JEFFREY SACHS
Harvard University
HARRY HUIZINGA
Harvard University

U.S. Commercial Banks and the Developing-Country Debt Crisis

THE DEBT CRISIS of the less developed countries broke out in August 1982, with the announcement by Mexico that it would be unable to meet debt obligations then falling due. Since then, more than forty developing countries have been forced to reschedule debts with commercial bank creditors and to seek additional lending and other forms of relief from the international financial community.[1] From the inception of the debt crisis, the primary U.S. concern has been the risks to the major U.S. commercial banks, whose exposure in the developing countries has significantly exceeded their total bank capital.

Table 1 shows the exposure of the U.S. banks in the major debtor countries at the end of 1986. The exposure is divided by size of bank (the nine largest banks, as against the rest of the U.S. banks) and by type of claim (on the public sector, as against the private sector). The concentration of the claims is high: the exposure of the top nine banks in just the top four countries, Argentina, Brazil, Mexico, and Venezuela, accounts for $41 billion, or 45 percent of total U.S. bank exposure shown in the table. The top nine banks account for a remarkable 65 percent of total exposure of U.S. banks in Latin America. Sovereign loans, those to foreign public sector borrowers, account for about two-thirds of U.S. bank lending to the less developed countries (LDCs).[2]

1. See Jeffrey Sachs, "Managing the LDC Debt Crisis," *BPEA, 2:1986*, pp. 397–431, for an overview of the debt crisis and the management of the crisis by the creditor countries.

2. To give an idea of the global distribution of bank claims in the problem debtor countries, Latin America has about $200 billion of bank debt outstanding, of which about $75 billion is owed to U.S. banks, $30 billion to Japanese banks (with $13 billion in Mexico

Table 1. Claims of U.S. Banks in the LDC Debtor Countries, End-1986
Millions of dollars except as noted

Country	*Claims of top nine banks*		*Claims of all other banks*		*Secondary market*	
	Public	*Other*	*Public*	*Other*	*Bid price*[a] *(dollars)*	*Value of all public debt*
Argentina	3,961	1,967	1,677	919	47.0	2,650
Bolivia	41	2	34	19	10.0	8
Brazil	10,176	5,183	3,822	3,229	55.0	7,699
Chile	2,850	1,296	1,097	1,219	67.0	2,644
Colombia	968	560	236	384	81.0	975
Costa Rica	204	10	169	33	33.0	123
Dominican Republic	286	35	78	28	42.0	153
Ecuador	1,161	197	712	101	45.0	843
Gabon	34	10	3	0	82.0	30
Guatemala	28	7	14	30	72.0	30
Honduras	84	19	33	38	38.0	44
Ivory Coast	217	57	74	17	60.0	175
Jamaica	158	13	24	9	37.0	67
Liberia	24	493	5	126	5.0	1
Malawi	25	12	1	4	74.0	19
Mexico	8,960	4,393	5,571	4,732	53.0	7,701
Morocco	405	282	65	140	65.5	308
Nicaragua	17	8	41	0	5.0	3
Nigeria	404	263	144	92	28.0	153
Panama	261	1,117	114	701	64.0	240
Peru	511	307	383	145	11.0	98
Philippines	2,611	1,092	942	462	67.0	2,381
Poland	290	73	89	17	43.0	163
Romania	93	22	14	11	87.0	93
Senegal	20	2	6	0	61.0	16
Sudan	31	6	1	1	2.0	1
Uruguay	653	45	162	69	68.0	554
Venezuela	4,206	2,301	1,355	1,251	67.0	3,726
Yugoslavia	965	350	413	337	70.0	965
Zaire	8	4	1	0	24.5	2
Zambia	69	4	2	2	18.0	13
Total	39,721	20,131	17,282	14,116	. . .	31,878
Percent of capital	85	43	25	20	. . .	27

Sources: Federal Financial Institutions Examination Council, "Country Exposure Lending Survey: December 1986," Statistical release E-16 (126) (April 24, 1987); Salomon Brothers, Inc., *Indicative Prices for Less Developed Country Bank Loans* (July 27, 1987).

a. Bid price for a $100 claim on the secondary market as of July 1987.

and $10 billion in Brazil), $40 billion to U.K. banks, and the remaining $55 billion or so divided among German, French, Canadian, Swiss, and other banks. The estimate for Japan is from Japan Economic Institute, "Japan's Response to the LDC Debt Crisis," JEI Report 29A (July 31, 1987), and for the United Kingdom from Maxwell Watson and others, *International Capital Markets: Developments and Prospects, 1986,* Occasional Paper 43 (International Monetary Fund, December 1986).

The debt management strategy pursued by the United States and the official financial community since 1982 has been geared toward the protection of the large commercial banks, at least on a short-run accounting basis.[3] U.S. policy has been to maintain current interest servicing by the debtor countries to the U.S. banks and to avoid any explicit debt forgiveness or even capitalization of interest payments.[4] U.S. regulators have applied lax prudential standards to banks with large LDC exposures, allowing them to carry almost all such exposure on the books at face value, though its value on the secondary market is heavily discounted. Banks have also been allowed to count as current income all the interest payments they receive on the loans, even those payments made possible only by new "involuntary" loans to the debtor country.

By acting as if all is normal, the regulators have hoped to accomplish three things: to keep the debtor countries from halting interest payments or promoting alternative proposals for debt forgiveness; to keep the banks from withdrawing precipitously from the debtor countries; and to keep depositors and other creditors of the banks from withdrawing precipitously from the banks. In a limited sense that strategy has worked. Worst-case scenarios of financial panic have been avoided, and the banks have been given time to increase their capital ratios. U.S. bank exposure in the problem debtor countries as a percentage of the book value of primary capital has declined significantly since 1982, as shown in table 2. The regulatory laxness may, however, have hindered the adjustment of the U.S. banks to the crisis by allowing them to move slowly in rebuilding their capital base. Some banks have paid unduly large dividends at the expense of their capital in recent years, because they have been allowed to overstate their economic incomes.

