the status-quo allocation S . The increase in actual repayment

Figure 12-2. Allocations without Investment Commitment



$(R - S)$ is more than offset by the future gains from increased investment. Thus, any offer on RR' is, in principle, acceptable to the debtor since it would increase his welfare above the status-quo level.

From the creditors' viewpoint, the highest payoff acceptable to the debtor is given by point C , where the line PC is tangent to RR' . Interestingly, the offer at point C improves the debtor's welfare also, a reflection of the time-consistency problem, since the debtor has to be (ex post) as well-off investing and repaying as defaulting with more liquidity. It is in the interest of creditors to provide the debtor with some liquidity since it yields them a higher payoff as the debtor invests some and repays more. The debtor gains because only part of the new liquidity is invested. The preferred allocation for the debtor acceptable to the creditors (that is, on or above line PS) is given by point D . At D , the debtor's welfare is maximized, subject to the constraint that the payoff of the creditors is not below the status-quo level PS .

The final allocation agreed upon between the debtor and the creditors will therefore have to lie on the segment CD of the maximum repayment frontier. The exact allocation will depend on the relative bargaining strength of the two parties. In general, it will be a combination of debt and liquidity relief, with the debtor preferring allocations with more liquidity relief. Debt or liquidity relief alone will not be as efficient to encourage investment unless one of the liquidity or incentive constraints is not binding in the status quo.

Productive Efficiency

Moving along the maximum repayment frontier RR' from C to D , the debtor increases investment. With diminishing marginal returns, the slope of RR' becomes less steep as L goes up. But as long as the debtor remains liquidity-constrained, the marginal return on investment will remain above the world gross interest rate. The debtor would like to obtain more loans but cannot credibly promise to repay these loans since it cannot commit to invest a large enough share of them to guarantee full repayment. For example, allocations on RR' to the right of point D would lead to larger investment, but the creditors' net payoffs would be below PS . If commitments on investments were available, the debtor could overcome its credibility problem and obtain more loans, which would lead to higher investment, higher debt repayment, and increased welfare.

Debt Relief and Creditors' Commitments

The model distinguishes only two periods: today and the future. For creditors to maximize their return, they

must provide enough resources today and commit not to extract too much in the future. In an infinite-horizon model, and in the real world, what is needed is a commitment from the creditors not to extract too much in each individual period from the country, given the country's investment potential and its intertemporal trade-offs. In the presence of a high level of future obligations, creditors can achieve this commitment by reducing the present value of future contractual debt obligations embodied in debt contracts—for example, through debt write-offs or by lowering interest rates on rescheduled debt and new money.

More generally, in a model with uncertainty, the creditors should commit not to extract too much relative to the resources available each period for consumption, investment, and repayment. Ideally, the creditors should commit to extract smaller resources in bad states of nature, but retain the option to collect more in better states of nature. Debt reduction should be state-contingent to minimize any disincentive effects, while allowing the creditors to benefit from positive developments that would raise the debtor's ability to pay (see Krugman, forthcoming). But contingent commitments are more complicated to arrange. Cohen (in this volume) presents a useful and practical interpretation of the creditors' commitment in an infinite-horizon model. The key is that as one moves into the future (that is, as the two-period model is rolled forward), the debtor knows that its liquidity concerns will be taken care of. It is only in this sense that debt reduction matters, as it represents a commitment by the creditors to ensure that sufficient liquidity is available for the debtor to overcome its inclination to underinvest to reduce future debt repayments.

Empirical Evidence

It is useful to review at this point the (little) empirical evidence that is available on the debt Laffer curve. There are no accurate empirical estimates on the exact magnitude of a debt overhang's disincentive effect on investment that correct for country-specific variables such as the amount of liquidity available. What is available are various estimates of the relationship between the secondary market price of developing countries' debt and the countries' indebtedness (as reflected in standard creditworthiness variables).¹⁴ Relying on panel data, these regressions relate the secondary market price to standard debt ratios (debt to GNP, debt to exports) and to dummies for factors such as time, the existence of a debt-equity program, arrears, and the classification of loans to the country by regulators.¹⁵

These price equations can be used to derive individual countries' debt Laffer curves based on market percep-

tions (Claessens 1988 and Cohen in this volume). The level of debt for which the market value of debt is maximized can then be compared with the actual outstanding debt. The conclusion of this empirical evidence is that only a few countries seem to be on the side of the Laffer curve for which the market value of debt declines when the nominal face value of debt increases.¹⁶ According to this evidence, debt reduction is perceived by the market to be in the collective interest of creditors for only a limited number of countries. But in reality, incentive effects may well be entirely separable from market perceptions. Since none of these exercises comes close to a full-fledged structural model or even controls for country-specific variables such as liquidity, it is unreasonable to draw any conclusions about the desirability of debt relief.¹⁷

Optimal Allocations with Commitments by the Debtor

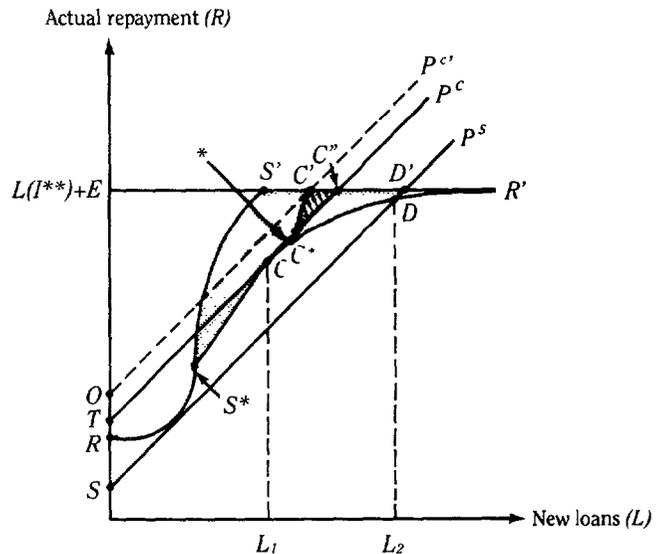
Because productive inefficiencies cannot be resolved without investment commitment in the presence of liquidity constraints, both parties can stand to gain if new loans can be made secure to finance additional investment.¹⁸ A mechanism that allows the debtor to commit to an investment level before new loans are provided can lead to overall gains, since it can overcome the credibility problem the debtor has in assuring creditors that new resources will be invested instead of consumed. The analysis above revealed that the credibility problem is more important when the liquidity constraint is more binding. But while the extra gains of the commitment mechanism can be shared, it will be shown below that it can also hurt the debtor.

The possibility of making offers in terms of a triplet (D, L, I) will allow for a larger economic pie than through making offers in terms of (D, L) alone. The exact division of the larger pie depends on the bargaining position of the two parties and can be influenced by the objectives of the provider of the commitment mechanism.¹⁹

Pareto Improvements

A commitment mechanism can allow for the maximization of the economic pie that gets divided between the two parties. This is achieved when the debtor commits to undertake all profitable investment opportunities (from a world capital market viewpoint), so that the marginal return on investment is set equal to the world gross interest rate. Feasible (D, L) offers, when the level of investment committed to is I^{**} , will be bound by the new maximum repayment $[E + f(I^{**})]$, represented in figure 12-3 by a horizontal line.

Figure 12-3. Allocations with Investment Commitment



Which allocations on or below the new maximum repayment frontier are acceptable to the debtor and the creditors? At each level of liquidity, the creditors can now extract larger repayments from the debtor in the future because output is larger. For the commitment (to lower consumption in the first period in order to increase investment to I^{**}) to be welfare increasing, the debtor must be compensated either through larger new loans (liquidity relief), lower future repayments, or both. Take point C for instance: there must be some allocation on RR' that leaves the debtor indifferent between non-commitment and a commitment to invest I^{**} . Plot this second point in figure 12-3 by point C^* . To compensate the debtor for its investment effort, C^* must include larger loans, and it therefore lies to the right of point C. In turn, various allocations with larger liquidity (but also larger future repayment) yield the same welfare as C^* in the commitment mode. They are represented by the curve C^*C' in figure 12-3. Along C^*C' , the debtor is willing to trade more repayment for more liquidity, but its rate of time preference remains larger than the creditors' (that is, the slope at each point on C^*C' is larger than the unitary slope of P^S). Using similar reasoning, there exists a point S^* that represents the commitment allocation on RR' with equal welfare level for the debtor as under the status quo at S, and a corresponding indifference curve S^*S' .

Offers that yield a lower welfare than the status quo (at point S) will certainly be rejected by the debtor. This restricts acceptable offers to lie to the right of the indifference curve S^*S' , as shown in the gray area in figure 12-3. Moreover, offers that yield a welfare level lower

than in the worst cooperative noncommitment allocation (to the left of C^*C') are also likely to be rejected (unless the creditors can credibly threaten to impose the inefficient status-quo allocation in the absence of a deal involving a commitment by the debtor). From the creditors' viewpoint, offers that result in a payoff smaller than the status quo will not be accepted, so acceptable offers must thus lie above line PS^S .

Therefore, there will always be a set of allocations with a commitment to invest I^* that will Pareto-dominate the status quo. These allocations are represented in figure 12-3 by $S^*DD'S'$. Moreover, there will always exist a set of allocations with commitment that will Pareto-dominate any noncommitment allocation on RR' . For example, the area $*C^*C''$ represents the set of allocations that are Pareto improvements relative to C : the debtor has the same welfare on C^*C' as in C , while the creditor has the same payoff on CC'' as in C .

But one can always find commitment allocations (in $S^*DD'S'$) that do not Pareto-dominate any particular noncommitment allocation. It is thus possible that the debtor or the creditors become worse-off when the commitment mechanism is used. For instance, point D without commitment will be preferred by the debtor to point C' with commitment (and vice versa for the creditors). More important, the set of commitment allocations in $S^*C^*C^*S'$ make the debtor worse-off than in its worst noncommitment allocation in C . Without commitment, the creditors have to provide some extra incentive for the debtor to invest and not default. But using the commitment mechanism cannot make the creditors worse-off than in their worst noncommitment allocation (point D).

Types of Debt Crises and Associated Policies

While the severity of debt crises depends on the severity of inefficiencies associated with the incentive and liquidity effects, it helps to classify debtor countries according to the types of financial arrangements that are required to restore efficient production. Such a typology helps to clarify the policy debate by discriminating (at least conceptually) between countries that need debt write-offs and those that need only new liquidity.

The typology is built around the three instruments that, individually or in some combination, are used for debt recontracting: new loans, near-term debt-service reduction, and debt write-offs. It should be noted at the outset that any typology of debt crises is not value neutral. To say that a debtor country needs debt reductions involves a judgment on the exact welfare level desirable (or necessary) for the debtor. Here the debtor's reservation welfare is defined as its welfare under the creditors'

best noncommitment allocation (point C in figure 12-3, which is equivalent to its welfare under the commitment allocations on the indifference curve C^*C'). This leads to the following classification of debt crises.

Debt Overhang

A debt overhang was defined earlier as a situation in which the liquidity effect, the incentive effect, or both, are strong enough to discourage growth without concessions by creditors. In a debt overhang, the debtor is unable (or unwilling) to invest without new loans or debt relief. In terms of figure 12-3, a debtor with outstanding debt D_0 above point R will have a debt overhang because R corresponds to the top of the "no new liquidity" Laffer curve.

Liquidity Trap

A liquidity trap occurs when current liquidity is very scarce, consumption is close to its minimal acceptable level, high-return investment opportunities are unused, and debt outstanding is not too large. In such a situation, providing small amounts of new loans is not profitable since most of the new resources will be consumed. But providing large amounts of new loans can be profitable since the marginal share of investment in new loans increases with the loan size. If marginal returns on investment are large enough, aggregate investment can—in this situation—exhibit increasing returns to scale.

In this model, a liquidity trap arises when the slope of the maximum repayment frontier RR' is smaller than the creditors' discount factor around $L = 0$, and the initial level of debt is low enough to make full repayment of the old debt and the new loan possible. In figure 12-3, that happens for D_0 smaller than T .²⁰ To see that, consider the allocations on the line PC . When initial debt is given by $D_0 = T$, S is collected in the absence of debt relief, and R is collected with optimal debt relief. But the provision of liquidity L_1 allows the creditors to recapture the outstanding debt T plus the new loan L_1 . Consequently, a liquidity trap arises for any initial level of debt below T but above R .²¹

Weak Debt Overhang

When outstanding debt is large enough to create a debt overhang that cannot be resolved with the provision of liquidity alone, but not too large, the status-quo situation can be improved upon by using the commitment mechanism alone. This encourages creditors to provide larger

loans that, when invested, generate larger “surpluses” to be shared. In other words, investment commitments can transform a debt overhang into a liquidity trap that can be resolved only with new liquidity.

In figure 12–3, this corresponds to a situation where inherited debt D_0 is below point O (but above T). The availability of sufficient amounts of liquidity that are conditioned on efficient investment can make investing sufficiently attractive for the debtor to prefer it over the alternative in C . Creditors are willing to provide new liquidity, given the debtor’s investment promises. The debtor would restore its creditworthiness and repay its old and new debt. Without the commitment mechanism, it would have been in the interest of the creditors to write off debt to T and provide new loans in the amount of L_1 .

Strong Debt Overhang

A strong debt overhang exists when inherited debt is so large that the status-quo, low-growth equilibrium allocation will be preferred by the debtor unless some portion of the existing debt is written off. The allocation of resources can then be further improved by new loans and investment commitment. The reduction in the contractual future debt obligations is needed because the debtor would refuse to commit to restore its creditworthiness without it.

In figure 12–3, a strong debt overhang corresponds to a situation where inherited debt is above point O .²² The debtor will only be interested in regaining creditworthiness when the creditors give an upfront debt write-off that brings the future debt obligations down to O . At that point a commitment to invest efficiently would be acceptable to the debtor because it would provide him with a welfare level at least equal to that at point C .

The classification above suggests a natural evolution in the degree of a debt crisis when proper policies are not undertaken on time—from a liquidity trap, to a weak debt overhang, to a strong debt overhang. Often, difficulties have prevented or delayed the policies needed at a specific phase in a debt crisis: collective-action problems among the creditors, coordination problems within the debtor country between public and private agents, and

increased volatility of various world prices. When actions needed to prevent a liquidity trap from deteriorating are not taken, a downward spiral can occur, leading to a situation that requires debt reduction and conditionality. With some lag, decisionmakers have recognized this deterioration and have moved from an IMF balance of payments strategy with a stress on liquidity needs (Baker plan I), to a strategy with a stress on conditionality (Baker plan II), to a strategy with a stress on a combination of conditionality and debt reduction (Brady plan).

Instruments

The analytical framework and the typology of debt crises developed above provide some guidance on how the different tools of debt recontracting must be combined to alleviate the debt crisis on a case-by-case basis. For this, it is necessary to distinguish between the effects of the different recontracting instruments on debt stocks, and current and future debt service.

New loans, interest capitalizations, and rescheduling of principal are all sources of liquidity that increase future contractual obligations. Reductions in current debt-service obligations are also a source of liquidity, but they do not increase future obligations. They can be implemented with a debt write-off, a (temporary) reduction of interest rates, or both. But a write-off will have little impact on current liquidity when principal repayments are regularly rescheduled; only interest payments would be reduced, implying that a dollar of debt reduction would lead to only about ten cents of liquidity relief. Buybacks, exit bonds, and debt-equity swaps also reduce future contractual obligations. But these market-based debt reduction operations often result in a negative liquidity effect because current resources are expended (swaps are buybacks with strings attached, while for exit bonds the expense can take the form of collateral). See Claessens and Diwan (in this volume) for a discussion of these market-based debt reduction instruments.

The above discussion can be summarized in table 12-1, which scores debt-recontracting instruments according to their liquidity and incentive effects on investment.

The matrix shows that new money involves a trade-off between a positive liquidity and a negative incentive effect. At low debt levels, the incentive effect will be small, and new money can be a sufficient inducement for growth. At higher debt levels, the incentive effect can dominate. Thus, overcoming the liquidity effect by providing new money alone is not an attractive proposition for heavily indebted countries. But a combination of new money and future debt and debt-service reduction can be attractive in those cases, because the negative incentive effect of new money is partly offset by future debt reduction.

Table 12–1. *Effects of Debt-Recontracting Instruments on Investment*

<i>Instrument</i>	<i>Liquidity effect</i>	<i>Incentive effect</i>
New loans	+	–
Future debt and debt-service reduction	0	+
Current debt-service reduction	+	0
Market-based debt reduction	–	+

Note: A + indicates an increase in the incentives for investment, while a – indicates the reverse.

A discussion of the relative benefits of debt reduction and new liquidity should be based on empirical measurements of the magnitudes of the liquidity and incentive effects, together with an assessment of the potential investment opportunities. At a minimum, countries should be classified in the debate on debt relief according to a taxonomy that matches up instruments with countries.

Conditional Lending by IFIs

Because various IFIs make loans that are conditioned on specific micro- and macroeconomic reforms, it is logical to think of the provider of the commitment mechanism as an IFI.²³ The influence of IFIs often goes beyond the exact amount of resources they provide to include larger parts of the public sector influence on the economy, as in the World Bank's structural adjustment lending. The commitment mechanism should therefore be viewed to cover not only investment decisions, but also (public sector) consumption decisions and policy and institutional reforms to increase the efficiency of resource use—and to increase domestic savings and hence the resources available to finance investment and growth.²⁴

IFIs are able to provide an effective commitment mechanism using conditional loans because of their capabilities in economic analysis, their long-term relationships with debtor countries, and their status as international organizations. The commitment mechanism is made operational by conditioning the IFIs' own disbursements on specific policy actions, linking other lenders' financing and disbursements to the IFIs' own actions, and through the long-term relationship with the country. There has been reasonable success in implementing conditionality, which can thus be considered a somewhat effective commitment mechanism.²⁵

The IFIs can get involved in various ways in a debt overhang situation. One way is to simply make their commitment mechanism available, allowing the debtors and creditors to reach their own bargain, which presumably could produce Pareto improvements. As shown above, the exact effect of the use of commitments on the welfare of the two parties will depend on their respective bargaining strengths. But, as possible brokers with added value, the IFIs' own objectives will also be important in determining their position in the bargaining process between debtor and creditors. Their objectives are likely to include a preference for a stable international financial system and for growth in the developing countries. These preferences will play an important factor in any attempt by the IFI to distribute the efficiency gains associated with its commitment mechanism between the debtor country and the creditors. But, the IFIs' goals involve, at

times, some trade-offs. While a preference for growth leads them to attempt a division of the efficiency gains that favors debtor countries, an interest in the stability of the international financial system creates incentives to favor higher payoffs for the creditors at the debtor's expense.

In practice, since the IFIs are better informed than commercial creditors about the debtor's true commitment to an adjustment program, they will only be able to influence the relationship between debtors and creditors by putting their own funds at risk. After all, if an IFI has nothing to lose when its conditionality program fails, why would the creditors believe that the commitment of the debtor is credible? Credibility is essential, since without it the creditors are less willing to share the burden of the necessary liquidity relief.

This argument implies that for the IFIs to be able to contribute to the resolution of a debt overhang, they must be willing to provide loans, or guarantees on other parties' loans, not only to add to resources but—more important—as a means of signaling their beliefs. If the IFIs believe that the creditors have given enough concessions for a viable, acceptable conditionality program, they should perceive their lending or guarantee operations to be of limited risk. Without such a judgment, however, conditional loans and guarantees will be risky and unprofitable. Since the IFIs must earn a fair return on their operations to remain financially sound, they must have assurances regarding a viable financing scenario, including the appropriate amounts of debt and liquidity relief, before accepting to lend (or guarantee) themselves.

When a weak debt overhang exists, new loans can be profitable if conditionality is imposed. New loans and proper conditionality will then be sufficient to increase output and assure repayment.²⁶ The exact amount of the liquidity provided by the IFIs is not important, provided the remaining creditors fill the residual financing gap.²⁷

But in cases of strong overhang, new liquidity provided by IFIs will not be sufficient nor efficient, as incentives for investment will still be lacking; when all is done, the economic pie will not be larger because the new loans will have been largely used for consumption. Effective conditionality is in this case unacceptable to the debtor since it requires investment without offering increased welfare.²⁸ In situations of strong debt overhang, the IFIs cannot enforce an efficient allocation using conditionality and new loans unless future debt obligations are reduced. The relative lack of conditional lending programs in the least creditworthy countries may thus be explained by the creditors' (past) unwillingness to grant debt relief. In addition to liquidity relief, debt and debt-service reductions are needed, as the multilateral will not be able to "sell" its conditionality program otherwise.

Conclusions

The chapter has shown that commitment mechanisms on both sides can lead to substantial efficiency gains when a debt overhang exists. The exact division of the larger pie will depend on the strategic interactions between the debtor and creditors and on the objectives of the provider of the commitment mechanism. For some countries, committing to efficient investment levels can be sufficient to avoid debt write-offs.

In designing a financial package for a debtor, it is important to incorporate its intertemporal trade-offs in the analysis. In proposals to address the debt crisis, the analysis must incorporate linkages between the external debt situation and growth prospects, not only by mechanically filling financing gaps, but also by analyzing the strategic trade-offs facing the debtor. To this end, further analysis and empirical estimations of the liquidity and incentive effects are needed for a proper design and evaluation of debt deals.

The IFIs should redefine their policies of "financing assurances," "burden sharing," and "critical mass" to mean that the appropriate amounts of debt and liquidity relief must be committed to by other creditors before they offer their commitment mechanism and before they provide new loans or guarantees. Once these conditions are met, the gains associated with the IFI's com-

mitment mechanism can be divided between debtors and creditors.

An important aspect not addressed in the paper is the interaction between the public and private sectors when a debt overhang exists. The exact transmission of the liquidity and incentive effects from an indebted public sector to the private sector, which is responsible for a large share of investments, has remained unexplored so far in the literature and needs to be addressed. Furthermore, the ability of a government to commit to an adjustment program will probably be influenced by political circumstances, and would need to be explicitly considered in the design of any program.

The chapter can be used as a starting point to study the implications of uncertainty and asymmetric information on the outcome of the bargaining process between debtors and creditors, and the implications for more efficient strategies. This would allow a further analysis of the difficulties in the implementation of efficient debt write-offs in cases of strong overhang and the explanation of the current strategy of muddling through as a pooling equilibrium. Various financial tools used by creditors and debtors, which, at face value, do not seem to generate financial benefits, might then be explained in terms of providing some screening and signaling benefits.

Appendix

Solutions with Noncommitment

Given an amount of liquidity L , the debtor chooses I^* that maximizes welfare in (1), subject to (2) and (3) when repayment considerations are ignored. Therefore, I^* is an implicit function of liquidity, L , which satisfies:

$$(12-1') \quad f'(I^*) = \frac{U'(E+L-I^*)}{b} > 1.$$

In $t=1$, the debtor chooses a pair (\hat{I}, \hat{R}) given (D, L) . Investment is suboptimal when the debtor is planning to default in $t=2$. As a result, either: $\hat{R}(D, L) = I^*$ and $\hat{I}(\hat{I}, D, L) = D$, or $\hat{I}(D, L) = 0$ and $\hat{R}(\hat{I}, D, L) = E$. The former is optimal iff (D, L) satisfies: $U(E+L-I^*) + b[E + f(I^*) - D] \geq U(E+L-I^*)$, that is, iff:

$$(12-2') \quad D \leq E + f[I^*(L)] - \frac{U(E+L)}{b} + \frac{U[E - I^*(L) + L]}{b}$$

Denote by $D^*(L)$ the largest D that satisfies (12-2'). $D^*(L)$ represents the top of the L Laffer curve in figure 12-1, and the maximum repayment frontier RR' in figure 12-2.

Assume that the debtor experiences a debt overhang; that is, $D_0 \geq D^*(0)$. We define the status quo as $(D, L) = (D_0, 0)$. In the status quo, represented in figure 12-2 by point S , $W^S = U(E)$ and $P^S = E$.

Optimal (D, L) Offers

Debtor: The problem of the debtor is to find an offer (D^D, L^D) that solves:

$$W^*(D^D, L^D) = \max W[\hat{R}(D, L), \hat{R}(\hat{I}, D, L)]$$

subject to (12-2') (the offer is credible) and to:

$$(12-3') \quad D^D - L^D \geq P^S$$

Expression (12-3') constrains the offer to be acceptable to the creditors. Clearly, (12-3') will be binding. Moreover, (12-2') will be binding if the debtor is liquidity constrained in the sense that a larger L is always preferred when feasible. In this case, the optimal offer solves $D^*(L^D) - L^D = E$ and is represented in figure 12-2 by point D .

Creditors: The creditors' objective is to find a pair (D^C, L^C) that solves:

$$P^C[\hat{R}(\hat{I}(D^C, L^C), D^C, L^C)] = \max [R - L]$$

subject to:

$$(12-4') \quad W^*(D^C, L^C) \geq W^S$$

(acceptable offer) and (12-2') (credible offer).

Clearly, (12-2') will be binding, and thus $D^C = D^*(L^C)$. Plugging (12-2') into (12-5) and differentiating, L^C solves the following first-order condition:

$$0 = \frac{U'[E + L^C - I^*(L^C)]}{b} - \frac{U'(E + L^C)}{b} - 1$$

$$= f'[I^*(L^C)] - \frac{U'(E + L^C)}{b} - 1 \text{ using (12-1'),}$$

implying that $f'[I^*(L^C)] > 1$. Also (12-4') holds since $U(E + L^C) > U(E)$. The solution is represented in figure 12-2 by point C .

Solutions with Commitments

The effect of commitment I^{**} is to replace the credibility constraint (12-2') by the acceptability constraint:

$$(12-2'') \quad D \leq E + f(I^{**}) - \frac{W^S}{b} + \frac{U(E - I^{**} + L)}{b},$$

which says that given L , the debtor must be better-off investing the committed I^{**} and repaying D than getting the reservation welfare W^S .

Optimal (I, D, L) Offers

Debtor: The problem of the debtor is to find an offer (I^{**}, D^D, L^D) that solves:

$$W^*(I^{**}, D^D, L^D) = \max W[I, \hat{R}(I, D, L)]$$

subject to: (12-2'') and to;

$$(12-5') \quad D^D \leq E + f(I^D) \text{ (ex-post creditworthiness);}$$

$$(12-6) \quad D^D - L^D \geq P^S = E \text{ (offer acceptable to the creditor).}$$

Since (12-6) will certainly be binding, $D^D = E + L^D$. When the debtor has a high preference for liquidity, $U(E) < U(E + L^D - I^D)$, implying that (12-5') is more binding than (12-2''). Denoting by n the Lagrange multiplier associated with (12-5'), and plugging (12-6) as an equality in (12-5), the first-order conditions yield:

$$U'(E + L^D - I^{**}) = (b + n)f'(I^{**}) = b + n,$$

implying that $f'(I^{**}) = 1$. When (12-5') is binding ($n > 0$), $L^D = f(I^{**})$ and $D^{**} = E + f(I^{**})$, implying that $C_2 = 0$ and $C_1 \geq E$ as $L^D = f(I^{**}) > I^{**}$. This solution is represented in figure 12-3 by point D' .

Creditors: The creditors' problem is to find (I^{**}, D^C, L^C) that solves:

$$P^C[L^C, \hat{R}(I^{**}, D^C, L^C)] = \max [D - L]$$

subject to (12-2'') and to:

$$(12-7) \quad E + f(I^{**}) \geq D^C \text{ (ex-post creditworthiness).}$$

As above, (12-7) is more constraining than (12-2'') when the debtor has a preference for liquidity. The first-order condition implies that $f'(I^{**}) = 1$. This solution is represented in figure 12-3 by point S' .

Notes

The authors would like to thank Guillermo Calvo, Daniel Cohen, and Ken Froot for their helpful comments.

1. Note that capital accumulated abroad by the private sector does not provide the public sector with resources. Thus, investment can well be constrained by liquidity considerations even when a segment of the private sector accumulates capital abroad.

2. The flight away from taxed sectors can lead to very inefficient equilibria, developing sometimes into panics when expectations of reduced tax bases feed expectations of higher taxes, further increasing the incentives to pull out. Such unsta-

ble equilibria become more likely in high-debt situations and can lead to a flight from money, causing hyperinflation (see Calvo 1988), capital flight, and a rapid decapitalization of an economy (see Eaton 1987).

3. The economy of the model is close in spirit to the economies of Krugman (forthcoming), Froot (1989), and Corden (1988).

4. The results of the model would not change if current transfers to creditors out of the debtor's first-period endowment were incorporated.

5. Assuming that the creditors can only obtain part of the country's resources in event of a default does not change the major conclusions of the analysis (but complicates the algebra).

6. Assume that the production function is concave—that is, $f' > 0$ and $f'' < 0$. Investment should be interpreted broadly here and should be thought to include changes in (public) policy that improve the allocation and efficiency of resources, the domestic resource mobilization, and cuts in unnecessary public expenditure programs.

7. In this simple model, the marginal tax rate is 100 percent because of the assumed gunboat technology, and the country either invests or does not invest. In more general models, however, the strategic investment decision will be based on an expected tax smaller than 100 percent. Investment will then be reduced, but not necessarily to zero.

8. The underlying concept of a Laffer curve is quite old. Ibn Khaldun (1967, pp. 230-31), an early Arab thinker, wrote in 1377: "[When a dynasty raises taxes] the result is that the interest of the subjects in business disappears when they see the little profit they make. The result is that the total tax revenue goes down, as individual assessments go down. Often, when the decrease is noticed, the amounts of individual taxes are increased. This is considered a means of compensating for the decrease. Finally, individual taxes and assessments reach their limits. It would be of no avail to increase them further. The costs of all enterprise are now too high, taxes are too heavy and the profit anticipated fails to materialize."

9. The debt Laffer curve drawn here is more general than the one that results from the certainty model used. The certainty model used here would result in Laffer curves that are 45-degree lines, up to a maximum repayment; beyond this maximum repayment, the Laffer curves fall to a constant.

10. This is special to the model used here. In general, the disincentive effect is not minimized at the top of the Laffer curve.

11. The discussion here concentrates on the best possible deals within the available contracting mechanisms to show the potential Pareto improvements introduced by commitments. Debt relief is in the best interest of the creditor group in the absence of uncertainty. See Krugman (forthcoming) and Cohen (in this volume) for an analysis of the uncertainty case.

12. Since the creditors' discount factor is taken to be 1, the indifference curves are 45-degree lines.

13. The existence of an intersection between the line PS and the curve RR' is guaranteed by the curvature of RR' and by the fact that it was assumed that $D^*(0) > R(D_0, 0)$.

14. Examples of this are Sachs and Huizinga (1987), Vatnick (1988), Purcell and Orlanski (1988), and Cohen (in this volume).

15. A typical equation would be the one reported by Sachs and Huizinga (1987), where the secondary market price is a function of (with the sign of the parameter in parentheses) the debt-to-GNP ratio (-), average GNP growth over the last five years (+), a dummy indicating whether the country has unilaterally suspended debt-service repayments (-), and a dummy indicating whether the U.S. regulators have required an allocated reserve (-). In other equations, the existence of a debt-equity conversion program has been used (+).

16. Claessens found only Bolivia, Zambia, and Sudan to be on the wrong side, with Peru and Côte d'Ivoire being marginal cases. See further Cohen (in this volume).

17. It has often been argued that the disincentive effect cannot be that large since debtors rarely pay out more than 2-3 percent of their GNP. But since sanctions are most likely trade-related, it is more reasonable to focus on distortions in the tradable sector. The ratio of total debt service to exports is well above 20 percent for the highly indebted countries. Moreover, this is only the average "tax," and it is quite possible that the marginal tax is much higher. In any case, this issue can only be resolved by careful empirical analysis.

18. Sachs (1989) and Aizenman and Borensztein (1988) also discuss the benefits of a commitment mechanism.

19. The interpretation of the commitment mechanism, and how and when it must be associated with debt relief to make its provision financially viable, is discussed later.

20. Formally, the special analytical model used here does not generate a liquidity trap because the slope of RR' is either larger than 1 at the origin and decreasing thereafter, or smaller than 1 for all levels of liquidity. In a more general model, a liquidity trap can occur.

21. A liquidity trap can arise because of collective-action problems among creditors. Every individual creditor is tempted to free-ride on the willingness of other creditors to provide new funds.

22. The classification used for a strong debt overhang involves a judgment on the debtor's reservation welfare. If the status-quo welfare in S was considered as the reservation level, the threshold level of outstanding debt above which cases of strong debt overhang occur would be larger than at point O .

23. See Sachs (1989) and Bacha (1989) for discussions of the cost, benefits, and effectiveness of conditional lending when viewed as a commitment mechanism.

24. The World Bank's report on adjustment lending (1988) mentions reforms emphasizing improvements in public sector management, removal of price distortions, the opening of the economy, and the promotion of domestic savings as important possible elements of an adjustment program.

25. The World Bank (1988) reports that, in an evaluation of 51 adjustment lending operations in 15 countries, about 60 percent of all conditions were fully implemented during the period loans were disbursed. Performance in the areas that were considered critical was somewhat better, and implementation performance was 68 percent. It also mentions that clear government commitment to and ownership of any adjustment program is necessary for a program's effectiveness.

26. Another way to make injections of liquidity by multilaterals profitable is for the debtors to grant some form of seniority to multilateral loans. But in cases of weak overhang, this is not

needed if conditionality works and leads to restored creditworthiness. In general, seniority rights are more meaningfully analyzed in the context of a model of lending under uncertainty.

27. The World Bank's adjustment lending report (1988) also concludes that the financing and sustainability of adjustment programs are mutually reinforcing and that inadequate funding can be a reason for a country to reverse its policies and renege on its commitments.

28. If the IFI is granted seniority rights over the other creditors, it might agree to inject some new liquidity, but that cannot be associated with conditionality, since the debtor would not accept it.

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Comment

Guillermo A. Calvo

This is a nice paper that puts together several crucial aspects of the debt problem. One prominent aspect is that the debt overhang prevents the world from attaining a Pareto-optimum allocation.

The debt-overhang problem appears to have been first noted in the writings of Sachs (forthcoming). The theme was later explored by many authors: Corden, Dooley, Froot, Krugman, and Helpman, to name just a few. A central message of this literature is that unless lenders are persuaded to work together, spontaneous market

forces may not be able to lead the system to a Pareto optimum.

The paper's main novelty is that it complicates the usual story in a relevant way by assuming that the borrower can cheat (or, in the paper's language, that the borrower can be time-inconsistent because of his inability to precommit). This has the interesting implication that the Pareto-optimum solution may not be attainable even when the lenders are able to overcome the free-rider problem, simply because the borrower cannot make credible commitments. Thus, the paper reaches the important conclusion that a precommitment technology

may be as crucial for Pareto optimality as the coordination among lenders. One way to obtain precommitment from the borrower is to subject him to (credible) third-party loan conditionality. The authors, however, do not elaborate on how to make conditionality stick—who will bell the cat, as it were. Nevertheless, the paper has identified a crucial ingredient in the solution of the debt problem.¹

I find myself in almost complete agreement with the paper's results, but some of them need more careful qualification. Since the central issues are important, I will first present an alternative, simpler model that captures the paper's main features. I will then discuss some of the central results and show new ones inspired by their framework.

A Simple Model

A simple, alternative model captures the paper's main features. The whole action occurs "tomorrow." Output tomorrow is a function of investment today; the production function is $f(N)$, where N stands for "new money." For dramatic effects, I assume that $f(0) = 0$; that is, no new money, no output. Otherwise, f is, as usual, assumed to be strictly increasing and concave. New money, N , is lent only if it receives the international interest rate, r . Therefore, if the borrower takes the loan N and employs it to invest, his net income tomorrow will be:

$$(12C-1) \quad f(N) - (1+r)N - D$$

where D is initial debt. This curve is represented in figure 12C-1 for different initial debt levels. Notice that these curves peak at the Pareto-optimal point, P , at which the gross marginal productivity of capital, f' , equals the interest rate factor $(1+r)$.

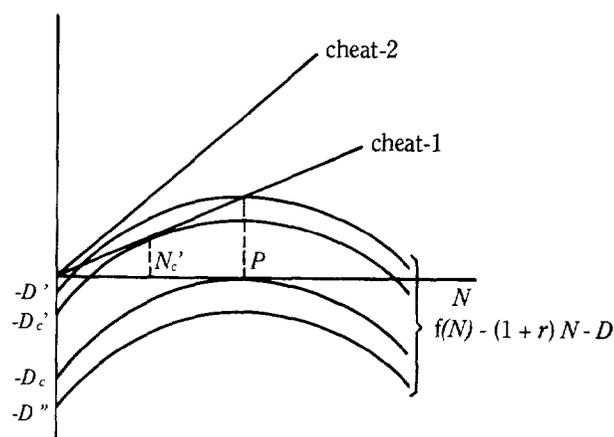
Consider the case in which if the debtor is bankrupt; that is, if expression (12C-1) is negative, then every creditor gets repaid in proportion to his claims. In other words, if (12C-1) is negative, assume that new-money lenders get:

$$(12C-2) \quad \frac{f(N) - (1+r)N}{(1+r)N + D}$$

while the difference goes to the holders of the original debt documents. This is referred to as the "equal-sharing" system.

It follows immediately that under the equal-sharing system, no new money will be forthcoming if $D = D''$, as depicted in figure 12C-1. This corresponds to what the authors call a "strong" debt overhang. But if $D = D'$, new money will be lent if the money is invested (and a gunboat technology, as the authors suggest, ensures payment). This illustrates a "weak" debt overhang.

Figure 12C-1. Debt Relief and Cheating



The authors also assume that the borrower can cheat by consuming or squandering the new money, so, gunboats or not, the proceeds of the new money become irretrievably lost for the lender. Figure 12C-1 depicts two different cheating technologies, denoted cheat-1 and cheat-2. Each of these curves shows the net output that could be secured by the borrower if he does not invest the new money and uses it, say, for consumption. So if cheat-2 is the relevant function, the borrower would be unable to obtain any new money, even in the weak overhang situation. This is so because cheating always yields higher utility than investing and paying back the competitive interest rate. Under these circumstances, equilibrium net income is zero for the borrower, and the original debt is fully repudiated.

The advantages of a third party that eliminates cheating opportunities in a weak overhang situation with a cheat-2 technology are clear. Such an arrangement would automatically assure that P units of new money will be borrowed, thus ensuring Pareto optimality, positive net income for the borrower, and full repayment of debts. No doubt, the magic wand of conditionality (or, rather, precommitment) works wonders in this case! This is one of the central and, certainly, one of the most dramatic results of the paper.

A third party may not be needed if the cheating technology is below cheat-1; for if $N = P$, then there would be no incentives to cheat. The importance of this observation will become apparent after discussing the strong overhang case.

Suppose now that $D = D''$ and the economy is, therefore, in a strong overhang situation. Obviously, under the equal-sharing system, cheating does not help getting out of the low-level equilibrium. As the authors note, however, debt relief can help to get to a Pareto-superior situation. For example, if lenders forgive $D'' - D'$ and

cheating is prevented, then, as noted above, all the characters get positive payoffs.

Suppose that lenders move first and that they unilaterally decide the amount of debt relief. The debtor moves second and chooses N , subject to his ability to make credible repayment promises. Obviously, if cheating could be prevented, the original lenders would grant the minimum debt relief consistent with positive repayment of the original debt. In terms of the figure, the latter implies lowering debt obligations from D'' to D_c (c for "critical"). Suppose now that cheating is possible and that the relevant technology is cheat-1. Clearly, under these circumstances, debt has to fall to at least D_c' . If debt relief is $D'' - D_c$, Pareto optimality is not achieved, because the only level of new money that will lead to cheating is Nc' . But the borrower is better off when cheating is possible. This shows the possibility that a third party may tilt the scales against a debtor country by imposing conditionality. This is an important point which seems to have been somewhat missed by the debt literature (see Calvo forthcoming).

Claessens and Diwan assumed that the original lenders can also determine the amount of new money, N . Results, however, are basically the same. Thus, for example, with no precommitment and a cheat-1 technology, one can easily show that equilibrium debt relief will be, as before, $D'' - D_c'$, and new money will be $Nc' < P$.

The authors confine themselves to the equal-sharing system. But in practice, the actual system does not seem to have developed entirely that way. Countries have been able to borrow from international institutions and to issue bonds denominated in domestic currency, which are not subject to the same cross-default clauses as international debt. World Bank loans, for example, appear to have enjoyed de facto seniority over private debt in several recent cases.

If new money subordinates initial debt in that it is paid first, then Pareto optimality could always be guaranteed if cheating can be prevented. For the sake of definiteness, imagine that the original debt is D'' , so the economy suffers from a strong debt overhang. The following proposition can be shown: with no debt relief and credible conditionality, the country's net income is zero, while (giving marginal incentives to the debtor) the original-debt holders could secure themselves D_c . This shows that seniority-with-conditional new money may make the debtors worse than if they and their creditors were left to their own devices. Therefore, if cheating is not possible, debt subordination may not be to the debtor's advantage unless it comes together with sufficient debt relief.

Debt subordination could be attractive, however, if it were a subterfuge to actually force debt relief beyond D_c , or even beyond D_c' . Some countries that could have benefited from equal sharing are issuing a sizable

amount of domestic bonds and have been fully servicing them, even when, at the same time, their foreign debt has, at best, been only partially serviced. So these countries may actually subordinate foreign debt to domestic debt. Why would they do that? A possible explanation is that, contrary to our working hypothesis, some of these new-debt transactions do not increase net indebtedness of the country as a whole. For example, government could borrow from the domestic private sector to make transfers to the domestic private sector. Social welfare in the debtor country is, in principle, not affected by this transaction. But if domestic lenders get paid first, this amounts to a de facto repudiation of the old debt. This possibility is not considered in the Claessens-Diwan paper, and it is ruled out in my previous analysis because there I implicitly netted out domestic obligations. Analysis of this debt-repudiation mechanism, which provides a rationale for the apparently heavier reliance on domestic debt on the part of debtor countries, deserves further attention.

Conclusions

Claessens and Diwan have brought to the surface the simple, but deep, economics of debt relief and conditionality (or, more generally, precommitment). Their message is that conditionality helps. I agree, and I disagree.