However well the regulatory treatment has papered over the crisis, it has not solved it. Nor has it hidden that fact from the debtors, the banks, or the marketplace. Despite the official optimism of the United States and the creditor community regarding the debt crisis and despite the seemingly relaxed attitudes of the U.S. regulators, most market participants have conceded that much of the LDC debt will not be repaid. A

3. See Sachs, "Managing the LDC Debt Crisis."

4. Debt forgiveness refers to any restructuring of the debt that reduces the expected discounted value of future payments. Interest capitalization refers to any scheme by which a portion of interest due is automatically relent to the debtor for later payment. Interest capitalization is distinguished from "involuntary lending" packages, in which loans are made on an ad hoc basis so that the country can finance some of the interest due.

Table 2. Exposure in the Debtor Countries as a Percentage of Bank Capital, Various Periods, 1982–86[a]

Region	*End-1982*	*Mid-1984*	*End-1986*
		All U.S. banks	
All LDCs	186.5	156.6	94.8
Latin America	118.8	102.5	68.0
Africa	10.2	7.7	3.2
		Nine major banks	
All LDCs	287.7	246.3	153.9
Latin America	176.5	157.8	110.2
Africa	19.3	14.3	6.0
		All other banks	
All LDCs	116.0	96.1	55.0
Latin America	78.6	65.2	39.7
Africa	3.8	3.3	1.3
Addendum			
Total bank capital (billions of dollars)			
All U.S. banks	70.6	84.7	116.1
Nine major banks	29.0	34.1	46.7
All other banks	41.6	50.6	69.4

Source: Federal Financial Institutions Examination Council, "Country Exposure Lending Survey," April 25, 1983, October 15, 1984, and April 24, 1987, issues.

a. Exposures are total amounts owed to U.S. banks after adjustments for guarantees and external borrowing. Total exposures are calculated for all LDCs (OPEC, nonoil Latin America, nonoil Asia, nonoil Africa); Latin America (nonoil Latin America plus Ecuador and Venezuela); and Africa (nonoil Africa plus Algeria, Gabon, Libya, and Nigeria).

good indicator of long-term expectations regarding LDC claims is the price of those claims on the secondary market. Column 5 of table 1 records the secondary bid price for a $100 claim, as of July 1987. The price for claims on Argentina, Brazil, and Mexico is in the range of $45–$55. The average price for the entire U.S. bank portfolio, weighted by exposure in the various countries, is $55.90 per $100 claim. The $57 billion of U.S. bank exposure to foreign governments in table 1 has a secondary market value of $31.9 billion.[5]

5. Since the analysis in this paper was completed, the secondary market prices have fallen further for most of the debtor countries. As of October 6, 1987, Salomon Brothers quoted the following prices for the largest countries: Argentina, 34; Brazil, 38; Mexico, 47; and the Philippines, 55. Some of the reasons for the further drop between July and October 1987 include: the toughening of the Brazilian negotiating position in the fall of 1987 (including Brazil's call for a major conversion of debt to exit bonds at below-market interest rates); the Peronist electoral victory in Argentina in September 1987; the political instability in the Philippines; and the sharp rise in U.S.-denominated interest rates.

Although many bankers and U.S. administration spokesmen try to argue that the secondary market price of U.S. debt is a poor guide to more general market sentiments concerning the LDC debt, stock market prices of the commercial banks closely reflect the secondary market valuation of the LDC exposure. As pessimism has grown over the value of the LDC claims in banks' portfolios, equity prices of banks have dropped.[6]

The fact that stock market prices have been discounted helps to explain the current eagerness of banks to sell their LDC exposures at a discount, since they can accept a capital loss in the books without further depressing their market value. Citicorp's decision this past spring to increase its loan loss reserves against Latin American exposure (an action that was followed by the other major banks in the United States and abroad) appears to be a prelude to a policy of selling off the LDC exposure at a significant discount. As we discuss later, this new policy of selling off debt may have important implications for public policy in this area.

We organize our discussion of these developments in the following manner. First, we briefly consider the underlying causes of the growing market discount on the LDC debt. Then we turn to an analysis of how the banks and regulators have responded to the crisis since 1982. Next, we examine the evidence that the stock market is now valuing the LDC debt at the substantial discounts reflected in the secondary market. Finally, we explore the implications of the market discount for the future of debt negotiations and for debt relief.

Why the LDC Debt Sells at a Discount

The shortcomings of the current U.S. debt management strategy have not gone unnoticed. In a 1986 study Sachs pointed out that most of the optimistic assessments of the debt crisis ignored the internal economic dislocations caused by the large debt overhang.[7] Most optimistic observ-

6. An initial attempt to analyze the links of stock market prices and LDC debt was carried out by Steven Kyle and Jeffrey Sachs, "Developing Country Debt and the Market Value of Large Commercial Banks," Working Paper 1470 (National Bureau of Economic Research, September 1984). That study, which used data through 1983:3, also found a significant negative effect of LDC exposure on bank share prices.

7. See Sachs, "Managing the LDC Debt Crisis."

ers have viewed the debtor countries' problem purely in terms of external parameters such as OECD growth, world interest rates, and global commodities prices. They have failed to take account of the economic and political disarray within the debtor countries that has resulted from, or has at least been greatly aggravated by, the debt crisis: low rates of national saving and investment, large budget deficits, and recourse to inflationary finance.[8]

Most of the LDC debtors have little real prospect of servicing the interest due on their external debt in the next few years. In the past five years, they have made significant net resource transfers to the creditors. Latin America, for example, has transferred about 5 percent of GNP per year. But despite these transfers, the debt-export ratios of the major debtor countries have risen, not fallen. (See table 3.)

Recent increases in certain primary commodity prices, apparently in a lagged response to the depreciation of the dollar, gave rise to hope that the export prospects of the LDCs would improve. Ironically, however, most of the price increases have been for nonfood primary commodities produced mainly in the developed countries or in the Asian developing countries, most of which are not in crisis.[9] The prices for sugar, wheat, beef, coffee, and cacao, the main Latin American commodity exports, continue to be deeply depressed. Moreover, international interest rates have risen significantly during 1987.

Many of the major debtor countries are in fiscal turmoil, even after sharp cuts in government spending in recent years. The interest due on the foreign debt constitutes such a large proportion of government expenditures (around 30 percent in many of the debtor countries) that it stands in the way of budgetary reform.[10] The voters in the new democracies in Latin America are not content to absorb further fiscal austerity

8. Of course, many of these problems predated the debt crisis and indeed contributed to the onset of crisis, a point stressed in Jeffrey D. Sachs, "External Debt and Macroeconomic Performance in Latin America and East Asia," *BPEA, 2:1985,* pp. 523–64. In most cases, the excessive budgetary deficits reflect deep social and political divisions within the debtor countries that have been exacerbated by the need to service a heavy foreign debt burden.

9. In Latin America, Chile has been the main beneficiary of the rise in metals prices, since copper accounts for more than 40 percent of Chile's merchandise exports. Copper prices have risen from an average of 64¢ per pound in 1985 to a price of 91¢ per pound in October 1987.

10. For a discussion of the budgetary burden resulting from the foreign debt, see Helmut Reisen and Axel Van Trotsenburg, "The Budgetary and Transfer Problem of

Table 3. Ratio of External Debt to Exports, 1982, 1984, 1986, and 1987[a]
Percent

Country	*1982*	*1984*	*1986*	*1987*[b]
Argentina	405	461	536	554
Brazil	339	322	425	471
Chile	333	402	402	370
Colombia	191	254	198	235
Ecuador	239	259	333	464
Mexico	299	292	413	366
Nigeria	84	158	300	310
Peru	269	356	497	551
Philippines	269	309	308	309
Venezuela	84	158	322	278
Total	264	290	385	385

Source: Morgan Guaranty Trust Company of New York, *World Financial Markets* (June–July 1987), p. 4, table 6.

a. The debt-export ratio is the average gross external debt as a percentage of exports of goods, services, and private transfers.

b. Projections.

for the sake of foreign creditors. The recent rise in interest rates will intensify the fiscal pressures. The large fiscal deficits are now being financed in large part through an expansion of credit by the central banks, a process that will result in high inflation. For several years, inflation has been at triple-digit annual rates in Argentina, Brazil, and Peru. It topped a 150 percent annual rate in the spring and summer of 1987 in Mexico. The 20,000 percent hyperinflation in Bolivia was brought under control only after Bolivia stopped all interest payments on the external bank debt.

One result of the internal economic disarray has been a burgeoning of unilateral actions on the debt, particularly in the democratic countries in Latin America. Bolivia, Brazil, Costa Rica, the Dominican Republic, Ecuador, Honduras, and Peru have all unilaterally suspended part or all of the interest servicing on their foreign debt in the past two years. In Argentina and Mexico, the two major debtor countries that have not suspended, the banks found it necessary in 1987 to relend much of the interest due in order to forestall a unilateral suspension of payments.

Major Debtor Countries" (Paris: OECD Development Centre, 1987), and Jeffrey Sachs, "Trade and Exchange Rate Policies in Growth-Oriented Adjustment Programs," Working Paper 2552 (National Bureau of Economic Research, April 1987).

Mexico received approximately $6 billion in bank credits, and Argentina recently signed an agreement for $2 billion in new bank credits.[11]

Three other large debtors, Chile, the Philippines, and Venezuela, have been servicing their debts recently without substantial refinancing of interest. Chile, of course, is not so much a model debtor country as a model authoritarian country whose government can impose the requisite domestic austerity to make it possible to service the debt.[12] In the Philippines, internal instability at first prevented the Aquino government from taking a tough stand with creditors. The government therefore signed a rescheduling agreement in 1987 with no concerted lending from the banks.[13] But there is now a good chance that a unilateral partial suspension of debt servicing will be declared by the Philippine Congress. In Venezuela, as well, the government is under fierce political pressure to abandon its recent debt rescheduling agreement. Even the government's own political party has called for reopening negotiations to achieve debt relief.

In debt agreements negotiated in the past year, the banks have lost ground. In the first round of reschedulings, in 1983, debt was recontracted with an interest rate spread of about 2 percentage points over LIBOR (the London Interbank Offered Rate). In the second round of reschedulings, in 1984–85, the spread fell to about 1.2 percentage points. In the recent round, the spread has fallen further, to less than 1 percentage point. Similarly, commissions have declined, and the maturities and grace periods on the rescheduled debts have also increased.[14]

11. These amounts correspond to approximately one year's interest payments on medium- and long-term sovereign debt.

12. Moreover, the banks more than fully refinanced Chile's interest payments during 1983–84 (that is, the "concerted lending" to Chile in 1983–84 exceeded Chile's interest payments), so that Chile actually received a net resource transfer from the commercial banks as late as 1984. Interestingly, concerted lending to Chile has been more generous on average (when the new lending is measured as a ratio to the existing debt) during 1983–86 than has concerted lending to any other problem debtor country.

13. In her speech upon the opening of the Philippine Congress, President Aquino declared, "We cannot help but feel our foreign creditors took undue and unfair advantage of the internal differences we had with factions intent on subverting this Government and destroying our democracy." (As quoted in the *Financial Times,* July 28, 1987.) The first act of both houses of the new Philippine Congress was to call for an investigation into the foreign debt.

14. See Watson, *International Capital Markets, 1986,* for details on spreads and maturities in debt reschedulings through 1986. See "The Risk Game: A Survey of International Banking," *Economist* (March 21–27, 1987), p. 18, for an update.

It is thus not difficult to understand the growing discount on LDC paper in the secondary market. The economies in most cases are not getting better, and the countries are increasingly demanding more concessions in reflection of that reality. Moreover, the international macroeconomic environment, particularly regarding interest rates and commodity prices, remains unsatisfactory. Detailed price quotations on the secondary market have been available only for the past year, with several investment banks now circulating price sheets, but all indications are that the discount has been growing and the prices falling over the past few years, as shown in table 4.