I agree because some form of precommitment always dominates discretion. But I disagree because precommitment may reduce the country's bargaining power and, in some cases, lower a debtor country's welfare.

A question the paper does not answer is, why did we end up where we are now? Rational lenders (and I suppose they would not accept any other adjective) could not possibly have envisioned a situation where lenders and borrowers could be better off by just redefining the loan contract. Otherwise, this would have already happened, and we (the intellectuals) would not be spending any time on this case.

Sachs (forthcoming) has an explanation: creditors may be waiting for somebody—that is, the taxpayers—to bail them out. This sounds reasonable. It could explain why banks are so reluctant to move a finger, and why they appear to be so belligerent about debt-relief strategies that do not involve the taxpayer's participation. My comments suggest that, in addition, the present stalemate may also be because of the banks' expectations that old debt could be subordinated to new debt with conditionality, since such an arrangement may be preferable for the banks to a market-based solution.

In the final analysis, the debt problem is a situation in which, as a general rule, it is not feasible to honor previous debt commitments. Furthermore, the Claessens-Diwan type model shows that efficient out-

comes are not unique, and that, essentially, borrower and lender are involved in a bargaining situation, the outcome of which depends, quite naturally, on the relative bargaining power of the two sides. Consequently, the active participation of outsiders—that is, third parties—will tilt the scales in one direction or the other, and the Claessens-Diwan model shows that the way scales are tilted may depend on very subtle mechanics.

An important observation that emerges from this paper's analysis is, therefore, that third parties should have a clear notion of what is a "fair" distribution of wealth between borrowers and lenders. My suggestion is to try to extricate the corresponding "implicit contracts" from actual debt agreements, to help enforce the spirit rather than the letter of these contracts. Thus, for example, debt contracts during the 1970s exhibited a small but nonetheless positive spread over LIBOR, which appears to exceed loan administration costs by a comfortable margin. Therefore, if lenders are risk-neutral, such a spread could be interpreted as an insurance premium against less than full repayment, and it can be argued that debt relief was contemplated in the original contract. The problem now is to find out under what conditions debt relief was expected and, of course, how much. (Calvo forthcoming).

Notes

1. The sovereign-country debt literature before the current debt crisis put the possibility of cheating at center stage (see Eaton, Gersovitz, and Stiglitz 1986). This feature was later somewhat downplayed in the discussion of lenders' coordination problems. The paper can, therefore, be seen as a recognition that the same ideas that helped to explain why some Pareto optimality could not be attained with free international loans are also relevant for understanding why the debt crisis could be deeper than a neoclassical economist would believe.

2. To be definite, it is assumed that in case of indifference the borrower decides not to cheat.

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How to Cope with a Debt Overhang: Cut Flows Rather Than Stocks

Daniel Cohen

The idea that many debtor nations' debt is too big gets support from casual observation of accumulated arrears, failed reschedulings, and lenders that sell their nominal claims on developing countries at a discount on the secondary markets. To identify the sources of inefficiency from excessive debt, the literature on developing-country debt has followed two distinct approaches. One has to do with the relative price distortion induced by discounts on the secondary market, the second with the "debt Laffer curve" problem.¹

The first approach, initiated by Dooley (1987), states that any discrepancy between the market value and the nominal value of the debt—however small—is a source of inefficiency. I would rephrase the intuition behind this statement as follows. To all investors in the world (but one), purchasing a dollar of the nominal claims on Brazil costs, say, fifty cents. The exception is Brazil. When Brazil repays its debt, a dollar of surplus buys off one dollar of principal or interest falling due, not two. To any economist raised with the idea that relative price distortions are inefficient, this discrepancy says that something is wrong. I will label as Q1 the questions surrounding rescheduling's inefficiency from the discrepancy between the face and market value of the debt.

The second approach, initiated by Sachs (1988), states that there may be a debt overhang, a problem that Krugman (forthcoming) restated as a "debt Laffer curve" problem. When the debt is zero, lenders receive nothing. When the debt is infinite, they may receive nothing either. Presumably the debtor will have defaulted, or the domestic economy will be in such a mess that the return on the debt will be miniscule. This Laffer curve approach has direct empirical content. If the price on the secondary market reveals the market price of the debt, one must check whether the price elasticity of the face value of the debt is bigger or smaller than 1, in absolute terms. When

the absolute value of the elasticity is greater than 1, lenders may increase the value of their claims by writing off the face value of the debt. I will label as Q2 the questions surrounding this second approach to the inefficiency of rescheduling.²

Q1 and Q2 are thus apparently not the same, and the tests that they suggest to challenge the efficiency of the debt situation are quite different. Indeed, Q1 suggests that any discount is a potential source of inefficiency; Q2 suggests that only those countries where the debt is so large that the price elasticity is larger than 1 (in absolute terms) may be inefficiently rescheduled. But drawing on my previous work (Cohen 1988), I will argue here that the two questions are two faces of the same coin and that the essence of the Q2 approach is the relative price distortion denounced in Q1.

As a result, I will recommend that a debt write-off—while sometimes a good thing—is never in itself the appropriate remedy to a debt overhang. Instead, the key to an efficient rescheduling is a clear commitment from lenders that the flows of resources they will ask the country to transfer will always acknowledge the discount on the market value of the debt. These flows will always have to be scaled down to the market value. A write-off of the stock, short of a commitment on forthcoming flows, may change little.

As a simple rule and as a fairly close approximation to the first-best solution, I will argue that a "generalized buyback scheme" can reschedule the debt efficiently. This scheme would price all transfers by the debtor at their market price: that is, a dollar of hard currency repaid by Brazil would redeem two dollars of principal or interest, if the market price of Brazil's debt is fifty cents on the dollar (see Portes 1987 for an earlier similar proposal). Another manner of offering the same proposal is as follows: if the "true" market price of Brazil's debt is

fifty cents on the dollar, then any dollar of interest paid by Brazil should be accompanied by an interest holiday of one dollar also. This scheme has two important features that distinguishes it from others. The first is that the scheme makes debt relief contingent upon the effort undertaken by the country; this is the key feature that explains it is an efficient one: it undoes the debt overhang risk by encouraging the country to adjust. For that crucial reason, it is not akin to previous ("uncontingent") interest holidays.

The second important feature (which explains why lenders should accept it) is that this "interest holiday" proposal does not lock lenders into a "once and for all" (stock) debt relief. They keep an important element of flexibility for the future and can afford to be much more generous on flows rather than on stocks.

The first part of this paper reassesses the debt overhang problem and shows the equivalence of Q1 and Q2. The second part makes an empirical estimate of the debt Laffer curve problem and claims that even a substantial write-off may change little. The third part proposes a generalized buyback scheme and sheds some light on the recent controversy between Bulow and Rogoff (1988) and Sachs (1988).

How to Reschedule the Debt

The Debt Overhang Argument

The basic idea of the debt overhang has in most of the now blossoming literature been couched in a two-period model. In period 1, the economy inherits a stock of debt (from previous times) that it must repay in period 2. In period 1 the country may decide to invest (at the expense of, say, domestic consumption) and get the return on this investment in period 2. But the country knows that lenders will try in period 2 to extract as many of the benefits from the decision to invest as they can. Debt thus becomes a tax on the country's resources, possibly deterring profitable investment opportunities. As the face value of the debt increases from zero to infinity, the returns associated with the debt may initially go up, next pass through a maximum, and then go down as the debt wipes out all investment opportunities. The simple remedy is to write off any debt proven to exceed the threshold D^* for which the returns are maximal. If lenders insist on keeping the face value of the debt above D^* in their books, the borrower would scale down its investment decisions appropriately, and both the country and the lenders would lose.

Here I would criticize not the empirical relevance of the argument but its intellectual universality. The usual tax Laffer curve argument is universal in that there is a

maximum amount of taxes above which the returns to the government must go down. (The argument's empirical relevance is a totally different matter.) In the debt Laffer curve argument, it is more difficult to understand intuitively how it is that lenders could lose by having more nominal claims than fewer. If indeed there were some threshold debt D^* above which they would lose, it seems that lenders could always (if they acted rationally) scale how much money they ask the country to pay on D^* and systematically reschedule any difference between the face value of the debt and the amount D^* —without explicitly writing it down. And it has to be tested empirically whether this is what the reschedulings of the past seven years have achieved. In other words, in a full-fledged model in which lenders are offered a full menu of options for rescheduling debt, they should not lose by having more nominal claims rather than less.

A Theoretical Benchmark

In Cohen (1988) I set up a multiperiod framework to address these issues explicitly (see the appendix to this chapter for a summary). The economy is infinitely lived so that lenders can always reschedule debt that has not been serviced. Growth is endogenous and depends on the productivity of capital (which is a stochastic process) and on the country's chosen investment rate. To define the optimal rescheduling strategy for lenders, I first spell out an abstract benchmark that defines the maximum present discounted value of the repayment lenders can expect. In a second stage, I show how the lenders should proceed to capture this maximum amount.

The abstract benchmark is calculated as follows. Consider a hypothetical scenario in which the borrower gives up to its creditors all dimensions of its sovereignty but one. It abandons the decisions to consume, to invest, and to service the debt. The exception is the decision to default. If lenders design a policy that is too harmful, the borrower would keep the option of defaulting. Default is costly (because lenders can retaliate), but it is never so costly that the lenders could impose any policy. Default therefore provides a lower bound of welfare that lenders cannot push the country below.

Lenders, however, do not exactly mimic the postdefault scenario: that is, they do not simply ask the country to pay what it would lose if it were to default. Instead, they let the country invest more than it would if it were to default, and the service of the debt is a lower proportion of the country's income than the cost of default (measured as a fixed percentage of GDP). By so doing they get less period-by-period but more when their return is measured in present discounted value.

How to Capture the Maximum Repayment

The present discounted value of the transfers under this theoretical benchmark offers an upper bound to the market value of the debt. Is there a way, short of full sovereignty on the country's decision, that lenders can attain this maximum value? Yes. Lenders should proceed exactly as hinted in the introduction. They should split the debt into two components, call one the performing part of the debt and the other one the nonperforming part, and act "as if" the debt amounted to the performing part only. When they succeed to commit themselves to do that all the time, I show that the performing part can be equated to the maximum repayment scheme calculated above. At equilibrium, the market value of the debt must therefore coincide with this benchmark, so that the debt service must in a way be scaled down to its market value so as to attain an efficient rescheduling.

Lenders should not, however, observe the market value of the debt (on secondary markets) and scale the debt service to this observation. If they did, they would induce the country to do whatever it could to reduce the market value of the debt, and the incentive would go in the wrong direction. Instead, the lenders should calculate the debt's market value. If they are correct, and if the scaling of the debt service is appropriate, they should check that their estimate is consistent with the secondary markets. I will label as ex-post market value the theoretical benchmark that lenders must calculate.

Lenders should scale down the debt service to this ex-post market value, but they should not write down the debt explicitly to let the face and the market value of the debt coincide. Indeed, they want to keep the nonperforming part of the debt on their books, so that they might benefit from positive exogenous shocks that raise the country's ability to pay. In brief, they should want to scale down the flows from the country, but not the stock of debt due.

The intuition behind this result underlies the Q1 approach to the debt overhang. By scaling the debt service to the ex-post market value, lenders acknowledge the relative price distortion implied by the discount on the secondary market. Any discount, however small, is a potential source of inefficiency if not appropriately taken into account. By scaling the debt-service flows to the debt's market value, lenders act as if only market prices apply. But they do not want to offer the country the discrepancy between the face and market value, for nobody knows how the country may be 20 years from now. They simply want to make sure that the country's investment decisions (which are flows) acknowledge the exact return on capital embodied in the secondary market discount.

A Reappraisal of the Debt Overhang Problem

The theoretical approach outlined in the previous section has emphasized that flows (not stocks) are the core of the matter. More specifically, what is really needed for an efficient rescheduling are clear rules of the game that the borrower believes the lenders will commit to obey. Short of such rules, a self-fulfilling downward spiral may occur. If the borrower does not trust that future reschedulings will obey the principles just outlined, it may anticipate that the lenders will ask for too much in the future. This discourages investment (for exactly the reasons exposed in the Q2 approach to the debt overhang) and induces the lenders to raise the debt service above the theoretical benchmark to the extent that they want to extract the resources freed by reduced investment. At the end of this downward spiral, lenders mimic exactly the postdefault path; they ask the country, period-by-period, to transfer the amount they would forgo by defaulting. No trade-off between the debt's service and the country's growth is exploited.

Under these circumstances, a write-off of the debt may benefit lenders, and a debt Laffer curve problem may arise. By reducing the stock of outstanding debt, lenders may gain some credibility that they will let the country invest appropriately.

But no write-off can ever bring the equilibrium back to the (constrained) first-best solution. To see why the problem is more than semantic, consider a write-down of 30 percent of the Brazilian debt. If the lenders were to insist that all interest falling due and perhaps all or part of the principal coming to maturity should be serviced, this would differ little from Brazil's current difficulties. A write-off may help the country only if lenders make it clear that they will reschedule the newly written-down debt in ways that acknowledge the country's investment and growth opportunities. Short of such an understanding, even a 30 percent write-off may do little to improve the country's opportunities if lenders insist on a strict service of the debt falling due. These considerations are now (briefly) investigated empirically.

An Empirical Estimate of the Debt Laffer Curve Argument

Data from the secondary market confirm the intuition that a reduction of the stock of debt is not as much of a problem as the need for a commitment to reduce the flows associated with the service of the debt. The debt Laffer curve hypothesis does not come out as very significant (except for three or four very indebted countries). And even a sizable reduction of the stock of the debt would not significantly change the market value of the debt—that is, the service of the debt that the lenders

expect they can extract from the country. (This is also the core of the argument in Bulow and Rogoff 1988.)

The Elasticity of the Price of Debt

Previous attempts to measure the elasticity of the price of the debt with respect to its nominal value systematically found a low estimate. A study by Purcell and Orlanki (1988) following a previous estimate by Sachs and Huizinga (1987) reported an elasticity of 0.34. I have estimated an equation, representative of these earlier studies, as follows:

$$(13-1) \quad \log q = 5.06 - 0.653 \quad (0.152)$$

$$\log D / X - 2.231 A / D - \quad (0.603)$$

$$1.016 R / D - 0.274 \text{ Dummy } 1987.12 \quad (0.373) \quad (0.132)$$

where q is price of the debt on the secondary market, D is debt, X is exports, A is arrears, and R is the amount of rescheduling performed since 1982. The R^2 is 0.560 for pooled equations for year-end-1986 and year-end-1987 data with 60 degrees of freedom (standard errors are in parentheses).

From this equation, one would tend to reject at the 95 percent level of confidence that the elasticity of the debt was larger than 1. The price of the debt seems to be poorly correlated with the country's macroeconomic data. For instance, the most important of these macroeconomic data—the noninterest current account or domestic inflation—never are significantly correlated with the price. But arrears and rescheduling are. In addition, a dummy variable separating the 1986 and 1987 data appears to be significant. According to market analysts, this may be a reflection of Citibank's decision to build up \$3.0 billion in reserves, a move that significantly influenced the market.

Despite the equation's appeal and simplicity, it is extremely misleading. First, it rejects the hypothesis that the elasticity of the price with respect to debt is larger than 1 for the entire sample. But it may very well be that only a subgroup of countries was hit by the debt overhang. Running the same regression for a subsample of 16 countries with a debt-to-export ratio larger than 3 would yield a larger elasticity, estimated at 1.183 (with a standard error of 0.339). Second, and perhaps more important, the equation takes the arrears and rescheduling variables as exogenous, while these variables obviously depend on debt and perhaps on the price. To overcome these two difficulties (and a more technical one in which $\log q$ cannot be normally distributed when the price is smaller than 1), I have estimated a reduced-form equation

in which the dependent variable has the logistic form $\log (q/1 - q)$ to let the elasticity depend on the price:

$$(13-2) \quad \log \frac{q}{1 - q} = 2.152 - 1.509 \quad (0.378) \quad (0.305)$$

$$\log D / X - 0.048 X \text{ growth} - \quad (0.024)$$

$$0.583 \text{ Dummy } 1987.12 \quad (0.288)$$

where X growth is the rate of growth of exports. The R^2 is 0.389 for a pooled equation for end-1986 and end-1987 data with 60 degrees of freedom. According to this equation the elasticity of price to debt is 1.509 $(1 - q)$ with a standard error of 0.305.³

This means the debt Laffer curve problem could not be rejected at the 95 percent level of confidence for countries in which the price was almost zero (such as Sudan). At the 90 percent level of confidence, only four countries pass the test (table 13-1).

Table 13-1. Debt Overhang Countries (End-1987)

	Country	Secondary market prices Cents per dollar
At the 50 percent level of confidence: $q < 34$	Argentina	34
	Jamaica	33
	Nigeria	29
At the 75 percent level of confidence: $q < 23$	Dominican Republic	23
	Congo	23
	Zaire	19
	Zambia	17
	Costa Rica	15
At the 90 percent level of confidence: $q < 11$	Bolivia	11
	Peru	7
	Nicaragua	4
At the 95 percent level of confidence: $q = 0$	Sudan	2

Source: Author calculations.

The Impact of a Debt Write-off

Now consider the implication of a debt write-off on the value $V (= qD)$ of the debt. From the collective viewpoint of lenders, a nominal write-off (ΔD) of the debt reduces the market value of the debt by:

$$\Delta V = q(1 - \epsilon) \Delta D$$

where $\epsilon = 1.509 (1 - q)$. The marginal price of the debt, $q(1 - \epsilon)$, indicates by how much, for the lending community as a whole, the market and the face value are correlated, on the margin.

At the x present level of confidence, the marginal price cannot be significantly accepted as strictly positive as long as $\varepsilon = 1.509(1 - q) > 1 - t_x\sigma$ in which t_x is the t -statistic corresponding to the x degree of confidence and $\sigma = 0.305$ is the standard error of the elasticity in equation (13-2).

At the 95 percent level of confidence, only countries for which the price of the debt is above sixty-eight cents on the dollar can therefore be shown to benefit from a debt write-off. Of the group of highly indebted countries, only Colombia and Turkey could benefit from a write-off at this level of confidence. For all other highly indebted countries, one cannot reject that a debt write-off would not change what the lenders expect the country to pay. For Brazil, even a 30 percent write-off would not significantly change the market value of the debt. These results may be interpreted as a confirmation of the idea that lenders should not be expected to change the service of the debt, even (in Brazil's case) after the debt has been written down by a third of its value.

A Generalized Buyback Scheme

As emphasized earlier, the core of rescheduling's inefficiency is the Q1 approach. Lenders must acknowledge the discount on the secondary market and avoid imposing a relative price distortion on the borrower. The failure to acknowledge such Q1 incentives may push the rescheduling into Q2 problems.

One simple way to achieve—or almost achieve (see below)—an efficient rescheduling is to price the service of the debt at market terms. In other words, if the (equilibrium) price of the debt is 50 percent, lenders should accept that a dollar serviced by the debtor is counted as two dollars. By so doing, they eliminate all relative price distortions and offer the borrower the same price as they would to any other investor. This scheme can be interpreted as a “generalized buyback” scheme: all transfers from the debtor to the lenders are evaluated through the (shadow) window of the secondary market. Just like any other investor, the indebted nation would then face the appropriate relative price of “hard currency” (earned through exports) to “nominal debt.” Another way of obtaining this result would be to grant an interest holiday that is proportional to the amount actually paid by the debtor. It is intuitively easy to understand why this scheme goes in the right direction. Rather than create a disincentive to adjust and make the adjustment process a tiring and increasingly burdensome process (since the debt-to-export ratio keeps rising), this “contingent interest holiday” scheme would give a chance to stabilize and perhaps to bring down the debt-to-export ratio. The opportunity to benefit from the interest holiday scheme would give the debtors the incentive to

adjust, while the current rescheduling scheme locks them in “debt fatigue.”

It is important, however, that lenders and borrowers agree on an equilibrium market price and do not simply rely on the market's estimate. This agreement could be part of a rescheduling agreement: borrowers would commit themselves (through the World Bank or the IMF) to an adjustment program, and lenders would commit themselves to a “market” evaluation of the flows of resources to be generated by the program.

The reason such a scheme is only an approximation of the first-best solution is that a sequence of good stochastic shocks may lift the price of the debt back to par. Then, lenders may in retrospect regret having reduced the value of the resources transferred by the debtor. Indeed, this is the main reason they do not want to write down the stock of the debt. But the difference between the two approaches is crucial. In the generalized buyback scheme, only the flows are upgraded so that a sequence of good shocks can be acknowledged by the lenders in time. But when the stock is written down permanently, the contingent dimension of the rescheduling is lost.

Except for this (low-probability) event, the generalized buyback scheme exactly mimics the optimum rescheduling strategy (see the appendix to this chapter) for further details on this equivalence). It is important to see that the ex-post market price underlying this generalized buyback scheme is the average price of the debt and not the marginal price (which is often zero or near zero). This feature may shed some light on the recent controversy between Bulow and Rogoff (1988) and Sachs (1988). Bulow and Rogoff have argued that buybacks are inefficient: the debtor pays the average price for a claim which, at the margin, may have little (or no) value. Sachs responded that buybacks (such as the Bolivian one) should be viewed as part of a comprehensive scheme keeping Bolivia from servicing its debt.

The debate can thus be interpreted as dealing with whether the buyback is made “once and for all” or generalized. A “once and for all” buyback may not help the country very much if the marginal (market) value of the debt that is redeemed is zero. But a generalized buyback, hinging on the commitment that all resources are viewed through an ex-post market window, is the right thing to do.

Appendix

This appendix will briefly set up the model on which the discussion in this chapter has been based. Further details and the proofs of the results can be found in Cohen (1988). The model is an extension to a stochastic environment of a previous paper (Cohen and Sachs 1986). On

the debt overhang, see also Corden (1988), Helpman (1988), and Cohen (forthcoming).

The model describes an economy whose available technology of production is simply:

$$Q_t = K_t$$

where Q_t is domestic output and K_t is the installed stock of capital. To increase the stock of installed capital by I_t units, the country must spend:

$$J_t = I_t \left(1 + \frac{1}{2} \phi \frac{I_t}{Q_t} \right)$$

(following Abel 1978 and Hayashi 1982). The law of motion of capital is a stochastic process:

$$K_{t+1} = [1 + \theta_{t+1}] [K_t (1 - d) + I_t]$$

θ_t can be interpreted as an exogenous shock to the productivity of installed capital. $\theta_{t+1} = \underline{\theta}$ with probability q and $\theta_{t+1} = \bar{\theta}$ with probability $1 - q$. θ_t is an iid stochastic process.

The country's representative consumer has an expected utility function of the type:

$$U = E_0 \sum_{t=0}^{\infty} \frac{1}{\gamma} C_t^\gamma; \quad \gamma < 1.$$

If the country were to default on its debt, I assume—following Eaton and Gersovitz (1981)—that the postdefault technology of production is:

$$Q_t = (1 - \lambda) K_t.$$

The world interest rate is constant and equal to r ; I assume

$$\beta < \frac{1}{1+r}.$$

Under these assumptions, one can show that the socially efficient investment rate, defined as that which would maximize the wealth of the country, is a constant

$$\bar{x} = \frac{I_t}{Q_t}$$

for all t . The postdefault investment rate is also a constant $x_d < \bar{x}$. The "maximum repayment" benchmark is characterized by an investment rate x^* that satisfies

$x_d < x^* < \bar{x}$. The country is then asked to pay the lenders $P_t = b^* Q_t$, with $b^* < \lambda$.

In contrast, the "time-consistent" equilibrium, characterizing the equilibrium in which no rules of the game are agreed on, exactly mimics the postdefault solution. The country chooses the investment rate x_d and pays $P_t = \lambda Q_t$ in every period. (The argument hinges on Cohen and Michel 1988.)

To reach the efficient rescheduling equilibrium, lenders should themselves calculate the "maximum repayment" value (call it q^*D). They should ask the country to service that value only so that the transfers P_t must be "thought" to redeem the market value only:

$$q_t^* D_{t+1} = q_t^* D_t(1+r) - P_t.$$

This is equivalent to postulating that the debt follows the law of motion:

$$D_{t+1} - (1+r) D_t = \frac{1}{q_t^*} P_t.$$

This equation explains the equivalence of the optimal rescheduling agreement with the generalized buyback scheme suggested in the text.

Notes

1. In the sequel, an inefficient rescheduling will be defined as one which can be Pareto dominated. The appendix to this chapter addresses the case when all the potential gains are captured by the lenders, because I assume away any bargaining power of the debtors. Once the bargaining power of the debtor is taken into account, any improvement on an inefficient rescheduling is clearly beneficial to all parties.

2. A third question, not addressed here, has to do with the impact of debt in the lending countries (see Dornbusch 1988).

3. Differentiating equation (13-2) yields:

$$\frac{dq}{q} + \frac{dq}{1-q} = -1.509 \quad \text{so that} \quad \frac{dq}{q} = -(1-q) 1.509.$$

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Comment

Eduardo Borensztein

This paper adds some very useful insights to the problems of debt overhang, investment incentives, and the possible existence of an unexploited debt Laffer curve. The paper extends the work of Cohen and Sachs (1986) to take into account a situation where foreign debt is not expected to be serviced in full (thus resulting in a discount in the secondary market for the debt). In this framework the debtor country considers, at all times, how profitable it is to repudiate foreign debt. For that purpose the debtor must weigh eliminating debt obligations against the sanctions imposed on defaulters—exclusion from international capital markets and a permanent real output loss (from other economic sanctions). By controlling indebtedness, that is, by setting a debt "ceiling," creditors make sure that repudiation is not profitable. Therefore, the debtor country will never choose to default on its foreign debt.

This paper, in contrast, starts "the day after." Debts have gone through the 1986 ceiling. This means that if

creditors insisted on full repayment debtors would default. Cohen searches for the optimal policy for creditors in such a situation. Economic sanctions cause debtors to lose a fraction λ of GDP every year. Creditors could therefore choose a repayment plan that implies a smaller loss to the debtor and demand only that much as repayment. The maximum present value of payments that creditors can obtain, what is termed the "maximum repayment" program, is a fraction b ($< \lambda$) of GDP.¹ In expected value terms, this is still not enough to service existing debt but, being the best creditors can do, they forgo economic sanctions and adhere to this "maximum repayment" scheme. Cohen implements this repayment program with two instruments: a performing asset, with a face value equal to the expected value of payments under the maximum repayment scheme, and a nonperforming asset, with a face value equal to the residual. Debtors are required to service only the performing asset but, as random shocks are realized, the creditors can convert portions of one asset into the other. This is not the only scheme that would generate the desired pay-

ments; another would be to simply replace existing debt contracts by an obligation contingent on the random shocks to productivity that implies the same payment stream.

The maximum repayment program generates an efficiency gain relative to default. Investment, which is too low in the default case, is increased, and both debtor and creditor are better off. It is interesting to note that the maximum repayment program is the most favorable outcome to the creditors. In this model, creditors make one final offer to the debtor, and debtors would take it rather than default. By contrast, one could envision a different framework—for example, a cooperative game in which debtor and creditors bargain over the fraction of GDP that will be repaid. The debtor's "threat point" (what it could get by walking away from the negotiations) would be a payment of λ . The creditors threat point is, however, 0: they do not capture any payments if default occurs. Whatever the equilibrium concept is applied to this game, the value of payments should be somewhere between 0 and λ . This implies that, although the qualitative results regarding investment would not be affected, the creditor's position would not be as favorable as in the maximum repayment program.

Investment is below its optimal level—the level that satisfies a condition such as the equality of the marginal product of capital to the world interest rate even with the maximum repayment program. The challenge that arises here is whether it would be possible to achieve the optimal investment rate. Two problems prevent investment in the debtor country from achieving its optimal level: the loss of a fraction of output to creditors (which I will term the debt overhang), and the inability to obtain as much foreign borrowing as desired (which I will term the credit constraint). A debt relief measure reducing debt to the level at which it does not pay to default would solve the debt overhang problem but not the credit-constraint problem. If it were possible to change the costs of default, the optimal investment path could be achieved by making the costs arbitrarily large. If the default costs were infinite, there would be no need for credit rationing because debtors would never choose to default, and debt would never become too large and create a debt overhang. Ruling out increasing default costs, another route would be to impose conditionality on domestic policies, effectively forcing the debtor to invest at the optimal level. But even though this is more efficient and would maximize production, it is not Pareto improving—the debtor is actually worse off, since too much of its output is used to service foreign debt. Nevertheless, the larger

resources suggest a Pareto improvement, by combining higher investment with some debt reduction.

Cohen argues that the maximum repayment program might not be feasible because of a temporal inconsistency problem. In any period, the maximum repayment that creditors can extract is a fraction λ of GDP; therefore, if creditors cannot successfully precommit their actions, they would request a payment of λ even though the optimal intertemporal program implies the lower payment of b . Thus the time-inconsistency problem traps the system in a Pareto-inferior equilibrium in which payments are equal to λ . This is a novel explanation of why a debt Laffer curve situation could have arisen.¹ But there seems to be a way around this problem, which is to replace the original claims by a contingent security loan that fixes payments at their optimal level. Then creditors could never request higher payments than a fraction b of GDP, and no inefficiencies would arise. An argument for why this would not occur spontaneously is necessary to strengthen the case for time inconsistencies as a justification of the existence of the alleged unexploited debt Laffer curve.

The empirical section confirms that observations on secondary market debt prices alone are an insufficient base from which to draw robust conclusions. The limited sample forces the use of a cross-section of debt prices and debt levels to try to discover a functional relationship between those two variables for any given country. Strictly speaking, this requires that the coefficients that would be obtained in individual time-series regressions would be the same for each individual country. This assumption is not very appealing. I do not believe that Mexican debt would fall to six cents a dollar (Peru's debt price) if Mexico's debt-to-exports ratio were to rise from 4.5 to 6 (from Mexico's to Peru's level). Not surprisingly, the results do reveal lack of robustness to sample changes and to changes of specification. Unfortunately, there is probably no easy way around these problems, and full-fledged structural models (of investment, growth, and debt payments) may be required to draw more robust conclusions about debt overhang incentives and the possibility of a Laffer curve.

Notes

1. The fact that the optimal payment schedule is a constant fraction of output is a consequence of the linearity of production technology that is assumed.
2. The original ideas are in Krugman (1988) and Sachs (1989).

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Efficient Debt Reduction

Jeffrey Sachs

It is now widely recognized that the overhang of sovereign debt is imposing major costs not only on debtors but also on creditors, by seriously disrupting the debtor economies.¹ The World Bank, in the 1988–89 edition of the *World Debt Tables*, has recently recognized that the debt overhang of the highly indebted countries is “a burden . . . that reduces incentives to undertake sustainable long-term adjustment” (p. xvi). The costs of debt overhang have led to a widespread acceptance of the need for a process of debt reduction, by the World Bank and others. The major commercial banks have, in rhetoric at least, started to advocate debt reduction as one step out of the current crisis.²

In order to discuss the potential usefulness of debt reduction mechanisms, it is useful to have a working definition. Debt reduction is defined here as a restructuring of the outstanding debt in a way that reduces the expected present discounted value of the contractual obligations of the debtor. Thus, debt reduction will mean something more than simply lowering the debt that is owed by repaying principal. It also means something more than converting the external debt into an internal debt that carries the same or greater debt-servicing burden.³ The overall terms of repayment must be eased in a present value sense.⁴ Thus, debt reduction would include a rescheduling of debt at submarket interest rates, a cancellation of part of principal, exit bonds with submarket interest rates, a buyback of debt at a discount relative to face value, and so on.

Despite the discussion of debt reduction mechanisms in the past couple of years, Bolivia remains the only country that has eliminated a large part of its debt obligations through a debt reduction program (in this case, through a buyback of debt at a deep discount) (Sachs 1988b). In other countries, of which Chile is the most notable, debt reduction has come in a piecemeal fashion, mainly as part of debt-equity swap programs and indirect debt repurchase agreements (Larrain 1988). Ironically,

debt-equity swaps represent a kind of debt reduction that is typically of significant harm to the debtor country, which helps to explain why most countries have canceled or very sharply limited their programs by this point. Moreover, much of the actual debt reduction that has taken place has involved private sector debt, instead of the restructured public sector debt that is at the core of the debt crisis. Since the main source of the debt crisis is a financially distressed public sector, private debt conversions might be helpful, but are unlikely to play more than an incidental role in resolving the debt crisis.

In sum, when the banks advertise “more than \$26 billion” of debt reduction, the vast bulk of this amount is private sector conversions (approximately \$8 billion) and debt-equity swaps and local conversions (approximately \$16 billion), compared with only about \$2 billion of debt buybacks and exit bonds for public sector debt (Institute of International Finance 1989, p. 21). This paper focuses on debt reduction mechanisms that are not harmful to the debtor, unlike private sector conversions and debt-equity swaps and local conversions. Note too that many creditor banks have substantially reduced their exposure to developing countries by selling their claims in the secondary market to other institutions that now hold the debt. Such operations reduce the debt holdings of the banks, but do not reduce the debt of the debtor countries, since they merely transfer the ownership of the claim to another creditor.

The gap between the rhetoric of debt reduction and the harsh reality of debt negotiations for the debtor countries has never been greater. In the past two years, debt restructuring programs have done little to satisfy the financial needs of the debtor countries. Only four new-money packages were negotiated in the past two years, and all have by now collapsed. In fact, the banks have become increasingly aggressive in recent negotiations, unrestrained by any discipline of public policy. They pressed for extensive debt-equity swap programs and relending

provisions for Brazil, thus contributing markedly to Brazil's hyperinflation, while providing inadequate refinancing of interest. Citicorp praised the Brazilian agreement as the most innovative to date, only to see its major provisions collapse in a matter of three months (Rhodes 1988).

The theme of this paper is simple. The failure in the last two years to make real headway with debt reduction is not an accident. Even when reducing the debt burden would be beneficial to the broad class of creditors and debtors alike, it is unlikely to emerge from the current structure of debt negotiations. Meaningful debt reduction requires an appropriate institutional setting to overcome important collective action problems. In the domestic economy, bankruptcy law provides the framework for organizing the collective interests of the creditors in a situation of financial distress of a debtor. In the international setting, no such institutional framework yet exists.

What is worrisome about current discussions is the apparent failure to recognize these serious institutional limitations to debt reduction. Almost all of the new-found advocates of debt reduction in the creditor community put enormous stress on the fact that debt reduction should be "voluntary" and "market-based," without paying serious attention to the extent of debt reduction that is likely to be achieved according to these guidelines.⁵ Under the current incentives, voluntary debt relief is bound to mean no more than a continuing nibbling away at the edges of the debt overhang, without real relief for the debtor or real benefits for the creditors.

Instead of voluntary debt reduction, what is needed is "concerted" debt reduction. Again, some definitions are in order to understand this point. Voluntary usually means that each bank should be able to decide whether to participate in a debt reduction scheme (that is, each bank chooses whether to accept a given exit bond in a swap for the existing debt). This is contrasted with "concerted" relief, in which all of the banks participate jointly on a fairly equal basis. It has long been recognized that in the case of new-money packages, a concerted arrangement rather than a voluntary arrangement is needed. The same is true with respect to debt reduction.

The banks have some public relations success in stressing the need for voluntary programs, since it appears that the opposite of a voluntary program must be a coercive program, which sounds unfair. Voluntary debt relief seems to be morally unassailable. But, in truth, the issue is not whether debt reduction should be coercive or not; the issue is whether all banks should commit to participate in any given debt reduction arrangement (as the banks have repeatedly decided in the case of new lending). This paper envisions a negotiated, concerted form of debt relief that would parallel the kind of con-

certed settlement found in a bankruptcy proceeding, and found in new-money packages.⁶

A simple mechanism is at hand to achieve concerted debt reduction. The existing debt should be rescheduled at submarket interest rates, where the rates are guided by various indicators of ability to pay, and are decided in negotiations between the debtor country and the creditor banks.⁷ This simple mechanism would treat all banks symmetrically, facilitate substantial debt reduction, and be easily accomplished both legally and administratively. In addition to lowering the interest rates, the interest payments could be made more secure for the banks through various means, including collateralization, guarantees by the official creditor community, and escrow accounts in which export earnings are deposited for the purpose of future debt servicing, and so forth. These alternative forms of credit enhancement are at the core of several proposals for debt reduction, and could in fact be flexibly applied on a case-by-case basis.

The kind of interest rate reduction suggested in this paper could be easily managed in the context of an international debt facility, which is one form of instituting a global approach. The facility itself is not focused on here (details may be found in Sachs 1989c); instead, the focus here is on the problems of debt reduction for each particular country.

One more important point about debt reduction should be stressed at the outset. Meaningful debt reduction will require the active participation of the international community. The IMF and World Bank will have to provide technical guidance concerning the appropriate levels of reduction; the international community will play a role in structuring the negotiations; and the international community might provide crucial credit enhancement as part of the debt reduction mechanism. The official role in any debt reduction agreement should be predicated on the debtor country's participation in an ongoing, internationally supervised adjustment program, subject to strong conditionalities. Debt reduction must be matched by responsible policymaking in the debtor country. As is stressed here, the prospect of achieving debt reduction can by itself be an important spur to good policymaking.⁸

The paper proceeds as follows. The next section describes briefly the efficiency arguments concerning debt reduction and provides some circumstantial evidence in support of the basic theory. It also stresses why the existing approach of new-money packages is bound to fail. Next the reasons for the general ineffectiveness of voluntary debt reduction mechanisms, both on a theoretical and empirical basis, are highlighted. The following section argues that concerted debt reduction, brought about through submarket interest rates and with various forms of credit enhancement, offers the

simplest, most realistic, and most efficient form of debt reduction. The final section presents some conclusions.

The Basic Efficiency Case for Debt Reduction

Under certain circumstances, debt reduction can improve the welfare of creditors as well as debtors, because a large debt overhang can worsen the economic performance of the debtor and thereby diminish the expected returns of the creditor. This point is well known in the literature on corporate bankruptcy (see Jackson 1986), and was first stressed in the context of sovereign debt by Sachs (forthcoming). Bankruptcy law is also founded on the proposition that efficient debt reduction will normally not occur in a decentralized market process, since each individual creditor has the incentive to press for full payment on its own claims, even if it would be in the collective interests of the creditors to reduce the debt burden. The bankruptcy settlement cuts through this fundamental collective action problem by enforcing a concerted settlement on the creditors.

The efficiency gains of the formal bankruptcy process are seen most vividly in the case of corporate reorganization (Chapter 11 of the U.S. Bankruptcy Code). The case for corporate reorganization under bankruptcy arises when a highly indebted firm—usually one with negative net worth—is more valuable to the creditors as a going concern rather than in liquidation. The creditors as a group would like to find a way to keep the firm operating, and operating efficiently. The problem arises that each individual creditor may still try to protect its own claim on the firm by racing to seize assets of the firm in order to guarantee repayment of the claim. The result of this creditor “grab race” is that the firm is pushed into liquidation, to the mutual detriment of the creditors. The mad scramble of creditors is to everybody’s disadvantage.

The goal of bankruptcy law is to protect the creditors “from themselves,” by pushing them into a compromise (in which they each relinquish part of the claim on the firm). Thus, while a bankruptcy proceeding “forces” the individual creditors to give up part of their legal claims, and reduces the contractual obligations of the debtor, it does so for the benefit of the creditors, by preserving the capacity of the debtor to function effectively and thereby to service as much of the debt as possible.

Unnecessary liquidation is one kind of cost that is prevented by a formal bankruptcy process in which an overhang of bad debt is reduced. There are other possible costs of a debt overhang that are also avoided through a formal bankruptcy process. An overhang of debt can cripple the normal operation of a firm by restricting the firm’s access to trade financing, hindering the maintenance of long-term suppliers’ relations between the firm and other firms, raising the cost of collecting debts that

are owed to the firm (because debtors to the firm try to escape their obligations by delaying payments), and limiting the access of the firm to the long-term capital market.

The process of bankruptcy (and specifically the reduction of the debt claims on the firm) will typically restore the access of the firm to the capital markets, both for short-term trade financing and for long-term borrowing for fixed capital investment. It is common in a bankruptcy action that once the existing debts are reduced, the bankrupt firm may immediately return to the credit markets for new financing based on a cleaned-up balance sheet.⁹

Seen in this light, the most common argument against debt reduction made by the creditor banks seems perverse. It is sometimes argued that debt reduction for a sovereign borrower is harmful to the debtor because it will block the return of the sovereign to the loan market. In fact, it is the debt overhang itself that prevents the return of the sovereign to the loan market, and the most effective way to revive lending for trade financing and fixed capital formation is to reduce the debt burden to a level that can be serviced by the debtor.

Those who argue against debt reduction because of an alleged adverse effect on future lending confuse the effects of two kinds of actions on the debt. A unilateral and hostile suspension of payments by a debtor may in fact delay the debtor’s return to the capital markets. (It may still make sense as a measure of last resort, however.) But an agreed and negotiated reduction of debt can speed the return of the sovereign to the capital market. Note, for example, that Indonesia had access to commercial market borrowing just four years after its debts to foreign governments were substantially reduced in 1970. The alleged reputational onus against a government that failed to honor its debts simply did not exist in this case. If the creditor banks are truly worried about a sovereign’s future access to lending, then the banks should strive to reduce the debt burden through negotiation, instead of cornering the debtor into the need for unilateral actions.

There is a resistance in many quarters to interpret debtor countries as being in a state of bankruptcy. Many observers, starting with Cline (1984), have interpreted the debt problem as a liquidity problem rather than a solvency problem. Others, in the tradition of Eaton and Gersovitz (1981), view the issue as a problem of “willingness to pay,” rather than ability to pay. In fact, the whole question of whether the debt poses a liquidity, solvency, or willingness-to-pay problem has turned out to be rather sterile. From a purely technological viewpoint, there is no doubt that the countries are solvent: given existing technologies and national resources, the debts could surely be serviced in the long term.

Even so, most governments will be unable to service the debts in entirety, even if they want to.¹⁰ The debt is mostly owed by the public sector, where political, economic, and administrative limitations to debt servicing present a profound barrier to debt servicing. Budget cuts or tax increases needed to muster public resources for debt servicing may be opposed in Congress; tax administration may be highly inefficient and incapable of quick reform; the realities of political competition, with the risks of electoral defeat, may frustrate a government that attempts to service the debts in full; the austerity provoked by debt servicing may lead to insurrection and domestic unrest.¹¹ From the viewpoint of the economic team in the government, the situation typically looks much more like an inability to pay, instead of an unwillingness to pay.