On a cross-country basis, the discount on the LDC debt, denoted *Price,* can be explained as a function of four variables: the debt-GNP ratio, *D/GNP* (the debt-export ratio works about as well); the rate of real GNP growth between 1980 and 1985, *GNPGROWTH;* a dummy variable, *SUSP,* indicating whether the country has unilaterally suspended debt service payments; and a dummy variable, *ATRR,* indicating whether U.S. bank regulators have mandated an allocated reserve, that is, a write-down, for the country's assets on the books of the U.S. banks. The following simple regression model accounts well for the secondary market prices as of July 1987. Numbers in parentheses are *t*-statistics.

$$\begin{aligned} Price = {} & 77.2 - 9.6\ ATRR - 17.2\ SUSP - 0.15\ D/GNP \\ & (16.3) \quad (1.2) \qquad (6.3) \qquad (2.7) \\ & + 2.2\ GNPGROWTH, \\ & (2.2) \end{aligned}$$

$R^2 = 0.84$; 28 observations.

The dummy variable *SUSP* equals 1 if the country suspended interest payments in 1987, and 2 if the country suspended interest payments before 1987 and is still in suspension. According to the equation, a \$100 claim on a debt-free LDC with 6 percent annual growth would command a secondary market price of \$90.40 [\$77.20 + (6 × 2.2)]. On the other hand, a country like Bolivia, with a debt-GNP ratio of 136.8, real GNP growth of −4.5 percent a year, a required write-off for U.S. banks (*ATRR* = 1), and more than two years in debt suspension (*SUSP* = 2), has a predicted price of \$2.78 [\$77.20 − 9.6 − (17.2 × 2) − (0.15 × 136.8) − (2.2 × 4.5)], compared with an actual price of \$10.

A key problem with interpreting the secondary market prices involves

Table 4. Secondary Market Bid Prices for LDC Debt, Various Periods, November 1985–October 1987[a]

Dollars

Country	*November 1985*	*August 1986*	*April 1987*	*July 1987*	*October 1987*
Argentina	n.a.	66	60	47	34
Brazil	75–83	76	63	55	38
Mexico	78–82	56	59	53	47
Peru	32–36	n.a.	17	11	5
Ecuador	n.a.	65	56	45	30

Sources: November 1985, from *Economist* (16 November 1985); August 1986, from *Euromoney* (August 1986), p. 71; 1987 figures from Salomon Brothers, Inc., *Indicative Prices for Less Developed Country Bank Loans* (April 20, 1987; July 20, 1987; and October 6, 1987).

n.a. Not available.

a. Figures are the bid price for a $100 claim on the secondary market.

the role of *SUSP*. On its face, the pricing equation suggests that a country can manipulate the secondary market price of its debt by suspending debt servicing. To the extent that debt service relief is then tied to the secondary market price of debt, as in some of the relief proposals discussed later, there might be the moral hazard problem of countries unilaterally suspending debt payment as a strategic maneuver to benefit from relief. The moral hazard argument is overdrawn, however, to the extent that *SUSP* is proxying for other country characteristics that make debt servicing particularly difficult for that country: political instability, adverse export structure, financial collapse, and so forth. In that case, *SUSP* is simply another indicator of "ability to pay," rather than a manipulable strategic variable.

Patterns of Debt Management by the Banks and Bank Regulators

In response to the debt crisis, U.S. banks have virtually stopped making new loans to the problem debtor countries, with the little new lending that remains being confined to specific bailout packages. Bank earnings, for the most part, did not suffer until 1987, when banks set aside reserves to cover possible losses on LDC claims. Under pressure from regulators, the banks increased their primary capital base and thereby reduced the ratio of LDC exposure to capital.

BANK EXPOSURE IN THE LDCS

The change in bank lending is illustrated in table 5. Although the widely publicized negotiated loan agreements are termed "new money" packages, U.S. bank exposure to the problem debtor countries fell in absolute dollar amount during 1982–86, after rising rapidly during 1979–82. The absolute decline in lending belies the myth that the banks have continued throughout the crisis to provide net "new money" to the debtor countries, though at a reduced rate of increase. The widely publicized concerted lending agreements in recent years have been loans to governments. As table 5 shows, claims on the public sector rose 53 percent during 1982–86. But claims on the private sector declined 48 percent. At the same time that the banks have been providing "new money" to governments, they have been withdrawing loans from the private sector. Three other factors can also account for the differential growth in claims on the public and private sectors. To some extent, private sector debts have become public sector debts as governments have taken over some of the foreign obligations of the private sector since the beginning of the debt crisis. Secondly, the decline in exposures to the private sector represents, in part, a write-off of claims on the private sector, rather than an amortization of loans. Third, declines in exposure also reflect sales by the banks of their LDC claims, or declines due to debt-equity swaps. Given the published data it is impossible to distinguish changes in exposure due to new loans, amortizations, write-offs, sales, swaps, or public sector assumptions of private sector debt.

The notion of "new money" is also misleading because most "new money" packages after 1982 have involved considerably less in new loans than is due to the same creditors in interest. Thus, even when Mexico or Argentina gets a so-called new loan after months of hair-raising negotiations, the check is still written by the debtor government to the commercial bank. Technically, the net resource transfer (equal to new lending net of amortizations and interest payments) to the debtors is negative. These negative net resource transfers point up one of the fallacies in a popular argument against LDC default—that if a country defaults, it will be not be able to attract new bank money. Losing new money will be of little concern to a debtor country if the reduction in

Table 5. Changes in Bank Loan Exposure, 1979–86

Country	*Percentage change in exposure, 1979–82*			*Percentage change in exposure, 1982–86*		
	Total	*Public*	*Private*	*Total*	*Public*	*Private*
Argentina	71	165	41	4	84	−44
Bolivia	−31	−8	−54	−75	−70	−84
Brazil	50	78	38	10	92	−36
Chile	147	17	226	6	267	−50
Colombia	47	83	35	−33	19	−57
Costa Rica	−12	27	−35	−16	42	−81
Dominican Republic	33	10	65	−15	49	−75
Ecuador	29	22	33	7	147	−77
Gabon	−33	−35	2	−72	−76	−30
Guatemala	−47	57	−54	−60	27	−75
Honduras	−34	30	−57	−9	17	−38
Ivory Coast	46	42	63	−43	−41	−50
Jamaica	11	8	19	−22	−05	−68
Liberia	−16	−43	−15	−67	−55	−67
Malawi	−20	−41	46	−54	−49	−61
Mexico	113	131	102	−3	50	−38
Morocco	15	−23	121	18	27	9
Nicaragua	−2	70	−76	−84	−84	−84
Nigeria	149	54	501	−51	−39	−63
Panama	31	485	24	−61	−3	−65
Peru	82	27	139	−47	−2	−72
Philippines	43	99	18	−11	45	−53
Poland	−18	13	−33	−69	−44	−89
Romania	−31	−28	−34	−50	−15	−79
Senegal	−1	−35	251	−62	−38	−94
Sudan	8	28	−56	−82	−83	−67
Uruguay	230	492	65	1	28	−59
Venezuela	34	28	38	−21	15	−47
Yugoslavia	−71	−85	−64	−11	250	−64
Zaire	−39	−37	−73	−91	−94	21
Zambia	25	−11	231	−60	−39	−92
Overall exposure	42	52	36	−12	53	−48

Sources: Federal Financial Institutions Examination Council, "Country Exposure Lending Survey," various issues.

interest payments achieved by default exceeds the new money that the country is able to borrow by not defaulting.

The pattern of concerted lending packages among the debtor governments also illustrates the venerable economic adage, "If you owe your bank £100, you're in trouble; if you owe your bank £1,000,000, then he's

in trouble." Very systematically, it is the countries with large debts that have been able to bargain for new lending from the banks. This is evident from the data in table 6. For each country, we measure the size of concerted loans in year t, CL_t, as a proportion of disbursed debt at the end of year $t - 1$, D_{t-1}. On average, the ratio CL_t/D_{t-1} is far higher for the large debtors, Argentina, Brazil, Chile, and Mexico, than for the rest. Venezuela is a significant exception to this rule, since the current Venezuelan administration has, curiously, never tried to bargain for new money. To summarize the data in table 6, the fifteen small debtor countries in the table had 3.4 percent of the debt at the end of 1983, but received only 0.3 of the concerted loans during 1986.

BANK EARNINGS

Ironically, during 1982–86 the debt crisis did not have a serious adverse effect on the reported current *earnings* of the banks, even though it called into question their very solvency. While doubts grew about the long-term willingness of the debtor countries to service their debts and while principal repayments were postponed for many years in the course of reschedulings, most LDCs continued to service the interest due, though sometimes only after the banks loaned them some of the money to do so. Even when interest payments were clearly tied to new loans, the bank regulators allowed the banks to report the interest received in full as current income, rather than, for example, requiring that part of the interest be allocated to loan loss reserves, and therefore not be counted as current income.

As shown in table 7, reported net income rose between 1980 and 1986 for all of the nine major banks, with the conspicuous exception of BankAmerica, which suffered major losses on its domestic loan portfolio. In some cases the measured income was even enhanced by the crisis, because in 1983 and 1984 many of the rescheduling agreements involved significant front-end fees and an increase in the interest rate spreads built into the loan agreements. As table 8 shows, the share of LDC assets on a nonaccrual basis at the end of 1986 is only slightly higher than the ratio of domestic loans on a nonaccrual basis.[15]

15. Nonaccrual loans are loans in which interest servicing is behind schedule or sufficiently sporadic so that interest is credited to the bank only as it is received (that is, on a cash basis), rather than the more typical procedure of crediting interest as it accrues.

Table 6. Medium-Term Concerted Lending as a Percentage of Debt Outstanding from Private Financial Institutions, 1983–86

Percent

Country	*1983*	*1984*	*1985*	*1986*	*Average, 1983–86*
Argentina[a]	12	18	0	0	8
Bolivia	0	0	0	0	0
Brazil	11	14	0	0	6
Chile	35	16	9	0	15
Colombia	0	0	29	0	7
Congo	0	0	0	9	2
Costa Rica	0	0	0	0	0
Dominican Republic	0	0	0	0	0
Ecuador	20	0	0	0	5
Gabon	0	0	0	0	0
Guatemala	0	0	0	0	0
Honduras	0	0	0	0	0
Ivory Coast	0	0	4	0	1
Jamaica	0	0	0	0	0
Liberia	0	0	0	0	0
Madagascar	0	0	0	0	0
Malawi	0	0	0	0	0
Mexico	11	6	0	8	6
Morocco	0	0	0	0	0
Nicaragua	0	0	0	0	0
Nigeria	0	0	0	4	1
Panama	0	0	3	0	1
Peru	16	0	0	0	4
Philippines	0	18	0	0	5
Senegal	0	0	0	0	0
Sudan	0	0	0	0	0
Togo	0	0	0	0	0
Uruguay	18	0	0	0	5
Venezuela	0	0	0	0	0
Yugoslavia	41	0	0	0	10
Zaire	0	0	0	0	0
Zambia	0	0	0	0	0

Sources: Authors' calculations with data from World Bank, *World Debt Tables: External Debt of Developing Countries, 1986–1987* (World Bank, 1987); World Bank, *World Debt Tables, Second Supplement* (World Bank, 1987); and Maxwell Watson and others *International Capital Markets: Developments and Prospects, 1986,* Occasional Paper 43 (IMF, December 1986). For each year, we calculate the ratio of the concerted loan CL_t to the disbursed debt at time $t-1$, D_{t-1}.

a. In 1987 Argentina received a concerted loan amounting to 5 percent of its 1986 outstanding loans.

Table 7. Bank Reported Net Income, 1980–87
Millions of dollars

Bank	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*	*1986*	*1987*[a]
Citicorp	449	531	723	860	890	998	1058	−999
BankAmerica	643	445	390	391	346	337	−518	−929
Chase Manhattan	354	412	308	430	406	565	585	−832
Manufacturer's Hanover	229	252	295	337	353	408	411	−1103
J. P. Morgan	342	348	394	460	538	705	873	952
Chemical	174	205	241	301	341	390	402	−703
Security Pacific	181	206	234	264	291	323	386	112
First Interstate	225	236	221	247	276	313	338	−165
Bankers Trust	214	188	223	260	307	371	428	−151
First Chicago	63	119	137	184	86	169	276	−438

Sources: Compustat data base and Keefe, Bruyette, and Woods, Inc., *Keefe Nationwide Bankscan* (July 17, 1987).
a. Projected.