There is in fact *prima facie* evidence for applying the lessons of bankruptcy to the case of the sovereign debt overhang. The single biggest failure of the debt management process to date is the progressive decapitalization of the debtor countries, just as is predicted by the analysis of how creditors will behave without a collective debt reduction mechanism. This decapitalization is evidenced anecdotally by events such as the electrical blackouts in Buenos Aires in early 1989, which reflect not only unforeseen disturbances, but also years of underinvestment in energy facilities. The decapitalization is more generally evident in statistics showing the remarkable drop-off in the rate of capital accumulation in the countries with debt-servicing problems, as table 14-1 shows. This decline in investment is blocking the effective recovery and growth of the debtor countries, to the disadvantage of creditors as well as debtors.

Though there are many factors in this decline in investment rates, at least some are closely related to the debt overhang. Countries in debt-servicing difficulties have lost access to new international capital market lending, even for incrementally profitable investments in the private sector (and certainly the public sector); they have suffered a significant reduction of foreign direct investment; and they have lost access, in many cases, to normal short-term trade financing. It is important to note that the decline in investment in the highly indebted countries exceeded the decline in net resource transfers from abroad in recent years, suggesting that investment

has declined because of the lack of foreign resources, and because of the more general disincentives against investment in the debtor countries created by the debt crisis.

Though most observers recognize the seriousness of the decline in investment rates, there is a considerable divergence in views as to whether debt reduction is really a necessary condition for a substantial improvement in investment rates, and whether debt reduction could actually benefit the creditors by spurring enough investment to raise the eventual servicing of the debt. One school of thought holds that higher investment should be financed by a reduced net resource transfer out of the highly indebted countries brought about mainly through new lending instead of debt reduction; a second school of thought holds that the net resource transfer should be cut mainly through debt reduction.

The new-money school of thought holds that the inefficiencies of the debt overhang can be kept under control without a formal reduction of the debt. Defenders of this position used to argue that the debt crisis was merely a short-term liquidity problem, and that after a bit of bridge financing the countries would soon return to the capital markets. Now, defenders of this viewpoint suggest that it is not clear whether the problem is liquidity or solvency,¹² but that until it is known conclusively, the debtors can be nurtured along with new loans and thereby avoid the high costs of a debt overhang.¹³ In essence, the debt-rescheduling process is called upon to mimic actual debt relief by providing enough new money so that the debtor pays no more in actual cash flow than it would in the case of actual debt reduction, but does so through a combination of larger debt repayments balanced by new lending.

Why the New-Money Approach Will Continue to Fail

In practice, rescheduling never has, and almost surely never can, come close to mimicking the benefits of actual debt reduction. This is for several reasons. First, new lending requires a collective action by creditors that is no longer achievable except on rare occasions in the very largest countries. The process of negotiating new money is very costly, and inevitably so, in that it is prone to breakdowns, inadequate financing levels, long and costly delays, high-stakes brinksmanship, and so forth. Second,

Table 14-1. Gross Capital Formation in Countries with and without Debt-Servicing Problems, 1980-87
(percentage of GDP)

	1980	1981	1982	1983	1984	1985	1986	1987
Countries with debt-servicing problems	25.5	24.7	22.6	19.0	18.4	18.6	19.0	18.4
Countries without debt-servicing problems	27.9	27.9	26.9	26.5	26.5	27.8	27.4	27.2

Source: IMF (October 1988), p. 66.

even if the existing creditors agree to refinance a significant proportion of payments that are due, new creditors are still blocked from participating in new lending on a decentralized basis, for fear of having their new loans become part of the overall bad debt. And third, refinancing (rather than debt reduction) causes a buildup of future debt that may adversely affect the incentives of current investors, mainly the debtor governments. Each of these points is considered in turn.

First, the rescheduling process has all but broken down. There are at least 42 countries that have rescheduled their debts with commercial banks in recent years.¹⁴ Of these, only four countries were able to negotiate new-money agreements in 1987–88: Argentina (1987), Brazil (1988), Ecuador (1987), and Côte d'Ivoire (1988). Every one of these agreements has come to naught. As of January 1989, the Argentine agreement had completely collapsed, with Argentina in arrears for more than nine months; important parts of the Brazilian agreement have collapsed, with various provisions unilaterally suspended by Brazil and with the prospects for drawing the next credit tranche very slim; the Ecuadorian agreement was never implemented, because the banks did not subscribe an adequate amount of money, leading Ecuador to suspend the provisional agreement; and the Côte d'Ivoire agreement also was not implemented, and the country remains in deep arrears.

For most of the other debtor countries, the absence of a new-money agreement signifies the collapse of adequate financing. The following countries were in arrears on interest payments as of January 1989 (this list is almost surely not comprehensive): Argentina, Bolivia, Costa Rica, Côte d'Ivoire, Dominican Republic, Ecuador, Guyana, Honduras, Liberia, Nicaragua, Nigeria, Panama, Peru, Sudan, Zaire, and Zambia. Many other countries are not in arrears, but have been unable to negotiate new-money agreements. For example, Yugoslavia renegotiated its bank debt in 1988 but received no new financing (despite a presumptive need for external financing suggested by a 250 percent annual inflation rate).

This situation is unlikely to change, since the banks have become less willing over time to participate in these packages. The Washington-based Institute of International Finance (IIF), which lobbies on behalf of the banks, made this point explicitly in a letter to the IMF last fall, when it announced that it would be "unable" to provide \$6–\$9 billion of loans a year. Since this would reflect less than 2 percent of existing exposure, the banks are announcing that they will not refinance even one-fifth of the interest due from the debtor countries. Since the vast bulk of any new money will inevitably go to Argentina, Brazil, and Mexico, there is essentially no refinancing

available for the smaller 25 to 30 countries now in financial distress.¹⁵

The IIF letter was not simply a negotiating ploy. The decline of actual agreements reached in 1987–88, and that all have broken down in short order, is one kind of evidence. Another is the fact that the U.S. banks in droves are now selling off their Latin American exposure, as shown in table 14–2. The important point that the smaller banks are divesting at a more rapid rate than the larger banks is stressed below, but the key point here is that all banks are getting out of the term-lending business, and the capacity to put together realistic agreements (which last for more than three months at a time) has virtually disappeared. And despite the rhetoric, even the banks with the most extensive foreign operations are leaving the scene: BankAmerica will be sharply contracting its international operations in 1989.

The only possibility for substantial amounts of new money would be for a major increase in official creditor lending (for example, the banks are now pressing hard for public guarantees of new private bank lending). Such a shift of lending from the banks to the official creditors would be a politically untenable bailout of the commercial banks if it were not combined with significant concessions from the banks themselves. Such new lending would almost surely run up against strong political opposition in the United States, unless the new official lending were visibly tied to debt reduction (for example, through official guarantees of exit bonds). There was considerable congressional opposition to the general capital increase of the World Bank in 1988 on the grounds that it represented a thinly veiled bailout of the money-center banks.

Even if new money became available to cover interest payments, it would not overcome the inefficiencies of the debt overhang. A reduction of debt through bankruptcy is helpful not only because it reduces the repayments due from debtors to creditors, but also because it allows new creditors to enter into agreements with the bankrupt firm on a normal market basis. Similarly, with a highly indebted country, the overhang of public sector debt puts a damper on a vast range of financial relations between residents of the country and the international capital markets. For example, most of the smaller highly indebted countries have lost access to normal trade financing, since banks fear that even short-term trade lines will be subject to transfer risk. While the data are not available to establish this point generally, it is certainly the case in Bolivia, Costa Rica, Ecuador, and Peru, and probably in most other problem debtor countries.

The final reason that the new-money approach is bound to fail is that even if much greater short-term cash flow relief could be provided by new money, and even if the problem with new creditors could be overcome, the

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debt overhang would almost surely create extremely adverse incentive problems for the debtor governments in regard to their decisions on public investment and economic reform. Governments would continue to have a difficult time justifying tough reform measures to the extent that such reforms seem designed to increase future debt-servicing payments abroad. As stressed by Sachs (1988a, 1988b, 1989b, and forthcoming), such reform measures are almost everywhere in Latin America caught in a political stalemate, except in those countries that rule by repression or that have won a measure of effective debt relief (for example, Bolivia).

Formal models of this incentive problem typically depict a government choosing between investing or consuming in the current period, to show that a debt overhang acts like a tax on future investment. (See, for example, Sachs forthcoming, Corden 1988, Helpman

1988, and Krugman 1988.) But the real problem is more serious than this. Even more pernicious than this incentive effect is the effect of the debt overhang on the electoral choices in Latin America. Candidates in favor of long-term reform in the present situation have little apparent to offer to the public: they promise to impose a burden today in order to carry out the reforms, and then implicitly to maintain the burden in the future when they service the foreign debt. Candidates with a shorter-term message, of debt moratorium and real wage increases in the current period, therefore have a much more attractive message to offer to large parts of the population. The result is a resurgence of populism in Argentina, Brazil, Ecuador, Mexico, and Peru that poses a significant danger to the possibility of long-term reform.

The creditor community has rarely shown an appreciation of the need for a compromise on debt reduction for

Table 14-2. Reduction in Exposure to Developing Countries at 29 of the Largest U.S. Banks

	<i>Total developing-country exposure (US\$ millions unless otherwise noted)</i>		<i>Exposure reductions, June 1987 to September 1988</i>	
	<i>June 1987\$</i>	<i>Sept 1988\$</i>	<i>(US\$ millions)</i>	<i>Percent</i>
Citicorp	14,600	12,100	2,500	17
BankAmerica	10,354	9,000	1,354	13
Manufacturers Hanover	9,234	8,688	546	6
Chase Manhattan	8,740	7,950	790	9
Chemical Bank	5,945	5,900	45	1
J. P. Morgan & Co.	5,400	4,700	700	13
Bankers Trust	4,000	4,000	0	0
First Chicago	3,120	2,429	691	22
Continental Illinois	2,400	2,000	400	17
Irving Bank Corp.	1,950	1,890	60	3
Mellon	1,600	1,386	214	13
Security Pacific	2,200	1,260	940	43
Bank of Boston	1,400	1,000	400	29
First Interstate	1,606	996	610	38
Wells Fargo	1,909	760	1,149	60
Bank of New York ^a	544	470	74	14
Republic of New York	487 ^e	461 ^e	26	5
PNC Financial ^c	481 ^e	291	190	40
First Fidelity ^b	237	177	60	25
Northern Trust ^a	321	149	172	54
Southeast Banking ^b	215	117	98	46
MNC Financial	223	107	116	52
Bank of New England	307	106	201	65
Valley National	155	62	93	60
Fleet/Norstar	145	52	93	64
First Wisconsin	289	17	272	94
Norwest Corp ^b	515	16	499	97
First Wachovia	212	8 ^d	204	96
NCNB Corp.	247	4	243	98
Total	78,837	66,095	12,742	16

Note: Exposures only in dollars (and not in local currency) are included.

a. Includes loans only.

b. Includes non-trade-related credits only.

c. Includes medium- and long-term loans to developing countries only.

d. The exposure totals at these dates were fully reserved against.

e. Estimate.

Source: Keefe, Bruyette & Woods, Inc. (December 1988.)

the sake of bolstering the moderate political factions that are most likely to service the debt. All of the short-run pressures for reform by the IMF and World Bank count for nothing if the moderate political forces are unable to maintain power in Latin America's increasingly turbulent political environment. Actual debt reduction should be seen as an instrument for bolstering reformist political forces, so that they themselves have the incentive to undertake the right policies, and so that they can win elections against candidates that promise easier solutions.

The Ineffectiveness of Voluntary Debt Reduction

The idea of debt reduction has been around for several years, but the actual accomplishment of debt reduction has been meager. The main channel for debt reduction has been debt-equity swaps, which ironically are the kind of debt reduction that is typically harmful to the debtor country. In fact, despite enormous pressure from the commercial banks for such programs, they have been suspended in almost every country that has introduced them, with the exception of Chile. Moreover, despite the dozens of commercial bank reschedulings since 1982, there is not a single case of commercial bank debt being rescheduled at submarket interest rates, despite the fact that many countries are almost universally acknowledged to be financial "basket cases" that have no possibility of fully servicing their debts on normal market terms.¹⁶

This section stresses that the meager record on debt reduction is an intrinsic feature of the bargaining process between the banks and the debtor countries, as it is now structured. Without a bankruptcy institution, and without the official creditor community attempting to design concerted agreements as in a bankruptcy court, real debt reduction will almost surely not be accomplished even with a broadened "menu of options" that includes more debt reduction mechanisms.

Debt reduction schemes should be measured against the standard of restored creditworthiness of the debtor country. Specifically, the debt reduction should be extensive enough to accomplish the following goals: to allow the debtor country to service the external debt on the revised contractual basis without the need to refinance interest payments in new, concerted-lending packages; and to allow the private sector in the debtor country to attract supplier credits, trade credits, and project finance on a decentralized basis. If some partial debt reduction takes place but fails to accomplish these two goals, most of the inefficiencies discussed earlier will remain despite the effort of arranging the debt reduction. Also in that case, as Bulow and Rogoff (1988) have stressed, it is likely that official guarantees will cost a lot of public money

with little benefit to the debtor country. As with a bankrupt firm, there is little sense in reorganizing the debt if the firm is going to remain in acute financial distress.

Under voluntary arrangements, a small number of banks can frustrate a comprehensive settlement of a country's debt overhang. As table 14-3 shows, of the 18 U.S. banks that held Bolivian exposure at the time of the Bolivian buyback (and that did not otherwise dispose of their debt in the secondary market), 12 banks sold out entirely, while the largest creditors (BankAmerica, Citicorp, and Morgan Guaranty) held on to most of their claims. Another large bank, Chemical Bank, failed to dispose of the exposure that it inherited from Texas Commerce Bank (listed separately in the table), which it acquired in early 1987. The motivation of the big banks in holding on was mainly to avoid setting a precedent for other countries, but the implications for Bolivia are clear: these few banks, and several like them abroad, have so far frustrated a full settlement of Bolivia's debt problem.¹⁷

There are several barriers to comprehensive debt reduction, even with more extensive use of voluntary methods that are now supported by the official creditor community (for example, buybacks, exit bonds, and debt-equity swaps).¹⁸ These barriers are: (1) the inherent collective action barrier to comprehensive debt reduc-

Table 14-3. *U.S. Bank Participation in the Bolivian Debt Buyback*
(US\$ millions)

Bank	Exposure	Total sales	
		Cash	Bonds
BankAmerica	69.2	10.0	
Citicorp	50.974	9.315	12.829
Morgan Guaranty	11.465	0.0	
Manufacturers Hanover	7.984	7.984	
Bankers Trust	7.359	7.359	
Wells Fargo	6.311	6.311	
AMEX Bank Ltd.	4.55	4.55	
First Penn. Bank	4.116	4.116	
Atlantic International Bank	3.616	3.616	
Chemical Bank	3.105		3.105
Texas Commerce Bank	3.092	0.0	
California First Bank	2.86	2.86	
AmSec Bank	2.23	2.23	
Irving Trust	1.417	1.417	
Shawmut Bank	0.955	0.955	
NCNS (Nat'l Bank of N. Carolina)	0.907	0.0	
Allied Bank Int'l	0.295	0.295	
Seattle-First National	0.177	0.177	

Note: In the Bolivian buyback, banks could swap existing debt for cash (at 11 percent) or for investment bonds (which can be used for debt-equity swaps, and are redeemable in bolivianos for the boliviano equivalent of 16.5 percent of the face value of the debt). All of the banks except for Citicorp, BankAmerica, Morgan Guaranty, and Texas Commerce Bank sold or swapped 100 percent of their portfolios.

Source: Keefe, Bruyette & Woods Inc. (1988b).

tion, (2) the problem of precedents, (3) the problem of public sector bailouts, (4) the distorted incentives of the large banks, and (5) the structure of the bargaining cycle. It is useful to examine each of these barriers in turn.

The Inherent Collective Action Barrier of Voluntary Schemes

In a voluntary debt reduction mechanism, each creditor is free to choose whether or not to participate. Nonparticipation means that the creditor continues to hold the original claim and can attempt to collect as much as possible on that claim. Thus, there is a basic arbitrage condition attached to voluntary schemes: participation in the scheme must, on the margin, be no worse than holding out and sticking with the original claim. Thus, in a voluntary scheme, the creditor must compare the value of the existing claim after the debt reduction has taken place with the value of the alternative claim that is available through participation in the debt reduction scheme.

But now an obvious paradox arises, which is best illustrated in the case of certainty. A full restoration of creditworthiness would imply that all claims on the debtor, including "old" debt that does not participate in the debt reduction process, will rise in value to its face value. The secondary market price of the old debt will be 100 cents on the dollar after the debt reduction, if full creditworthiness is restored.¹⁹ Thus, under certainty, there would be no motivation for an individual creditor that has a small share of the overall debt to participate in a voluntary scheme if the creditor receives something less than 100 percent of face value.

The result, which is proved formally by Helpman (1988), for example, is that debt reduction may be impossible as a market equilibrium even when the creditors as a whole would benefit from the debt reduction relative to the status quo. In the case studied by Helpman, the creditors would be made better off by being "forced" (as in a bankruptcy settlement) into an agreement. Thus, the insistence that debt reduction be voluntary may actually hurt the creditors as a whole. It probably helps, however, a part of the creditor group (the large money-center banks), a point stressed below.

The same point can also be made from the viewpoint of the international institutions. It may be prohibitively costly to use official money for a buyback, or for other forms of credit enhancement, in a purely voluntary debt reduction arrangement, since the cost of restoring creditworthiness becomes virtually the entire face value of the debt in the case that the individual banks can freely decide whether to opt in or opt out.

The fundamental distortion of voluntary debt reduction schemes is recognized by the banks, even though

they fail to understand its analytical importance, or its implications for the failure of the voluntary approach. The IIF has recently written (1989, p. 23), that "the cost [of debt reduction] is the discount incurred in exchanging old assets for new assets, but the benefits accrue to all creditors and to the debtor country because its external debt servicing costs are reduced. Thus, particular creditors benefit if other creditors can be induced to reduce their claims." This externality is praised by the IIF as an added benefit of voluntary debt reduction, rather than as the profound barrier to efficient debt reduction that it is in fact.

The key to efficient debt reduction is to require creditors to exercise their own self-interest by participation in a concerted debt reduction scheme. The appropriate test for a concerted debt reduction scheme is whether the creditors are made better off than in the status quo. By this test, the banks should compare the secondary market price of the debt before the debt reduction with the value of the asset that they would receive in the concerted debt reduction scheme.

The Problem of Precedent

Among the banks and the U.S. Treasury, almost the entire debt process is conceived of in terms of no more than five countries: Argentina, Brazil, Mexico, the Philippines, and Venezuela. While there are at least 42 countries that have rescheduled their commercial bank debts in recent years, the five main debtors account for about 80 percent of the exposure of the nine money-center U.S. banks to all 42 countries. The top three countries (Argentina, Brazil, and Mexico) alone count for 64 percent of the total exposure of the money-center banks to the problem developing countries. Importantly, however, from a humanitarian and geopolitical viewpoint, the five countries account for only 40 percent of the population of the entire group.²⁰ In the debt management process, there is little serious attempt to address the problems of the smaller debtor countries for fear of setting adverse precedents for the larger countries. There is also no new money for these countries. The arguments that the banks use for opposing debt relief (for example, that they are in the countries for the "long haul," that the countries can successfully service their debts in the long term, that the countries will want to return to commercial bank lending in the near term) manifestly do not apply for many if not most of the smaller debtor countries. Countries such as Bolivia, the Dominican Republic, Ecuador, and Peru, among others, cannot pay their bills; are in no condition to expect a return to commercial bank lending for a great many years; and do not expect a continuing presence of the money-center banks in their countries. And yet for these countries, as much as for Argentina, Brazil, and

Mexico, comprehensive debt reduction has been off the agenda.

The reason is not hard to decipher: it may be found in the cartoon. The small debtor countries have so little debt that there is almost nothing to gain for the big banks in reaching a more efficient solution for them, while the risk of a precedent might be very damaging. The smaller countries are truly worth more as an example.

Thus, in the case of Bolivia, the money-center banks have held on to their claims, even as all of the rest of the U.S. banks have abandoned theirs. There is still a good chance for a comprehensive settlement in Bolivia (as is supposed in the IMF and World Bank programs for the country, and has been committed by key banks in the steering committee), but only after overcoming significant money-center bank resistance to the risk of a precedent. Bolivia's needs at this point have relatively little to do with the strategy of the big banks.

The Expectation of Public Sector Bailouts

The third major reason why comprehensive debt reduction is unlikely is the continuing signal from the

official community that public money will come to the rescue of the faltering renegotiation process. The banks and the debtor countries are certainly not the only players in the debt renegotiation game. The official creditor community has a major stake in the process, one that is well understood by the largest commercial banks.

The money-center banks are essentially in the position of Stackelberg leaders compared with the official lenders (including the treasuries of the Group of 7 countries, the IMF, the World Bank, and the multilateral development banks). To the extent that the banks limit new lending or debt reduction, they know that the official community will make up at least part of the difference in official lending to the debtor countries. This is because the official creditors have an important stake in maintaining political and economic stability in the debtor countries and thus are willing to put money into the process if the banks do not.

This infusion of public money acts as a tax on debt reduction schemes. It is easy to show that if the official creditors decrease their contributions to a debtor country for each dollar increase of debt relief from the private banks, the banks will have the incentive to underprovide debt reduction, at the expense of both the official creditors and the debtor country.

This process is increasingly evident. In Sachs (1988b), it is shown that the official creditors have systematically put net resources into the major debtor countries while at the same time the commercial banks have systematically removed net resources. In the Paris Club, the official bilateral creditors have virtually stopped collecting money: almost all countries are now able to negotiate rescheduling agreements in the Paris Club in which 100 percent of interest and principal is postponed for several years. The terms are substantially more favorable than those given by the commercial banks, despite the debtor's commitment under the terms of the Paris Club to negotiate terms with other creditors with terms at least as concessional as the terms offered by the Paris Club creditors.

The process of substituting official finance for bank finance has become more explicit over time. In recent months, for example, the U.S. Treasury has engineered a large bailout for Mexico, in which a large bridge loan was made (\$3.5 billion) to future World Bank and IMF lending even though loan programs from those institutions had not been negotiated. The money was to guarantee a smooth transition period in which commercial bank interest payments would not be interrupted. More generally, the World Bank and Japan (especially through its Export-Import Bank) are widely seen to be acting as "lenders of last resort" to fill in the financial needs of large debtor countries that are not met in new-money packages.²¹ Similar treasury loans are now under consid-

Why Are You Bankers Choking That Man?



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eration for Argentina, Brazil, and Venezuela. The general capital increase of the World Bank, the recycling program of the Japanese government, and anticipated quota increases for the IMF and the Inter-American Development Bank are all viewed by the commercial banks as important sources of money that will substitute for fresh bank lending in the coming years.²²

The Distorted Incentives of the Large Banks

Despite all of the biases against debt reduction (like the advantages of waiting for others to give relief, the problems of precedent, and the prospects of an official bailout), most banks are now prepared to accept significant losses on the debt in return for ridding themselves of the problem. This is evidenced by the fact that the regional U.S. banks are now divesting of their entire developing-country debt portfolios on the secondary market at a remarkable rate, with losses reaching 50 to 60 percent of the face value of the portfolios. It is a few money-center banks, not the vast bulk of small- and medium-size U.S. banks, that are resisting comprehensive write-downs of their portfolios. Note in table 14-2 that, while most U.S. banks are reducing their exposure, the non-money-center banks are reducing their exposure at a much faster rate.

It is important to analyze why the large banks are less willing to sell off their portfolios, since that also helps to explain why the large banks have so vigorously resisted concerted debt reduction arrangements. The large banks typically argue that they should not be expected to accept the losses that are being accepted by the smaller banks, since the big banks, unlike the small banks, intend to remain in these countries for the long haul. In other words, since the large banks are going to maintain business in Latin America, they should not be expected to accept losses on their existing debt; the smaller banks are selling off their portfolios because they are getting out of Latin America entirely.

This explanation actually makes little sense on closer inspection. Citicorp could remain in Mexico for the long haul even if it agreed to cut interest rates on existing sovereign Mexican debt to submarket rates. In normal banking practices, it would be the bank with the long-term relationship with a client that would be expected to grant the concessions to the client in a case of financial distress. In Japan, for example, it is precisely the "main bank" (that is, the bank with the long-term relationship, and largest exposure, with the client) that is called upon to grant submarket interest rates in order to nurse a firm back into profitability in the case of financial distress.

The reasons for the large banks' greater resistance to debt write-downs has little to do, in fact, with their alleged long-term commitment to the debtor coun-

tries.²³ It has to do with three other factors that should be deemed highly distortionary to the debt reduction process. First, the large banks are resistant to write-downs because of the greater exposure to developing countries relative to capital. As we shall see, the higher exposure can cause banks to resist debt reduction even when the debt reduction is highly efficient in the sense of raising the expected present value of future debt repayments.

Second, the large banks have superior access to debt equity swaps than do the small banks. In general, these debt-equity swaps offer a less costly way of divesting debt than does the secondary market. So the big banks resist comprehensive agreements in order to maintain their options to pursue debt-equity swaps. Unfortunately, from the viewpoint of the debtor country, the debt-equity swaps tend to be highly deleterious.

Third, the large banks recognize that by slowing their own debt reduction process, they also gain by having the smaller banks "cash in," and accept losses by exit bonds, secondary market sales, and so forth. Since any creditor is made better off if another creditor voluntarily makes a concession to the debtor (since the remaining debt increases in value), the large banks have an added incentive to let the small banks get out at a large loss, while the big banks postpone any significant concessions. This is just another reflection of the collective action problem demonstrated at the beginning of this section. It is helpful to look at these three factors in a bit more detail.

Exposure ratios and the incentive to accept debt reduction. The money-center banks are more heavily exposed than the smaller banks in the United States. At the end of 1987, the money-center bank exposure to the 42 troubled debtor countries was \$56.1 billion, or 109 percent of capital.²⁴ For the rest of the U.S. banks, the exposure was \$27.3 billion, or 35 percent of capital. High exposure per se can be an important barrier to acceptance of debt reduction.

The key point is that regulatory oversight of the banks is based on the book values, not market values, of the banks' assets and liabilities. This means that heavily exposed banks may sometimes have the incentive to avoid book losses on their portfolios even if they represent market gains. A bank with a large exposure of developing-country debt relative to bank capital might satisfy capital adequacy requirements when measured at book values, but fail to satisfy them when measured at market value. In this case, the bank might turn down participation in a debt reduction scheme, even if it raises the market value of the exposure to developing countries, if at the same time it causes a book loss on the bank's claims that pushes the bank out of compliance with the regulatory guidelines on capital adequacy.²⁵

This kind of distortion arises because of faulty accounting procedures. In the United States, the banks are not required to mark-to-market the valuation of developing-country claims, so that the vast bulk of the claims is kept on the books at 100 percent of face value, despite a secondary market value of around 40 percent of face value.²⁶ Banks are willing to absorb some losses on their developing-country claims to clean up their portfolios, but only if such losses do not jeopardize the bank's plans for meeting the guidelines on capital adequacy, which are based purely on book values.²⁷

So if banks that have actually reduced their developing-country portfolios the most (that is, through sales in the secondary market) are examined, there is a very strong negative correlation between the exposure-to-equity ratio and the percentage decline in exposure in the past year. The data from table 14-3 show that on an unweighted average the 9 money-center banks have reduced their exposure by 10.9 percent, while the 20 banks with less exposure have reduced their exposure by an unweighted average of 49.8 percent.²⁸

Large banks and debt-equity swaps. There are, moreover, several ways to reduce the exposure to developing countries, including participation in a comprehensive debt reduction scheme (for example, the Bolivian buyback), sales directly into the secondary market, and participation in a debt-equity swap program. The last offers banks the least expensive way to divest their developing-country debt, since debt-equity swaps generally allow the creditor to avoid the full market loss implicit in the secondary market (the discount is shared between the debtor and the creditor). But effective participation in debt-equity swap programs requires a close working knowledge of the local economy that can be gained only through extensive operations in the country. Thus, the largest banks, with local branch networks, are best able to use the debt-equity swap programs to their advantage.²⁹

The large banks, and especially Citicorp, have blocked comprehensive debt reduction arrangements in the past year (for example, in Bolivia, Brazil, and Costa Rica) in order to press for expanded debt-equity swap programs. This is perfectly justifiable as a corporate strategy, but is highly distortionary from the viewpoint of a settlement on the debt issue. The main problem is that the debt-equity swaps by themselves are generally harmful to the countries undertaking them, since they imply an acceleration of debt repayments rather than an easing of the debt-service burden.³⁰ There are only limited circumstances in which debt-equity swaps may make economic sense: for private sector debt and in the case of privatization of public enterprises (for which there are no inflationary consequences).

Not surprisingly, the largest banks have pushed relentlessly for these programs, while the debtor countries have typically restricted or cancelled them soon after they have come into operation. In the Brazil rescheduling agreement of September 1988, the Brazilian government committed to a debt-equity swap program in which the debt would be repurchased at face value, so that Brazil would not even benefit in the market discount through the program! Mercifully, the Brazilian government suspended this part of the agreement in January 1989. The amazing thing is that the official community, which should know better, has not opposed this kind of mechanism despite the harm to the debtor countries.³¹

A second problem with the debt-equity swaps is that, given their attraction to Citicorp and a few other banks, these large banks have frustrated more comprehensive arrangements (for example, submarket interest rates) for fear of jeopardizing the debtor countries' acquiescence in the debt-equity programs. Thus, comprehensive agreements have been held hostage to a form of debt reduction that is harmful to the interests of the debtor countries.

It is important to mention one further distortion that leads debtor countries into accepting these swap programs despite the highly adverse macroeconomic consequences. As stressed by Luiz Carlos Bresser Pereira (1989), the former finance minister of Brazil, who faced enormous internal political pressures to implement such programs:

The debt is a chance for speculation and profit. Formal and informal (through the parallel exchange rate market) debt-equity conversions make possible huge gains from speculation by some. The discount in the secondary market is shared by a number of people—bankers, brokers, investors, lawyers—and these people know that, if a global securitization scheme is adopted, they will lose this extraordinary source of gains.

Actually it is possible to take two opposite views about the debt-equity conversions. You can think that this is a positive way of gradually reducing the debt, or you can think that this is a form of coopting the elites of the debtor countries, making their interests common to the interests of the major creditor banks. I am today firmly convinced that the second alternative is the correct one. These debt-equity swaps are based on the discount in the secondary market, that is, in the misery of many in the debtor countries whose incapacity to pay is so portrayed, but the ones who make large profits from these conversions are a small, but influential, minority in the debtor countries.

The large banks' incentive to wait. The big banks have several fundamental reasons to avoid a comprehensive solution at this moment, mainly their heavy exposure relative to equity, their expectation of official bailouts,

and their preference for debt-equity swap programs. These fundamental factors lead to another, induced motivation for waiting. The smaller banks are now cutting their losses and getting out in separate side deals (for example, buybacks and exit bonds). The money-center banks know that by waiting, they reap advantages from the concessions of the smaller banks. John Reed (1988), chairman of Citicorp, was quite explicit on this point in a recent speech:

What is happening right now is that some banks, like our own, are converting debt into long-term investments [i.e., debt equity swaps]. At the same time, some smaller banks that have very different interests are selling out at prices that, frankly, *are quite convenient to those of us who are going to stay in for the long haul*, and quite convenient for the countries [emphasis added].

The waiting game imposes costs on the creditors as a whole (by allowing a continuing economic deterioration in the debtor countries), but these costs are borne by the smaller banks (who sell their debts at exceptionally discounted prices), not by the larger banks that impose the obstacles to concerted debt reduction.

The Problem of the Negotiating Cycle

Despite all of the resistance to comprehensive debt reduction on the part of the creditors, it still might be asked why the debtor countries do not have the bargaining power to achieve more comprehensive relief. The answer, it seems, lies in the nature of the bargaining process. To put the matter simply, the countries have two objectives: to remain on good terms with the official community, as a matter of foreign policy as well as financial policy; and to reach better agreements with the creditor banks. But as the negotiating process is actually carried out, it is virtually impossible to attempt the latter without threatening the former.

The official community (that is, the U.S. Treasury, the IMF, and the World Bank) expects debtor countries to reach negotiated agreements with the banks as a precondition for good official relations. When Brazil went into moratorium in 1987, for example, it was the withdrawal of official financial support (for instance, export credits from the official agencies) that proved to do the most harm to Brazil's negotiating position. Similarly, the IMF almost always requires that the country reach an agreement with the commercial banks (at least in principle) before it will sign an IMF Standby. In turn, the IMF agreement is needed for the country to reschedule its bilateral debts in the Paris Club, which is in turn necessary for the country to arrange new export financing from the export credit agencies of the creditor governments. The result is that the countries are pressed into signing

commercial bank agreements, not mainly because of their bargaining weakness in relation to the banks, but because an agreement with the banks has been made the sine qua non of good relations with the creditor governments.

The only cases of real progress toward debt reduction (the Bolivian buyback in 1988, and Costa Rica, with a buyback likely in 1989) have occurred when the official creditor community has allowed the debtor country to maintain good official relations (for example, to have IMF programs) during a period in which the countries were in prolonged arrears to the commercial banks. The implicit official sanction of the arrears both enabled the country to persist in long-term negotiations with the banks and sent a signal to the banks that the debts were not going to be defended by the official community to the last penny of interest.

Toward Efficient Debt Reduction

The voluntary approach, at least as now conceived, is unlikely to succeed in its central purpose: to restore the creditworthiness of the debtor countries so that they may achieve productive efficiency. Debt reduction should be comprehensive to achieve this goal, but we have seen that several important barriers block a comprehensive settlement on a voluntary basis: the inevitable tendency of holdouts to wait for others to grant relief, the problem of precedents, the expectation of official bailouts, and the distorted incentives of the largest banks.

These problems can be overcome, but only with resolute actions by the official creditor community. The key point that the official community should recognize is that a real debt settlement requires the concerted participation of the banks. To the extent that there remains a menu of options for the banks, this menu should only include alternative ways of accomplishing debt reduction. In other words, banks should not have the luxury of opting out of debt reduction entirely, for that frustrates the whole process.

The simplest way to achieve a comprehensive reduction of debt is through a reduction of interest rates to submarket levels on the existing debt. This mechanism is nearly ideal: it is administratively straightforward (the contracts merely have to be rewritten to include interest rates of, say, a fixed 4 percent, rather than LIBOR plus 13/16); it is comprehensive; it is equitable in its impact across banks; it avoids the adverse consequences of debt-equity swaps; it is a standard mechanism for debt workouts in the domestic context; and it may even obviate the need for large, immediate write-downs of capital under U.S. banking regulations.³² Furthermore, it is easy to combine interest rate relief with credit enhancement, since the reduced interest rates can be guaranteed by the

official creditors, like the World Bank, as part of the restructuring process.

Achieving comprehensive debt reduction for a particular debtor country will require several steps on the part of the official creditor community (especially the IMF and World Bank):

- An explicit recognition by the IMF and World Bank that the debt burden of the country should be permanently reduced (conditional on the commitment of the debtor country to pursue appropriate macroeconomic policies).
- An official policy that the banks should share equally in the debt reduction. A menu of options may still be used in recognition of regulatory differences facing different banks, but in economic terms, all banks should participate equally in the debt reduction mechanism.³³
- An official policy against debt-equity swaps as a significant component in debt reduction, except for the handling of private sector debt or the case of privatization of a public sector firm.
- The design of official lending programs (for example, standby programs and structural adjustment lending) based on debt-servicing targets that take into account the necessary debt reduction.³⁴
- An official policy that IMF and World Bank programs can go forward despite arrears to the commercial banks in circumstances in which the IMF determines that the debt should be reduced, but in which the banks have not yet agreed to a comprehensive debt reduction mechanism.
- Regulatory support for debt reduction, with regulators requiring write-downs of debt to market values for those countries for which debt reduction packages are not concluded. At the same time, stretching out write-downs in cases where comprehensive debt agreements are reached.
- The use of official money to “enhance” the interest stream of debt for cases in which the countries and the commercial banks have agreed to a comprehensive debt reduction scheme. The official institutions can provide partial or complete interest payment guarantees, depending on the precise economic circumstances of the debtor country and the nature of the debt reduction agreed to with the commercial banks.
- Strict conditionality on official lending for all countries negotiating debt reduction programs, and for all countries seeking programs in the face of commercial bank arrears.
- A policy that sustained interest arrearages on payments after debt reduction has taken place should trigger cross-default provisions with other IMF and World Bank lending. This is especially important in cases in which there are official guarantees of the interest payments that have been missed.

- An official policy of support for debt reduction through the mechanism of submarket interest rates as the simplest, fairest, and administratively easiest form of comprehensive debt reduction.

To understand the import of these principles, it is useful to focus on a concrete case, like the pending negotiations with Ecuador.³⁵

Targeting Debt Reduction: Ecuador

Ecuador offers an important case for debt reduction, and is an important illustration of the crucial choices facing the official creditor community in guiding the debt reduction process. Since 1981, per capita income in Ecuador has declined by more than 8 percent. Urban unemployment has reached 13 percent, and the real minimum wage has fallen by 46.4 percent since 1980. Ecuador's terms of trade have deteriorated by 33 percent since 1980. Since early 1987, when Ecuador was hit simultaneously with a collapse of international oil prices and a severe earthquake, the government has been in suspension of interest payments on commercial bank debt. A new-money package was negotiated between the government and the banks in 1987, but the agreement lapsed when the banks failed to come up with the full amount of lending to which they had committed, and when it became clear to the Ecuadorian government that even if the money were available, the remaining interest servicing due under the agreement was far beyond the government's capacity.

A new government came into power in August 1988, inheriting the debt suspension, a macroeconomic mess (negative net reserves, inflation rates of nearly 100 percent, and stagnant growth in the nonoil economy), and an extremely difficult political situation, with deep polarization and unrest. The government immediately implemented strong stabilization measures designed to reduce the budget deficit and to unify the exchange rate at a realistic rate. It also charted out a path of longer-term reforms. At the same time, the government announced its intention to pursue negotiations with the creditor banks in search of a fundamental solution to the external debt problem, rather than another short-term patch-up. The new government has expressed its eagerness to pursue lending programs with the IMF and the World Bank and to submit to the conditionality of those institutions.

With a debt-GNP ratio of about 140 percent, Ecuador presents a clear case for debt reduction. The secondary market value of the debt stands at 13 cents on the dollar (as of 5 January 1989). Both measures suggest that the debt burden will have to be reduced significantly and permanently as a basis for economic recovery. Of course, a detailed estimate of reasonable capacity to pay, with due

attention to social, political, and budgetary considerations, would be needed to fix an appropriate target for debt reduction.

The IMF and World Bank will face a decision relative to Ecuador in the near future. Ecuador is requesting a standby agreement with the IMF and, as usual, the IMF will recommend a program of fiscal austerity for the country. The nature of the program, however, will depend fundamentally on the Fund's treatment of the Ecuadorian debt. If the Fund treats the debt in a normal bureaucratic manner as requiring full servicing at market interest rates, then the Fund will determine that the government of Ecuador has a gaping budget deficit of more than 8 percent of GNP. It will recommend a program of crushing austerity so that the government will generate the resources to service the interest. If the government actually tried to follow such a program, it would surely plunge the country into serious political unrest.

If, instead, the Fund acknowledges that the interest cannot seriously be considered as payable, it will determine that the budget is close to balance, once allowance is made for substantial debt reduction. Most of the definition of the budget deficit, and the need for austerity, will depend on one's accounting of the 8.5 percent of GNP that is due in commercial bank interest servicing each year.

The Fund might believe that it can duck this determination altogether, by deciding that Ecuador must arrange adequate financing or debt reduction with the banks before an IMF program can be established. But in this case, the Fund is essentially condemning Ecuador to respect its debt payments or choose the path of ostracism from the official financial community by failing to conclude an IMF program. If the banks know that Ecuador must choose between signing a bank agreement and walking away from a Fund program, they will certainly be unwilling to explore any serious options regarding debt reduction.

In sum, the IMF can push the process of debt reduction only by acknowledging (either implicitly or explicitly) the need for debt reduction, and then giving Ecuador the time to negotiate a program of debt reduction. To do this, the IMF must extend a program to Ecuador despite the presence of large and growing bank arrears, with the understanding that the arrears will be settled only when a long-term arrangement is reached between Ecuador and the banks.

A final settlement on Ecuador's bank debt is not difficult to envision. The interest rate should be brought down to submarket rates, reflecting the secondary market price of Ecuador's debt and other indicators of capacity to pay. These submarket rates should then be collateralized by a combination of official guarantees (say, for

example, from the World Bank), and perhaps by the pledge of future receipts on oil export earnings.³⁶ The rate of interest could itself be indexed to the price of oil, so that an increase in oil prices leads to a rise in the rate of interest on the loan. Finally, a "kicker" might be attached to the new loan, such that interest payments are increased in step with increases in GNP growth above a certain rate.

Conditionality with Debt Reduction

Debt reduction should only be granted to countries pursuing internationally supervised programs of stabilization and structural adjustment. Especially in cases in which official creditors are providing guarantees on interest payments, there is a legitimate role for conditionality in protecting the use of official financing. It is sometimes suggested that debt reduction would take the pressure off of conditionality—that is, that a "tight leash" on debt is necessary to make countries undertake programs of economic reform. Both theory (for example, Sachs, 1989b) and experience suggest otherwise. Debt reduction can enhance the effectiveness of conditionality by making it more likely that a good government can maintain power and by offering governments a more attractive incentive to pursue a reform program.

It would be prudent for the official community to press for debt reduction only after a government has a track record of successful adjustment efforts (in the meantime, arrears on debt repayments might be a necessary evil, in lieu of an adequate financing package). What is important is not the actual timing of debt reduction, but the ex-ante commitment by the official community to support debt reduction for any government that pursues an effective adjustment program under the supervision of the international financial institutions, in circumstances in which the debt is demonstrably beyond the political and economic capacity of the country to pay in full.

Legal and Regulatory Aspects of Concerted Debt Reduction

Concerted debt reduction requires that a high proportion of banks agree to a restructuring of debt at submarket interest rates. Since the submarket rates will enjoy credit enhancement with official funds, the package of debt reduction combined with credit enhancement should be attractive to the vast majority of banks, as most of these banks are already divesting their portfolios on the secondary market at substantial discounts. Furthermore, as a practical matter, the difficulty will lie in gaining the assent of the biggest banks in the steering committee, rather than the smaller banks.³⁷

The difficulties of achieving a concerted settlement are vastly overstated. The big problems have already been mentioned: given current regulatory and official lending policies, the big banks have no particular reason to concede to relief now. Once the official policies change, then the incentives facing the large banks will change as well. The main changes needed are fourfold: (1) an end to official bailouts of interest servicing; (2) a tolerance of interest arrears in the course of debt negotiations; (3) a regulatory environment in which book profits look better if the banks agree to a concerted debt reduction; and (4) official money available for credit enhancement.

Complete unanimity among the banks would not be required to achieve a concerted restructuring. The debt contracts of each country allow for debt restructurings with various qualified majorities of creditor banks, in some cases two-thirds of the banks, in other cases three-fourths, and, in some, simple majorities.

It is important to keep in mind, as well, that even if the regulatory changes fail to break the logjam, there are some other, more potent, policy actions that could be relied upon. For example, with respect to IMF actions:

There is a provision under the IMF articles (Article VIII), which would provide for an arrangement of payments and exchange restrictions approved by it to supersede all previous arrangements, and which could not be challenged in the courts of any of its members. Thus, if some banks refuse to participate in an IMF approved arrangement, and if the debtor countries discriminate against those banks and met their obligations only after meeting those of the banks which participate in the arrangement, the latter are given effectively a senior status, which the former cannot challenge [Sengupta 1988].

Within the United States, similar policy options exist, as shown by the legal history of *Allied Bank v Costa Rica*, in which a U.S. bank attempted to sue Costa Rica for nonpayments on a sovereign debt contract. In the first decision of the court 566 F.Supp 1440 (S.D.N.Y. 1983), the court ruled in favor of Costa Rica and refused to enforce the contract on behalf of the plaintiffs, on the grounds of a doctrine known as "state action." The court essentially held that as long as Costa Rica's actions in not paying were in conformity with the foreign policy of the U.S. government, then the courts would not enforce a judgment against a Costa Rican sovereign action. In the event, the court later reversed itself (*Allied v Costa Rica*, 567 F.2d 516) when the U.S. government made clear that in fact it would like Costa Rica to pay the debt.³⁸ But the point here is not the final resolution of the case, but the fact that the enforceability of contracts by the banks appears to depend in large measure on the U.S. executive

branch position on the renegotiation of debt contracts. This is leverage that can be held in reserve.

Conclusions

This paper has stressed that effective debt management should mimic two of the essential characteristics of bankruptcy: the debt burden should be reduced and all creditors should participate in a concerted settlement. The paper suggests, at some length, why the new-money approach has broken down and stresses that even while it may work (occasionally) for the largest countries, it simply does not function at all for the smaller debtors. The paper also casts doubt on the efficacy of the voluntary approach to debt reduction, in which individual creditors are permitted to choose whether or not to participate in a debt reduction scheme. Such voluntary arrangements make as much sense as voluntary bankruptcy—that is, not very much. There are simply too many obstacles (for example, inherent externalities, distorted incentives of the largest banks, and so on) to give much hope to a fully decentralized market approach to debt reduction.

The most efficient and straightforward form of debt reduction would be a rescheduling of existing debt at submarket interest rates. The official creditors could play an important role in the process by providing official guarantees on the interest rates after they have been reduced. There are many important steps that could be taken by the policy community to bring about a settlement on this basis, including regulatory changes and changes in the lending policies of the international financial institutions. The regulators should be more aggressive in requiring banks to set aside allocated reserves on their developing-country debt, so that distortions in book valuations of developing-country debt do not create disincentives to debt reduction. Also, the international financial institutions should recognize that interest rearranges can be a normal part, and perhaps are an inevitable part, of a process leading toward debt reduction.

Notes

This paper was prepared several months before the announcement of the Brady plan on 10 March 1989. While the Brady plan calls for a new focus on debt reduction, for reasons very much in line with the arguments of this paper, it urges that debt reduction be achieved through "voluntary, market-based" mechanisms. A major theme of this paper is that such voluntary mechanisms are unlikely to resolve the crisis, because they are unlikely to produce the necessary magnitude of debt reduction. Thus, this paper can be read as casting doubt on the efficacy of the Treasury's proposals in the spring of 1989. At the same time, the paper suggests how the international financial institutions could play a central role in achieving the necessary magnitudes

of debt reduction by helping to arrange “concerted” (rather than voluntary) programs. A further analysis of the Brady plan itself by this author can be found in *Foreign Affairs* (1989c).

1. The economic crisis in Latin America, and the role of the foreign debt, is analyzed in Sachs (1988a), which can be regarded as a companion paper to the current analysis.

2. See, for example, the recent statement of the Institute of International Finance, “The Way Forward for Middle-Income Countries,” January 1989, which states that “the scope for voluntary debt reduction should be significantly enlarged” (p. 2), and that creditor governments should seek ways to encourage banks to “accelerate the application of voluntary, market-oriented financing techniques that reduce existing bank debt” (p. 4). Similarly, Morgan Guaranty Trust, in the December 1988 issue of *World Financial Markets*, states that the “multilateral organizations should support bank-debt reduction, for example, by helping debtors to issue new obligations of enhanced quality and retire existing ones at a discount” (p. 2).

3. Some kinds of debt conversion give the creditor a local currency claim in place of the external claim. Typically, however, the local currency claim is indexed, and with a higher interest rate than on the external claim. In this text that is not counted as a case of debt reduction, even though the measured cross-border debt is reduced.

4. It is important to make this basic point since the banks have sometimes used the term “debt reduction” to mean little more than a reduction of the debt through a straightforward amortization of the debt, something that the banks obviously support, but which brings little comfort to the debtor country! Thus, in the recent debt rescheduling with Brazil, completed in September 1988, the banks advertised that the agreement led to a significant, \$4.5 billion, reduction of debt in 1988. (See Citicorp 1988.) But \$3.4 billion of this “debt reduction” was simply the repayment by Brazil, at par, of arrears on earlier interest. Similarly, the banks advertised that Brazil would reap a \$1.8 billion reduction in debt from a debt-equity program in which Brazil would buy the debt from the banks at par value. But since a repurchase at par is akin to a direct amortization of debt at par, this will not be counted as a debt reduction according to the definition in the text.

5. Advocates of voluntary debt reduction envision that debt reduction should be achieved through the transactions in which each bank creditor may choose whether or not to participate. Examples of voluntary debt reduction include the purchase of debt for cash (in buybacks), or the creation of new financial claims (for example, exit bonds, debt-equity swaps), which each bank creditor can voluntarily choose to accept in exchange for the existing debt.

6. At the risk of belaboring the point, “voluntary” is distinguished from “concerted,” and “negotiated” from “unilateral.” A meaningful solution will have to be negotiated, rather than unilateral; but it will also have to be concerted, rather than voluntary (as that term is now used).

7. The international agencies would have an important role in providing indicators of debt-service capacity.

8. One of the myths about debt reduction is that it would reduce the incentive for reform. This point of view hardly seems compelling after six years of a “tight leash” approach in Latin America has left the region in a shambles. The prospects of debt

reduction could be of enormous benefit in mobilizing the support for reform, as is stressed here. Moreover, all official credit guarantees on restructured debt should be appropriately protected through conditionality, and failures of governments to pay the reduced debt (thereby triggering the official guarantees) can be met with stiff sanctions.

9. A recent example is the case of the bankrupt Washington Power Supply Company, which settled with its creditors in December 1988, reducing their claims substantially, and then returned to the capital markets immediately with significant new borrowing.

10. More specifically, even if the president and his economic team want to service the debt.

11. For instance, a congressional party may split with the president in voting for austerity measures, for fear of electoral consequences. The president and a small set of cabinet ministers may then be left virtually isolated in pushing for economic reforms, as has occurred in Argentina.

12. With solvency considered in the expanded sense of recognizing the government’s limited political resources to muster debt-servicing capacity.

13. Bulow and Rogoff (1988) suggest, for example, that the current negotiating process has resolved most of the inefficiencies in debt management.

14. These are listed in table III-5 of the World Bank’s *World Debt Tables, 1988-89 Edition*. One country, Turkey, has reestablished normal market creditworthiness after falling into a debt crisis. One other country, Colombia, has not rescheduled, but does not have normal market access to new lending. After a prolonged negotiation, Colombia and the creditor banks agreed in late 1988 to a new-money package of \$1.7 billion. Notably, to the consternation of the Colombian government, this new-money package does not even fully refinance amortization payments (which are about \$2.1 billion), and therefore refinances none of the interest payments due.

15. In their new report, “The Way Forward for Middle-Income Countries,” the IIF states: “In short, for many banks the benefits of maintaining the current collective strategy [of new money] have diminished, while most banks’ willingness to make new loans to troubled debtors has declined” (1989, p. 16).

16. Some countries in this category include Bolivia, Sudan, Nigeria, and Peru. The absence of submarket interest rate settlements is absolutely astounding and belies the commitment to a truly case-by-case approach. For the most difficult cases, countries that have been declared “value impaired” by the U.S. regulators, there is no possibility whatsoever for a new-money package, since such packages are virtually circumscribed by U.S. regulations, which would force immediate write-downs of the new loans granted to these countries.

17. Note that the list in table 14-3 may not be comprehensive, due to some problems with identifying the complete list of Bolivia’s U.S. bank creditors. Note also that there is still an excellent prospect for completing the debt reduction in the Bolivian case, since the official creditor community supports a complete solution to Bolivia’s problems, and since a very few banks are now the bottleneck to a complete solution. In any event, as described in Sachs (1988b), the Bolivian debt management process since 1985 (which includes a prolonged period of arrears on commercial bank loans, extensive official financial

support, and the 1988 debt buyback) has given Bolivia crucial breathing space that has allowed an economic and political recovery to get under way in the country.

18. Here "comprehensive" debt reduction is debt reduction that is sufficient to obviate the need for concerted-lending packages and sufficient to allow for a restoration of trade credits and project financing for the private sector.

19. It is important to note that this illustration is considering the case of certainty only; with uncertainty, market credit-worthiness may be consistent with a discount on the face value of the debt.

20. In geopolitical terms, it should be remembered that even a country of 3 million people, Nicaragua, with an insignificant proportion of the foreign debt, virtually dominated U.S. foreign policy attention in Latin America in recent years. And, of course, Nicaragua's political crisis in the 1980s was crucially tied to the economic crisis in the country in the 1970s.

21. This has become explicit in country negotiations, where the banks resist new money because they insist the financing gap can be made up with contributions from Japan and other creditors.

22. The IIF was quite explicit about this point in its public letter to the IMF and World Bank last fall. The letter said that the demand for bank financing "exceeds the capacity and willingness of banks to supply it," and continued with the statement that: "The World Bank will have to accept a larger share of the overall lending risk by increasing its own disbursements, by offering banks better cofinancing opportunities, and by taking the initiative to introduce other financing techniques, including limited interest payment guarantees." See the report "Banks 'Unable' to Meet Loan Demands from Third World," *Financial Times of London*, October 1988, p. 1.

23. The extent of this long-term commitment is also not something to take at face value. Most banks, even large ones, are simply getting out of the sovereign-loan business, and out of Latin America entirely. Citicorp is nearly alone in staying in Latin America in a significant way, but there is simply no sense to the idea that this bank alone should be exempt from sharing losses in a debt reduction agreement simply because it has highly profitable local operations in Latin America.

24. Calculations are based on "Country Exposure Lending Survey: December 1987," of the Federal Financial Institutions Examination Council, 22 April 1988. By the end of 1988, the capital ratios had come down to well below 100 percent of bank capital ("Country Exposure Lending Survey: April 1989").

25. Consider the following example. A bank has total book assets of \$1 billion, equity of \$40 million, and deposit liabilities of \$960 million, thus meeting the requirement of an equity-to-assets ratio of 4 percent. Of the \$1 billion, suppose that the exposure to developing countries is \$30 million in book (that is, face) value, but with a market value of \$10 million. The bank's other assets are perfectly secure, with a market and book value of \$970 million. The book value of the bank is \$40 million, and the market value of the bank is \$20 million (\$10m + \$970m - \$960m). Now, suppose that a comprehensive debt reduction scheme comes into place that reduces the face value of the debt to \$15 million and raises its market value to \$15 million. If the bank accepts participation in the scheme, its book value would fall to \$25 million, and the bank would sink below the 4 percent

ratio on equity-to-assets. This would limit the regulatory independence of the bank (perhaps restricting its dividend issue; perhaps calling for intervention in bank management by the regulatory authorities). It is possible that the market value of the bank would fall because of the resulting regulatory intervention (in which case the bank management should reject the debt reduction deal on behalf of the shareholders). It is also possible that the market value of the bank would rise because of the increase in value of the developing-country debt, but that the management would still reject the deal (contrary to the interests of the shareholders) because the resulting regulatory restrictions would hurt management even though they would not hurt the shareholders. In the last case, failure to enter into the debt reduction program would reflect a problem of accounting distortions combined with an "agency" problem in firm management.

26. The banks are required to write-down the value of the claims only in the case that the regulatory authorities, specifically the Interagency Country Exposure Review Committee (ICERC), declares that a country's assets are "value impaired," in which case the banks must set up an allocated transfer risk reserve (ATRR), which effectively forces a write-down of the value of the debt. ICERC has studiously avoided any write-downs for the major debtors, however, so that the ATRR is only required in a few cases of very small countries (including Bolivia, Costa Rica, Ecuador, Nicaragua, Peru, and Sudan).

27. There is considerable evidence that stock market prices of the U.S. commercial banks already reflect the fact that market values of the claims on developing countries are substantially below book values (see Sachs and Huizinga 1987, for evidence). The implication is that a bank that sells its debt at a deep loss in book value may well experience no loss in market value (or even an increase), since the bank's market valuation before the sale already discounted the loss on the developing-country claim.

28. The nine money-center banks are: BankAmerica, Citicorp, Chase Manhattan Bank, Manufacturers Hanover, Morgan Guaranty, Chemical Bank, Continental Illinois, Bankers Trust, and the First National Bank of Chicago.

29. Extensive evidence from the income statements of the money-center and regional banks suggests that the largest banks (especially Citicorp) have been able to divest their developing-country assets at a lower percentage loss than have the regional U.S. banks. Citicorp's stated losses in the past year have averaged between 20 and 25 percent of the reduction in developing-country exposure, while for the superregionals, the loss has been on the order of 50 percent of the reduction in exposure. These data are from Salomon Brothers (1988) and Keefe, Bruyette & Woods, Inc. (1989).

30. In a debt-equity program, the debtor country repurchases the debt, usually at somewhere between the face value price and the secondary market price. Thus, instead of paying simply the interest on the debt (net of new lending), say, a rate of 5 percent of exposure, the debtor government pays 70 to 80 percent of the exposure to repurchase the entire debt. This repurchase worsens the budgetary situation and thereby contributes to inflation. Even if the monetary increase of the repurchase is sterilized, the result is still likely to be a significant rise in the debt-service burden of the government (for an

illustration with relation to Brazil, see Sachs 1989a). The repurchase terms are also generally far worse than a direct buyback on the secondary market. In Chile, for example, Larrain (1988) has shown that the Chilean government has captured one third or less of the discount on the secondary market, with the rest going to traders, foreign firms, participating banks, and so on.

31. The Federal Reserve, for example, has gone out of its way to encourage debt-equity swaps by amending Regulation K, for example, which governs the extent of equity participation that is allowed for a U.S. bank in a foreign firm.

32. Under FASB 15, a debt restructuring that preserves principal, but reduces interest rates, does not require a capital write-down.

33. As an example, some banks might prefer to take debt reduction by a cut in principal, while others would prefer to maintain principal while accepting a submarket interest rate level. These differences should be accommodated in a menu of options, but all banks should be required to choose among the menu selections. New money, or longer maturities and grace periods, definitely should not be equated to debt reduction in the menu.

34. In other words, if a country has a huge overhang of debt, the IMF and World Bank programs for the country should be designed on the assumption that the debt will eventually be reduced in negotiations between the debtor and the banks.

35. The author participated in a fact-finding and advisory mission to Ecuador on behalf of the United Nations Development Programme in October 1988.

36. Ecuador already has extensive experience with collateralizing interest payments with future oil earnings, in the form of a special "oil facility" with the commercial banks that was operative in recent years.

37. Interestingly, this is nearly the opposite of the case of concerted lending, in which the big banks participate while the smaller banks attempt to avoid participation. In the case of debt reduction, the smaller banks will, on the whole, be delighted to be done with the problem, and have demonstrated a willingness to accept losses.

38. The ironies here are wonderful, since the court originally took it as a matter of course that the U.S. government would want Costa Rica to enjoy relief on the debt. Judiciary, meet the Baker plan!

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Comment

Marcelo Selowsky

Professor Sachs has made a forceful call for debt and debt-service reduction for highly indebted countries, to be supported by official guarantees on the remaining obligations. It would be implemented in conjunction with an adjustment program of domestic reforms to be agreed on with multilateral agencies. The recently announced Brady plan is a step in that direction.

There is no doubt that, in many countries, additional financing coupled with better domestic policies, while improving output and consumption growth, will not be able to lower debt indicators; that is, interest over GDP. In these countries new financing—in spite of better policies—adds more to debt accumulation than to growth. Those economies cannot grow out of debt because the initial conditions are too severe (the initial debt overhang, particularly in the public sector), their export prospects are too grim, or because domestic savings cannot increase significantly after too many years of consumption declines. These economies need a reduction in their external debt obligations to recover growth and macroeconomic stability compatible with a declining debt burden.

Nevertheless, there are also countries where the debt burden is much smaller, the economy much more resilient, and where there is significant room for improved domestic policies, particularly on the fiscal side. These countries can "grow out of debt," that is, improved domestic policies plus new financing will allow higher growth and an eventual decline in the debt-burden indicators. Whether these countries can get new voluntary financing is another matter. Lack of voluntary financing to support serious adjustment in these countries might

be an argument for automatic interest capitalization of the required interest refinancing; but it is not automatically an argument for debt reduction. This important distinction is not carefully drawn in Sachs' paper.

My main problem with the paper is that it does not make an effort to distinguish between these two categories of countries. Why is this important?

First, calls for across-the-board debt reduction for all countries may hamper progress toward obtaining and concentrating that reduction in countries that need the relief most—the first category of countries. Generalized and indiscriminate calls for debt relief that do not recognize these differences weaken the understanding of the problem's seriousness in the countries that need it most. By pooling together all the countries, it becomes easier for opponents of debt relief to argue their case by focusing on the countries that need relief the least, and where the present economic situation can be largely explained by domestic mismanagement and not by the debt overhang. Professor Sachs, by not making such a distinction, promotes the "precedent" or "contagion" effect, which, paradoxically, is singled out in his paper as one of the main reasons for lack of progress in debt reduction.

Second, official funds to support such a debt facility will probably be limited, unable to cope with the debt of all debtors. How then are countries to be selected? How will priorities be established? Should we not be more careful in establishing analytical taxonomies of countries so as to help identify the priority cases?

I hope Professor Sachs will be able to draw more careful distinctions among debtor countries in the future. It will help the case for obtaining debt reduction for countries that need that relief most.

Market-Based Debt Reduction

Stijn Claessens and Ishac Diwan

Interest has increased in voluntary debt reductions and transformations (VDRTs) negotiated by debtor countries using market mechanisms. Over the last few years, agreements reached between commercial banks and a number of countries have encouraged various forms of VDRT. These transactions are estimated to have increased from about \$1 billion in 1984 to about \$21 billion in 1988.¹ Policymakers endorsed this menu of options, and the original Baker strategy for dealing with the debt crisis was adapted to the consensus that besides new lending, a broad menu of VDRT contributed to a strategy of resolving the debt overhang of the highly indebted countries. More recently, officials of several creditor countries—former Finance Minister Miyazawa of Japan, President Mitterand of France, and Treasury Secretary Brady of the United States—have proposed to include debt and debt-service reduction more formally in the debt strategy and to promote official support for it. As a result, the IMF, the World Bank, and the Japanese government have agreed to provide funding for market-based debt reduction operations.²

The main argument in favor of VDRTs has been that debtor countries can improve their welfare by “capturing” part of the discount at which their debt trades on the secondary market. But the case for VDRTs cannot simply be based on this sort of argument: the welfare gains for the debtor cannot be equal to the discount captured if, at the same time, the discount is an adequate reflection of expected shortfall in repayments. From a narrow present value viewpoint, VDRTs only reallocate resources between the two parties involved with no overall gains. In other words, VDRTs are likely zero-net-present-value operations when evaluated narrowly. But by incorporating various externalities in the analysis, it is possible to study the likely effects of VDRT operations on both the size of the debtor’s output and its sharing with the creditors. Conceptually, Pareto improvements can arise if debt reduction or the characteristics of contracts that

replace the retired debt leads to overall gains that are shared between the two parties.³

Are there market-based schemes, financed by the debtor’s own resources, that simultaneously improve its welfare and creditors’ payoffs? The paper analyzes critically the following claims: (1) capital might be misused domestically and, thus, debt prepayments might be a more productive use of funds than domestic investment; (2) debt is evaluated differently by the two parties and the debtor gains by capturing—what he considers to be—a large discount; (3) debt reductions can reduce deadweight losses associated with a debt overhang; (4) VDRT transactions benefit both parties because they can increase the incentives of the debtor to adjust; (5) contract changes can lead to better forms of financing, in particular better risk sharing between the debtor and the creditors and the provision of better incentives; (6) if small creditors exit, the creditors’ coalition can aim at longer-term solutions; and (7) debt reductions that are in themselves costly to the debtor can produce secondary benefits by acting as a credible signal of a willingness to “adjust” the economy and increase creditworthiness.

The main conclusion is that, from the debtor country’s perspective, the financing costs of VDRT transactions are likely to exceed the benefits—and thus, that Pareto-improving schemes are difficult to find in practice—unless the debtor uses funds donated for this sole purpose, or that it gains in exchange some concessions from the creditors’ group. The paper also argues that the Pareto-improving benefits attributed to debt-equity swaps are only likely to exist under a set of fairly restricted conditions. But, in some cases, VDRT operations can benefit the debtor, especially when they reinforce coordination in the creditors’ coalition, when capital is misused domestically, when tensions over external debt issues impose heavy deadweight costs on the debtor’s economy, and when it is profitable for the debtor to signal its true creditworthiness.

A Simple Analysis of Buybacks

Assume that a country's foreign debt is trading at a discount. What are the effects of a buyback on the debtor's and creditors' welfare? Start the analysis in a simple and quite neutral framework. These simplifying assumptions are then dropped in subsequent discussions.

(A1) Both the debtor country and its creditors are risk neutral.

(A2) Both the debtor country and its creditors have similar rates of time preference.

(A3) Creditors are homogeneous and similar in all respects. The secondary debt market is competitive and efficient; that is, it reflects correctly the anticipated stream of payments received by creditors.

(A4) All that is paid by the debtor accrues to creditors.

(A5) The debtor and its creditors have the same information set.

Debt buybacks are prepayments of liabilities since they involve using current resources to lower future obligations. Given the neutrality assumptions (A1) to (A5), the operation affects the debtor and the creditors through two channels:

- A nominal effect: the reduction in future nominal obligations makes it more likely that the remaining debt will be serviced, for a given amount of resources.
- A real effect: the expenditure of current resources affects investment and thus the future ability of the debtor to pay, changing the risk and the return on the remaining debt.

In general, the resources used in the buyback come from an optimal mix of consumption and investment reduction.⁴ To focus on the nominal effect, start the analysis by considering first that only consumption will be reduced. This allows us to analyze the benefits and costs of a reduction in future obligations per se—not a simple matter once the riskiness present in external debt claims is recognized. The real effect is analyzed afterward by considering the case where all the funds used in the buyback come from a reduction in investment, thus reducing the resources available in the future.

The Nominal Effect

With investment fixed, it is best to think of the relation between the two parties as a zero-sum game: the debtor's current and (uncertain) future resources must be divided between itself and its creditors. The buyback only affects the division of output in all periods. The key point is that as the buyback reduces the riskiness of the remaining claims, it shifts the sharing of future output to the detriment of the debtor.⁵ To see that, it is important to

recognize that international debt contracts represent risky claims that might not be fully repaid in some circumstances. The actual repayment may deviate from the contractual, nominal repayment when the debtor can bargain for a smaller repayment, a situation that arises when output is relatively low, making the threat of default more credible.⁶ The repayment in the states of nature where bargaining occurs will be independent of the size of the contractual obligation. Since a marginal debt buyback will reduce the contractual future debt repayment in all future states of nature by the face amount of debt bought back, and therefore the effective repayment only in the good states, it will only lead to a marginal reduction of the effective repayment in the good states of nature.

For a highly indebted country, it is likely that the probability of a full repayment—that is, of good states of nature, is small. Accordingly, the expected savings implied by a marginal reduction of the contractual size of debt can be quite small. But the price at which debt can be reduced through a buyback will reflect the creditors' valuation of the average repayment across both good and bad states of nature, instead of the marginal reduction in expected debt service. As a result, the debtor ends up overpaying for a marginal reduction in its future debt burden.

To show more precisely this nominal effect's influence on the payoffs, consider the simplest intertemporal model of a debtor economy. There will be two periods, today ($t = 1$) and the future ($t = 2$). The debtor has an outstanding external debt obligation of D , which falls due in the future. The risky nature of external debt is reflected by the common knowledge that the debtor country will only repay all its obligations when the contractual repayment D is below a certain fraction a of its future, random output $[Y + f(I)]$. Thus, a represents the maximum share of resources that can be extracted by creditors. Uncertainty about future output is introduced by considering the future endowment Y to be a random variable, described by a distribution function $G(\cdot)$ and a density function $g(\cdot)$ with a support of $[Y, \bar{Y}]$. The variable $f(I)$ represents the gross return on the investment I undertaken in the first period, with $f' = \partial f(I) / \partial I > 0$. Thus, the future debt repayment, denoted by R , will be the smallest of D and $a[Y + f(I)]$. The secondary market price for debt, p , is taken to be consistent with this repayment behavior.

If the debtor uses an amount X of current resources for a debt buyback at a price of p (per unit of future obligations), a reduction in current consumption of X will allow for a reduction of (X/p) of future contractual debt obligations.⁷ The actual future debt repayment, R , will now be given by:

$$(15-1) \quad R(X, p) = \min \left[\left(D - \frac{X}{p} \right), a(Y + f(I)) \right].$$

To close the model, assume that the debtor's welfare is given by a simple intertemporal expected utility function $E(W) = C_1 + bE(C_2)$, where C_i represents consumption in period i , $i = (1, 2)$, b is the country's discount factor, and E is the expectation operator. The debtor's budget constraints are given by:

$$(15-2) \quad C_1 = E_1 - X - I,$$

where E_1 is the endowment in period $t = 1$,

$$(15-2') \quad C_2 = Y + f(I) - R.$$

For every level of the variables D , X , and I there will be a cut-off income level Y^* below which the remaining debt obligation $[D - (X/p)]$ will not be fully serviced and the debtor partially defaults. Y^* solves:

$$(15-3) \quad a(Y^* + f(I)) = D - \left(\frac{X}{p} \right).$$

The probability of this happening is $G(Y^*)$ (or, in short, G^*). The expected value of the debt service can then be written as a function of X and p as follows:

$$(15-4) \quad E[R(X, p)] = \int_{\underline{Y}}^{Y^*} a[Y + f(I)] g(Y) dY + (1 - G^*) \left(D - \frac{X}{p} \right).$$

The "price" of a unit of debt can be written as the present value of the expected repayment divided by the amount of outstanding debt:

$$(15-4') \quad p = \frac{E[R(X, p)]}{r \left(D - \frac{X}{p} \right)}$$

where r is the world gross interest rate. Assuming for simplicity that $r = (1/b) = 1$, it is possible to show that:

PROPOSITION 1. *A marginal buyback funded by a reduction in consumption is a zero-sum game. The transaction reduces the welfare of the debtor by $[1 - (1 - G^*)/p]$ and increases the wealth of the remaining creditors by the same amount through an increase in the price of the remaining debt.*

For a \$1 reduction in consumption, the debtor can retire $\$1/p$ units of contractual debt obligation. But this reduces the expected repayment only by $\$(1 - G^*)/p$, where $(1 - G^*)$ is the probability of full debt service. It turns out that the reduction in the expected repayment

will necessarily be less than the \$1 used in the buyback. Mathematically, this is simple to verify. Using (15-3) and (15-4) proves that $(1 - G^*)/p < 1$:

$$p = \frac{\int_{\underline{Y}}^{Y^*} [a(Y + f(I))] g(Y) dY + \left[D - \frac{X}{p} \right] (1 - G^*)}{\left(D - \frac{X}{p} \right)} = \left\{ \frac{\int_{\underline{Y}}^{Y^*} a(Y + f(I)) g(Y) dY}{\left[D - \frac{X}{p} \right]} \right\} + (1 - G^*) > (1 - G^*).$$

Intuitively, the expected repayment reduction, $(1 - G^*)/p$, is necessarily smaller than the initial expense of \$1 because debt is retired at its average price, which is always larger than the marginal reduction in future repayment. In fact, these two values are equal only if the debt is not risky and the price of a unit of debt is one (that is, $G^* = 0$).

The remaining creditors' gains are reflected by an increase in the price of debt after the buyback as the remaining debt becomes more likely to be repaid. Differentiating (15-4) and solving using (15-3), we have:

$$(15-5) \quad \frac{dp}{dX_{X=0}} = \left(\frac{1}{D} \right) \left[1 - \frac{dE[R]}{dp} \right] = \left(\frac{1}{D} \right) [1 - (1 - G^*)/p] > 0.$$

Thus, the payoff of the remaining debtholders pD increases by $[(D - X/p)(dp/dX)]$, which, evaluated at $X = 0$, is equal to $[1 - (1 - G^*)/p]$. Their gain for a \$1 of buyback is thus \$1, less the discounted value of the expected reduction of future payments given by $(1 - G^*)$ —the probability of full repayment—times the quantity of debt retired $(1/p)$.

The Real Effect

It is unlikely that buybacks will be financed solely by reduced current consumption. In general, they would be accommodated by an optimal combination of consumption and investment cuts. If a reduction in investment is used to finance buybacks, the debtor's output is expected to decrease in the future, reducing the resources potentially available for debt service. The remaining creditors will then implicitly pay part of the buyback costs as expected future resources decline. For example, if international reserves are depleted in the operation, expected

future repayments can decrease. This real effect counteracts the nominal effect and can make buybacks less attractive to the creditors.

To appreciate the importance of the source of funds used in the buyback, consider that it is completely financed by an equal reduction in investment. In terms of our model, this fixes C_1 and implies that I decreases by an amount X . It can be shown that:

PROPOSITION 2. A marginal buyback financed by a reduction in investment affects the payoffs of the debtor and the remaining creditors by:

$$(15-6) \quad \frac{dE[W]}{dx} = \frac{(1-G^*)}{p} - f'(1-aG^*),$$

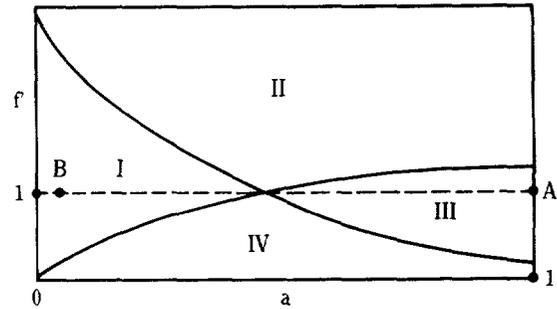
$$(15-7) \quad \frac{Ddp}{dX_{x=0}} = 1 - \frac{(1-G^*)}{p} - af'G^*.$$

A buyback of \$1 reduces the contractual obligation by $\$(1/p)$ and increases the debtor's future consumption by that amount in the good states of nature. The resulting expected gain in future consumption is $(1-G^*)/p$. At the same time, investment goes down by \$1, which reduces expected future output in all states by f' , the marginal return on capital. The reduced output in turn leads to a reduction in expected repayments of af' in the bad states, implying an expected debt relief of G^*af' . The remaining creditors gain \$1 minus the expected reduction in future repayments in the good states by $[(1-G^*)/p]$ and in the default states by $[af'G^*]$.⁸

The size of both a and f' are thus crucial in determining the overall effect of a buyback on the debtor's welfare.⁹ The debtor stands to gain and the remaining creditors to lose from a buyback when: (1) the share of future resources paid by the debtor a is large; in that case, a large part of the costs of the buyback would be financed by the creditors through smaller future repayments (in the bad states); and (2) the marginal productivity of capital, f' , is small; the smaller f' is, the less costly is the reduction in investment for the debtor.

But beyond the accounting of gains or losses for each side of the debt contract, what is ultimately more important for debt reduction operations is whether they generate overall gains. In this model, overall gains can be secured only when funds are put to a better use; that is, when f' is smaller than 1, the world gross interest rate. Unless this holds, it is easy to show that one side of the debt contract must lose if the other side gains.¹⁰ To see why this is so, compute the overall value of the game by adding (15-6) and (15-7). We get:

Figure 15-1. Effect of Liquidity and Incentives on the Payoffs



$$(15-8) \quad \left[\frac{dE(W)}{dX} \right] + \left[\frac{Ddp}{dX} \right] = 1 - f'.$$

The debt buyback operation is thus a positive-sum game only if $f' < 1$; that is, if capital was misused in the debtor country initially. The gains of reduced investment can then be shared between the creditors and the debtor. Otherwise, debt prepayments are a negative-sum game and the economic pie gets smaller when loans are prepaid at the cost of reducing investment in ventures with a higher return than the world interest rate.

To illustrate the effects of a buyback financed by a reduction in investments on the marginal payoffs of the creditors and the debtor, one has to consider equations (15-6) and (15-7). Equation (15-6) implies that the country's welfare is unaffected if and only if $(1-G^*)/[p(1-aG^*)] = f'$. Equation (15-7) implies that the creditors' payoff is unaffected if and only if $[1 - (1-G^*)/p]/[aG^*] = f'$. Finally, equation (15-8) implies that the total economic pie increases only when $f' < 1$. These equations, given certain assumptions for the distribution function G and for the parameters $f(I)$ and D , implicitly represent combinations of a and f' that leave the debtor and the creditor respectively indifferent to a buyback operation financed through a reduction of investment. The two indifference curves are drawn in figure 15-1 in the a, f' space.

The debtor's indifference curve starts at the origin and flattens out quite rapidly for most parameter combinations. The creditors' indifference curve looks like a hyperbole, starting at high levels of f' for low levels of a and approaching $f' = 0$ for $a = 1$. The intersection of the two indifference curves is always at $f' = 1$. The two indifference curves divide the a, f' space into four regions. Both the creditors and the debtor gain (lose) in those areas below (above) their respective indifference curves. The debtor gains in regions III and IV, where a is relatively large and f' is low. The creditors, however, gain in regions I and IV where both f' and a are low. Area IV is the only region where both parties gain from the transaction.

When $f' > 1$, at least one side, and possibly both sides, lose (as is shown in equation 15–8). But at least one side, and possibly both sides gain when $f' < 1$.

Special Cases

Assume first, as in the corporate bankruptcy case and in the case considered by Krugman (1988), that $f' = 1$ and $a = 1$ (this situation is represented in figure 15–1 by point *A* in region III). Buybacks will then increase the debtor's welfare and reduce the creditors' payoffs.¹¹ A \$1 used for buybacks reduces debt repayment in the good states by $\$(1/p)$ and by \$1 in the bad states. The debtor comes out ahead because it manages to use its reserves to reduce its repayment in the good states without affecting its repayment in the bad states. With $a = 1$, the country's foreign exchange resources, if not consumed, were always available to the creditors for future debt service. But the country can use these reserves in the current period to reduce future debt by more than one unit. The creditors consequently lose.

In the other extreme case, when $a \approx 0$ and $f' = 1$, these results are reversed (point *B* in region I in figure 15–1).¹² In this case, the debtor bears fully the output reduction in all states and thus fully finances the debt buyback. The nominal effect then dominates, and the debtor loses while the creditors gain at its expense. The resources used for the buyback could never have been extracted by the creditors, so effectively prepaying debt is a loss to the debtor.

Bulow and Rogoff (1988), who consider in their analytical model $0 \leq a \leq 1$, argue on the basis of empirical evidence that a is likely to be small and close to zero. As they also pointed out, the resources transferred by debtor countries to (private) creditors in any given year have been at most 10 percent of GNP and at most 25 percent of exports. The 1988–89 edition of the *World Debt Tables* indicates that the highest ratio of debt service to GNP over the years 1980–87 for developing countries as a whole was 4.5 percent in 1987 and 5 percent for the highly indebted countries. The highest debt-service-to-export ratio for all countries was 20.2 percent in 1986; for highly indebted countries it was 29 percent in 1986.¹³

Large Swaps and Price Effects

So far, the discussion has been for small swaps, where the price at which the debtor could buy back its debt could reasonably be assumed not to be affected. For large swaps this would not be realistic. The country will only be able to buy up its debt at the ex-post price, which will be higher than the current price assuming competitive creditors. This is because a rational market will foresee that reducing foreign debt increases the expected future

repayment per unit of remaining debt and will therefore only sell at the higher ex-post price. This price effect makes anticipated buybacks more costly and less desirable for the debtor. The extra gains for the creditors will now be split equally between the participating and remaining creditors.¹⁴

The considerations analyzed so far indicate that buybacks financed by either consumption or investment cuts are unlikely to benefit the debtor unless capital is initially misused.¹⁵ In the rest of the paper, we explore other channels through which buybacks can lead to overall gains by removing inefficiencies associated with a debt overhang.

Buybacks and Overall Gains

Various factors other than those analyzed above can produce overall gains without relying on inefficient investment. In particular: (1) the debt contract may be valued differently by the two sides; (2) with less debt outstanding, the debtor may be more inclined to expend more effort (on producing future resources) because more of the future benefits of its "efforts" can be internalized; (3) a costly buyback (from the debtor's perspective) can signal that the debtor is creditworthy and willing to increase its investment effort; (4) buybacks can reduce creditors' coalition problems since certain "problem" creditors exit; and (5) differences in valuation among creditors exist, so that what was in the previous analysis a loser can be reinterpreted as a pessimistic winner.

Differences in Valuation

Drop assumptions (A2) and (A4) of the earlier analysis to explore the possibility that each side of the debt contract values the cash stream arising from the debt obligation differently (using the basic case of the previous section, with the funds for the buyback coming from a reduction in consumption).

In a rational and efficient market, the price of an asset is given by the sum of the discounted expected repayments received by the asset holders. Similarly, the value of a liability to the debtor country is given by the sum of the discounted expected future repayments made. Differences in valuation can only arise when: (1) future cash flows are evaluated differently; that is, discount factors are not equal; (2) the amounts paid by the debtor are different from those received by the creditors; and (3) assessments regarding the probabilities of repayment differ. In this last case, it is natural to believe that the debtor possesses superior information about relevant variables. But unless the buybacks were kept secret, the operation would reveal favorable information and drive

prices up. This factor is discussed later, while (1) and (2) are incorporated in the analysis below.

Denote by c the proportion of output received by the creditors in the bad states of nature, which may be different from a , the share of output paid by the debtor. The presumption is that a is larger than c . One reason for this wedge is that penalties imposed by the creditors in case of a partial default do not necessarily accrue to them as net benefits. For example, penalties like a trade embargo do not benefit the creditors ($c = 0$), but impose costs on the debtor ($0 < a < 1$).¹⁶ Moreover, negotiations and constant rescheduling exercises are costly,¹⁷ partly because of temptations for posturing to extract concessions,¹⁸ and the uncertainty surrounding debt negotiations generates deadweight losses in the debtor country as the private sector becomes less inclined to invest domestically and more inclined to save abroad. Moreover, regulatory and tax considerations in the creditor countries can also generate valuation wedges: for nonperforming loans, an important cost to the lender will be tying up of reserves because of regulatory guidelines. Finally, selling loans at a discount allows the banks to take tax losses, making the repayment received larger than the repayment made.¹⁹ Thus, a case can be made for a being larger than c : not all costs and payments borne by the debtor accrue to the creditors.²⁰

Furthermore, to explore the effect of differences in time preferences, allow the creditors' discount factor, $1/r$, to be different from the debtor's discount factor, b . In a manner similar to (but more general than) proposition 1, it is possible to show that:²¹

PROPOSITION 3. *A marginal buyback funded by a reduction in consumption is a game with a total marginal payoff of:*

$$(15-9) \quad \left[\frac{(1-G^*)}{p} \right] \left[b - \left(\frac{1}{r} \right) \right] + \left[\frac{g^*D}{(apr)} \right] \left(1 - \frac{c}{a} \right).$$

The transaction affects the welfare of the debtor marginally by:

$$(15-10) \quad \frac{dW}{dX} = -1 + \frac{b(1-G^*)}{p},$$

and the wealth of the remaining creditors marginally by:

$$(15-11) \quad \frac{Ddp}{dX} = 1 - \left[\frac{(1-G^*)}{pr} \right] + \left[\frac{g^*D}{(apr)} \right] \left(1 - \frac{c}{a} \right).$$

The total payoff from the transaction consists of two elements, one due to discount rate differences and the other due to differences between payments made and

received in the bad states of nature. If $b = 1/r$ and $a = c$, the payoffs in equations (15-9), (15-10), and (15-11) reduce to the payoffs given in proposition 1. In particular, the sum of the game in (15-9) becomes zero.

The first effect, the discount rate effect, is positive when $b > 1/r$; that is, when the debtor is less impatient than the creditors. In that case, a Pareto-improving transaction is for the debtor to lend, or similarly, to prepay debt. When $a > c$, the second effect is positive and is due to the marginal saving of resources that would have been wasted in a partial default.