Table 8. Percentage of Bank Exposure to Latin America on Nonaccrual and Percentage of Other Bank Assets on Nonaccrual, End-1986[a]

Bank	*Latin debt*	*Other assets*
Citicorp	3.8	1.6
BankAmerica	6.1	3.6
Chase Manhattan	3.0	2.0
Manufacturer's Hanover	0.8	3.0
J. P. Morgan	1.8	0.8
Chemical	1.3	2.3
Security Pacific	1.6	1.9
First Interstate	4.4	1.7
Bankers Trust	3.5	1.5
First Chicago	2.4	2.1
Average	2.9	2.0

Source: Based on data from Salomon Brothers, *Review of Bankperformance, 1986* (Salomon Brothers, 1987).
a. Nonaccrual loans are loans in which interest is credited by the bank on a cash basis rather than as it accrues. Latin exposure includes loans to Argentina, Chile, Mexico, and Venezuela.

In assessing the effects of the debt crisis on measured earnings, one must draw a distinction between the bank claims on the public sector and those on the private sector. For the sovereign, or public sector, loans, the vast bulk of interest due has been paid on a timely basis. Among the major debtors before 1987, only Argentina fell behind on interest payments on sovereign debt, in 1984 and early 1985. Brazilian sovereign debt has been in suspension since February 20, 1987. By

contrast, private debtors in Argentina, Mexico, and Venezuela have had periods of fairly significant arrearages on their debt, though by the end of 1986 most of those arrearages had been eliminated. Also, an unknown proportion of the private debt has been lost forever in the form of firm-level bankruptcies or in debt workouts with the creditors at slightly concessionary rates.

Only in 1987 have the income statements of the banks begun to suffer, as some of the larger debtors, especially Brazil, have suspended interest payments and, more important, as banks have made significant additions to loan loss reserves. Because of loan loss provisions, the large U.S. banks posted losses of about $10 billion in the second quarter of 1987.

It is useful here to make clear the meaning of the recent additions to loan loss reserves by Citicorp and the other leading banks. Table 9 shows the size of the additions and the share of Latin American exposure that is now covered by the reserves. That share is calculated by subtracting all domestic nonperforming assets from the banks' total loan loss reserves. The net reserves are then compared with the exposure in Latin America. Citicorp's stated goal was to cover 25 percent of its Latin American exposure.

Since the loan loss reserves are "unallocated," that is, not tied to particular loans, or even to particular countries, they do not involve a write-down in value of particular assets. More obviously, they do not involve any forgiveness by the banks of any part of the debts owed by the developing countries. The increase in unallocated reserves reduces reported income of the banks, but it does not reduce taxable income. On the balance sheet, the increase is a transfer from shareholders' equity to loan loss reserves. It does not affect measured primary capital of the bank because U.S. bank regulators count loan loss reserves as part of primary capital.

The addition to reserves does not affect the cash flow of the banks. In that sense it is a cosmetic move only. In the future, if the banks write off some portion of their LDC exposure, either by selling the assets at a discount or by settling with the countries at below-market terms, they will be able to charge the losses to the loan reserves without any effect on reported income. At that point, however, the capital base of the bank would shrink, and the taxable earnings of the bank would fall in line with the write-off. Thus, by accepting large reported losses now, the banks will be better placed to report positive earnings in the future, even if the LDC loans go sour.

Table 9. Bank Loan Loss Reserves, Net and as a Percentage of Latin Exposure[a]
Millions of dollars except where noted

Bank	*Loan loss reserve, end-1986*	+	*Loan loss reserve addition, 1987*	−	*Domestic nonperforming assets*	=	*Net loan loss reserve*	*Net reserve as percentage of exposure to Latin four*
Citicorp	1,698		3,000		2,022		2,676	27
BankAmerica	2,172		1,100		3,148		124	2
Chase Manhattan	1,065		1,600		980		1,685	26
Manufacturer's Hanover	1,008		1,700		1,761		947	14
J. P. Morgan	910		0		316		594	14
Chemical	669		1,100		1,015		754	18
Security Pacific	729		500		1,132		97	7
First Interstate	536		750		1,238		48	4
Bankers Trust	591		700		526		765	28
Average	1,042		1,161		1,349		854	16

Sources: Authors' calculations with data from *New York Times*, July 2, 1987; Salomon Brothers, *Review of Bankperformance, 1986*.

a. Data on loan loss reserves are updated through July 2, 1987; all other data are for end-1986. Latin exposure includes loans to Argentina, Brazil, Mexico, and Venezuela.

CAPITAL ADEQUACY

Even before the debt crisis hit, U.S. bank regulators had judged that the capital-asset ratios of U.S. banks were insufficient. New regulations promulgated in the early 1980s called for a rise in the ratio of primary capital to total assets, from the prevailing low levels of about 4 percent to levels of 5.5 percent. Total capital (primary capital plus certain types of qualifying subordinated debt) was required to rise to 6 percent of total bank assets.

A vast literature on banking regulation has stressed the need for such prudential limits.[16] Banks are highly leveraged institutions, subject to the possibility of large fluctuations in net worth and also to various incentive problems. A small decrease in the average value of a bank's assets can dramatically reduce the bank's net worth and even drive the bank into bankruptcy.[17] Moreover, because banks are operating with borrowed funds and because most of those funds are insured by federal deposit insurance, bank managers may have the incentive to take

16. For a good discussion of the issues, see George J. Benston and others, *Perspectives on Safe & Sound Banking: Past, Present, and Future* (MIT Press, 1986).

17. Consider a bank that has deposits of $95, loans of $100, and primary capital (in this case equal to shareholder's equity) of $5. A 5 percent reduction in the value of the assets wipes out 100 percent of the bank capital.