A \$1 of buyback on the debtor's expected future debt payments is given by a reduction in debt payment of $\$(1/p)$ in all the good states that occur with a probability of $(1 - G^*)$. As c gets smaller, the price, which reflects the present expected value of what accrues to the creditors, decreases. Thus, the expected reduction in future repayments in the good states increases per unit of buyback. The debtor will be better off with a buyback when c is small relative to a , and when b is large relative to $(1/r)$.²²

Investment Incentives

Strong arguments for debt reduction—parallel to those made in the context of domestic bankruptcy and financial distress (Myers 1977)—can be made when a severe debt overhang exists: the negative transfer of resources reduces the amount of savings that can be used for investment and growth, and the prospect of constant rescheduling weakens the incentives of debtor countries to undertake painful efforts to grow out of the crisis. The constant negotiations over the “new-money” packages that are needed to fill the financing gaps imply that, at the margin, any improvement in a debtor's balance of payments benefits first and mainly its creditors. This perverse incentive effect of a debt overhang is reinforced by the elusive nature of restored creditworthiness and of renewed access to the international financial markets. These considerations—often summarized by the claim that debtors are on the wrong side of a debt Laffer curve—provide a good reason why it may be in the collective interest of the creditors' group to write down the nominal value of their claim (or to reduce the interest rate charged in rescheduling agreements) in order to increase the claim's market value.²³

But does the Laffer curve argument also imply that buybacks initiated by the debtor country itself are welfare increasing? The answer depends crucially on the investment response. In a debt overhang, the presumption is that valuable investment projects remain idle because of perverse incentive effects and thus, that the marginal productivity of capital f' is quite large. In this situation, we have seen above that a buyback partially funded by an investment cut reduces the amount of resources to be

shared by the two parties and likely hurts the debtor. The larger f' , the greater the reduction in future resources to be shared. Therefore, a debtor can gain from a buyback only when it leads to an overall investment increase. For this to occur, consumption must be reduced by the amount of resources used for the buyback plus those going into additional investment, an unlikely scenario for liquidity-constrained debtors.

But at least conceptually, buybacks can represent a positive-sum game in the presence of a debt overhang when investment reacts positively. Using the same setup as above, the parameter d is now introduced as a measure of the sensitivity of investment to income; that is, $dI/dX = -d$.²⁴ A negative d indicates that investment increases after a buyback, as the reduction in the debt overhang removes some of the disincentives to invest.²⁵ Earlier, the cases $d = 0$ (buyback financed by consumption cuts only) and $d = 1$ (buybacks financed solely by investment cuts) were analyzed. It is possible to show that for the more general case, the welfare effects are given by:

Proposition 4. *A marginal buyback that affects investment produces the following marginal effects on the value of the game and on the payoffs of the debtor and the creditors:*

$$(15-12) \quad \frac{dE(W)}{dX} = -1 + d + b \left[-G^*(1-a)f'd + \frac{(1-G^*)}{p} - (1-G^*)f'd \right],$$

$$(15-13) \quad \frac{Ddp}{dX} = \left(\frac{1}{r} \right) \left[r - G^*af'd - \frac{(1-G^*)}{p} \right],$$

$$(15-14) \quad \frac{dE(W)}{dX} + \frac{Ddp}{dX} = d + \left(b - \frac{1}{r} \right) \left[G^*af'd + \frac{(1-G^*)}{p} \right] - bf'd.$$

The special case $b = 1/r$ (the total gains reduce to $d(1 - f'/r)$) shows clearly that the buyback will only be a positive-sum game when either $d > 0$ and $f' < r$ (the case analyzed earlier) or when $d < 0$ and $f' > r$. The case $d < 0$ is the one that ties in with the debt Laffer curve: when the reduction in nominal debt leads to an increase in investment, the economic pie gets larger if profitable investment opportunities exist. For the appropriate combinations of parameters, both parties can gain from a buyback: the debtor gains as its portion of output is sufficiently increased to compensate for the initial outlay for the buyback and the increase in investment; and the

Table 15-1. *Gains for Creditors, Debtors, and in the Aggregate*

Cases	Creditors	Debtor	Total
$d > 0$ $f' < r$ $a = 0$	+	-	+
$f' < r$ $a = 1$?	?	+
$d > 0$ $f' > r$ $a = 0$	+	-	-
$f' > r$ $a = 1$?	?	-
$d < 0$ $f' > r$ $a = 0$	+	?	+
$f' > r$ $a = 1$	+	?	+
$d < 0$ $f' < r$ $a = 0$	+	-	-
$f' < r$ $a = 1$	+	-	-

(+) indicates a gain, (-) a loss, and (?) an undetermined sign.

creditors gain as the market value of remaining claims increases.²⁶

Split up the interesting cases for $d > 0$ and $d < 0$ by $f' > r$ and $f' < r$, and for $a = 0$ or $a = 1$. For convenience assume that $b = 1/r$ and further limit $d < 1$; that is, the buyback cannot lead to more than a one-to-one reduction in investment. The different possible combinations, including the ones discussed earlier, and the corresponding gains and losses, as far as they can be signed, are now indicated in table 15-1.

The table shows that no combination of the important variables ensures that the debtor gains from the buyback. Even if the buyback is an overall positive-sum game, the debtor can still lose. The debtor can gain only when a is large and the buyback is a positive-sum game; that is, either $d > 0$ and $f' < r$ or $d < 0$ and $f' > r$.

Signaling Creditworthiness with Buybacks

As mentioned earlier, a wedge between expected repayments made by the debtor country and received by the creditors can exist if the debtor ascribes a higher probability of full repayment than their creditors. Buybacks could then represent gains. But public buybacks done consistently over a period of time would release this information and drive up the price of debt.

An interesting hypothesis in this context is that large enough debt buybacks can act as a credible signal of creditworthiness and generate secondary benefits, even if (the announcement of) the buyback releases this information and drives up the price at which the transaction is operated. Thus, even when the buyback itself hurts the debtor, the secondary gains from signaling its "true"

creditworthiness can outweigh these primary losses. The secondary gains can include better terms on rescheduled debt, more financing from multilateral institutions, more direct investment, and a slowdown of capital flight as the government's adjustment operations become more credible.

Acharya and Diwan (1988) present such a signaling argument in the context of a debt-rescheduling model. The starting point of the analysis is that, due to investment incentive considerations, debt relief can be profitable when given to patient countries (with a high discount factor b), but not when given to impatient countries (with a low b). The reason for this is that a lot of relief is needed to get the impatient countries to increase investment, and that this will not be profitable for the creditor banks given the prospects of collecting the whole debt in the good states of nature. But it might be profitable to give relief to patient countries as those will increase investment substantially in response to the relief. But the rate of time preference, b , is unobservable by the creditors, and they might be better off not giving relief to any debtor rather than giving relief to all debtors. Without debt relief for the patient debtors, an opportunity for Pareto improvement is lost.

Acharya and Diwan show that debt buybacks and debt-equity swaps could be costly mechanisms that signal the willingness of the debtor to use the future resources from debt relief for increases in investment rather than for consumption. As a result, countries with large debt-equity swap programs will be given relief, which is hypothesized to occur through better terms on rescheduled debt than for those countries with no or small swap programs. Empirically, the hypothesis that bank spreads are lower when a swap program is in place could not be rejected at a significance level of 5 percent. That swap programs are perceived by the market as good news is also confirmed by various secondary market price regressions. In particular, Purcell and Orlanski (1988) report that a swap program increases a country's debt price by about 16 percent over the debt price of a country with otherwise similar characteristics.

Creditors Coalition Concerns

Coordination failures within the creditors' coalition can prevent unilateral debt reductions by the creditors (debt write-offs without a transfer of resources from the country) even when the group benefits as a whole. In particular, individual creditors will realize they can get a better deal by refusing to participate in coordinated debt-reduction attempts and by "free riding" on other parties. The net effect is an increase in the bargaining power of the creditor group. The reservation utility of the creditors will be the free-riding scenario rather than the

collective action one, which in the case of a debt overhang is not in the group interest of the creditors. The debtor country will perceive the implicit tax rate on future output to be larger, and investment will be lower.²⁷

For this reason, debt buybacks (and exit bonds) might be profitable to the debtor and to large creditors as they allow certain "fringe" creditors such as small banks to withdraw, strengthening cooperative behavior and allowing for Pareto-improving agreements.²⁸ The banks that remain in the lending business will be those that have some long-term strategic interest in the countries involved and might be more inclined to search for long-term solutions.²⁹

It is interesting to note that regulatory and accounting practices in the United States encourage small creditors more than large creditors to participate in VDRT. Current accounting and regulatory practices can oblige a bank that sells part of its loans to a given country to mark down its whole portfolio of loans to the country. For large U.S. banks, this would mean taking losses that are so large as to wipe out a large portion of reserves. This could be a further reason why large banks' participation in VDRT has been minimal.

Differences among Creditors

There have been a few recent attempts to formalize behavior within the creditor group (Williamson 1988, Fernandez and Kaaret 1988, and Bulow and Rogoff 1988). Williamson (1988) uses differences in valuation between a "pessimist" and an "optimist" group to argue that debt-transformation schemes are Pareto improving. In his framework, pessimists sell at a price above their own valuation and gain from their viewpoint. The optimists and the country are glad to see the debt reduced at a price they consider a bargain. In fact, Williamson chooses a quite neutral setup to make his point: the funds used for the buyback would have been paid to the creditors anyway. In this case, buybacks do not affect the welfare of both the creditor group and the debtor as long as there was no probability of the country fully repaying its debt. But now, this neutrality is somewhat offset by differences in valuation among creditors. Because of valuation differences between pessimists and optimists, both groups of creditors will perceive that they have gained in the transaction: the debtor remains indifferent.³⁰ The buyback remains in these examples a zero-sum game, with apparent rather than real gains.

Contract Transformation

Contract transformations of external obligations, predominantly swapping existing general-obligation finance for other forms of external finance, should be

discussed against a standard of the characteristics of "good" external finance. A transformation of claims could provide gains for both the debtors and creditors when better characteristics are introduced. Lessard (in this volume) and Lessard and Williamson (1985) provide a useful taxonomy of the characteristics of Pareto-improving financial contracts. This taxonomy will be used to evaluate two common forms of contract transformation—exit bonds and debt-equity swaps—since they are often thought to be "better" contracts.

Exit Bonds

Exit bonds reduce the future nominal claims of the creditors on the country without affecting the availability of current resources.³¹ Thus, the debtor country cannot lose. But the creditors as a whole will lose unless overall gains are unlocked as a result of the reduction in debt obligations. If the exit bond is made senior to the remaining debt, the remaining debtholders stand to lose even more. For the exit bond to be acceptable to all parties—a precondition to make the instrument more senior than the remaining debt—new and remaining debtholders must be at least as well off. For new debtholders the issue is clear: they would not convert their existing claims into the new instrument if they did not perceive it to be of at least equal value. The voluntary character of the transaction ensures this. Remaining creditors will only jointly agree to make the exit bonds legally senior if they are at least as well off afterward; that is, if their existing claims do not decline in value by becoming subordinated. Some overall gains from debt reduction are thus necessary to make the exit bond acceptable to all creditors.³²

Important considerations for an evaluation of the gains for the debtor are: (1) If the remaining debtholders gain, the debtor must gain at least as much to compensate for the larger expected repayments. (2) The debtor need not sacrifice any current resources in an exit bond (as in the debt buyback) and stands more likely to gain from an exit bond than from a buyback. The Pareto improvement might thus be easier to establish for exit bonds than for debt buybacks, since the effect of exit bonds is limited to an incentive effect on investment. But in practice it is difficult to legally establish the seniority of the new instrument without using some form of collateral. In turn, cash collateral makes the exit bond a partial buyback that, as shown earlier, is less likely to result in overall gains.

Debt-Equity Swaps

To analyze debt-equity swaps more clearly, it is useful to split up a debt-equity swap into two transactions: a foreign investment that brings in foreign exchange, and

a buyback that uses it. The transaction usually involves sharing the discount in the secondary market between the new investors and the country. The second step has been analyzed above and was shown to be unlikely a positive-sum game if either consumption or investment were cut. But even if the debt buyback itself does not lead to overall welfare improvement, overall gains from debt-equity swaps could still arise from the first transaction, the promotion of another financial contract that is indexed to domestic and external variables.

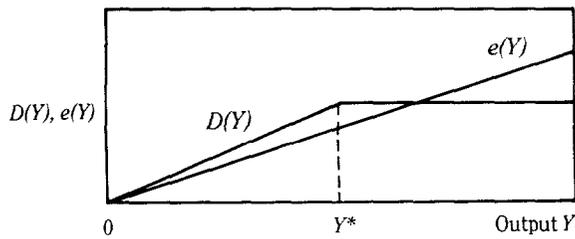
It is often claimed that converting debt to equity or to claims indexed to domestic variables generates gains because: (1) a subsidy (or preferential exchange rate) is implicitly granted to investors that use the swap program, and that attracts foreign investment;³³ (2) allocation of resources improves because of the development of the domestic equity market and new regulations that remove restrictions on foreign direct investment, portfolio investments, and foreign ownership, in general, lead to more foreign investment (see for instance Gill 1987); (3) better risk sharing can lead to gains; (4) the domestic resource transfer can be less binding than the external transfer constraint leading to reduced overall costs; (5) the incentives to invest increase; and (6) equity claims are more senior than the existing debt contracts.³⁴

The first two arguments can be dismissed as a source of overall gains. Subsidizing foreign investment through shared discounts is likely to be inefficient when compared to policies that attract foreign investment not tied to debt buybacks. If the macroeconomic environment is not conducive to foreign investments, investment subsidies will end up being quite costly. Similarly, financial liberalization and the sale of domestic assets to foreign investors can be achieved without linking the proceeds to debt buybacks. In effect, if swaps are costly, it would be better to use other means to subsidize investments, develop the domestic financial markets, and restore appropriate macroeconomic conditions for foreign investments.

Risk sharing can be a source of positive-sum games. A swap replaces an (implicit) risk-sharing rule by another. If this increases the gains from sharing risk between the debtor and the international financial community, overall gains will be generated. For instance, if the new contract reduces the debtor's risks, there are overall gains if the debtor is more risk averse (or less diversified) than the creditors.

But even though equity contracts do involve risk sharing, once one accounts for the implicit risk sharing already embodied in existing debt contracts, the conditions required for small debt-equity swaps to improve the sharing of risk between the two parties are not as easily established.

Figure 15-2. *Swapping All the Debt for Equity*



Moreover, risk-sharing arguments become even less appealing in the case of public debt swaps. In that case, one also must consider the effect of the swap on the variability of the debtor government's financing costs. In most instances, the government ends up reducing its foreign debt and increasing its domestic debt (or stock of money). If the government is less able to default on its domestic debt than on its foreign debt, then the welfare costs to the government are increased as total financing costs increase in the bad states and decrease in the good states.

The effect of a debt-equity swap on the schedule of payments made by the debtor across states of nature can be illustrated. The equity contract pays out a proportion—say, e —of output in all states of nature, while debt pays out a proportion a in states below Y^* and a fixed D in the good states. The area under each repayment curve can be interpreted as the expected repayment on that instrument (assuming that Y is uniformly distributed). Assume that the debt-equity swap is achieved through a competitive market, and the price at which claims are exchanged is therefore such that the expected value of the old and new contracts are the same.

In figure 15-2 the extreme case in which foreign debt $D(Y)$ is entirely swapped for domestic equity is plotted. e must be large enough to assure equal present value of the old and the new contract. For the creditors to be indifferent between the two instruments, e must be smaller than a , since equity gives a larger payoff for large values of Y . Note that the standard debt contract allows for some

risk sharing when $Y < Y^*$, but that equity claims allow for risk sharing over a larger spectrum. Thus, if the debtor is more risk averse than the creditor, he would gain by swapping all his debt into equity.³⁵

But the analysis does not carry through completely for small and medium-size swaps. In fact, as illustrated in figure 15-3, with a small swap, the debtor's cost of financing is actually increased in very bad and very good states, and is only reduced in intermediate states, between Y_1 and Y_2 . Depending on the exact probability-weighting of the marginal utility of the state-contingent payments, these small swaps can increase or reduce the welfare of a risk averse debtor.

Finally, figure 15-4 illustrates the effect of a debt-equity swaps involving a swap of external public debt into internal public debt in the case where domestic debt does not allow any risk sharing. Foreign debt $D(Y)$ allows some limited risk sharing for low values of Y ; on the other hand, domestic debt $B(Y)$ pays out a constant amount B . Swapping half the foreign debt into domestic debt leads to a total government repayment $[D'(Y) + B(Y)]$, which leads to less risk sharing. In fact, risk is now shared only in states where $Y < Y_1$, while previously risk was shared for all states up to Y_2 .

As a result, Pareto-improving swaps of external public debt for domestic public debt can only occur if the foreign creditors are more risk averse than the debtor government. This seems unlikely given the rich portfolio choice available for creditors in the developed world. Moreover, the costs for the government of such swaps are further increased when domestic financing is expensive, either because of high real interest rates or because of the inefficiency of the inflation tax.

Public debt-equity swaps result in a different mix between current and future internal transfers (from the private sector to the government) and external transfers (from the government to the foreign creditors). The acquisition of private equity by the government implies current budgetary costs; and the substitution of public external debt by private equity alters the external transfer. The implications of the internal and external trans-

Figure 15-3. *Small Debt-Equity Swap*

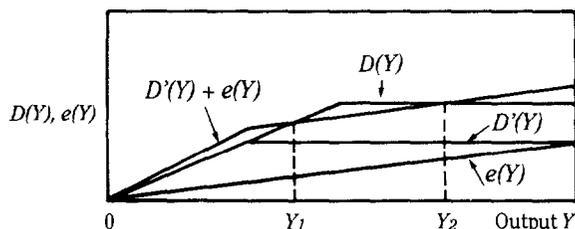
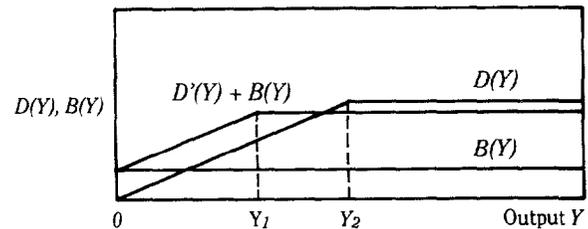


Figure 15-4. *Public Foreign Debt to Public Domestic Debt Swap*



fers arising from a debt-equity swap are not straightforward, since at least three elements complicate the analysis:

(1) If the new claims are held by foreigners, their servicing will ultimately require an internal and external transfer.

(2) Debt-equity swaps may lead to a different timing of debt service, especially of the external transfer.³⁶

(3) In general, external debt reductions and debt-equity swaps at a discount performed by the government imply an external price for foreign exchange, which is different from the one at which private and public enterprises service their external debt internally to the central bank. Domestic companies will then have incentives to buy external debt at a discount to extinguish their external claims at the central bank at par. This introduces a distortion.

Incentive effects associated with debt-equity swaps can be a source of gain. Debt-equity swaps can mimic more closely a policy of state contingent write-offs, a policy that can constitute the first best response to a debt overhang problem (as opposed to an uncontingent write-off). Debt-equity swaps could for that reason reduce the overall losses associated with a debt overhang and lead to a positive-sum game.³⁷

Conclusions

This paper has shown that there might exist combinations of prices and types of contracts under which market-based debt reduction and transformation schemes can benefit a highly indebted country and not hurt creditors. No general statements can be made regarding the welfare implications of these schemes. The schemes will have to be evaluated individually for a specific country, for which, as the paper shows, simple present value calculations will not be sufficient. The benefits of debt reduction and transformation schemes, if any, are contingent on the existence of positive overall gains associated with the schemes. Specifically, the paper discusses as a source of gains changes in the expected repayments on the remaining debt as a result of incentives for investment and adjustment, different divisions of repayments among creditors, and risk-sharing aspects and signaling values that can be associated with certain debt reduction and debt transformation schemes. In general, the paper finds (assuming no costs borne by third parties) that fairly strict and not easily observed conditions must be satisfied for these voluntary schemes to benefit both creditors and the debtor country.

As a result, market-based debt reduction and debt-transformation schemes are only likely to be welfare improving for the debtor when:

- investment is wasteful, and buybacks lead to a reduction in investment;
- there are valuable but unexploited investment opportunities in the debtor economy, and buybacks lead to an increase in investment;
- there is a large probability of a costly renegotiation of debt contracts, and the costs of bargaining are high and largely borne by the debtor;
- there are ways to extract seniority rights from the creditors without the need for large collateral;
- private rather than public debt is swapped for equity investments; the external transfer constraint is more binding than the internal transfer;
- the country has no other way of signaling its commitment and willingness to adjust;
- the level of the country's tradable resources is highly sensitive to external developments and risk sharing generates benefits; and
- the exit of fringe creditors is likely to reinforce the creditors' coalition, reducing free riding and leading to more efficient reschedulings.

The next research step in this area will have to be careful empirical investigations on whether some of these conditions are satisfied. An evaluation of these schemes requires that we get a handle on the disincentive and proincentive effects of a debt overhang, the opportunity costs of foreign exchange, the deadweight losses due to bargaining, and the working of the creditors' coalition. For this, it will be necessary to get a better understanding of the formation of prices on the secondary markets of developing-country debt.

Notes

The authors would like to thank Bela Balassa and Ken Rogoff for their useful comments.

1. See appendix for a description of the most commonly used VDRTs and the magnitude of transactions.

2. The official debt strategy has thus shifted focus considerably over the past four years from the Baker strategy (which relied on new lending), to the adapted Baker strategy (which endorsed the menu of VDRT), and to the Brady initiative (which encourages official support for VDRT).

3. But some gains can be external to the debtor and the creditors. Similarly, both parties gain when a third party takes a loss in the VDRT operation or subsidizes it. The VDRT can also be part of a larger deal between creditors and the debtor, with losses on those operations being compensated through other concessions.

4. Foreign exchange reserves are treated here as a form of investment.

5. This is the reverse of a classical argument in corporate finance, according to which a new issue of risky debt transfers wealth from the old bondholders to the shareholders. Issuing "junk bonds" to finance takeovers leads to substantial reduc-

tions in the price of old bonds, while at the same time share prices rise. Moreover, corporations seldom buy back their own bonds unless they are required to do so by the bond covenants. With international debt, this argument is forcefully made in Bulow and Rogoff (1989).

6. Output is to be interpreted here as the resources available for external debt service. The threat of default is more credible when the opportunity costs of servicing the debt are high, which is more likely to occur when output is low. This type of result has been derived in bargaining models of international debt, either by using a Nash solution or the extensive form of a bargaining game. In particular, see Bulow and Rogoff (1989) and Fernandez and Rosenthal (1988) for further details.

7. This ignores the change in the price of debt as a result of the (announcement of the) debt buyback. For small debt buybacks this assumption is justified. See the section on large swaps and price effects.

8. The expression for the price effect can be derived as for proposition 1 by differentiating (15-1) and using (15-4), and taking into account that the buyback is done at the original price.

9. Krugman (forthcoming) presents a more restrictive model that implicitly assumes that $f' = 1$.

10. It is also possible that both lose. As mentioned in footnote 3, overall gains might not be necessary for buybacks to occur in the presence of third-party interventions or "subsidies," or when the buyback is part of a larger "deal."

11. It can be checked that in that case, $dE(W)/dX = (1 - G^*)(1/p - 1) > 0$ and $Ddp/dX = 1 - [G^* + (1 - G^*)/p] < 0$.

12. In terms of the formulas in proposition 2, $dE(W)/dX = [-1 + (1 - G^*)/p] < 0$ and $Ddp/dX = 1 - 1/r[(1 - G^*)/p] > 0$. For a exactly zero, the price of debt is zero as the country can always default without any penalty. The result of the limiting case $a = 0$ implies that $(1 - G^*)/p$ goes to zero and that $dE(W)/dX = -1$ and $Ddp/dX = 1$.

13. The *World Economic Outlook*, which uses a broad definition of debt-service payments, including interest on short-term debt, indicates in its October 1988 edition that the highest ratio of debt-service payments to exports for countries with debt-servicing problems was 39.5 percent in 1982 and that the corresponding debt service to GDP ratio was 7 percent. The figures for net transfers are even smaller.

14. Bulow and Rogoff (1988) argue that the Bolivian buyback did next to nothing for the country since the increase in the secondary market price after the buyback was so large that the market value of debt (the expected value of repayments by Bolivia) only slightly decreased, from \$40.2 million to \$39.2 million. This made Bolivia only marginally better off, in spite of the fact that the funds used for the buyback were donated. See further Dooley (1988) and Rodriguez (1988) for an analysis of the price effect of large buybacks in a dynamic framework.

15. Taking a debt for resource ratio of 10 percent, $a = 10$ percent, $p = 0.5$, and assuming that Y is normally distributed, the model implies positive-sum outcomes when $f' < 0.2$; that is, when returns on investment are very negative and in the order of minus 80 percent.

16. The notion that the payments made by the debtor can be significantly smaller than the payments received by the

creditors has been disputed by Bulow and Rogoff (1989) who stress the ex-post irrationality of such a Pareto-dominated settlement; instead of punishing defaulting countries, debtor and creditors are better off (ex post) agreeing on a partial default that divides the costs of the penalty.

17. For example, the cost of the Brazilian moratorium of 1987 has been estimated at about \$2 billion. This includes the cost of reduced trade lines and of lost interest on official reserves.

18. Rotemberg (1988) develops a more formal model, in which debt repurchases are advantageous for all parties because of a reduction in bargaining costs. In his model, the bargaining costs are large when sovereign debts are large and the costs are borne by the creditors. As a result, reductions in debt can lower bargaining costs and improve both parties' welfare. See also Morande and Schmidt-Hebbel (1988) for a macroeconomic model with this feature.

19. But a sale of a loan in the secondary market can oblige the seller to take an accounting loss and may contaminate the rest of the loan portfolio, obliging the seller bank to increase its loan-loss reserves considerably.

20. See Eichengreen and Portes (forthcoming) for similar arguments for the debt crisis of the 1920's.

21. The secondary market price is now defined as before by equation (15-4') with the exception that a is replaced by c .

22. But it is easy to verify in our particular model that even in the extreme case where $c = 0$, the added benefit of a \$1 of buyback does not offset the nominal effect unless the debtor's discount rate is smaller than the creditors' discount rate. To see that, evaluate equation (15-10) at $c = 0$. (Impose $c = 0$ in (15-4), leading to $p = (1/r)(1 - G^*)$, and insert in (15-10)). The effect on the debtor of a marginal buyback is then given by $[-1 + br]$, which is necessarily negative when $b < 1/r$. As it is more likely that the country's discount rate will be higher than the creditors', it is more likely that the buybacks will hurt the country and benefit the creditors when funded by reductions in consumption, even for large differences in valuation.

23. See Claessens and Diwan, in this volume, for a survey of this literature.

24. Aggregate consumption will thus be reduced by the amount of the buyback plus the increase in investment—that is, $dC_1/dX = (-1 + d)$.

25. Froot (1989) derives d endogenously from the debtor's welfare optimization problem. In his setup (as in ours), $d^* > 0$ because it is assumed that the marginal utility of second-period consumption is not affected. A more general utility function of the form $U(C_1, C_2)$ will imply both a proincentive and a disincentive effect on investment: on the one hand, a large debt obligation spurs investment as the marginal utility of the second-period consumption is likely to be high; but on the other, the large debt obligation reduces the effective return on the investment. In such a case, dI^*/dX can be positive or negative, depending on the magnitude of the income and substitution effects, which, as Helpman (forthcoming) shows, depend on the degree of relative risk aversion. This issue is also discussed by Corden (1988).

26. But being on the wrong side of the debt Laffer curve is not necessary for positive-sum debt buybacks. To see this, one can use the following: the slope of the debt Laffer curve,

$dE(R)/dD$, is equal to: $\{ +pG^*af'd + (1 - G^*) \}$. Only when d is sufficiently negative can the slope of the Laffer curve be negative. But for positive-sum games, d only needs to be marginally smaller than 0 (and $f' > r$).

27. This can be shown in the investment incentive version of the model by increasing a . This will produce a Laffer type of curve as investment reacts negatively to a . But current as well as future taxing power is increased, which increases current transfers to creditors, something that has to be weighted against the incentive effects on investment. As secondary market prices over the last few years have decreased considerably, while at the same time the financial positions of the banks (and thus their bargaining position vis-a-vis debtors) have improved, one is led to conclude that the free-rider problem must have increased; otherwise the banks would have collectively prevented prices from falling.

28. Valdes-Prieto (1987) presents what he calls the "weakening of the bank cartel theory" to explain debt conversions. Since debt conversions affect the bargaining game between the bank cartel and the debtor country, it matters whether debt conversions are permitted after a rescheduling has been agreed on. Under his theory, the creditor group loses from debt conversions, but international banks, which will convert early in comparison to regional banks, will gain. The country will gain from debt conversions, but will have a higher probability of default. There is an incentive for the individual bank to convert first as the converted claims are senior to the old claims. But Valdes-Prieto does not address the issue of the sharing clauses that would prevent individual banks from converting their claims against the interests of the remaining banks.

29. That the relative exposures of the large banks have increased in recent years suggests that smaller banks have withdrawn. But Sachs (in this volume) argues that the creditors' bargaining power will be increased as a result of the concentration of claims and that the country will be worse off.

30. Williamson's example can be easily translated in terms of equations (15-6) and (15-7). The country never fully repaid its obligation, and therefore $G^* = 1$ and $(1 - G^*) = 0$; as the

foreign exchange is always available to the creditors, $a = 1$, and thus, $f'(1 - aG^*) = 0$, implying that $dEW/dX = 0$ and $Ddp/dX = 0$.

31. For a description of exit bonds, refer to the appendix. It is worth pointing out here that the Mexico-Morgan bond issue in 1988 was a combination of a cash buyback and a conversion of existing claims into a bond with lower contractual obligations.

32. Froot (1989) discusses the similarity of exit bonds and pure debt relief.

33. This is analyzed by Roberts and Remolona (1987), who point out the importance of additionality in investment.

34. Valdes-Prieto (1987) presents an explanation for debt conversion schemes, which he calls the "claims dilution theory." He shows, in particular, that debt-equity swaps by money-center banks result in claims on the country that have priority over claims of remaining banks on the country's foreign exchange, which leads to wealth transfers between the creditors from regional to money-center banks. Regional banks will not lend to the country anymore, and secondary market prices will fall as debt-equity swaps get implemented over time. Under his hypothesis, no overall gains are necessary to explain why debt conversions occur.

35. That this does not happen is presumably explained by moral hazard considerations. See Cole and English (1988) for such a model.

36. Repatriation of capital and dividends on equity acquired through debt-equity programs is often restricted for a certain period.

37. See further Krugman (forthcoming) and Lessard (in this volume). In general, risk-sharing and incentive considerations will point in different directions. An indexed debt contract can lower the after-servicing return on investments, reduce incentives, and can thus lead to lower investments. This effect is not present in our example only because the uncertainty was taken to be additive.

Appendix: Debt Reduction and Transformation Schemes

Buybacks

Debt buybacks involve a cash purchase of existing debt on the secondary market. The resources for the buyback usually come from the country's foreign exchange reserves, but they can also come from outside grants for this specific purpose. For a debtor to openly use its reserves in a buyback, it needs the consent of all its creditors. There are two good reasons for this. First, using reserves to repurchase debt may impair the debtor's ability to service the remaining debt. Second, there is a moral hazard problem: countries could lower the price at which their debt is trading, allowing them to

repurchase debt at low prices, which would reward, and possibly encourage, this behavior.

For these reasons, two amendments to the loan contracts must be made to allow an open buyback. The debtor must be allowed to prepay its loans, and participating banks must be given waivers from sharing provisions so that they do not have to share the payments they receive from the debtor country with nonparticipating creditors. Thus, for the transaction to be allowed to proceed, all the creditors must believe that the operation will not hurt them.

A recent example of an open buyback of public debt is provided by the consecutive operations by Bolivia during

1987–89 in which a large part of Bolivia's commercial indebtedness was extinguished at a price of eleven cents per dollar using donated funds.¹ It has also been reported in the financial press that governments—but more often private firms—have been buying back their debts through intermediaries on the secondary market.

Securitization

An "exit bond" is a buyback financed by future cash flows. A recent example is provided by the Morgan-Mexican conversion operation of January 1988. This was actually a combination of a buyback using reserves and an exit-bond swap. The Mexican offer was as follows: all creditor banks under the 1987 restructuring agreements were invited to bid for an exchange of their loans against a bond with a collateralized principal. The bond had a 20-year maturity, paid 1.625 percent over LIBOR, and the principal was fully secured by nonmarketable, zero-coupon U.S. Treasury securities. The 1987 restructuring agreement exempted the transaction from the sharing provisions, but the negative pledge still had to be waived to allow the use of reserves to collateralize the principal of the new bonds. The exit bond part thus consisted of the stream of interest payments on the reduced principal. Furthermore, creditors had not made the interest payments on the bonds more senior compared to other, existing claims on the country.²

From the auction, it appears that the bidders decided on their offering price by looking at the collateralized bond as a combination of two instruments: the fully collateralized principal as a U.S. Treasury risk, and the promised interest payments as a Mexican risk, valued at the discount rate implicit in the secondary market price of Mexican commercial bank debt. Therefore, it appeared that, in spite of Mexico's assurances on the seniority of the interest payments, the market did not perceive the unsecured portion of the exit bonds as senior to Mexico's remaining outstanding debt.³

Other forms of securitization have involved (or are rumored to involve) exchanging commercial bank debt at a discount for commodity-price-indexed instruments

and for bonds that are collateralized through escrowing future export receipts.⁴

Debt-Equity Conversions

Debt-equity swaps have been instituted in a number of countries, including Argentina, Brazil, Costa Rica, Mexico, the Philippines, and (more extensively) Chile. A debt-equity swap involves an investor exchanging a country's debt at the central bank for local currency to be used in equity investments (usually with some restrictions on remittance rights, on the type of investments, and on the sale of the equity). Debt-equity swaps fall into four categories: 1) a sovereign or public sector debt is exchanged for equity in a private sector enterprise, either in direct equity or as portfolio equity; 2) debt of a private sector company is exchanged for an equity investment in the same company; 3) sovereign or public sector debt is exchanged for equity as a part of a privatization program of public sector enterprises; and 4) private external debt of one company is exchanged for equity of another private company. Debt-equity swaps have predominantly been swaps of public external debt for private equity, but some swaps of private debt for private equity have occurred. Similar to debt buybacks, debt-equity conversions require special provisions in order not to trigger the mandatory prepayment clauses. The special provisions are commonly inserted in rescheduling agreements. Restrictions on repatriation of remittances prevent the new investors from obtaining more advantageous terms than bank creditors. Recently, some debt-equity conversions have been processed through conversion funds where foreign debt is converted into risk capital that is pooled and used to fund longer-term investment projects.

Some evidence suggests that equity-like instruments are perceived by creditors to be more valuable than debt. In Chile and Brazil, where debt-equity swap rights are auctioned, debt is typically retired at a price above secondary market prices (but still below par). The enhanced value of these claims can be due to their (perceived) seniority status or to the fact that these equity claims can be sold on the domestic market, and perhaps even be

Table 15A-1. *Debt Conversions by Type of Transaction, All Countries, 1984–88*
(US\$ millions)

Year	Debt-equity swaps	Informal swaps	Exit bonds	Buybacks	Other	Total
1984	773	—	—	—	—	773
1985	1,843	—	—	—	245	2,088
1986	1,494	—	—	—	714	2,208
1987	3,435	3,500	15	—	1,216	8,167
1988	8,854	4,813	4,725	648	2,072	21,111

Note: Countries include Argentina, Brazil, Chile, Costa Rica, Mexico, and the Philippines.

Source: International Economics Department, World Bank.

exchanged for foreign currency without the approval of the authorities.

Magnitude

Table 15A-1 approximates the division of the secondary market transactions over debt-equity swaps, informal conversions, exit bonds, buybacks, and other transactions involving the debtors.

Notes

1. The buyback was financed by funds donated for this purpose, but it appears that most of these funds were diverted from aid budgets already designated for Bolivia. See further Bulow and Rogoff (1988) and Lamdany (1988).
2. Presumably, if the creditors thought this to be in their interest, they could have made the bonds more senior than existing claims through the appropriate legal measures.
3. This analysis is from Lamdany (1988). Bulow and Rogoff (1988) find that the market regarded the bond as somewhat senior to existing debt since the unsecured part of the new bonds was worth a little bit more than Mexican bank debt.
4. Venezuela has raised approximately \$500 million, essentially through selling its oil export receipts forward. The deal involved collateralizing a bond issued on the U.S. market with the export receipts from oil.

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Comment

Kenneth Rogoff

Do highly indebted countries benefit by buying back a portion of their foreign debt at market discount? The academic literature contains a broad range of opinions on this issue, and Stijn Claessens and Ishac Diwan are to be commended for producing a paper that cuts to the heart of the debate.¹ As they show, the case for buybacks turns out to hinge on the empirical values of a few key parameters. My view is that for any empirically plausible values of these parameters, buybacks at market discount are not an efficient use of a highly indebted country's resources (see Bulow and Rogoff 1988a, 1989a, b). (Diwan and Claessens generally reach the same conclusion, though they choose to present it in a slightly more guarded fashion.)

I will first review the theoretical case against buybacks, and explain why the same general argument applies to all voluntary debt reduction schemes. (I can afford to be quite brief, since the reader already has the benefit of Diwan and Claessens' cogent analysis.) Then I will consider what implications the buyback critique has for implementing recent plans to channel foreign aid into buybacks (such as the Brady plan). Finally, I will discuss whether buybacks sponsored by creditor countries might be viewed as an "efficient bribe" to the banks.

The basic problem with sovereign debt buybacks is that they generally increase the pot that goes to creditors. Absent buybacks and creditor-country bailouts, that pot depends mainly on the debtor's willingness to pay, and therefore on the relative bargaining power of the debtor relative to its foreign creditors. Standard bargaining-theoretic models of developing-country debt negotiations suggest that a key factor governing repayments is the debtor's gains from trade, which in turn depends on factors such as the country's output, its terms of trade, and its degree of openness (see Bulow and Rogoff 1989a). Suppose, for example, that a foreign donor gives the country some resources to spend on consumption or investment. Will creditors be able to seize a share of this aid money? In general, the answer is probably yes, especially if the country tries to increase imports.² But the "tax" that creditors can extract (the parameter a in Claessens and Diwan model) is likely to be rather small.³ After all, few countries have ever made net repayments equal to more than a tiny fraction of their GNP over any extended period.

Now suppose that the foreign donor requires that the debtor country use the same aid money to buy back some of its debt at market discount. Then the entire pot of aid

money gets paid to creditors immediately. Of course, the face value of the country's debt goes down, but this will help the country only if it ends up repaying the remainder of its debt in full. If instead the country defaults on its remaining debt, creditors will probably be able to get repaid just as much as they would have without a buyback. After all, none of the fundamental factors governing the relative bargaining power of the two sides would have changed. With the help of a little algebra, one can show that if a is small, the debtor must be worse off when aid is channeled through a buyback than when aid is given unconditionally. This result turns on the fact that the odds against full repayment are always greater than the secondary market discount. (In the terminology of Bulow and Rogoff 1988a, or marginal debt is always worth less than average debt.)

A buyback is a much more dubious proposition for a sovereign debtor than for a domestic corporation. In the domestic case, creditors can directly seize a firm's productive assets, so that a is typically near one.

This critique of buybacks does not apply to jointly negotiated deals in which all creditors agree to write down their claims in exchange for a payment. (Bargains of this type are implicit in any standard rescheduling agreement.) It applies only to arrangements where individual creditors can choose whether to tender some of their debt; this is the key distinguishing feature of voluntary debt reduction. The problem with voluntary participation deals is that when the sovereign buys out one creditor, the value of remaining claims must rise, since there will be fewer creditors left to divide up more or less the same pot of resources. Note that this problem exists whether the buyback is large or small; the larger the buyback, the larger the problem.

Many hold the view that even if buybacks increase the pot going to creditors, the debtor may still benefit because it helps ameliorate debt overhang induced investment inefficiencies.⁴ While this argument may seem plausible at first glance, more careful consideration reveals that, if anything, the reverse must be true. That is, the presence of a debt overhang tax on investment only strengthens the case against buybacks. If there is a high rate of return on domestic investment because of debt overhang, then the debtor country will always do better by channeling resources directly into investment instead of into buying back debt at discount. Claessens and Diwan correctly point out that buybacks are much more likely to be a good use of resources when alternative domestic investments yield a very low rate of return.⁵

So contrary to popular belief, a debt overhang does not justify buybacks; in fact its presence only exacerbates the case against them. But it is true that a debt overhang can provide a reason for nonvoluntary debt-reduction plans, temporary relief, and, possibly, debt forgiveness. Of course, this is only a theoretical possibility and I agree with the authors that a debt overhang may not be large empirically (see Bulow and Rogoff 1989b). The lion's share of Latin America's growth problems probably has to do with unfavorable terms of trade shocks, high world interest rates, and, above all, poor policy choices. But it should be noted that even if a debt overhang accounts for only a small fraction of Latin America's growth shortfall, there can still be a strong case for debt forgiveness. That is, if by relieving Latin America of its debt overhang one could raise its growth rate by half a percent per year for 10 years, then it is easy to show that the efficiency gain could be quite large relative to the size of the debt forgiven. Of course, a growth rate increase of half a percent per year will not turn an Argentina into a Korea.⁶

What implications does this discussion of buybacks have for recent initiatives to provide official (industrialized country) financial support for buybacks? Some recent proposals suggest that for a highly indebted country to qualify for buyback subsidies, its government would have to be willing to adopt pro-growth policies. If such conditionality would help the highly indebted countries pull out of their growth doldrums, then it has to be a good idea. But this discussion suggests that foreign creditors should also be asked to make concessions. After all, it is the creditors who benefit most when aid money is channeled through buybacks instead of being donated unconditionally. What types of compensating concessions might creditors be asked to make? Clearly, they could be asked to simply forgive part of the debt, or, equivalently, to reschedule debt at concessionary interest rates. A more elaborate scheme would involve a relaxation of the equal-sharing clauses. The February 1988 Mexican-Morgan deal was an attempt to do just that; unfortunately it failed, because creditors did not sufficiently believe that the new Mexican bonds would really be treated as senior to existing bank debt.⁷ Still, this type of possibility merits further consideration.

As a simple example, suppose a country's debt were homogeneous, and that all creditors agreed to divide their claims into ten equal-size classes of debt, each with a different seniority level. That is, for each dollar a creditor holds in old debt, he is given ten cents worth of priority 1 debt, ten cents worth of priority 2 debt, and so on. Note that this relabeling of debt has no effect on the country (which only cares about the total amount it owes), and no effect on any of the individual creditors (the sum of their ten new claims must have the same value as their initial claim). The key to this scheme is that

if the new seniority clauses are credible, then priority 10 debt (the most junior class) will sell for much less than priority 1 debt. The existence of this new class of very junior debt allows the debtor to make repurchases at a much lower price than it could have prior to the transformation. In essence, this scheme allows the debtor to buy back marginal debt at (closer to) marginal debt prices.⁸

There are, of course, many other concessions creditors might be asked to make, but they cannot all be addressed here.

One reason for subsidizing buybacks, which has not been previously mentioned in the literature, is that they may be the most efficient way for creditor-country governments to "bribe" their banks. For in practice, the bargaining over developing-country debt repayments is not simply a two-way negotiation between the debtors and their bank creditors, but a three-way negotiation involving creditor-country governments.⁹ Nonbank creditor-country citizens have an important interest in maintaining political stability and in continuing unfettered trade in the debtor countries. When banks threaten to interfere with the debtor's access to trade in goods markets and capital markets, creditor-country citizens also lose. This perhaps explains why a disproportionate share of the net transfers made by highly indebted countries has been going to private lenders as opposed to official creditors (see Bulow and Rogoff 1988a).

The point is that the current rescheduling process already allows banks to bargain for a share of foreign aid, and this may well be the right base case against which buybacks should be measured. In the theoretical analysis above, it was instead assumed that the donor's best alternative to buybacks is to give all its aid resources directly (and unconditionally) to the debtor country. I admit to being skeptical that buyback subsidy programs involve less leakage to banks than more conventional rescheduling agreements, but the issue merits further consideration.

Notes

1. Papers that argued that buybacks at market discount benefit a highly indebted country include Krugman (1988), Sachs and Huizinga (1987), and Williamson (1988). Bulow and Rogoff (1988a, 1989b) argue that for most plausible parameter values, highly indebted countries benefit more from a dollar spent on domestic investment or consumption than from a dollar spent on buybacks. They emphasize that buybacks may make sense as part of a larger negotiated deal in which creditors make compensating concessions.

2. Bargaining-theoretic models suggest that the debtor may sometimes benefit more from aid-in-kind (for example, food) than from cash, since the country then does not have to worry about bargaining with creditors for the right to increase its imports.

3. This parameter is the same as q in the notation of Bulow and Rogoff (1988a).

4. See for example, the Brookings panel discussion in Bulow and Rogoff (1988a).

5. In Claessens and Diwan's analysis, the rate of return on marginal investment, r , and the effect of a buyback on total investment d are treated as two independent parameters. As they correctly point out, these two parameters must be determined simultaneously in equilibrium, as in Bulow and Rogoff (1989b). Doing this makes it quite clear that the likely overall effect of debt overhang is to make buybacks less attractive.

6. I am grateful to Lawrence Summers for discussions on this issue.

7. For a theoretical and empirical analysis of the Mexican-Morgan deal, see Bulow and Rogoff (1988a). According to their calculations, the new bonds were viewed by the market as slightly senior to existing bank debt.

8. This "debt plan" arose from discussions with Jeremy Bulow.

9. Bulow and Rogoff (1988b) present a formal bargaining-theoretic model of developing-country debt rescheduling negotiations involving three-way bargaining among debtor countries, creditor banks, and creditor-country taxpayers.

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Do the Secondary Markets Believe in Life after Debt?

Vassilis A. Hajivassiliou

The recent literature on external debt repayment problems of developing countries places primary emphasis on the "debt overhang" issue (see, among others, Krugman forthcoming, Sachs forthcoming). This term refers to outstanding external debt amassed in the past that exceeds a country's expected ability to repay it. These authors build theoretical models that highlight the importance of debt overhang and derive policy implications about the desirability of forgiving or refinancing such debt. The external financing problems of the developing nations have been worsening steadily since the first major oil shock of 1973 and have also been affected adversely by the second major oil shock in 1978 (see figures 16-1 to 16-3). Moreover, the figures suggest that we may now be experiencing a substantial world debt crisis, since the problems have been accelerating.

The rapidly mounting outstanding external debt of the countries under investigation is contrasted with the only mildly rising quantity of debt actually serviced (figure 16-1). The gap between obligations and repayments is widening alarmingly. The same point is made in figure 16-2 by showing the fraction of debt-servicing obligations that are in arrears in each year. Figure 16-3 presents a similarly bleak picture, showing that the proportion of countries under analysis that are experiencing a repayment problem of some type (obligations in arrears, or a need to request IMF assistance or a rescheduling of repayments) exhibits the same deteriorating pattern.

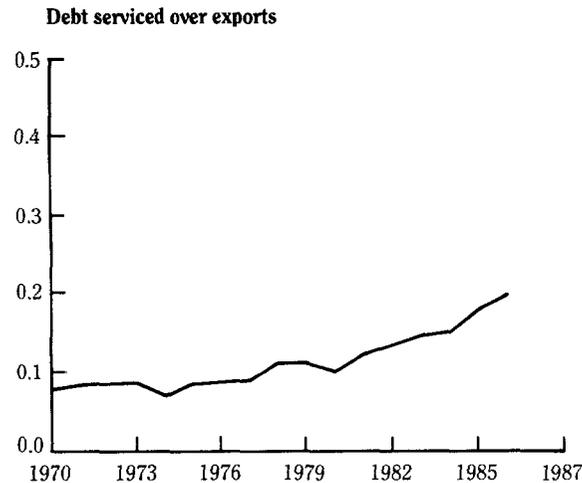
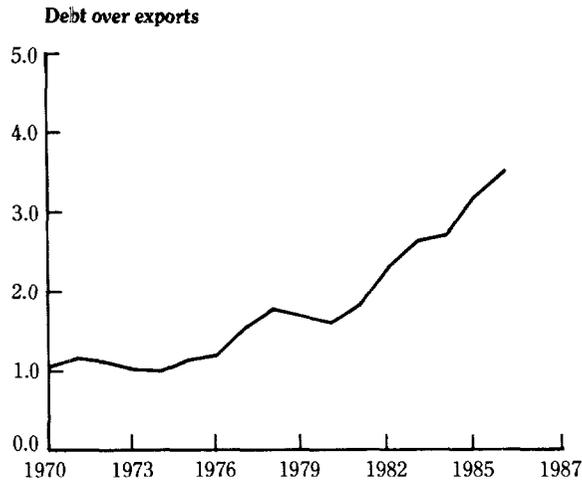
To shed some light on the relative merits of the arguments and policy implications concerning the desirability of debt forgiveness or refinancing, a clear need remains for an empirical investigation of the mounting external financing problems of the developing countries and of the theoretical propositions of the debt overhang literature regarding such problems. This paper attempts to meet such a need through panel-data econometric techniques. By exploring the relations between creditworthiness and the debt discounts on the secondary

market, it investigates empirically whether the discounts on the secondary market reflect past repayment problems, or whether they anticipate future debt crises. The answer to this question has implications about the desirability of debt relief. For example, debt overhang is commonly referred to as being "on the wrong side of the Laffer curve," implying that forgiving part of the outstanding debt will eventually lead to a higher value of debt being repaid by a country. The precise way this can happen is typically left unspecified. One possible mechanism that may make partial forgiveness appealing to the international lenders is the following: if the secondary market discount is a good predictor of future debt problems and does not merely reflect such past problems, then debt relief, in averting anticipated problems, may reduce the secondary market discounts and thus increase the value of the debt held by the international lenders.¹

The type of econometric analysis that is feasible in attempting to investigate these questions empirically is constrained, since the secondary markets have been in operation for less than three years.² The approach developed here is to employ the econometric creditworthiness methodology in Feder and Just (1977), McFadden and others (1985), and Hajivassiliou (1987). These creditworthiness indicators are then used to investigate whether the secondary market discounts anticipate or follow economic performance.

The next section presents descriptive econometric creditworthiness models that are the basic framework for the paper's empirical analysis, and it summarizes the key empirical results. Also addressed are such issues as "liquidity versus solvency," how discrepancies between official and black market exchange rates can predict future financing problems, and the importance of world factors exogenous to a country in causing debt crises. Also investigated is whether large surpluses run by the oil-exporting nations significantly affect the international credit markets. These models are then tested for struc-

Figure 16-1. *Debt over Exports and Debt Serviced over Exports, 1970–87*

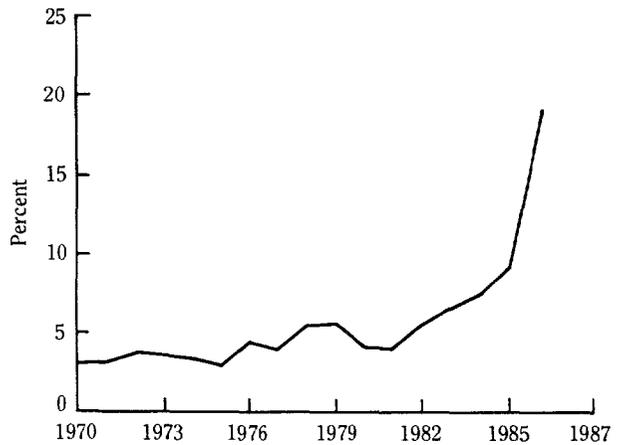


Note: Averaged over 93 countries reporting in all 17 years.
Source: See appendix.

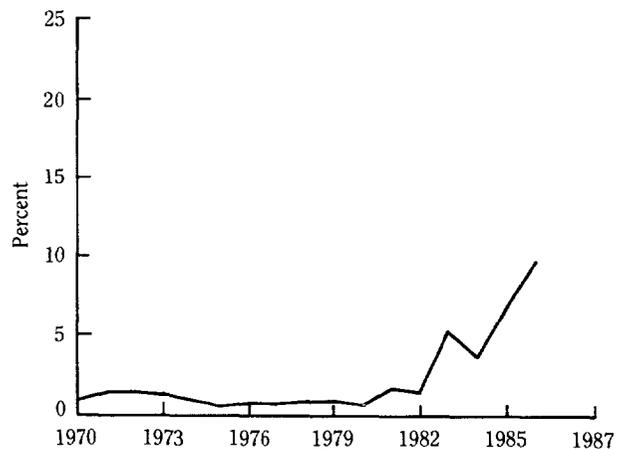
tural breaks following major external events, like the 1973 oil shock and institutional changes in meeting the debt crisis in the early 1980s. Indices of exchange rate overvaluation are constructed—based on discrepancies between black market and official exchange rates—to examine whether overvaluation is one precursor of debt crises. Econometric methodological issues are discussed in appendix 1.

The section that follows discusses the estimation results and their policy implications. As expected a priori, we show that reliable econometric inferences on these issues require explicit accounting for unobservable persistent heterogeneity among nations and for the impact of a history of bad debt performance on bankers' perceptions. The next section evaluates, after controlling for

Figure 16-2. *Arrears to Debt Service Due, Unweighted and Weighted, 1970–87*



Note: Unweighted; 93 countries reporting.

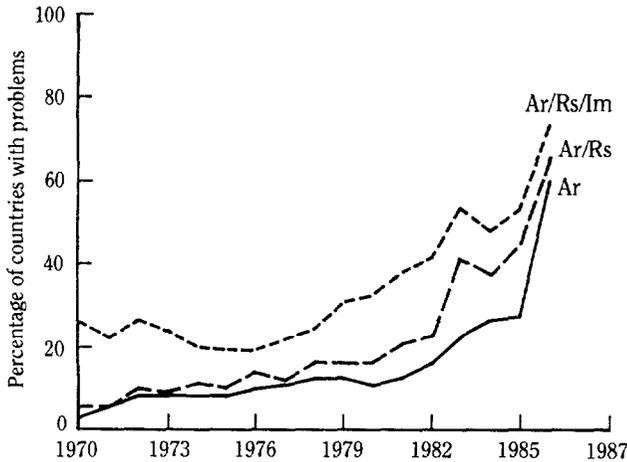


Note: Weighted by total outstanding debt; 93 countries reporting.
Source: See appendix.

volume of exports and amount of interest payments due, the significance of world economic factors, exogenous to developing countries, in precipitating crises. Such factors include measures of imports by industrialized countries, inflation in the OECD nations, and world interest rates. The findings are important for policy-related questions that address the adjustment efforts by developing countries and the distinction between economic mismanagement and adverse world developments beyond the control of country administrators. The paper then examines the econometric stability of the models after the major oil shocks of the 1970s and after 1981, the last year of observation of most past studies of creditworthiness in the literature.

A discussion of the debt overhang follows and a description of some characteristics of the recently devel-

Figure 16-3. Incidence of Repayment Problems, 1970-87



Note: Ar = arrears, Rs = rescheduling, and Im = IMF program.
Source: See appendix.

oped secondary market for outstanding developing-country debt. Do the discounts observed on this market routinely reflect past debt problems or anticipate future crises? This is a main question I attempt to answer in this paper.

The last section offers concluding remarks. Appendix 1 includes the econometric methods for limited dependent variable models, and appendix 2 presents data sources and construction of variables.

Econometric Models of Creditworthiness

Reduced-form descriptive econometric models were estimated in Feder and Just (1977) to quantify the determinants of developing countries' external financing problems. In particular, binary logit models (McFadden 1973) were employed to explain the dichotomous variable y_{it} : $y_{it} = 1$ if a debt problem occurs in country i in year t , and $y_{it} = 0$ otherwise, as a (linear) stochastic function of k exogenous explanatory variables x_{it} , with the index $i = 1, \dots, I$ denoting country and $t = 1, \dots, T_i$ the year of observation. McFadden and others (1985) and Hajivassiliou (1987) present more structural credit-rationing models that incorporate refined measures of the severity of debt crises. Moreover, these studies address important methodological issues that show how differing country characteristics, such as colonial histories and political, financial, and religious institutions, imply unobserved persistent country heterogeneity. Appendix 1 discusses these issues from an econometric perspective and presents econometric methodologies appropriate to address them (see also Hajivassiliou and McFadden 1989).

Let us begin with an empirical motivation for the econometric models to be presented. Information on three primary indicators of debt repayment problems was compiled: (1) confidential data on external debt obligations in arrears; (2) the occurrence of a rescheduling agreement between the debtor nation and the international bankers; and (3) programs of IMF involvement, such as stand-by agreements of a high tranche level. Table 16-1 presents the empirical evidence on transitions between these types of difficulties. Each transition from the state in the previous year to the one in the current year is given in three ways. The number of country-years with such a transition is first presented; then in parentheses the column percentage appears, the percentage of transitions into a given current problem; last, in square brackets is the row percentage, the percentage of all types of ensuing states that emanate from a specific problem in the previous year.

As the table shows, arrears can be viewed as the mildest problem and seem to act as a reliable predictor of more severe crises. For example, of the 952 country-years without a repayment problem in one period, nearly 5 percent had their obligations go into arrears in the following period, as opposed to a combined total of 7 percent that approached the bankers or the IMF for assistance. Moreover, more than 90 percent of countries with significant arrears in their obligations maintained this situation the following year or experienced more severe repayment problems (a combination of arrears, IMF involvement, or reschedulings). In contrast, only 70 percent (60 percent) of countries currently having only an IMF agreement (rescheduling) in effect maintained their status or had more than one type of repayment problem in the following year. These last two types of problem thus seem to indicate a more severe debt crisis, since they are typically accompanied by more than one other repayment difficulty. Another way of highlighting these stylized facts is to note that of the 51 country-years exhibiting a severe crisis with all three types of difficulty present, 45 percent had a severe crisis in the previous period, 14 percent had significant arrears accompanied by an IMF agreement in effect, and 20 percent had only significant arrears in the previous period. In only nine cases was a severe crisis preceded by a rescheduling or IMF involvement without any arrears present. These features of repayment difficulties will guide the econometric modeling below.

To explain the basic models used in this paper to quantify creditworthiness, denote by y_{it}^* the latent (unobserved) propensity of country i to have a debt problem in period t . This is modeled as a linear, stochastic function of observable country characteristics, past history,

Table 16-1. Patterns of Transition between Repayment Problems (number and percent)

	Type of problem in year T									Row total
	N	A	R	I	AR	AI	RI	ARI		
Type of problem in year T-1	N	821 (90.8) [86.2]	44 (23.0) [4.6]	9 (40.9) [0.9]	61 (27.5) [6.4]	0 (0.0) [0.0]	2 (4.0) [0.2]	13 (21.3) [1.4]	2 (3.9) [0.2]	952 63.0
	A	15 (1.7) [9.5]	119 (62.3) [75.3]	0 (0.0) [0.0]	1 (0.5) [0.6]	5 (45.5) [3.2]	4 (8.0) [2.5]	4 (6.6) [2.5]	10 (19.6) [6.3]	158 10.4
	R	5 (0.6) [26.3]	4 (2.1) [21.1]	7 (31.8) [36.8]	0 (0.0) [0.0]	0 (0.0) [0.0]	0 (0.0) [0.0]	2 (3.3) [10.5]	1 (2.0) [5.3]	19 1.3
	I	59 (6.5) [25.5]	6 (3.1) [2.6]	1 (4.5) [0.4]	138 (62.2) [59.7]	0 (0.0) [0.0]	11 (22.0) [4.8]	15 (24.6) [6.5]	1 (2.0) [0.4]	231 15.3
	AR	2 (0.2) [20.0]	4 (2.1) [40.0]	0 (0.0) [0.0]	0 (0.0) [0.0]	4 (36.4) [40.0]	0 (0.0) [0.0]	0 (0.0) [0.0]	0 (0.0) [0.0]	10 0.7
	AI	0 (0.0) [0.0]	8 (4.2) [20.0]	2 (9.1) [5.0]	3 (1.4) [7.5]	0 (0.0) [0.0]	17 (34.0) [42.5]	3 (4.9) [7.5]	7 (13.7) [17.5]	40 2.6
	RI	2 (0.2) [3.1]	3 (1.6) [4.7]	3 (13.6) [4.7]	18 (8.1) [28.1]	1 (9.1) [1.6]	9 (18.0) [14.1]	21 (34.4) [32.8]	7 (13.7) [10.9]	64 4.2
	ARI	0 (0.0) [0.0]	3 (1.6) [7.9]	0 (0.0) [0.0]	1 (0.5) [2.6]	1 (9.1) [2.6]	7 (14.0) [18.4]	3 (4.9) [7.9]	23 (45.1) [60.5]	38 2.5
	Column total	904 59.8	191 12.6	222 1.5	22 14.7	11 0.7	50 3.3	61 4.0	51 3.4	1,512 100.0

Note: Column percentages in parentheses; row percentages in square brackets; 1,512 valid country/year observations. N = No repayment problem, A = significant arrears, R = rescheduling occurrence, I = IMF involvement, AR = A and R, AI = A and I, RI = R and I, and ARI = A and R and I.

world conditions, and other relevant factors, measured by a vector x_{it} :

$$(16-1) \quad y_{it}^* = x'_{it} \beta + \varepsilon_{it}.$$

In the credit-rationing models of Eaton and Gersovitz (1981), McFadden and others (1985), and Hajivassiliou (1987), y_{it}^* is directly related to the gap between notional demand for and supply of new funds to the economy. When the debt-crisis propensity exceeds some threshold, normalized to 0, the realization of an external financing problem is observed and is indicated by

$$(16-2) \quad y_{it} = 1 \quad \text{iff } y_{it}^* > 0 \\ = 0 \quad \text{otherwise.}$$

This is the *threshold-crossing model*.

Denoting the cumulative distribution function of the error term ε_{it} by $F_{\varepsilon}(\cdot)$, one can calculate the probability of a financing crisis as

$$(16-3) \quad P(y_{it} = 1) = F_{\varepsilon}(x'_{it}\beta).$$

Under the specific distributional assumption of normality for the error term ε_{it} , we obtain what is known as the *probit* binary response model. Expression (16-3) will serve as a simple indicator of lack of creditworthiness of country i in period t . In the sequel, the binary variable indicating the presence of a repayment problem, y_{it} , will be defined by a combination of one or more of the following types of difficulties: "significant" arrears in the debt repayment obligations, an IMF stand-by agreement of a high tranche level or an extended fund facility agreement, or procedures to implement an agreement of a rescheduling of debt obligation initiated by a country and its international creditors.³

An alternative measure of creditworthiness that relies on a three-regime rationing model developed in McFadden and others (1985) and in Hajivassiliou (1987) is defined as follows. Two distinct thresholds, θ_0 and θ_1 on the range of the debt-crisis propensity, y_{it}^* , determine the regime for economy i in year t .

Define an indicator variable y_{it} by

$$(16-4) \quad \begin{aligned} y_{it} &= 0 && \text{if } y_{it}^* < \theta_0 \\ &= 1 && \text{if } \theta_0 \leq y_{it}^* < \theta_1 \\ &= 2 && \text{if } \theta_1 \leq y_{it}^*. \end{aligned}$$

This model, known as an *ordered reponse model*, will be estimated by imposing necessary assumptions about the distribution of the error term. Assuming normality as above yields the *ordered probit* model. This model captures some of the features identified in the transition matrix of table 16-1, by defining $y_{it} = 0$ to indicate a “no crisis” situation, $y_{it} = 1$ to stand for a “mild” crisis, and $y_{it} = 2$ to represent a “severe” crisis. Recognizing the importance of significant arrears as a precursor of more severe repayment crises, a “mild crisis” is defined as one with only significant arrears in a country’s obligations, and a severe crisis is characterized as one with IMF involvement or rescheduling.⁴

A third measure of creditworthiness based on even more information can also be obtained by using *censored regression models*. Again suppose that (16-1) measures a country’s propensity to experience a debt-repayment problem with y_{it} measuring the excess demand gap for external funds. Suppose further that a strictly positive excess demand gap will manifest itself in the country’s letting repayment obligations go into arrears, whereas no arrears will be observed for a country that is experiencing no repayment problem.⁵ In this vein, if y_{it} denotes observed arrears, we have the censored regression model:

$$(16-5) \quad \begin{aligned} y_{it} &= y_{it}^* && \text{if } y_{it}^* > 0 \\ &= 0 && \text{otherwise.} \end{aligned}$$

Since in this model the full extent of the crisis is observed in the form of the level of arrears when these are strictly positive, more information is used here than in the threshold-crossing model (16-2). As a result, the creditworthiness indicator based on (16-5) will be more accurate than the analogous indicator based on (16-3). Normality assumptions will be imposed on the censored regression model, and hence a *tobit* model will be estimated.

Versions of all three models are estimated for a panel set of data of 109 developing countries observed through the years 1970–86. The preferred specifications are then used to construct creditworthiness indicators. The final step is to investigate if such creditworthiness indicators exhibit any links to secondary market discounts.⁶

In the econometric implementation of these models, it is important to allow explicitly for unobservable, persistent heterogeneity among nations, and for the impact

on bankers’ perceptions of a history of bad debt performance. This is done by using the so-called random-effects panel-data methodology (see appendix 1 for details). As is shown later, the findings strongly confirm the expectation that such heterogeneity is important.

Empirical Results

The main results of the basic creditworthiness analysis appear in tables 16-2 and 16-3. In all versions of the three models estimated—binary-probit, three-regime ordered-probit, and tobit, the signs of the coefficients of the explanatory variables exhibit considerable stability and are mostly as expected, when the estimated coefficients are statistically significant.⁷

Our results are uniformly strong with respect to the importance of information on past repayment problems. All variables that signal past problems (presence of significant arrears in interest, presence of significant arrears in principal, presence of either a rescheduling agreement or IMF involvement)⁸ are positive and significant in each of the models in predicting future repayment problems. This importance of history of bad debt performance, though somewhat weakened, is still preserved by the introduction of persistent unobserved heterogeneity among countries.

Our prior expectations of the importance of both unobservable persistent heterogeneity among nations, and the impact on bankers’ perceptions of a history of bad debt performance, are strongly confirmed. Tables 16-2 and 16-3 show that allowing for heterogeneity does not eliminate history’s effect, though it predictably somewhat reduces history’s significance. This also corroborates previous findings by McFadden and others (1985), Hajivassiliou (1987), and Hajivassiliou and McFadden (1989). One other interesting related finding is that once we condition on information about repayment problems in the immediately preceding period, the cumulated number of past problems is not statistically very important.

The coefficient of the ratio of reserves to imports is generally small, negative as expected, and statistically significant. The coefficient on the debt-to-exports ratio is small but has the expected positive sign. The ratio of interest service due to exports has a significant and positive effect on the propensity to encounter debt repayment problems, while the ratio of principal service due to exports, even though generally less significant, has a negative sign. This evidence mildly favors the “solvency” hypothesis. Since the ratio of total outstanding debt relative to exports appears strongly significant, the liquidity hypothesis would predict positive coefficients for both interest and principal due, because of the implied deleterious effect of shortening average maturities. That

Table 16-2. Binary Response Estimation Results

Explanatory variable	Probit model	Probit model with random effects	Probit model	Probit model with random effects
<i>const</i>	-1.16 [-10.17]	-1.23 [-11.27]	-0.84 [-2.52]	-0.91 [-2.02]
<i>pcgdp80</i>	-5.39e-4 [-1.45e-2]	-5.57e-4 [-1.27e-2]	-2.82e-2 [-0.64]	-2.44e-2 [-0.52]
<i>dbttoexp</i>	1.46e-3 [2.76]	1.59e-3 [2.33]	2.16e-3 [3.37]	2.39e-3 [2.99]
<i>restoimp</i>	-7.92e-2 [-4.21]	-7.81e-2 [-3.88]	-9.88e-2 [-4.35]	-9.01e-2 [-4.01]
<i>isdtoexp</i>	6.94e-2 [4.43]	5.77e-2 [4.99]	6.14e-2 [3.30]	6.22e-2 [3.22]
<i>psdtoexp</i>	-2.37e-2 [-2.35]	-2.52e-2 [-2.59]	-2.52e-2 [-2.21]	-2.07e-2 [-2.44]
<i>catognp</i>	4.40e-2 [0.11]	4.56e-2 [0.29]	0.59 [1.21]	0.91 [1.27]
<i>libor6mo</i>	—	—	4.64e-3 [0.22]	4.01e-3 [0.18]
<i>opepres</i>	—	—	-2.03e-3 [-0.49]	-2.82e-3 [-0.38]
<i>opecca</i>	—	—	9.54e-4 [0.24]	8.92e-4 [0.33]
<i>indcinfl</i>	—	—	-3.50e-2 [-0.71]	-4.00e-2 [-0.67]
<i>indcca</i>	—	—	-2.60e-3 [-0.66]	-2.83e-3 [-0.57]
<i>overval</i>	—	—	-0.32 [-1.26]	-0.29 [-1.03]
<i>psari</i>	1.91 [7.02]	1.95 [7.59]	1.71 [6.10]	1.64 [6.07]
<i>psarp</i>	1.59 [5.34]	1.21 [5.27]	1.12 [2.74]	1.06 [2.49]
<i>prssimf</i>	1.45 [12.05]	1.01 [10.11]	1.36 [10.04]	1.17 [9.33]
<i>cumpsari</i>	3.00e-2 [0.62]	2.77e-2 [0.53]	4.78e-2 [0.96]	3.98e-2 [0.56]
<i>cumpsarp</i>	6.12e-2 [0.79]	6.55e-2 [0.88]	-3.32e-3 [-4.09e-2]	-3.52e-3 [-4.99e-2]
<i>cumrori</i>	4.27e-2 [1.73]	4.01e-2 [1.12]	9.48e-3 [0.31]	8.92e-3 [0.21]
σ_{α}	—	0.32 [3.26]	—	0.29 [3.02]
Log likelihood at convergence	-498.54	-497.61	-410.65	-409.22
constrained	-927.43	-927.43	-739.59	-739.59
Pseudo R^2	0.463	0.469	0.442	0.447
Number of observations	1,338	1,338	1,067	1,067
Percentage correctly predicted	84.60	84.60	83.97	83.97

Note: Dependent variable, *parif*. Standard deviation of random effect, σ_{α} . All variables are defined in appendix 2.

there is typically a negative effect of principal due lends weak support to the “solvency” view by rejecting the liquidity view. It is interesting to note that trying to pool interest and principal repayments due into a single debt-

service-due variable is statistically very strongly rejected; debt service due appears to be insignificant.

The estimated models in table 16-2 can shed some light on another important policy issue: Is an overvalued

Table 16-3. Estimation Results

Explanatory variable	Ordered probit model	Ordered probit REModel	Tobit model	Tobit model with RE
<i>const</i>	-0.91 [-8.93]	-0.81 [-8.44]	-2.40e-2 [-11.99]	-2.53e-2 [-8.08]
<i>pcgdp80</i>	-1.28e-2 [-0.38]	-1.38e-2 [-0.35]	8.01e-4 [1.64]	9.70e-4 [1.69]
<i>dbttoexp</i>	8.87e-4 [2.14]	8.36e-4 [2.88]	6.65e-6 [1.56]	8.53e-6 [1.73]
<i>restoimp</i>	-7.72e-2 [-4.63]	-7.42e-2 [-4.01]	-3.35e-4 [-1.64]	-2.99e-4 [-1.35]
<i>isdtoexp</i>	4.65e-2 [2.82]	4.48e-2 [2.27]	2.05e-4 [1.56]	2.53e-4 [1.61]
<i>psdtoexp</i>	-6.63e-3 [-0.70]	-6.28e-3 [-0.33]	-2.90e-5 [-0.26]	-1.80e-5 [-0.16]
<i>catogrp</i>	0.12 [0.36]	0.22 [0.18]	-1.46e-2 [-2.86]	-1.39e-2 [-2.03]
<i>psari</i>	0.83 [5.90]	0.93 [5.37]	1.04e-2 [5.41]	8.98e-3 [5.12]
<i>psarp</i>	0.36 [2.56]	0.26 [2.06]	8.82e-3 [4.02]	8.24e-3 [3.83]
<i>prssimf</i>	1.55 [14.22]	1.59 [14.16]	1.76e-3 [1.25]	1.24e-3 [0.81]
<i>cumpsari</i>	-3.00e-2 [-1.14]	-3.50e-2 [-1.02]	1.06e-3 [3.25]	9.33e-4 [2.89]
<i>cumpsarp</i>	9.13e-2 [1.84]	9.63e-2 [1.72]	-9.57e-4 [-1.54]	-1.27e-3 [-2.03]
<i>cumrori</i>	2.16e-2 [1.08]	2.08e-2 [0.73]	9.93e-4 [3.81]	1.31e-3 [4.16]
<i>sari</i>	—	—	1.68 [3.14]	1.82 [3.13]
<i>sarp</i>	—	—	0.84 [8.80]	0.80 [8.32]
θ_1	0.51 [10.41]	0.57 [9.28]	—	—
σ_α	—	—	1.26e-2 [93.00]	1.20e-2 [14.96]
σ_η	—	0.43 [3.68]	—	3.96e-3 [4.37]
Log likelihood				
at convergence	-863.97	-861.04	554.880	556.399
constrained	-1,273.13	-1,273.13	227.560	227.560
Pseudo R^2	0.321	0.326	0.732	0.746
Number of observations	1,338	1,338	1,338	1,338
Percentage correctly predicted	76.31	76.31		

Note: θ_1 = threshold level between regimes and 2 in ordered probit model ($\theta_0 = 0$); θ_σ = standard deviation of i.i.d. error; σ_α = standard deviation of random effect error. Dependent variable for ordered probit models is *crisis3f* and *sarf* for tobit model. All variables are defined in appendix 2.

exchange rate (possibly leading to capital flight in anticipation of an imminent devaluation) one of the fundamental causes of external financing problems, or is overvaluation a very costly distortion that arises from very high external indebtedness? One way to investigate this issue is to construct a measure of overvaluation and test whether it exhibits any predictive power in the models of (lack of) creditworthiness. The overvaluation measure is

based on a discrepancy between official and black market exchange rates. Simple econometric causality tests are performed to test statistically whether overvaluation precedes or follows external debt problems. Such tests are not conclusive and hence are not reliable to distinguish between the competing claims. With these caveats, note that it was not possible to obtain any statistically significant predictive power of the overvaluation index in an-

ticipating future crises nor was any effect in the reverse direction found. The level of the overvaluation index neither causes debt crises nor is caused by them in the sense of Granger. Since these findings may be a direct result of inadequacies in the constructed overvaluation measure, the issue is still open.

Country Adjustment Efforts versus World Factors Precipitating Debt Crises

Another issue analyzed using the estimated models, which already control for volume of exports and amount of interest due, is the importance of world economic factors that are exogenous to a developing country in explaining the occurrence of external debt repayment problems. Such factors include import demand by industrialized countries, inflation in the OECD nations, and world interest rates. The findings have important policy implications on developing-country "adjustment efforts" to stave off external financing crises. Distinguishing between economic mismanagement and unwillingness to implement policies that would ease the external financing requirements and adverse world developments beyond the country administrators' control and for which it is deemed unfair to penalize the country is important.

After controlling for a country's export flows and interest repayments, we find that such world factors do not have any significant additional explanatory power. To be more specific, neither the three-month nor the six-month LIBOR is statistically significant in the estimations. The same holds true in general for the oil-exporting countries' current account surplus and their international reserves, and for the current account surplus of industrialized countries. The only notable exception is inflation in the industrialized countries, which in some estimated versions of the models marginally reduces the likelihood of future problems. This finding, albeit statistically weak, may be explained if this inflation is associated with a loosened monetary policy by the authorities in the industrialized countries, which leads to an easing of the credit conditions in international markets. Similarly, one might expect a higher LIBOR to increase financing problems for developing countries even after controlling for the implied higher interest repayment obligations, if higher LIBOR signifies restricted world liquidity. The presence of such an effect was not confirmed by our estimations.

Table 16-4. Structural Stability of Creditworthiness Models

<i>Model</i>	<i>Probit</i>	<i>Ordered probit</i>	<i>Tobit</i>
A. Complete sample			
log likelihood	-497.61	-861.04	556.40
B. Tests for 1973 break			
Dummy variable test			
Post-1973	0.20	0.28	0.13
<i>t</i> -statistic	1.63	1.59	1.13
LR test			
Post-1973 (1,066 observations)			
Log likelihood	-400.20	-706.81	451.24
Percentage correct	84.43	75.33	77.43
Pre-1973 (272 observations)			
Log likelihood	-83.66	-135.38	115.64
Percentage correct	87.87	76.73	78.26
Value of LR statistic	27.52 ^a	19.70	20.96
C. Tests for 1981 break			
Dummy variable test			
Post-1981	0.23	0.11	0.24
<i>t</i> -statistic	1.97 ^b	1.07	1.82 ^a
LR test			
Post-1981 (420 observations)			
Log likelihood	-134.55	-251.76	177.21
Percentage correct	86.67	70.24	72.54
Pre-1981 (918 observations)			
Log likelihood	-341.65	-597.26	389.98
Percentage correct	85.29	76.24	77.24
Value of LR statistic	42.82 ^b	24.04	21.58

a. Significant at 5 percent level
b. Significant at 1 percent level

Stability of Creditworthiness Models

Table 16-4 presents the results of investigating whether structural breaks occurred in the processes determining repayment problems over time. One popular view attributes part of the blame for the developing-country repayment problems to the glut of "petrodollars" after the 1973 oil shock. Only weak evidence exists that such a structural break occurred in the estimated relationships. Similar tests were carried out to examine the importance of the second major oil shock of the late 1970s in causing structural instability of the econometric models. The evidence strongly rejects this hypothesis.

Another possibility investigated is that a structural break occurred after the much greater institutional involvement that followed the onset of defaults in 1982. The probabilities of repayment problems seem to have worsened after 1981. See the significantly positive post-1981 dummy variable in table 16-4 and the significant likelihood ratio, which suggests a structural break after 1981. This year also coincides with the last period of observation of most previous creditworthiness studies. So it may be misleading to attempt to extrapolate the findings of such studies to cover recent developments without incorporating recent data in the estimations.

The Secondary Market for Developing-Country Debt

Several authors have recently explored the theoretical and policy implications of debt overhang.⁹ Krugman (forthcoming) builds models showing that it may be in the interest of international lenders to keep refinancing such loans at higher interest rates to reflect the increased risk of basic underlying insolvency. The creditor's hope is that the debtor's fortunes may unexpectedly turn dramatically for the better, in which case the loans will be repaid. This is a formalization of Keynes' famous dictum that "if you owe your banker one hundred pounds you are at his mercy; if you owe him a million, he is at your mercy."

A conflicting consideration, however, is that the interest rate on the refinanced loans should not rise to discouragingly high levels. Amassed external debt that exceeds by far a country's ability to repay has been blamed by several authors for introducing possibly severe distortions in the operation of a country's domestic economy. For example, according to Sachs (forthcoming), a very serious consequence of debt overhang is that it discourages domestic investment. Public investment declines because of the bad state of governmental finances, and private investment is then caught in a vicious circle, with dwindling public investment causing a deterioration of infrastructure needed for private enterprise. For these reasons a debt overhang is commonly referred to as a

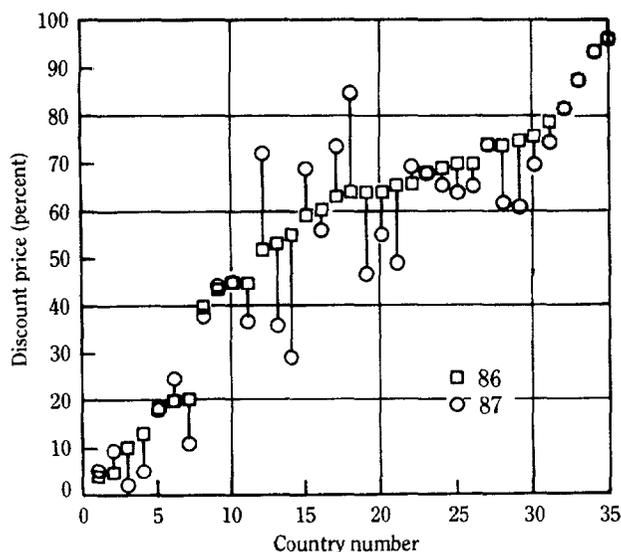
country lying on the "wrong side of the Laffer curve." Partial debt relief may be a sensible option for creditors in such a case, because the total value of the debt they will eventually recover may be higher than without relief.

To investigate this issue, the econometric framework developed in the preceding sections can be used and related to information on discounts at which external debt trades on the secondary markets. Part of the maintained hypothesis will be that the econometric creditworthiness indicators constructed reflect the relevant actual repayment profiles of countries and therefore can be used to predict future repayment problems. If the secondary markets are backward looking and only reflect past performance, then their economic efficiency is rejected. Today's conditions would then not feed into secondary market discounts right away, even though such events clearly may have implications about future creditworthiness. In such a case, an incentive would exist for a debt facility to buy back debt and forgive part of it, because the operator of the facility might believe that investment will respond favorably to forgiveness and alleviate the overhang. Alternatively, if the secondary market discounts can successfully anticipate future repayments problems, the bankers might find partial debt relief to be an attractive option. Then partial relief may reduce the likelihood of a future debt crisis and hence possibly raise the value of the debt held by the bankers, if it leads to sufficiently lower discounts.

To complete the argument, suppose now that we change the maintained hypothesis and take for granted that the markets are efficient; that they quickly assimilate new information. Given this maintained hypothesis, that is, that they price the assets to reflect rapidly the relevant economic information, one should expect the secondary market discount also to be able to anticipate future repayment performance. Then correlating creditworthiness indicators and discounts would be implicitly testing whether the indicators constructed are good proxies, and just how well they do in anticipating future debt-servicing capacity. The structural stability and high predictive ability of the models give some hope that the power in being able to separate the two hypotheses is relatively high. Therefore, finding that the secondary market discounts are only weakly correlated with measures of the probability of future repayment crises would suggest significant inefficiencies in these markets in absorbing information. This might then suggest, of course, that countries would have an incentive to buy back their own debt because they can realize that debt is undervalued and that the markets do not appropriately value their true creditworthiness.

A problem we want to acknowledge directly is that the reduced-form indicators may reflect an incipient liquidity problem or a more fundamental long-term insolvency

Figure 16-4. Secondary Market Discount Prices for Thirty-Five Countries, 1986 and 1987



Number	Country	Number	Country
1	Nicaragua	19	Argentina
2	Bolivia	20	Madagascar
3	Sudan	21	Ecuador
4	Liberia	22	Chile
5	Zambia	23	Togo
6	Zaire	24	Panama
7	Peru	25	Senegal
8	Honduras	26	Morocco
9	Poland	27	Malawi
10	Dominican Republic	28	Côte d'Ivoire
11	Jamaica	29	Brazil
12	Guatemala	30	Venezuela
13	Costa Rica	31	Yugoslavia
14	Nigeria	32	Gabon
15	Philippines	33	Romania
16	Mexico	34	Algeria
17	Uruguay	35	Turkey
18	Colombia		

Source: Salomon Brothers.

problem.¹⁰ Since the secondary market is pricing an asset, it ideally will reflect the anticipated lifetime stream of income of the asset and not necessarily short-term adverse income effects. Given the large information set used in constructing the indicators, however, I am confident that they are able to reflect long-term problems as well.

The recent burgeoning of unilateral debt actions by major developing-country borrowers helps to explain much of the significant discounts at which developing-country debt is valued on the secondary markets.¹¹ Some descriptive statistics on secondary market discounting of the outstanding debt of 35 nations appear in figure 16-4 for 1986 and 1987. The range is quite dramatic, with the

debt of "bad risks" like Nicaragua and Sudan commanding less than five cents for each dollar, while the debt of financially more sound economies, like Turkey, suffer only a small discount. Note that in some cases the discounts vary quite substantially over the two years of observation. The discounted price for Nigerian debt, for example, falls from 55 percent in 1986 to 29 percent in 1987, while in the case of Colombia the discounted price rises from 64 percent to 84 percent over the same period.