Table 10. Bank Primary Capital as a Percentage of Total Assets, 1980–86

Bank	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*	*1986*
Citicorp	3.8	4.1	4.2	4.9	5.9	6.2	6.8
BankAmerica	4.0	3.9	4.3	5.1	5.8	6.1	6.9
Chase Manhattan	3.8	4.2	4.7	5.4	6.4	6.9	7.0
Manufacturer's Hanover	3.6	3.8	4.6	5.0	5.7	6.3	7.2
J. P. Morgan	4.7	5.1	5.6	6.9	7.0	8.0	8.3
Chemical	3.7	3.9	5.0	5.5	6.3	7.0	7.2
Security Pacific	4.9	4.7	4.9	5.3	5.8	6.4	6.4
First Interstate	5.1	5.0	5.0	5.8	6.1	6.2	6.1
Bankers Trust	3.5	4.0	4.5	5.6	6.2	6.4	6.5
First Chicago	4.7	4.3	5.0	5.6	6.1	7.2	8.3
Average	4.2	4.3	4.8	5.5	6.1	6.7	7.1

Source: Salomon Brothers, *Review of Bankperformance*, various editions.

excessive gambles if bank capital is too low a share of total assets. If the gamble goes well, the shareholders enjoy an enormous proportional return to their claims. If the gamble goes poorly, the shareholders lose only the small amount of the net worth, and the deposit insurance institution must make up the difference to the depositors.

Another aspect of prudential supervision, one that was obviously overlooked in the 1970s and early 1980s, is the requirement that the bank not commit more than 15 percent of its capital in loans to any borrower. In fact, the loans to the Brazilian government and to the Mexican government greatly exceeded 15 percent of capital for many of the large U.S. banks, but the rule was not invoked because the regulators allowed the banks to treat the various official borrowers, such as parastatals, central government, and development banks, in Mexico and Brazil as distinct borrowers even though they were all backed by the same government guarantee. In the event, all of the loans to all of the borrowers went bad at the same time. The multiple borrowers indeed reflected a single risk, as might have been expected.

On paper, the capital adequacy rules have been enforced, and the capital base of the U.S. banks has been strengthened. But at least some of the improvement reflects accounting conventions rather than an actual strengthening of bank balance sheets. For bank capital to protect the bank from bankruptcy and to forestall adverse incentive problems, it should consist mostly of shareholders' equity, and it should be properly valued. But the measure of primary capital used for capital adequacy

Table 11. Bank Shareholders' Equity as a Percentage of Total Assets, 1981–June 1987

Bank	*1981*	*1982*	*1983*	*1984*	*1985*	*1986*	*June 1987*
Citicorp	3.6	3.7	4.3	4.2	4.4	4.6	2.7
BankAmerica	3.4	3.7	4.2	4.3	3.8	3.8	3.0
Chase Manhattan	3.9	3.9	4.3	4.5	5.0	5.1	3.2
Manufacturer's Hanover	3.2	3.9	4.2	4.3	4.6	5.0	2.7
J. P. Morgan	4.5	4.6	5.7	5.7	6.3	6.6	6.2
Chemical	3.5	4.1	4.5	4.9	4.9	5.1	3.0
Security Pacific	4.0	3.9	4.4	4.2	4.5	4.5	3.3
First Interstate	4.3	4.4	4.7	4.9	5.1	4.9	3.3
Bankers Trust	3.9	3.7	4.4	4.6	4.9	4.7	3.4
First Chicago	3.7	3.9	4.8	4.8	5.3	5.9	n.a.
Average	3.8	4.0	4.6	4.6	4.9	5.0	3.4

Source: *New York Times*, July 2, 1987; and Salomon Brothers, *Review of Bankperformance*, various editions.
n.a. Not available.

requirements includes both equity and loan loss reserves. Thus, even when the banks make loan loss provisions because they anticipate future losses on assets, *measured* primary capital is unaffected, because the loan loss provision involves a transfer between shareholders' equity and loan loss reserves, both of which are fully counted in primary capital. Moreover, because the LDC claims are carried in the books at full face value, and until recently were not covered by loan loss provisions, the book values of shareholders' equity clearly overstated the market value of shareholders' equity.

Thus, U.S. banks enjoyed rising capital-asset ratios during 1982–86, as shown in table 10, but suffered a significant decline in the ratio of shareholders' equity to assets as of mid-1987 (table 11), when the banks made a substantial increase in loan loss reserves. The conclusion seems to be that the regulators have raised the ratio of shareholders' equity to total assets but little in the 1980s. Because the loan loss reserves on the Latin American claims still cover no more than 25 percent of the Latin exposure and because the markets are signaling a discount on the debt of perhaps 45 to 50 percent, it seems clear that shareholders' equity is still overstated on account of the LDC debt, even after the additions to loan loss reserves.

Regulatory laxness, a "business as usual" attitude, certainly contributed to the failure of the banks to make a greater advance in rebuilding

their equity base. It was clear from the beginning of the debt crisis that at least some of the interest earnings on the LDC debt should have been regarded as fictitious, particularly when leading debtors required new involuntary loans to meet interest payments on existing debts. Prudent regulators might have required that the banks build up capital in part by reducing dividend payouts. But the major banks have maintained dividend payout ratios since 1982 as if the debt crisis had not occurred, as is evident in table 12. BankAmerica was particularly flagrant. Even when its earnings were falling because of bad domestic loans, not to mention bad foreign loans, it continued to pay significiant dividends, leading to a sharp rise in the ratio of dividends to income. Now the bank is fighting for survival.

Our conclusion that banks have rebuilt capital slowly must be tempered to the extent that other assets of the banks are undervalued on the books relative to true market values. One reason to think that other assets are indeed undervalued is that, as we show in the next section, the market values of many of the large banks were at or above their book values as of the summer of 1987, despite the clear evidence that the market values of their LDC claims were far below their book values.

We attempted to create an equity-asset ratio based solely on market values rather than book values, by calculating the market value of overall bank assets as the sum of the market value of bank equity and the book value of bank liabilities. We assumed that the banks' liabilities, which are mostly short-term fixed-income liabilities, have a market value equal to book value. We then took the ratio of the market value of equity to the constructed market value of assets. We found that on average for the ten large banks, the ratio of equity at market value to assets rose from 3.2 percent in 1983 and 3.6 percent in 1984 to 5.5 percent in June 1987, suggesting some real increase in capital adequacy. The sharp decline in the stock market in October 1987 has probably pushed the market-based ratio of equity to assets back down sharply, close to the levels of 1984.