What relation, if any, exists between the discounts observed for outstanding developing-country debt on the secondary market, and the measures of country creditworthiness and propensity to encounter a debt problem constructed using our econometric estimates? Table 16-5 presents the main evidence on the central question of whether the discounts reflect a history of repayment problems, or instead primarily anticipate future debt crises. Findings here generally support the conclusion that the secondary market discounts are correlated in the expected direction¹² with the econometric measures of creditworthiness we construct and with direct indicators of past repayment problems. But these correlations are not very strong. Their weakness is confirmed by the low explanatory power of the estimated regressions in the last part of table 16-5, which try to explain the discounts by past, future, and current creditworthiness indicators. Moreover, these regressions suggest that the secondary market evaluations anticipate only rather imperfectly future external financing difficulties.¹³

So, the evidence casts doubt on a case for debt relief that is built on the argument that such relief would cause secondary market discounts to fall and, hence, of outstanding debt value to rise. These findings suggest that the secondary markets, still in an early stage of development, may be relatively "thin" and hence not able to exploit efficiently and rapidly all the available creditworthiness information. The large information set used in estimating the econometric models in this paper makes it unlikely that this finding can be explained by the inability of the constructed indicators of creditworthiness to capture both upcoming short-term liquidity and longer term solvency problems. Nor can this finding be explained by predictive inadequacies of the estimated models on which the creditworthiness indicators were based, since (as can be seen from tables 16-4 and 16-6) only mild structural breaks occur in the models and the models exhibit a high ability of predicting future repayment problems. Instead, this result seems due to the fact that the secondary markets are dominated by exogenous institutional factors. An interesting question that remains is whether these markets will eventually become more efficient.¹⁴

Table 16-5. *Explaining the Secondary Market Discounted Prices Using Indicators of Creditworthiness*
A. Actual Series

Country	1985				1986			
	secdprc	credp	credop	credt	secdprc	credp	credop	credt
Algeria	n.a.	n.a.	n.a.	n.a.	94.0	89.25	78.40	44.02
Argentina	64.0	0.00	0.10	24.69	47.0	0.00	0.01	31.90
Bolivia	5.0	0.01	15.73	4.94	9.0	n.a.	n.a.	n.a.
Brazil	75.0	0.01	1.94	18.88	61.0	0.68	2.29	43.85
Chile	66.0	1.60	4.82	66.14	69.0	0.84	3.31	55.73
Colombia	64.0	7.11	8.49	15.05	84.5	13.10	54.92	69.32
Costa Rica	53.0	1.08	3.13	60.66	36.0	0.05	2.44	51.05
Côte d'Ivoire	74.0	2.92	4.60	39.47	62.0	0.02	1.64	12.03
Dominican Rep.	45.0	0.06	2.67	25.28	45.0	0.00	0.65	81.43
Ecuador	65.5	1.98	4.33	95.37	49.0	0.95	2.80	14.18
Gabon	n.a.	n.a.	n.a.	n.a.	82.0	n.a.	n.a.	n.a.
Guatemala	52.0	10.29	46.89	45.08	72.0	7.21	43.32	36.56
Honduras	40.0	3.10	31.20	12.92	38.0	0.02	15.95	18.45
Jamaica	45.0	4.90	6.04	14.85	37.0	0.04	2.05	8.08
Libya	13.0	0.00	1.06	0.24	5.0	0.06	22.10	24.35
Madagascar	64.0	0.00	0.35	64.68	55.0	n.a.	n.a.	n.a.
Malawi	74.0	11.05	9.46	54.80	74.0	n.a.	n.a.	n.a.
Mexico	60.0	0.97	2.59	88.92	56.0	0.55	2.06	85.74
Morocco	70.0	n.a.	n.a.	n.a.	65.5	n.a.	n.a.	n.a.
Nicaragua	4.0	n.a.	n.a.	n.a.	5.0	n.a.	n.a.	n.a.
Nigeria	55.0	80.23	72.57	50.78	29.0	22.96	16.36	59.75
Panama	69.0	20.58	16.82	13.51	66.0	n.a.	n.a.	n.a.
Peru	20.0	0.00	2.33	70.01	11.0	0.07	27.46	49.93
Philippines	59.0	6.83	8.36	36.98	69.0	9.76	11.22	95.70
Poland	43.0	n.a.	n.a.	n.a.	44.5	0.06	2.31	93.38
Romania	88.0	n.a.	n.a.	n.a.	88.0	n.a.	n.a.	n.a.
Senegal	70.0	12.44	11.66	40.83	64.0	n.a.	n.a.	n.a.
Sudan	10.0	0.00	0.04	79.12	2.0	n.a.	n.a.	n.a.
Togo	68.0	26.99	23.83	65.76	68.0	1.20	10.67	18.90
Turkey	97.5	14.71	11.53	97.35	97.0	59.49	60.95	28.21
Uruguay	63.0	6.54	11.01	73.26	73.5	0.48	11.65	67.98
Venezuela	76.0	40.93	39.11	85.49	70.0	72.26	78.00	69.81
Yugoslavia	79.0	20.24	17.56	45.09	75.0	0.60	8.02	86.10
Zaire	20.0	n.a.	n.a.	n.a.	24.5	n.a.	n.a.	n.a.
Zambia	18.0	0.00	0.60	54.86	18.0	0.00	0.93	68.47

(Table continues on the following page.)

Conclusions

In this paper, I employed panel-data econometric techniques to draw some inferences about a possible case for external debt relief by exploring whether secondary market discounts for external debt efficiently reflect important economic performance information and underlying creditworthiness. I investigated empirically whether the discounts on the secondary market reflect a history of past repayment problems or whether they anticipate future debt crises. The answer to this question carries with it implications for the desirability of debt relief. If the secondary market discount is a good predictor of future debt problems and does not merely reflect past problems, then debt relief, by possibly averting antici-

pated problems, may reduce the secondary market discounts and therefore increase the debt's value held by the international lenders. The main finding here—that the secondary markets do not seem to absorb rapidly economic information—suggests that they are still in an early evolutionary stage and not yet very efficient.

Descriptive econometric models of creditworthiness served as the basic framework for the empirical analysis of the paper. The results strongly confirm earlier expectations of the importance of both unobservable persistent heterogeneity among nations and the impact on bankers' perceptions of a history of bad debt performance. The estimated models were also used to analyze several other issues in the international finance literature. For example, indices of exchange rate overvaluation were con-

B. Correlations between Discounted Prices and Creditworthiness Indicators

	<i>secdprc</i>	<i>credp</i>	<i>credop</i>	<i>credt</i>	<i>parif</i>	<i>crisis3f</i>	<i>sarf</i>
1985 correlations (28 observations)							
<i>secdprc</i>	1.00						
<i>credp</i>	0.29	1.00					
<i>credop</i>	0.13	0.85	1.00				
<i>credt</i>	0.60	0.42	0.52	1.00			
<i>parif</i>	-0.39	-0.30	-0.21	-0.52	1.00		
<i>crisis3f</i>	0.01	-0.12	-0.23	-0.66	0.75	1.00	
<i>sarf</i>	-0.55	-0.21	-0.25	-0.80	0.16	0.10	1.00
1986 correlations (24 observations)							
<i>secdprc</i>	1.00						
<i>credp</i>	0.52	1.00					
<i>credop</i>	0.49	0.87	1.00				
<i>credt</i>	0.42	0.33	0.43	1.00			
<i>parif</i>	-0.51	-0.96	-0.83	-0.41	1.00		
<i>crisis3f</i>	-0.32	-0.81	-0.94	0.27	0.83	1.00	
<i>sarf</i>	-0.48	-0.22	-0.23	0.39	0.18	0.17	1.00

C. Discounted Prices Explained by Regressions with Creditworthiness Indicators

Current and future			
<i>secdprc85</i> =	52.62 [11.03] Nobs=22	+ 0.48 * <i>credp86</i> [2.55] $R^2 = 0.21$	+ 0.11 * <i>credp85</i> [0.06] DW=1.99
<i>secdprc85</i> =	52.73 [9.65] Nobs=22	+ 0.20 * <i>credop86</i> [2.01] $R^2 = 0.16$	+ 0.47 * <i>credop85</i> [0.24] DW=1.94
<i>secdprc85</i> =	53.26 [5.65] Nobs=22	- 0.29 * <i>credt86</i> [-1.74] $R^2 = 0.19$	+ 0.17 * <i>credt85</i> [1.18] DW=1.91
Current and past			
<i>secdprc86</i> =	49.97 [9.72] Nobs=23	+ 0.64 * <i>credp86</i> [3.03] $R^2 = 0.28$	-0.20 * <i>credp85</i> [-0.82] DW=2.06
<i>secdprc86</i> =	45.50 [8.31] Nobs=23	+ 0.48 * <i>credop86</i> [2.23] $R^2 = 0.24$	-0.0002 * <i>credop85</i> [-0.0009] DW=1.92
<i>secdprc86</i> =	44.94 [4.89] Nobs=23	+ 0.33 * <i>credt86</i> [2.58] $R^2 = 0.26$	+ 0.19 * <i>credt85</i> [1.17] DW=1.77

Note: For table A and B, *secdprc* = secondary-market discounted price; *credp* = probit model creditworthiness indicator; *credop* = ordered probit model creditworthiness indicator; and *credt* = tobit model creditworthiness indicator. For table C, the last two digits of a variable name signify the year; *Nobs* = number of countries in regressions. The remaining variables are defined in appendix 2.

structured, based on discrepancies between black market and official exchange rates, and were used to examine whether overvaluation is a precursor of debt crises. Little evidence was found for this proposition, nor did we find evidence for causality in the reverse direction.

Next, the possibility of structural breaks in the processes determining repayment problems over time was also explored, after the major oil shocks of the 1970s and after 1981, when a much greater institutional involvement in the international financial markets occurred. No

strong evidence for structural breaks after the two major oil shocks was detected. But it does appear that analyses using only information before 1981 cannot be safely extrapolated to the 1980s. The considerably greater amount of information available to us in this study, covering six more years of observation, seems to offer significant statistical efficiency gains in estimation, which result in more robust models.

Finally, attempts were made to evaluate the significance of additional world economic factors, exogenous

Table 16-6. Prediction Ability of Creditworthiness Models: Correlations

	<i>predp</i>	<i>predop</i>	<i>predt</i>	<i>parif</i>	<i>sarf</i>	<i>crisis3f</i>
A. All available data (1,338 observations)						
<i>predp</i>	1.00					
<i>predop</i>	0.95	1.00				
<i>predt</i>	0.63	0.72	1.00			
<i>parif</i>	0.73	0.69	0.52	1.00		
<i>sarf</i>	0.28	0.27	0.73	0.26	1.00	
<i>crisis3f</i>	0.69	0.71	0.61	0.95	0.20	1.00
B. 1985 (28 observations)						
<i>predp</i>	1.00					
<i>predop</i>	0.85	1.00				
<i>predt</i>	0.42	0.52	1.00			
<i>parif</i>	0.30	0.21	0.52	1.00		
<i>sarf</i>	0.21	0.25	0.80	0.16	1.00	
<i>crisis3f</i>	0.12	0.23	0.66	0.75	0.10	1.00
C. 1986 (24 observations)						
<i>predp</i>	1.00					
<i>predop</i>	0.87	1.00				
<i>predt</i>	0.33	0.43	1.00			
<i>parif</i>	0.96	0.83	0.41	1.00		
<i>sarf</i>	0.22	0.23	0.39	0.18	1.00	
<i>crisis3f</i>	0.81	0.94	0.27	0.83	0.17	1.00

Note: For actual data, *parif* = presence of a repayment problem; *sarf* = level of significant arrears; and *crisis3f* = classifying dummy variable: "no problem," "mild crisis," and "severe crisis" regimes. For predicted probabilities of a repayment problem, *predp* = prediction from the probit model; *predop* = prediction from the ordered probit model; and *predt* = prediction from the tobit model.

to developing countries, in precipitating crises after controlling for a country's flow of exports and amount of interest due. The findings are important for policy-related questions that address the "adjustment efforts" by developing countries and the distinction between economic mismanagement and adverse world developments that are beyond the control of country administrators. Conditional on the export volume and interest repayments due, these additional world economic factors were generally found to be statistically insignificant as predictors of developing-country repayment problems.

Appendix 1. Econometric Methods for Limited Dependent Variables Models for Panel Data

The canonical panel data limited dependent variable (LDV) model is:

$$(16-1-1) \quad y_{it}^* = x'_{it}\beta + \varepsilon_{it} \quad i = 1, \dots, I; t = 1, \dots, T_i$$

$$y_{it} = \tau(y_{it}^*)$$

where the function $\tau(\cdot)$ specifies the rule that relates the unobserved latent variable y_{it}^* to the observed limited dependent variable y_{it} . This is the sense in which the models have "limited dependent" variables: the underlying latent variable y^* on which our economic theorizing is mostly concentrated is only partially observed through

some indicator y . For example, in the *threshold-crossing model*

$$(16-1-2) \quad \tau(\cdot): y_{it} = \text{sign}(y_{it}^*),$$

y^* may indicate the net utility of country i choosing alternative 1 over alternative 0 in year t , but the observed information is only in terms of the actual choice made. Similarly, the *ordered response model* is defined as follows:

$$(16-1-3) \quad \tau(\cdot): y_{it} = 0 \text{ if } y_{it}^* < \theta_0$$

$$= 1 \text{ if } \theta_0 \leq y_{it}^* < \theta_1$$

$$= 2 \text{ if } \theta_1 \leq y_{it}^*,$$

where θ_0 is normalized to 0 and θ_1 is estimated as an additional unknown parameter. For example, the utility value of choosing a particular (continuous) level of a commodity or activity may be given by y^* , but due to some exogenous (possibly) institutional reason, only integer values of the commodity can be acquired. In case these possible values are 0, 1, or 2, the three-way ordered response model (16-1-3) is a natural characterization. For further discussion, see McKelvey and Zavoina (1975).

The third model we employ is the *censored regression model*:

$$(16-1-4) \quad \tau(\cdot): y_{it} = \max(y_{it}^*, 0).$$

This situation arises when some exogenous market characteristic imposes a censoring level or threshold on the ideally desired level of a commodity or activity.

These models are nonlinear through the $\tau(\cdot)$ function that characterizes the specific LDV nature of the model in question. This has very important implications for econometric analysis given the panel nature of our data. Country-specific factors like colonial histories and political and religious institutions imply persistence in the stochastic structure of unobservables in these models. One simple way to model the unobserved persistent country heterogeneity is through the *one-factor error-components model*:

$$(16-1-5) \quad \begin{aligned} \varepsilon_{it} &= \alpha_i + v_{it} \\ \alpha_i &\sim \text{i.i.d.} \mathcal{N}(0, \sigma_\alpha^2), \\ v_{it} &\sim \text{i.i.d.} \mathcal{N}(0, \sigma_v^2) \end{aligned}$$

Let the density of y_{it} implied by (16-1-2), (16-1-3), or (16-1-4) conditional on α_i be $f(y_{it} | \alpha_i)$. Then the log-likelihood function for these models involves I univariate integrals:

$$(16-1-6) \quad L(\beta, \Sigma_\varepsilon) = \sum_{i=1}^I \ln \left\{ \int_{-\infty}^{\infty} \left[\prod_{t=1}^{T_i} f(y_{it} | \alpha_i) \right] g(\alpha_i) d\alpha_i \right\}.$$

Maximizing this likelihood function yields consistent, asymptotically normal and efficient estimates $\hat{\beta}$, $\hat{\Sigma}_\varepsilon$ that are reported in the tables.

The one-factor scheme (16-1-5) can be generalized to allow for additional serial correlation of the autoregression of order 1 type (AR[1])

$$(16-1-7) \quad \begin{aligned} \varepsilon_{it} &= \alpha_i + v_{it}, \quad v_{it} = \rho v_{it-1} + \eta_{it}, \\ \alpha_i &\sim \text{i.i.d.} \mathcal{N}(0, \sigma_\alpha^2), \eta_{it} \sim \text{i.i.d.} \mathcal{N}(0, \sigma_\eta^2), \end{aligned}$$

But this generalization is beyond the scope of this paper as it implies a series of $I T$ -dimensional integrals that necessitate the use of novel econometric techniques not yet fully developed (see Hajivassiliou and McFadden 1988).

Our desire to allow for the past state of repayment problems by a country in modeling current and future financial crisis probabilities, which arises because of bankers' learning mechanisms, introduces the so-called problem of initial conditions. The reader is referred to Heckman (1981) and Hajivassiliou (1987) for detailed

presentations of this issue and discussions of possible econometric solutions.

The final issue addressed in our estimations is the possibility that the distributional assumptions of normality made in (16-1-5) and (16-1-7) are incorrect, in which case our estimates would lose their desirable statistical properties. To investigate the robustness of the results with respect to the normality assumptions, we also derived maximum score estimates (Manski 1985) for model (16-1-2) and least-absolute-deviation estimates (Powell 1984) for model (16-1-4) that retain their consistency even when the distributional assumption of normality is violated. The findings are quite similar to the ones obtained under the parametric distributional assumption of normality and are thus not reported in detail. Moreover, the distribution-free maximum score binary-response estimator only achieved a predictive accuracy of 73 percent, compared with about 85 percent for the normal binary probit model. Since ability to predict ensuing external financing problems is at the heart of our argument, our preferred specifications impose the parametric normality assumptions.

Appendix 2. Data Sources and Construction of Variables

Abbreviations for Data Sources (Computer Tapes)

BOP—World Bank, *World Tables*, economic data sheet 2, balance of payments (1987).

ERP—U.S. Council of Economic Advisers, *1985 Economic Report of the President*.

IMF—IMF, Annual Reports, 1980–88 issues.

IFS—IMF, *International Financial Statistics* (1987).

WB—World Bank, *World Tables*, economic data sheet 1 (1987).

WDT—World Bank, *World Debt Tables* (1987).

WCY—*World Currency Yearbook*, 1980–88 issues.

All series consist of 1,853 country-year observations, on 109 countries over the 1970–86 period. All conversions between U.S. dollar and local currency values employed the period average exchange rate from IFS.

Indicators of Repayment Problems

PSARI—Presence of "significant" arrears in interest, 1970–86, WB. "Significant" defined as greater than .001 of total external debt.

PSARP—Presence of "significant" arrears in principal, 1970–86, WB. "Significant" defined as greater than .01 of total external debt.

PRSSIMF—Occurrence of a rescheduling arrangement or IMF involvement, 1970–86, IMF. IMF involvement defined as IMF support. IMF support is de-

fined by an IMF stand-by agreement of second or higher tranche or use of the IMF extended fund facility. Reschedulings include Paris Club, commercial banks, and aid consortia renegotiations. This information was compiled from our own country-by-country investigations, and from published and unpublished IMF sources. The date of rescheduling was selected to reflect the key economic developments precipitating the rescheduling.

- SARI—Level of “significant” arrears in interest, 1970–86, WB. “Significant” defined as greater than .001 of total external debt.
- SARP—Level of “significant” arrears in principal, 1970–86, WB. “Significant” defined as greater than .01 of total external debt.
- SAR—“Significant” total arrears in principal and interest, 1970–86, WB.
- CRISIS3F—“Severity of crisis” indicator: 0 = no repayments problem, 1 = significant arrears only, 2 = IMF or RSS, 1971–87.
- PARIF—Binary indicator: 0 = no repayment problem, 1 = significant arrears, IMF involvement, or rescheduling agreement, 1971–87.
- SARF—“Significant” total arrears in principal and interest, 1971–87, WB.
- CUMPSARI—Cumulated number of past years with significant arrears in interest present.
- CUMPSARP—Cumulated number of past years with significant arrears in principal present.
- CUMRORI—Cumulated number of past years with a rescheduling or an IMF agreement in effect.

Explanatory Variables

- SECDPRC—Secondary market discounted price. Percentage of its nominal value at which a claim on a country’s external debt obligations trades on the secondary markets. Years 1986 and 1987 available. Source: Salomon Brothers Inc., New York.
- IMFHIST—Cumulated number of years since 1970 with IMF involvement.
- RSSHIST—Cumulated count of reschedulings since 1970.
- PCGDP80—Per capita GDP, 1980 US\$, 1970–86, WB.
- DBTTOEXP—Total external debt relative to exports, 1970–86, WDT, IFS. Total debt includes public and private debt outstanding and disbursed, short-term debt, and use of IMF credit.
- RESTOIMP—International reserves (excluding gold) relative to imports, 1970–86, WDT.
- DSDTOEXP—Total debt service due relative to exports, 1970–86, WDT, WB. Debt service due defined as

interest and principal paid (TDS from WDT) plus outstanding interest and principal arrears.

- ISDTOEXP—Interest service due relative to exports, 1970–86, WDT, WB. Interest service due defined as interest paid (INT from WDT) plus outstanding interest arrears.
- PSDTOEXP—Principal service due relative to exports, 1970–86, WDT, WB. Principal service due defined as principal paid plus outstanding principal arrears.
- DSPTOEXP—Total debt service paid relative to exports, 1970–86, WDT.
- ISPTOEXP—Total interest service paid relative to exports, 1970–86, WDT.
- PSPTOEXP—Total principal service paid relative to exports, 1970–86, WDT.
- IMPTOGNP—Imports relative to GNP, 1970–86, WDT.
- EXPTOGNP—Exports relative to GNP, 1970–86, WDT.
- CATOGNP—Current account balance (exports – imports) relative to GNP, 1970–86, WDT.
- LIBOR3MO—London Interbank Offered Rate for 3-month loans, 1970–86, IFS.
- LIBOR6MO—London Interbank Offered Rate for 6 months, 1970–86, IFS.
- OPECRES—OPEC international reserves (in SDRs), 1970–86, IFS.
- OPECCA—OPEC current account (exports – imports), US\$ billions, 1970–86, IFS.
- INDCINFL—Average consumer price index inflation in industrial countries, 1970–86, IFS.
- INDCCA—Current account (exports – imports) of industrial countries, US\$ billions, 1970–86, IFS.
- OVERVAL—Black market exchange rate from WCY-IFS exchange rate period average, 1970–86, WCY, IFS. Both in units of national currency per U.S. dollar.

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Notes

1. Cohen (in this volume) also investigates whether a case for debt relief can be made through the secondary market discounts.

2. It is not possible, for example, to use direct "reduced form" econometric models and try to explain statistically the discounts as a function of economic performance variables.

3. See appendix 2 for precise definitions of these variables.

4. Another generalization also investigated was a four-regime model, where the severity of a repayment crisis is described by the different types of external financing difficulty a country experiences. The results are qualitatively similar to the ones of the three-regime models and are not reported separately.

5. Some qualifications to this modeling are set out in Hajivassiliou (1987).

6. Note that the more structural credit-rationing econometric model developed in Hajivassiliou (1987) will not be employed here, because the main objective will be to examine any predictive links between creditworthiness indicators and secondary market discounts, for which the "reduced-form" approach taken here will suffice. Identifying the specific parameters of demand and supply functions is not of primary interest in this study.

7. Some versions of the three-regime ordered probit model were also attempted, with the "mild crisis" case defined by the sole presence of an IMF involvement. The results of these trials were uniformly less strong compared with the specifications we report here, in which arrears characterize the middle regime.

8. One may find the positive effect of past IMF involvement to be surprising since one would expect the financial discipline imposed on a country through a conditionality-related IMF arrangement to be considered valuable by international lenders. But the puzzle may be resolved once one recognizes that the reduced-form specifications cannot separately identify banker from country behavior.

9. See primarily Krugman (forthcoming) and Sachs (forthcoming).

10. Recall that our findings were not able to resolve this issue unambiguously.

11. Although the secondary market price of developing-country debt held by international banks is not a perfect guide to more general market sentiments concerning developing-country debt, Sachs (forthcoming) finds that stock market prices of the commercial banks closely reflect the secondary market valuation of their lending exposure in the developing countries. As a result, a careful analysis of the secondary market valuations seems important.

12. There is, however, one statistically insignificant exception.

13. Indicators of current and anticipated creditworthiness correlate less strongly with secondary market discounted prices than do such indicators of current and past creditworthiness.

14. Another interesting question that arises here is an elasticity issue: in assessing the desirability of debt relief, international bankers clearly care about the value of the debt and not just its price. See Cohen (in this volume) for an analysis of this question. By concentrating on price only, I have attempted to focus on the question of the efficiency of the secondary markets.

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Comments

Homi Kharas

Hajivassiliou presents an econometric analysis of the history of debt problems. Although it has been argued that policy analysis should be forward-looking, a proper understanding of history is particularly important at this juncture, when new solutions are being debated, to establish fair treatment of all parties. One principle of any proposed initiative should be fairness, and to judge this it helps to be able to interpret the historical causes of debt repayment problems and the roles played by countries, banks, and exogenous changes in the world economic environment.

Among the many issues tackled in the paper, two have special relevance to the design of new debt proposals. First, whether debt problems reflect illiquidity or insolvency; and second, how the information in secondary market prices for sovereign debt should be interpreted.

First, think about the solvency-liquidity debate. This terminology is a bit confusing because, to borrow a phrase, countries do not go bankrupt. But there is a useful practical distinction. If one believes debt problems reflect illiquidity, then the solutions are to lengthen maturities, to lend more to tide them over through hard times, or to sell off some assets to raise cash. Recognize here all the ingredients of the current debt strategy (the Baker plan). But if one takes the so-called "insolvency" viewpoint, then all of these are exactly wrong things to do. Lengthening maturities at rates negotiated in re-scheduling agreements actually adds to the present value of debt obligations, while the same forces that initiated debt difficulties prevent the freed-up resources from adding much to tradable assets. Similarly, new lending on nonconcessional terms is seen as more of the same kind of policy that contributed to debt problems in the first place. Selling assets is also no solution because, by definition in an insolvent situation, the country does not have enough assets and simply ends up as poor and bankrupt instead of rich and bankrupt. So the diagnosis of a debt-repayment problem as one caused by illiquidity is very important. If the diagnosis is wrong, the medicine can kill the patient.

Two important types of evidence on this issue are present in Hajivassiliou's paper. First is the finding in

most of the model specifications, that a lower ratio of principal obligations to exports is associated with a higher probability of repayment problems. Now remember that in all the specifications, the debt-export ratio is also included, so the effect of variations in the level of debt-export is already being controlled for. The coefficient on the principal-exports variable is really picking up variations in the average maturity of outstanding debt—and the sign shows that longer maturities are associated with a higher probability of repayment problems. The second significant finding is that once debt-repayment problems exist, it is very rare to escape at some future point. This persistence of problems, and the finding on maturities, suggests that there is not now, and was not in the past, illiquidity, so it is quite possible that the current strategy has worsened the situation instead of improving it.

What are secondary market discounts trying to tell us? The issue is if the discount reflects future expected repayment difficulties, then not much gain can be expected from debt buybacks or voluntary, market-oriented solutions. But if these markets are underestimating expected future repayments and the discount gives too much weight to past repayment difficulties, then there is scope for a rational agent, such as the Bank or the Fund, or any private speculator, to buy up these debts and make a profit. And there are several debt solutions based on exactly this.

The author claims to have found strong support for the backward-looking hypothesis. His evidence, derived from his econometric estimations, is that only a small correlation exists between secondary market prices and the computed probability of debt-repayment problems in the next year. I do not find this convincing. For one thing, remember that the proxy for creditworthiness with which he compares the secondary market discount is calculated using only past information. No forward-looking variables are present, so there is no test of any direct link between the discount and expected future debt-repayment problems. Second, remember that the secondary market discount is not just concerned with the next period's repayment, which is what is measured by the creditworthiness proxy, but with the whole stream of expected future repayments. The two variables are mea-

asuring different things, and one should not expect, without analysis, to find a strong correlation between them. More direct tests of the efficiency of secondary markets are needed before reaching a verdict.

To conclude, I think careful econometric work of this kind is crucial to sorting out these issues, but any consensus on what the empirical findings really mean is a long way off.

Kenneth A. Froot

Hajivassiliou studies the relationship between measures of sovereign creditworthiness and a number of variables: secondary market prices of bank-held debt, domestic exchange rates, and proxies for world economic conditions. The statistical analysis is careful and sophisticated. He asks some interesting questions: are secondary-market prices for sovereign debt rational? Is there a systematic relationship between debtor performance and exchange rates? Is the debt crisis one of liquidity or solvency? There is a great deal to learn by applying limited dependent variable models to the problem of debtor performance. Yet, in spite of the paper's strengths and the breadth of material, its basic thrust and policy implications remain somewhat fuzzy.

The paper's primary statistical goal is to establish whether secondary market prices reflect the present value of rationally expected future debt-service payments. The alternative hypothesis is that these prices are backward-looking and do not reflect rational valuations.

For sovereign debt—as with almost any asset market—one tends to judge tests of efficiency on the basis of their maintained hypotheses. In this particular case Hajivassiliou estimates several limited dependent variable models of one period ahead repayment problems (using numerical indicators of debt-servicing difficulty). The explanatory variables are a host of debt ratios, measures of debt repayment, and other macroeconomic indicators. He then takes the predicted values from the model and asks whether they are correlated with market prices. The maintained hypothesis is, therefore, that Hajivassiliou has estimated the true model of rationally expected future cash flows.

There are several leaps of faith in going from what seems to be a sensibly estimated model of repayment problems to the rational expectation of future debt-service payments. First, left out or improperly included variables will tend to bias downward the correlation between the model's predicted values and the rational

expectation. Second, when the model is estimated, it is not asked to explain debt-service payments, but a limited dependent variable that represents the upcoming period's repayment problems. No reason is evident why the best forecast of this particular measure of tomorrow's repayment problems should be the best forecast of all future debt-service flows. Third, there is evidence of structural shifts when the debt crisis began in 1982. With the recent Brady initiative, surely creditors' beliefs about the way the debt problem will be resolved looks very different now than in the early years of the crisis, which implies that the structure of the model is again changing. Fourth, what are the benchmarks in this exercise? Hajivassiliou finds that secondary market prices are more closely correlated with past measures of creditworthiness than with the predicted values of his model. He interprets this as evidence that the market is backward-looking, not forward. Of course, that the model explains repayment problems well (in sample) does not imply that backward-looking measures of creditworthiness are not optimal forecasts of future debt services. In sum, one can conclude little from this exercise about the market's ability to evaluate sovereign claims rationally.

The policy implications of this exercise are also unclear. Hajivassiliou wants to draw conclusions about the desirability of debt reduction, and I just do not see any connection. If forgiveness is desirable for all, it is because lower levels of debt permit debtors to grow much more quickly so that they can actually service more debt on average. This "incentive" mechanism is entirely separate from creditors' perceptions: whether or not prices are set rationally says nothing about the ultimate desirability of partial write-downs. Perhaps it says whether bankers will need to be dragged kicking and screaming into the process, but I suspect the free-rider problem is enough to make this true no matter how bankers go about pricing their claims.

Beyond the Debt Crisis: Alternative Forms of Financing Growth

Donald R. Lessard

As the debt crises of developing countries continue with no end in sight, the structure and aggregate amount of these countries' obligations are receiving increasing attention. A structure of obligations dominated by general-obligation, floating-rate borrowing is far from ideal (Lessard and Williamson 1985, Krugman 1988) and has contributed to the severity of the crisis. The alternatives in resolving the crisis are receiving even greater attention, but with much less agreement. Debt-equity swaps and other variants that combine debt buybacks with alternative forms of finance, typically voluntary exchanges, are held out as the leading way out of the crisis by institutional observers, bankers, private sector groups in developing countries, and a few academics (see, for example, Ganitsky and Lema 1988 and Regling 1988). But such exchanges are typically depicted as inconsequential or even damaging to the interests of developing countries by many academic economists and developing-country officials (see, for example, Bulow and Rogoff 1988, Dornbusch 1988, Froot 1989, and Krugman 1988).

Much of this debate rests on the false premise that one must choose between debt conversion and debt reduction. It is true that the champions of conversion programs include banks that seek to maintain the value of their claims (see, for instance, Institute of International Finance 1989) and that much of the opposition to such programs comes from developing countries and others who believe that substantial debt reduction is in order (see, for example, Sachs in this volume). But there is no logical or institutional reason that a reduction in debt should not be accompanied by improved efficiency of the claims structure or that conversion somehow precludes reduction. Although the conversion of developing-country general obligations into alternative forms can take place through voluntary debt conversions, it also can

occur through negotiated exchanges involving all lenders and through separate new-money packages. Therefore, it is inappropriate to associate the potential shortcomings and abuses of voluntary exchanges with alternative forms of finance.

This chapter therefore focuses on the alternatives to general-obligation finance in the inevitable restructuring of Latin American countries' obligations, whether or not this restructuring includes much debt reduction.

What Is "Alternative" Finance?

Commercial alternatives to general-obligation finance are defined here as finance that involves ex-ante risk sharing in particular projects or enterprises or in the borrowing country's portfolio and, in many cases, a corresponding sharing of responsibility and control. Although this broad definition includes modes of finance ranging from nonrecourse project lending to direct foreign investment, it is narrower than commercial finance that includes all modes of finance that bear commercial terms (that is, everything but concessional finance) or that involve a private lender, a private borrower, or both.

This definition excludes many types of financing that private lenders can provide on commercial terms. The types excluded are most forms of general-obligation financing, including traditional LIBOR-linked floating-rate debt and fixed interest rate bonds, note issuance facilities, and so on, whose service does not depend directly on outcomes within the borrowing country. But the definition does include contingent general obligations with terms indexed to factors that influence the borrowing country's ability to pay, like commodity prices or indices of external economic activity or industrial production in industrial countries.

The analysis emphasizes alternatives that provide gains to creditors and debtors, in contrast to those that simply shift the burden from one group to the other. In technical terms, this implies an emphasis on completing markets that currently function poorly or not at all. This emphasis calls for an assessment of why markets currently are not complete along the relevant dimensions—in particular, which political and institutional factors act as obstacles to various alternative financing modes.

Why Consider Alternative Finance?

Alternatives to general-obligation borrowing are sought because these resources simply will not be sufficient to meet developing-country needs. But developing countries' financial problems are not because of limitations on the supply of international finance. Instead, they reflect the limited ability of particular developing countries to contract credibly for sufficient external finance, especially given the already substantial debt overhang that many countries face.¹

The financing requirements of developing countries are small relative to the world capital markets. Even an ambitious figure of \$20 billion a year is less than 10 percent of the current net debt financing provided by the Organisation of Economic Co-operation and Development (OECD) markets and institutions. Individual countries face a virtually elastic supply on the condition that they make credible commitments to meet the terms of their obligations.² Therefore, tapping new funds should not be expected to increase greatly the supply of funds to a particular country. A country, however, can increase its actual supply of funds (or reduce the degree of debt relief required to put it back on a current basis) by recontracting in a way that shifts the promised payments across future circumstances and therefore expands the commitments it can back with credibility. So, the focus here is not the size of external financial markets or these markets' appetite for developing-country assets; instead it is how commercial alternatives to general-obligation finance can increase the actual funds to these countries, reduce the burden of external financing, and improve the performance of the assets financed.

The goal of restructuring a country's obligations and recapitalizing its economy is to restore acceptable growth in the short run and provide the basis for dynamic long-run development involving domestic and foreign private interests. The main reasons for changing the amount and the structure of financing are:

- to reduce the "overhang" of senior obligations (official and commercial bank debt) that distort public and private economic incentives within the country and preclude new, junior claims (project financing, direct in-

vestment, local equity investment), and that limit the explicit and implicit costs to debtors of current or potential future noncompliance;

- more closely match countries' obligations with their ability to pay (for example, commodity prices and interest rates), thereby increasing the potential value of their obligations (and the costs of noncompliance); and
- rearrange the allocation of risks, rewards, and responsibilities among agents to increase diversification and participation.

Modes of Alternative Commercial Financing

The many alternatives to general-obligation borrowing for obtaining external finance can be classified in three ways: expected cost, degree of risk sharing or hedging, and degree of managerial participation in financed enterprise.

The expected cost has three components: the required expected return to investors, which may be substantially less than the promised rate in risky obligations; the deadweight cost or penalty in nonperformance; and the monitoring and control costs associated with particular forms of finance. The required expected return to investors is determined by an international capital asset-pricing model in which the risk premium is an increasing function of the covariance of this cost or return with aggregate world consumption; that is, a world consumption beta.³ Therefore, short-term floating-rate obligations or price-level indexed obligations, with returns largely independent of variations in aggregate output, will command minimal investor risk premiums.⁴ But copper-linked bonds that have a significant positive covariance with aggregate output will require a substantial risk premium. A broadly diversified portfolio of local equities, though, will command only a slightly higher cost than floating-rate debt since empirical analyses show that they are close to zero-beta assets with respect to external factors.

The enforceability of sovereign credit depends on the lenders' ability to impose penalties for nonperformance (see, for example, Eaton, Gersovitz, and Stiglitz 1986). These penalties generally result in deadweight costs, since the cost to borrowers is not offset by a corresponding gain to lenders. But there is no similar accepted model of deadweight costs associated with nonperformance, nor are there any estimates of its magnitude.⁵ It is assumed that expected deadweight costs depend on two factors: the expected nonperformance and the ability of lenders to distinguish between bad luck and bad faith on the part of borrowers for meeting their commitments on particular claims. Therefore, these deadweight costs will be highest for noncontingent general obligations, especially floating-rate obligations that enhance the proba-

bility of default through adverse interest rate movements.

Monitoring costs depend on the amount and frequency of information and influence required to enforce claims. At this stage it is assumed only that the costs are equal for all general obligations, and higher for claims that penetrate the economy and thus may require information and influence at the level of firms or projects.

Risk sharing refers to the extent to which the contractual obligation is linked explicitly to some aspect of the borrower's economic situation and thus shifts risks in the domestic economy to the world economy. Equity investment, for instance, entitles the investor to a pro rata share of the profits of a particular firm, while commodity-linked bonds or export participation notes perform the same role for the whole economy. This attribute is most valuable to a borrower when the risks that are shifted contribute significantly to the variability of income or the availability of foreign exchange, or both—in other words, risks that are systematic at a local level. Outstanding examples are countries whose exports are dominated by one or two primary products, like Chile (copper), Malaysia (tin, palm oil), or Mexico, Nigeria, and Venezuela (oil). Whether a particular contingent obligation provides national risk sharing depends on its covariance with national aggregate consumption or overall net foreign exchange transfers.⁶

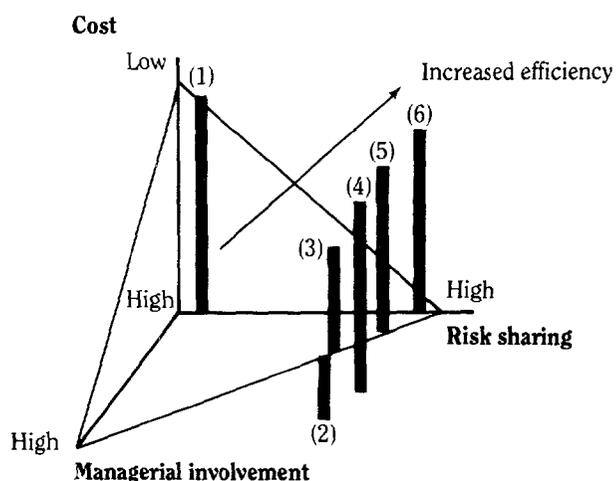
Hedging is accomplished when financing terms are selected to minimize the borrower's exposure to adverse fluctuations in finance resulting from shifts in external economic variables, such as interest rates and exchange rates. Hedging can occur by purchasing options or by swap contracts. Using either of these instruments, the borrower can manage risk independently of the supply of capital.

Managerial participation or control refers to the extent of private agents' participation in the selection of investments and their management. With the exception of the World Bank, this participation is almost nonexistent for general-obligation lenders. It will be greatest when there are claims contingent on the outcomes of particular projects or firms such as equities, quasi-equities, commercial bonds, or project loans.

The positions along these dimensions of various alternatives, including general-obligation financing, direct foreign investment, portfolio-equity investment (both in individual shares and in national funds), quasi-equity, and project lending, are shown in figure 17-1.

General-obligation financing, at the origin, provides the benchmark for the analysis. On an ex-ante basis, it offers the lowest cost, but it also involves no ex-ante risk sharing or managerial involvement. Direct foreign investment typically has a higher expected cost, but it also combines risk sharing with managerial control of invest-

Figure 17-1. *Modes of Commercial Finance*



Note: (1) General obligation, (2) direct foreign investment, (3) portfolio foreign investment (individual shares), (4) quasi-equity, (5) portfolio foreign investment (country fund), (6) commodity bond.

ments and, often, a substantial international integration of operations. Other alternatives typically are more focused in the dimensions that they provide. Commodity bonds, for instance, provide risk sharing but no managerial involvement, but portfolio-equity and quasi-equity investment—where the lender is entitled to an income stream that depends in some well-defined way on the success of the project but with a narrow claim to participate in ownership or control—shares risks and responsibilities, but over a narrower range of outcomes than direct investment.

Alternative Financial Instruments

Direct investment, the traditional alternative to sovereign borrowing, entitles the investor to a pro rata share of the distributed profits of the firm. It typically is motivated by the return the parent company expects to earn by using its existing know-how in a local operation and by incorporating the local operation in its global production and marketing network. Thus it responds largely to firm-specific, microeconomic factors and to macroeconomic prospects in the host country. In some cases, however, direct investment also overcomes limits to the enforceability of other cross-border claims posed by country risk or without the necessary local institutions.

Portfolio investment in equities quoted on public stock markets, like direct investment, entitles the investor to a share in the profits of private enterprise. Unlike the direct investor, however, the equity investor typically is seeking only a share of profits, and not the responsibilities of control. Many equity investors deliberately restrict their holdings to a small percentage of the

total stock (less than 5 percent) to maintain liquidity and avoid being forced to take responsibility for saving the firm if they lose confidence in its management.

Portfolio-equity investment can involve varying penetration of the domestic economy. The least penetrating mode, popular in many developing countries, is the offshore investment trust (closed-end fund) that invests in a broadly diversified portfolio of domestic shares. Other more penetrating modes involve investments in individual shares, either through offshore listings of developing-country firms or local purchases of locally listed shares. Although portfolio investment is typically defined as involving little or no managerial control, this can vary substantially. A national index fund may or may not participate in the governance of the firms in which it invests. But if it does, the general practice is to separate the nationality of ownership and control by appointing a local investment management firm to represent shareholder interests.

As opposed to direct investment, quasi-equity investments allow for separation of risk sharing and managerial control. These new forms of international investment include joint ventures, licensing agreements, franchising, management contracts, turnkey contracts, production sharing, and international subcontracting.⁷ They permit the host country to single out the particular features controlled by the foreign enterprise that cannot economically be obtained elsewhere and to contract for those without allowing foreign control of the domestic operation.

Nonrecourse project or stand-alone finance provides another way to shift risks and responsibility to foreign investors by linking borrowing to particular enterprises or projects without a general guarantee. In such cases, the lender is exposed to the downside risks of the undertakings being financed, but in contrast to equity or quasi-equity claims, does not share in the upside potential. From the borrower's perspective, such financing can be thought of as borrowing at a rate that is independent of the project's success and purchasing insurance to service the debt if the project fails. It may also involve earmarking project revenues for servicing the project borrowing. Therefore, the lender would require a higher promised interest rate on such loans than on general obligations.⁸

Just as equities or quasi-equities linked to particular projects or firms transfer some or all of the risks of those undertakings to investors, contingent general obligations do the same for the country. A country that is heavily dependent on, say, oil or copper revenues could issue commodity-linked bonds. With such bonds, debt service would remain a sovereign obligation with the implied enforcement leverage, but the debt service under any circumstances would be determined by the commodity's price.

Potential Benefits of Alternative Finance

Since most alternative modes of finance involve somewhat higher expected costs than floating-rate, general-obligation borrowing, why should borrowers prefer them? The key reasons are that these alternatives are often more attractive in terms of their distribution of costs over time and across circumstances and in terms of their incentive effects and interactions with local financial markets. In contrast to expected cost, which by definition is a zero-sum game between lenders and borrowers, these dimensions can give rise to positive-sum combinations.⁹

Time Profile of Debt Service

Other things being equal, a borrowing country will prefer financial instruments with a time profile of repayment obligations matching the profile of resources available for debt service. The rule of thumb is that long-term projects should be financed by loans with equivalent maturities, while current trade activities can be financed with short-term obligations. But for countries, the matching should be in terms of ability to pay at the aggregate level, which has little to do with the maturity of the assets being financed. In practice, the matching of the time profile of obligation with that of debt-servicing capacity requires spreading debt service equally over periods where foreign exchange surpluses or ready access to new financing (or both) are anticipated. It requires, in particular, avoiding the bunching of maturities. Debt rescheduling has transformed the obligations of most developing countries into perpetuities, leaving little room for further gains on this dimension. The time matching of developing countries' obligations could still be improved by recontracting on a price-level-indexed basis, thus transforming a nominal annuity into a real one. Automatic capitalization of the inflation portion of the nominal interest rate would serve roughly the same purpose.¹⁰

Profile of Costs across Circumstances

All investment involves risk taking. When a developing country finances an investment project by incurring debt, it implicitly accepts all of the risks of the activity being financed. Losses can be passed on to the lender only by default or the threat of default—a strategy that typically involves deadweight costs.

An oil-producing country, for instance, might consider financing its needs either with general-obligation borrowing or with a share of its oil income. With general-obligation borrowing, it would be committing itself to repay foreign exchange that is independent of the condi-

tion of the domestic economy.¹¹ Thus, the same debt service will be due when foreign exchange is scarce as when it is not. In general-obligation bank borrowing or floating-rate notes, the borrower promises to pay a specified spread over short-term market rates regardless of circumstances. When the upswings in interest rates and thus debt service coincide with a deterioration of the borrower's overall foreign exchange situation (either because the factors giving rise to these swings tend to coincide with factors depressing demand for its exports or because of its other interest-bearing foreign obligations), such financing will involve large payments when foreign exchange is scarcest. In contrast, if servicing obligations take the form of a share of net foreign exchange earnings, repayments will be smallest when foreign exchange is scarcest, and vice versa. Obligations keyed to a country's capacity to pay are less costly in terms of its well-being, and thus the country should be willing to pay a somewhat higher expected cost for such financing.

Borrowing with an interest rate cap might be more costly, since lenders would charge a risk premium for the interest rate insurance implicit in the cap. But it might have less impact on the borrowing country, since payments would be limited in periods where market rates are very high and, as a result, the borrower is under great financial pressure. The expected cost of financing a particular activity with equity will probably be even higher, but its ex-ante "cost" to the borrowing country might be comparable or lower than the cost of bank credit since the largest payments would likely be due when times are good for the borrowing country. Over the past decade, the cumulative return to investors on private equity holdings in many highly indebted countries, including Brazil and Mexico, has been substantially less than that of general-obligation loans.¹²

Because borrowing countries and investors who participate in world capital markets are exposed to different risks, they will possess comparative advantage in bearing particular risks. The economies of Mexico, Indonesia, and Nigeria, for instance, are much more vulnerable to shifts in energy prices than the world economy. This comparative advantage will be reflected in the premium demanded by world investors for bearing oil-price risks. It will be substantially lower than the premium that oil exporters should be willing to pay to avoid the risks. Thus these oil exporters can gain by reducing some of these risks through financing arrangements. In contrast, oil importers such as Brazil or the Republic of Korea would benefit from financing arrangements that relate debt service inversely to oil prices.

Because of domestic rigidities, developing countries can find themselves short of foreign exchange, which gives them a greater effective exposure to variations in

real and nominal interest rates than industrial country borrowers or lenders.¹³ This exposure will be reinforced since variations in world interest rates or the exchange rates of borrowed currencies accentuate the volatility of their foreign exchange earnings before debt service. As a result, developing countries will, other things being equal, benefit from financial terms that limit their exposure to such variations.

Once the question of cost is extended to one of how the costs are distributed across circumstances, appropriate terms for borrowing vary with the specific conditions of countries. The general rule is that a particular country should finance itself on terms that balance its existing external exposures. For example, a country where a few commodities make up a significant fraction of GNP or exports—relative to the role of these commodities in the world economy—should seek to shift the risks of these commodities to world financial markets. A country that has a high negative exposure to short-term interest rates because of heavy borrowing should seek forms of financing with fixed or capped interest rates.

Performance Incentives

In addition to shifting risks, and thus stabilizing a borrower's net income (and wealth), finance with costs linked to specified circumstances may have important macro- or micro-level incentive effects that can increase a country's income or reduce its variability. Most debt literature focuses on incentive effects of external borrowing on the macroeconomic choices of the borrowing country. A large debt overhang, for example, makes the country less willing to forgo current consumption to invest, since it will suffer the full current loss but will capture only a fraction of the potential future benefits. These effects can either be exacerbated or ameliorated by alternative modes of finance. They are most important when there is a large debt overhang.

Incentives also apply to lenders, often whether or not there is a debt overhang. When financing takes the form of a general obligation, the lender has little stake in the success of the project financed and thus has little motivation for intervening in its design or management. In contrast, when debt-service obligations are linked to the outcomes of specific projects or undertakings, with limited recourse to a country's general credit, foreign lenders or investors obtain a stake in the success of the project. This linkage can improve performance and reduce risk when lenders or investors have some control over variables crucial to a project's success. For example, if all or part of the yield on an obligation is tied to the performance of the project financed, the lender-investor has a greater interest in seeking appropriate project design with satisfactory management. Similarly, if the

obligations of a borrowing country are linked to its volume of manufactured exports, lenders will have a greater interest in assuring that country's continued access to markets for its products. But if the potential lenders do not have control over variables relevant to the project's success, the main incentive impact of linking debt-service obligations to outcomes is an improvement in the credit analysis undertaken before the loan is made. In the extreme case where the project will not generate returns sufficient to service the debt, lenders will not provide any finance on a project basis, and thus the project will be killed.

The incentive effects on investors of any financial contract depend on its specificity. Because an equity share is specific to a particular firm, it gives investors an incentive to promote that firm's success. Because a production-share or risk-service contract (typically employed on oil and gas projects) links investor returns to a narrower measure of project success, it focuses incentives on managing those dimensions appropriately. General-obligation borrowing, in contrast, is not linked to any particular project or risk dimension and so provides lenders with a stake only in a country's overall foreign exchange situation.

When a foreign investor can enhance the value of an undertaking through its knowledge base or access to markets, some stakeholding will be beneficial. But in cases where domestic policy choices are the primary determinant of project success or failure, foreign participants will be exposed to opportunistic behavior by the host government. Self-serving government policies will tend to confound the incentives facing the foreign investor and reduce the contract credibility. Since most activities involve both types of risks, it can be beneficial to separate them in contracting.

Impact on Local Financial Markets and Domestic Savings

International finance can never be more than a complement to domestic savings. It will be available on the best terms, and employed most effectively, when it is accompanied by healthy domestic capital formation. A major problem in many developing countries is insufficient capital formation. Capital flight has been a principal contributor to a number of countries' external financial crises. This poor record reflects unattractive climates for domestic savings, including poor macroeconomic prospects, high taxes, and regulations limiting investment; discrimination against domestic savings such as repressed interest rates and the threat of changes in inflation or other forms of default on implicit financial contracts; and macroeconomic policy distortions, especially in foreign exchange markets. It also reflects underinvest-

ment, in many cases, in the institutional infrastructure required for financial deepening.

International finance in the form of general-obligation borrowing has allowed developing-country governments to bypass local financial markets. As a result, many of the policy measures necessary to stimulate domestic capital formation have been neglected. Certain forms of international finance, in contrast, especially portfolio investment in corporate equities and bonds, rely on domestic markets and therefore will be successful only as these markets flourish. If such claims are held by both foreign and domestic investors, each will provide the other with leverage in their respective policy contexts, increasing the security of these claims.

Completeness of Local Markets and Potential Benefits of External Finance

Optimal external finance depends to a large extent on the completeness of a country's internal capital markets and the interaction between the structure of finance and micro- or macro-level economic outcomes. The simplest case exists when the domestic market is complete because it provides for full diversification of risks within the local economy—that is, all risks are spread proportionately among all investors—and either the structure of finance has no micro-level incentive effects or they are dealt with optimally within the national market. In this case, the sole benefit of international finance will be to align real interest rates with world rates and to diversify national risks. The risk-sharing benefit can be obtained through the issue of shares in a national index fund and does not require alternatives that penetrate the domestic economy.¹⁴

The more realistic case is where the domestic market is not complete and where the trade-off between risk diversification and incentives is far from optimal. In this case, foreign commercial finance can serve to complete the local market and to create appropriate micro-level incentives. The precise benefits depend on the departure from this ideal and the costs involved in terms of unnecessary risks that are borne, inefficiencies in project selection and management, and socially profitable transactions that are not undertaken as the result of these departures.

Obstacles to Alternative Modes of Finance

Even if alternative modes of finance are desirable for economic efficiency, they are not necessarily feasible. They generally are harder to enforce across national boundaries than general obligations and require specific domestic legal and institutional infrastructure. An obligation to pay a share of foreign exchange earnings, for

instance, is ideal in matching a country's payments with its capacity to pay. But because foreign exchange earnings are both hard to define and subject to the borrowing country's actions, this kind of contract presents moral hazard of a degree that makes it unlikely that finance would be available. Similarly, when portfolio equity shifts firm-level risks to investors, it is an open-ended contract that relies on a body of company and securities law that few developing countries possess to protect minority investors against conveyance by insiders. Further, when alternative modes of finance penetrate the national economy, they can impair national sovereignty, reduce the role of the state, and, perhaps, reduce the rents of privileged domestic capital suppliers. Thus they will probably be opposed by various national constituencies.

Country Risk

Financial contracts across national boundaries face a risk hierarchy. All contracts, except those involving a legal set-aside of specified foreign exchange earnings, are exposed to transfer risk—the risk that the country will not have or make available the foreign exchange to service the debt. Equity investments or loans to specific companies or projects are also subject to the commercial risks of the firm or project and country-policy risks. These commercial risks include changes in market conditions, costs, and technology, and elements at least partly under managerial control. Policy exposures include measures the country can adopt in managing its economy or policy measures of other countries. Examples are the austerity measures adopted by developing countries in response to their debt crises, which have thrown many local firms into severe financial crises. Protectionist policies also threaten export markets. Thus, in many cases, there is no clear dividing line between country and commercial risks.¹⁵

The greater exposure of alternative modes of finance to various country risks is because of at least four factors. First, since they are subject to a wider variety of policy impacts, nonperformance is significantly harder to define than with general obligations. Second, since they typically create divergent risk return profiles among investors, they undermine the formation or functioning of lender cartels that underlie the enforceability of cross-border contracts. Third, in part because of the second factor, they typically are implicitly subordinated to general-obligation claims, exacerbating the conflict among various classes of claimants. Fourth, because of this conflict, they face an increased likelihood of opportunism by the borrowing country.

Because of these heightened exposures to country risks, investors in alternative obligations will seek to protect the obligations against transfer risk and give

them the same status as those of scheduled creditors. Some export-oriented projects protect the export proceeds by putting them in escrow. In some cases this could even enable a country to borrow on better terms for a stand-alone project than would be possible for general obligations, despite the fact that the lender would be accepting the commercial risk of the project. This will generally be opposed by other creditors and violates the principle of not pledging specific assets or revenues to strengthen general obligations.¹⁶

Market-oriented projects that do not generate direct export revenues present a more complex problem. Even if financed on a limited recourse basis, they remain subject to transfer risk and, in many cases, to other risks emanating at least in part from domestic policy choices such as output pricing. These risks often inhibit financing from lenders who have the expertise to take on the commercial risks. Further, except in those cases where enforcement can be transferred to another jurisdiction through escrow mechanisms, there is a "Catch 22"—the same factors that create these heightened exposures undermine the credibility of most steps that might be taken by the borrowing country to ameliorate them.

Most of these points apply to domestic and to foreign investors. If anything, domestic investors with their typically larger proportional exposures to the national economy are more subject to country risks than foreigners, a major factor in explaining the substitution of foreign for domestic capital accompanying capital flight.

Institutional Preconditions

Most alternative modes of finance that penetrate the borrowing economy have institutional preconditions. First, the domestic legal system must provide effective enforcement of contractual terms, and private investors, especially foreign ones, must have access to that system and the sanctions it imposes. Portfolio-equity investment, for instance, depends on the existence of a body of corporate and securities laws and practices that provide arm's-length minority shareholders with something like a pro rata participation in the benefits of the firms in which they invest.¹⁷ These institutions, in turn, will only develop and function if the tax and regulatory environment does not discriminate against share ownership as opposed to direct investor control of enterprises. And to attract foreign investors, the country must be willing to allow them access to the country's market, and to allow them to withdraw their funds when they feel that opportunities are better elsewhere.

The fact that new developing-country equity funds have been launched over the past two years for many developing countries, including China, India, Malaysia, Philippines, Korea, Thailand, and Turkey, suggests that

these obstacles can be overcome, and their market acceptance supports the view that the primary limiting factor is credible supply rather than demand. A further positive factor is that the steps required to attract foreign portfolio investment also improve the context for local equity investment.¹⁸

Direct investment, even in the form of cross-border joint ventures, typically does not rely to the same degree on local company law and is unaffected by securities legislation because of the linkages it creates through technology and product transfers. But direct investment remains exposed to policy risks, including steps that limit the parent company's discretion over local operations or constrains its ability to remit profits.

Quasi-equity contracts, since they are narrower and more explicit than equity contracts, may overcome some of these obstacles. They do not typically require the same sophisticated, capitalist, institutional infrastructure in the host country, and, since they generally expose investors only to certain relatively well-defined risks, they may be credible even when the investor has little or no control over the activity.

To see these differences, consider alternative arrangements that may be used for financing the development of oil reserves in a developing country. The key commercial risks in such an investment are the uncertainties regarding recoverable reserves, the price of oil in world markets, and the operating costs of the field. But many risks involving the distribution of the gains between the two parties may make it difficult, if not impossible, to arrive at mutually agreeable contract terms. Such risks include obvious ones faced by the foreign producer of expropriation or some after-the-fact windfall profits taxes, but they also include risks faced by the host country like reservoir stripping or, perhaps, underproduction, and a boycott of output if a dispute occurs. Risks also expose the profitability of oil production of either party to general policy measures of the other (or, in the case of foreign investors, by their home country). These risks include exchange controls and changes in general tax policies.

With traditional direct- or portfolio-equity investment, the foreign investor faces the whole spectrum of these risks. This arrangement will be inefficient if such investors do not possess a comparative advantage relative to the host country in bearing those risks, either because investors' exposures to such risks are greater or because the risks involve a substantial element of moral hazard—that is, the possibility that the host government will influence outcomes to its benefit but to the detriment of the foreign investor. The inefficiency and, therefore, the benefit of a more narrowly drawn risk contract naturally

depend on the specific circumstances of each investment. Again, these arguments apply to domestic as well as foreign investors.

Political Considerations

As with equity investment, many obstacles to increased quasi-equity flows lie in the policies of the developing countries. In many cases, alternatives have been spurned because of their perceived high cost. Although this may, in part, be justified because the supply of alternatives is not competitive, it also appears that many countries have underestimated the cost of the downside risks they have retained by financing projects with general-obligation borrowing.

That penetrating alternatives typically bypass the state, and so reduce its control over the internal allocation of resources, is another factor that has led borrower countries to resist them or at least favor general-obligation borrowing. As Frieden (1981) and others point out, increased state control over resources provided by sovereign borrowing was a major factor favoring its use. The same elements appear today in the debate over who should control the allocation of local resources should any portion of interest payments on sovereign debt be made in local currency.

Finally, of course, certain local private interests may also benefit from restrictions on inflows of penetrating finance. This is most probable when certain local groups have access to offshore markets on their own, while most firms are cut off from such flows.

Investor-Country Obstacles

Although most obstacles to alternative modes of finance lie in the policies and institutions of developing countries, significant obstacles also have been created through the policies and institutions of industrial countries. Tax laws and foreign investment insurance schemes in investor countries, for instance, favor direct investment over more limited contractual involvement, although the Overseas Private Investment Corporation (OPIC) and several European insurance schemes extend to contractual schemes that do not involve ownership. The World Bank confines itself exclusively to lending rather than taking risk positions, but it is now considering commodity-price-linked financing and cofinancing that support quasi-equity investment. The International Finance Corporation (IFC) has made quasi-equity investments in mining and forest products, but because of its mandate to finance only private sector undertakings, these deals have typically been small.

Alternative Finance with an Existing Debt Overhang

So far, we have focused on how a country should structure its external obligations if it were starting with a clean slate. But what about the desirability and feasibility of alternative modes of finance for countries with a debt overhang, where the current market value of their obligations is discounted from face value and access to new, voluntary financing is limited or nonexistent? The presence of this overhang clearly complicates the analysis. It raises the tantalizing possibility of “capturing” some of the discount, but at the same time it exacerbates the conflicts among various classes of claimants and changes borrowers’ incentives on the overall structure of their obligations.¹⁹

Benefits of Recontracting

The benefits of recontracting in ways that shift the circumstances under which payments are due and, possibly, the responsibility for specific activities can be examined in the context of the “debt relief Laffer curve” that illustrates the trade-off between the face value of a country’s obligations and their (discounted risk-adjusted) market value.²⁰ The debt relief Laffer curve (DRLC) in figure 17-2 (top) comprises two effects: the value of the debt assuming no incentive effects (DRLC*) that diverges from the 45-degree line as the possibility of nonpayment increases, and an “incentive wedge” that is responsible for the decline in the curve. This incentive wedge, in turn, reflects several effects. First, when the debt burden is large, a country has less incentive to make current sacrifices to improve its situation since a large part of the new income or resources generated will be captured by creditors. Second, a country is more likely to resort to “taxes” on subordinated creditors, typically domestic depositors, bondholders, and investors, to meet the claims of external senior creditors, and thus it acts to reduce their investment.²¹ Third, when the burden is large, a country is more likely to walk away from current obligations, implicitly choosing to relinquish some future international trade and finance possibilities.

The shape of the DRLC, however, is not independent of the way debt is structured. If, for example, debt is indexed to some exogenous variable that is positively related to a country’s ability to pay, the “no incentives” curve will shift up to DRLC*’ (see figure 17-2, bottom) since a higher proportion of promised future payments will fall due under circumstances where the country can pay, and so the expected degree of nonpayment will be smaller. Combined with the new incentive wedge, which will depend on the relative incentive effects of higher payments in good periods compared with lower ones in poor periods, this will yield a new overall curve, DRLC’.²²

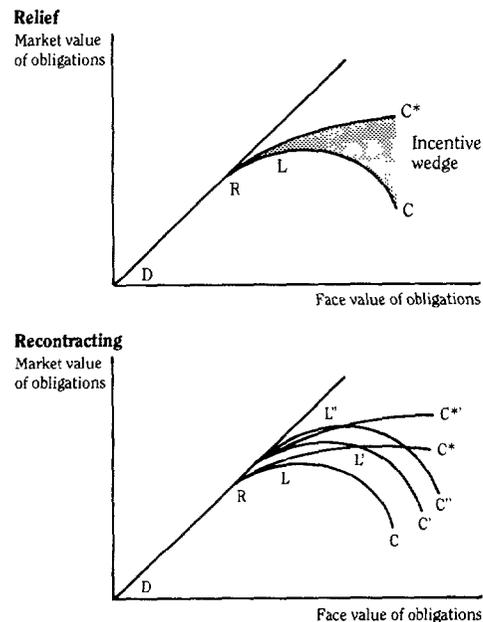
Finally, if providing creditors (investors) with a direct participation in the risks and responsibilities of particular investments improves the selection and operation of these assets, restructuring to increase participation will lead to a further shifting of the curve to DRLC”.

If a debtor country could recontract by exchanging an efficient package of alternative obligations for all of its existing general obligations with identical (pre-exchange) market values, it clearly would gain, and creditors would be indifferent. This is important, since without such an exchange, in moderately overhung countries there are no options to “capture” discounts that are mutually desirable to creditors and debtors (Krugman 1988). And, if the exchange covers only some existing obligations, the benefit of the shifting DRLC would accrue to existing creditors, and the country might actually be worse off.²³

Concerted Recontracting

A very strong case exists that borrowers and creditors would benefit from concerted recontracting that incorporates efficient alternatives to floating-rate general obligations. Mexico’s 1986 proposal that would have linked some payments to oil prices, for example, would have benefited both parties if it could have been incorporated at a price that yielded lenders the same ex-ante market value as the package they actually obtained. Under current circumstances, it is more probable that Mexico can achieve its desired reduction of current debt service and the desired face value of its obligations if it agrees to allow banks to recapture some of the concession if oil prices rise and to recycle some of the interest they forgo in the

Figure 17-2. *Debt Relief and Recontracting*



local currency to be invested or lent as they see fit. A possible mutual gain, of course, does not mean that recontracting will be easy because of the myriad conflicts and gaming behaviors present in the debt situation. In particular, creditors would have to grant the borrower some breathing space relative to the current debt service they would otherwise obtain to induce a borrower's commitment to greater payments than those implied by traditional obligations.

Voluntary Recontracting

Voluntary recontracting can take two forms: exchanges of existing assets for penetrating financial claims (typically equity) with rights to the management and profits of particular assets; and exit bonds. Much of the apparent magic of debt-equity swaps (or exchanges involving any other alternative claim) disappears when they are broken down into their two component parts: a buyback of debt and a sale of equity with at least part of the secondary market discount being retained by the private parties to the transaction. The benefits of marginal buybacks (even at the secondary market price) are the subject of considerable dispute, with the conclusion that they are limited at best.

The wisdom of offering discounts on equity purchases depends primarily on whether they improve the aggregate investment base by encouraging new, economically beneficial investments that would not occur otherwise or by improving the efficiency of existing assets. Equity investors with strategic stakes in local firms will have incentives to improve their performance, and the improvement may be significant if the investors also bring the relevant expertise. This effect is likely to be greatest in cases where the conversion involves firms that have been controlled directly or indirectly by the local government. This benefit is not limited to takeovers by foreign firms. Domestic private investors may be able to do as well, with the additional benefit that they will add to the domestic political constituency for allowing a greater role for market forces.

Granting a discount also may be desirable if the exchange alters the aggregate structure of obligations in such a way to induce an investor, for instance, to accept a subordinated claim that will pay dividends only when, for instance, transferring some or all of the current debt discount to the new investment may be justified.²⁴ It must be recognized, however, that many debt-equity exchanges merely shuffle the asset ownership among investors and have no such potentially beneficial aggregate effects. Debt-equity exchanges also often result in such abuses as round-tripping. Nonetheless, debt-equity

swaps can have indirect benefits by breaking the existing financial logjam and focusing financial market interest on the country.

Many past debt-equity conversions seem to make little sense, even when converted through open auctions that recapture as much of the discount as possible. Foreign purchases of public utilities, in which there is no technology transfer by the new owners, little or no beneficial risk shifting, and the possible increased conflicts between investors and the consuming public, appear to add little.²⁵ And the risk shifting and even incentive benefits do not require the full sale of assets in many cases. Intermediate, quasi-equity investments will probably both improve the structure of a country's obligations and bring in foreign expertise when needed and will avoid some inevitable conflicts of foreign ownership.

Exit Bonds and New Financing

The key issue with exit bonds and new senior financing is that existing creditors will not typically grant the necessary waivers, since such waivers are tantamount to forgiving part of the debt. There are at least two cases in which the linkage of a buyback and the issuance of a new security can be mutually beneficial and, thus, overcome this obstacle. One is a buyback coupled with new project-linked finance, the other is a buyback coupled with the issuance of indexed exit bonds. For project financing, consider a country whose creditworthiness is too weak to sustain new general-obligation borrowing, but has a highly promising, export-oriented project whose development would be impossible without foreign finance. With stand-alone project financing (where project earnings are put in escrow to cover debt service), the project would go ahead and, at worst, the country would have no less free foreign exchange than it otherwise would have had, leaving the position of existing creditors unaffected. But if the project were successful, it would add to the supply of free foreign exchange and thus benefit the existing creditors. So the general creditors might waive their "overhanging" senior claim to the project revenues to obtain the residual benefits.

The case with indexed debt is similar. Consider, for instance, bonds with substantially below-market interest rates offset by commodity-price-linked options. Such options could be sold successfully to nonbank third parties typically interested in such commodity plays only if they were senior to general-obligation debt. Because of the reduction in required debt service in "bad" times, banks might grant such waivers, but they would not grant waivers to an equivalent new issue that did not involve a reduction in current debt service.

Conclusions: How to Get There from Here

Alternative modes of finance for developing countries including equity, quasi-equity, and indexed general obligations offer major advantages of risk sharing and managerial participation over floating-rate, general-obligation borrowing. The limited role they currently play in these countries' external financing shows a lack of awareness of these benefits, an assertion of state power, and a series of obstacles to their issuance, including country risk and inadequate domestic institutional infrastructure. The debt crisis has underscored many of the benefits of alternatives, but little has been done to change the developing countries' financial structures because of the loss of access to voluntary finance, the preoccupation of banks and international institutions with maintaining the appearance of compliance with existing debt terms, the perverse borrower incentives created by the debt overhang, and the heightened conflicts between classes of existing and prospective claimants.

After a review of the benefits and obstacles to alternative finance for a country that is starting with a clean financial slate, the general conclusions are:

- Any concerted refinancing arrangements should include recontracting along more efficient lines.
- Despite the difficulties of marginal, voluntary exchanges in debt overhangs, carefully designed and managed programs can result in significant mutual benefits.

In the case of concerted exchanges, the inclusion of alternative forms of finance that shift payments across circumstances can significantly close the gap between politically feasible levels of debt service and those that banks will demand. Voluntary exchanges should include debt-equity swaps and exchanges of existing government obligations for new obligations that are indexed to external variables (like commodity prices) or to some formula of profitability of domestic assets (like revenue bonds for fee-generating infrastructure).

Because of the obstacles to alternatives that existed before the debt crisis, this recontracting will not occur without significant changes in policies by creditor-country regulatory agencies, international financial institutions (IFIs), and the developing countries themselves.

Regulatory Agencies

Restructuring through concerted new-money packages is largely the result of an accounting and regulatory system for U.S. banks that allows them to operate with capital impaired by economic losses on developing-country loans—as long as banks do not “realize” these losses through sales or swaps into alternative types of claims. Thus, the U.S. government, through the deposit insur-

ance and bank regulatory system, implicitly shares some of these banks' losses as long as they continue to hold the original obligations or their restructured equivalents. A step toward more efficient recontracting would be to allow banks to obtain similar benefits if they exchanged their holdings for alternative instruments. Creditor-country governments also apply much of the leverage required to put financing packages together, contending with conflicts and free-ridership among banks and opportunism on the part of borrowers. This leverage can and should be applied to support alternative approaches.

International Financial Institutions

International financial institutions, especially the IMF and the World Bank in its structural adjustment role, have worked in concert with holders of general obligations, often at the expense of foreign and domestic holders of alternative claims. Changing this role could be particularly useful in promoting quasi-equity investments and project lending that represent a middle ground between arm's-length and fully penetrating foreign finance. For example, with quasi-equity investments, the World Bank might extend its cofinancing program to cover such operations. Alternatively, the IFC mandate might be broadened to allow it to take quasi-equity positions in government-sponsored projects that could be structured on a commercial, stand-alone basis. In addition, the World Bank or regional IFI might assist risk unbundling by enhancing such claims against transfer risk, perhaps by assigning some fraction of its net transfers to a country to a credit enhancement facility for designated claims.²⁶ This implicit shift of the benefits of such future financing from existing creditors to the new obligations would create a de-facto seniority for these new claims without violating existing agreements. Thus, without a true risk-bearing capacity for the IFIs, they are not precluded from playing a role in supporting quasi-equity investments. Instead, the IFIs' strengths, and their preferred creditor position, make them ideal for bearing and mitigating transfer risk that can easily prevent such transactions from occurring.

For domestically oriented projects that provide no direct foreign exchange and that entail “political performance risks,” IFIs and investment guarantee authorities could do much to relieve this problem. An IFI, for instance, could include as project covenants the features and performance requirements that lenders need. Similarly, an IFI or a guarantee authority such as OPIC or the Multilateral Investment Guarantee Agency (MIGA) could provide guarantees against transfer risks. Such guarantees could be much narrower than those extended by the World Bank under its current cofinancing programs and thus would allow greater specialization in risk taking.

Borrower Governments

The first step for borrower governments is to recontract their debt and obtain relief through rescheduling, interest rate reductions, or outright forgiveness. This may present them with a conflict, since moving to a more efficient structure of liabilities will reduce their bargaining power for relief. Thus they probably will not be the first to propose such recontracting, but they should be ready to make it a key element in their subsequent negotiations.

Notes

1. This is not to deny that many developing countries, including the poorest countries in Latin America, face a debt relief and aid crisis where, regardless of how restructured, their obligations outweigh their ability to repay, and voluntary external finance will not enable them to grow.
2. This result is from theoretical models (see, for example, Eaton, Gersovitz, and Stiglitz 1986), and is supported by the fact that newly industrialized countries (NICs) have been able to achieve very rapid growth in external financing in line with the growth of their economies.
3. Stulz (1981) derives an explicit international capital asset-pricing model that links returns to assets' consumption betas.
4. Risk premiums are defined here as in the financial economics literature as increments in the expected return on an asset relative to the expected return on a zero-beta asset, not as adjustments in promised rates to reflect anticipated defaults, as is common in the developing-country debt literature.
5. There is much uncertainty about the penalties a country will face when it does not meet its obligations. Most formal models assume that it will be relegated to financial and commercial autarky for at least some period. Many observers, though, argue that these penalties are much smaller (see, for example, Kaletsky 1985). Eichengreen and Portes (in this volume) infer from data from the 1920s through the 1950s that differential impact of default on subsequent access to credit is small, but this inference is questionable since in the later period all developing countries went into commercial and financial autarky because of the world depression and the associated collapse of the international commercial and financial system.
6. A country's "utility" will be a function of the level and variability of its overall consumption, assuming no distributional considerations. The impact of a particular obligation on this utility will depend on its contribution to the level and variability of net foreign transfers that influence consumption.
7. For a description of these instruments, see Lessard and Williamson (1985) and Oman (1984).
8. The exception would be where the lender is shielded from transfer risk by escrow arrangements that provide for debt-service payments out of export proceeds before those are remitted to the host country.
9. The exception would be where a reduction in current interest rates, by reducing the probability of default, would increase the present value of lenders' claims.
10. Price-level-linked financing locks in a real interest rate, but inflation-adjusted nominal financing does not.
11. Floating-rate borrowing, in fact, is likely to be more perverse since debt service will be greatest when nominal rates are highest, which is likely to coincide with periods of economic distress for developing countries.
12. Unpublished results provided by Vihang Errunza of McGill University.
13. This is equivalent to assuming that the country has a greater degree of risk aversion than the representative capital market agent.
14. To the extent that this diversification requires that a majority of risky assets be owned by foreign interests, the governance of these assets might be called into question. See Lessard (1988) for more on this point.
15. For a discussion of the nature and effects of country risk on general obligations, see Eaton, Gersovitz, and Stiglitz (1986). Lessard (1988) extends the analysis to alternative modes of finance.
16. There is an important difference between linking a claim to a specified outcome such as export proceeds and pledging such proceeds to back a noncontingent claim. Pledging assets presents the borrower with the worst of both worlds: the revenues of successful projects are encumbered and so not fully available to the national treasury, whereas unsuccessful projects represent a drain on the treasury. To set aside substantial components of foreign exchange earnings reduces a government's flexibility in difficult times and thereby reduces its overall creditworthiness.
17. A securities market is required as well. But the "market" could be in a developed country, not where the firm is domiciled.
18. Even when portfolio equity is attracted by an offshore listing of a local firm's shares, the accounting and governance requirements of listings in major markets are likely to increase the quality of disclosure. But this mode may also divert trading volume to foreign markets, thus reducing the scale and depth of domestic institutions.
19. See Krugman (forthcoming) for a discussion of financing and forgiving.
20. This concept was first applied to the debt issue by Krugman (forthcoming) and subsequently has been elaborated by Krugman (1988), Froot (1989), and Claessens and Diwan (in this volume).
21. See for instance Eaton (1987).
22. Krugman's (1988) example would suggest that this would not happen. He assumes, however, that a country is badly "overhung" to the point that it uses all of its foreign exchange even in good periods. If one assumes there is headroom in good periods, Pareto-efficient recontracting will be possible.
23. This point parallels the debate on the benefits of buybacks, with added gains resulting from efficient recontracting. For differing views on the benefits to borrowers of buybacks, from most pessimistic to most optimistic, see Bulow

and Rogoff (1988), Krugman (1988), Dooley (1988), and Williamson (1988).

24. Elhanan Helpman's (forthcoming) negative conclusion on debt-equity exchanges is, in part, because of his assumption that they create new claims that are, de facto, senior to general obligations. The common argument that a country should not adopt "dual exchange rates" for some investments overlooks that the debt overhang is not neutral in its impact on the value of different types of obligations, and that the same factors that lead to a discount on the existing debt may justify a similar discount on other claims subject to the same country risk.

25. The profitability of such investments will depend on world energy prices and local levels of aggregate activity. It usually will be efficient to shift risks tied to aggregate output to foreign investors. Thus the desirability of international risk sharing will depend primarily on the country's net exposure to energy prices.

26. Several such proposals have been made within the IFIs in recent months.

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Comment

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Lessard has provided a very useful classification of debt instruments and of criteria to compare them. I count five types of instruments in his discussion: (1) general- (non-

contingent) obligation finance, (2) equity finance, (3) portfolio investment in equities, (4) quasi-equity project lending, and (5) general- (contingent) obligation finance. He also discusses repatriation of flight capital, although this is not so much an additional form of debt finance as

an alternative. The issue remains as to what form of investment (among these five or others) repatriated capital would take.

There are also five criteria by which Lessard evaluates these instruments: (1) the distortions that they impose, (2) term compatibility, (3) sharing of (exogenous) risks, (4) "penetration," and (5) enforceability.

The rows in the matrix in table 17C-1 correspond to different instruments and the columns to different criteria. A "+" indicates where the corresponding instrument performs well according to the appropriate criteria and "-" where it performs poorly. Blanks indicate no strong presumption or my lack of opinion. Although Lessard provides adequate definitions of these terms, I would like to elaborate upon distortions and risk.

A major distortion imposed by general-obligation finance is the implied burden on the central government's fiscal system. One cost is the excess burden of the taxes necessary to service the debt. A potentially more serious cost is that tax obligations implied by the outstanding debt can discourage investment if mobile factors, like capital, form the tax base.¹ The evidence on capital flight and currency substitution, along with the propensity of middle-income debtors to finance by inflation, suggests that this effect may be a major burden imposed by current debt.

A desirable feature of any instrument used to transfer capital to developing countries in the future, then, is that repayment not require taxation. General-obligation finance scores lowest on these grounds, while equity finance and portfolio investment in equities do best. Quasi-equity project lending is less clear. In principle, the project itself is meant to raise revenue for repayment. But since endogenous government policies can affect what revenue is available, the central government is likely to be viewed as the ultimate guarantor of the debt. The experience of ex-post debt nationalization in Chile and elsewhere suggests that almost any type of foreign investment can wind up as an obligation of the central government.

While the lending that took place in the 1970s and early 1980s would probably be less of a burden now if it had not been general-obligation finance, debt-equity swaps can alleviate the problem only to the extent that

they reduce outstanding government indebtedness. Designing swaps that reduce total government debt remains a problem.

In assessing risk sharing provided by an investment, it is important to distinguish between exogenous and endogenous sources of risk. The first arise from sources beyond the control of either lender or borrower, such as weather and international commodity prices. A desirable investment shares such risks optimally between lender and borrower, which in most cases means that most will be borne by the lender. But much of the risk associated with foreign investment arises from endogenous sources of risk: whether the recipient will pay or pursue policies that facilitate repayment. Unfortunately, the more successfully a particular instrument succeeds in allocating exogenous risks optimally, the more likely it is to create sources of endogenous risk.

The desirability of repatriating flight capital depends on which sources of risk are more important. A sanguine view of the extensive two-way movements of capital that characterize middle-income debtors is that they have transferred country-specific sources of risk to foreign investors. In other words, capital flight is the manifestation of standard portfolio diversification. But a more pessimistic view is that capital flight has transferred the risk of default from national creditors to foreigners. Since servicing government debt now implies a transfer to foreigners rather than to nationals, citizens are less inspired to support policies that facilitate repayment.

Repatriation of flight capital scores poorly in allocating exogenous risk but does well according to the enforceability criterion.² In fact, recent data suggest that, for middle-income debtors, the debt crisis is not a crisis of net debt at all, but a crisis of disintermediation. Domestic savings have been invested abroad where they escape the tax base of the government and have been replaced by foreign investment. According to this interpretation, repatriating flight capital—that is, reintermediating the debtor's economy—is the key to the solution. The propensity of middle-income problem debtors to tax domestic intermediation heavily is a major obstacle.

Given that the sources of transfer risk are largely endogenous, I am troubled by Lessard's call for greater

Table 17C-1. *Evaluation Criteria for Debt Instruments*

<i>Instrument</i>	<i>Distortion-free</i>	<i>Term compatibility</i>	<i>Sharing of exogenous risk</i>	<i>Lack of penetration</i>	<i>Enforceability</i>
General noncontingent finance	-	-	-	+	-
Equity	+	+	+	-	
Portfolio investment in equities	+	+	+		
Quasi-equity project lending		+	+		-
General contingent finance	-	+	+	-	
Repatriation of flight capital			-	+	+

provision of loan guarantees by international financial institutions. What aspect of these institutions “make them ideal for bearing and mitigating transfer risk,” as he claims? Why are they better at enforcing debt contracts? A danger is that any expansion of guarantees provided by these institutions will invite the same problems of moral hazard as the deposit insurance provided in the United States by the Federal Home Loan Insurance Corporation, with the same consequences. It seems that, even without official guarantees, private investors did a very poor job in the 1970s and early 1980s of assessing the risks involved in sovereign lending. Providing explicit guarantees removes an incentive to assess these risks more carefully.

Notes

1. Say the government owes R and imposes a proportional tax on capital to finance repayment. Output is $F(K)$, and the marginal product of capital is $F'(K)$, diminishing in K . If the tax rate on capital is t , then $R = tK$, meaning that the after-tax return on capital is $F'(K) - R/K$. Say that capital abroad earns r and escapes taxation. Even if $F'(K)$ has standard properties,

there may be two values of K for which $F'(K) - R/K = r$. Even though investors might earn a competitive after-tax return if there is enough investment to spread the tax burden widely, a coordination problem could emerge. If no one else invests, then a single investor would have to bear a large amount of the burden of servicing debt. See Eaton (1987) and Eaton and Gersovitz (forthcoming).

2. But Khan and Haque (1985) argue that domestic investments by nationals are more subject to sovereign risk than domestic investments by foreigners. If so, foreign sources of capital perform better according to the enforceability criterion.

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The world debt crisis of the 1980s, soon to drag into the 1990s, has launched a constellation of competing claims and conflicting alternatives. From 1986 to 1988 more than \$100 billion in resources were transferred from the highly indebted countries to creditors in the industrial countries. By the end of 1989 the burden of the highly indebted countries will have reached about \$500 billion, and debt service will consume almost a quarter of their export earnings.

In January 1989 the World Bank organized a symposium that brought together a large number of development and financial practitioners and academics to discuss the behavior of the debtors, creditors, and the international community and the possible contribution of each to resolving the debt crisis. The eighteen chapters in this volume cover many aspects of the issue, with special emphasis on the relations among indebtedness, macroeconomic management, and growth and on the need for debt reduction. Subjects treated include the constraints on, and scope for, action; the relative merits of various mechanisms to reduce debt; and the ways to strengthen the debt reduction process. Several chapters analyze the implications of the recently announced Brady Initiative on the debt and debt-servicing reduction for the highly indebted countries—a topical issue of great current interest.

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