There would be one practical implication for LDC debt management if the banks' non-LDC claims are carried on the books at below-market value. As the losses on the LDC assets are realized, for example, by sales of debt in the secondary market, the banks would be able to cushion the effect on their overall capital by selling off other assets that are undervalued on the books and taking the capital gains. Citicorp began to adopt this strategy in the fall of 1987 by selling a part of its real estate

Table 12. Dividend Payout Ratios for Ten Banks with Large LDC Exposure, 1980–86

Bank	*1980*	*1981*	*1982*	*1983*	*1984*	*1985*	*1986*
Citicorp	35	37	31	29	32	32	35
BankAmerica	33	50	59	70	86	−43[a]	0
Chase Manhattan	28	27	44	32	41	30	31
Manufacturer's Hanover	37	37	38	37	45	38	37
J. P. Morgan	35	37	37	36	34	29	27
Chemical	31	29	34	34	36	34	34
Bankers Trust	20	28	27	27	27	26	26
Wells Fargo	36	36	33	33	32	30	28
Marine Midland	23	26	28	29	38	29	28
Irving Bank	28	28	37	36	36	32	31
Average	31	33	37	36	41	31[b]	28

Source: Salomon Brothers, *Review of Bankperformance,* various editions.
a. BankAmerica paid a dividend of $1.16 per common share despite losses of $2.68 per share.
b. Excluding BankAmerica.

equity at a significant capital gain to offset the reported losses on its LDC portfolio.

PENDING REGULATORY DECISIONS

Two important regulatory matters are now pending. The first, and specific, matter is the accounting treatment of the Brazilian debt. The federal bank regulators can require the banks to make allocated provisions for loans to foreign governments under the system of Allocated Transfer Reserve Risks (ATRR) established in the 1983 International Lending Supervision Act. In this system, an interagency committee of the Federal Reserve Board, the Federal Deposit Insurance Corporation, and the Comptroller of the Currency can declare the loan to a country to be value-impaired and compel a write-down of the assets. Generally, for loans to be declared value-impaired they must meet more than one of four conditions: interest is more than 180 days overdue; the country has no International Monetary Fund program and no prospect of negotiating one; the country has not met its rescheduling terms for a year; and the country has no definite prospect for an orderly restoration of debt servicing in the near future.[18] The final decision is at the discretion of the

18. For a further discussion, see Maxwell Watson, Peter Keller, and Donald Mathieson, *International Capital Markets: Developments and Prospects, 1984,* Occasional Paper 31 (IMF, August 1984), pp. 17–18, and later issues; and "U.S. Bank Regulators are Called Likely to Require Write-Down of Brazil Loans," *Wall Street Journal,* September 1, 1987.

bank regulators. Typically, the required write-off is 10 percent in the first year and 15 percent in the second year and each succeeding year that the loans are deemed to be value-impaired. The ATRR has so far been applied only to a few smaller debtor countries: Bolivia, Nicaragua, Peru, Poland, Sudan, and Zaire.

Brazil's suspension of interest payments on its sovereign debt was announced on February 20, 1987. On April 2, several banks announced that they were placing Brazilian loans on a nonaccrual basis. As of August 20, 1987, the loans were in suspension of interest for 180 days. The interagency task force met in October of 1987 to decide whether the Brazilian debt should be declared value-impaired. An interim arrangement that, if carried out, will provide for a partial payment of interest due in 1987 will forestall a declaration that the Brazilian loans are value-impaired until the task force meets next, in the spring of 1988.

The second, much more general, matter is capital adequacy regulations. The Federal Reserve Board and the Bank of England have recently agreed to harmonize their accounting treatment for the supervision of capital adequacy. The details of the agreement have not been fully worked out and are in any event not yet public. It is expected, however, that the new system will weight assets by quality to provide a more refined measure of bank capital.

Existing accounting practices differ markedly in the two countries. Now, for instance, the Bank of England requires that loan loss provisions of U.K. banks against LDC debts be allocated by country. The provisions are charged against the capital base of the bank and may be charged against current income for tax purposes. Recently, moreover, the Bank of England has instituted a scoring system by which the U.K. banks must evaluate their risks on all LDC loans, and thereby decide upon reserve levels.

Latin American Exposure and the Market Valuation of Commercial Banks

The regulators and banks have so far operated as though claims on the LDCs are worth their full face value, despite overwhelming evidence to the contrary. The stock markets, however, have seen through the

accounting veil and written down the value of banks with heavy exposures in the problem debtor countries.

A precise estimate of the stock market valuation of the LDC claims is difficult because data are limited: banks are required to report exposures in the LDCs only when total loans to a country exceed 1 percent of total assets. Therefore, while much is known about the cross-bank exposures of individual banks in Argentina, Brazil, Mexico, and Venezuela, little is known about the claims by individual banks on the other problem countries, which account for about 30 percent of exposure, as shown in table 1.

An initial look at bank share prices confirms that the markets have reacted to the bad news of recent years. Table 13 compares prices, earnings, and dividends of nine banks with the heaviest recorded exposure in Argentina, Brazil, Venezuela, and Mexico with those of nine banks with no exposure. For the heavily exposed banks, with an average exposure of 130 percent of book value, the average ratio of stock market value to book value at the end of 1986 was 1.0, compared with 1.5 for the banks with zero exposure. Similarly, the heavily exposed banks had a price-earnings ratio of 6.6, compared with 10.3 for the banks with zero exposure. The difference in market value is not a function of the difference in current earnings, but rather the price that the market is assigning to those earnings. Put another way, the market is casting doubt on the future earnings of the heavily exposed banks by capitalizing those banks at a lower price-earnings ratio.

The last two columns highlight two considerations discussed earlier. With the exception of BankAmerica, with its extremely weak domestic portfolio, the heavily exposed banks had a rate of earnings relative to book value that is comparable to that of the banks with zero exposure—yet another indication that through the end of 1986 (before the loan loss reserves in 1987 and the Brazilian moratorium) the debt crisis posed a problem of future earnings, not current earnings. The last column highlights the fact that the dividend payout ratios of the heavily exposed banks have not been systematically lower than those of the lightly exposed banks. The two exceptions are BankAmerica, which suspended its dividend in 1986, and First Security–Utah, which paid dividends in excess of current earnings in 1986.

More generally, bank analysts concur that the current market discounts are in line with, or even greater than, the quoted prices on the

Table 13. Comparing Banks with Large Exposure and No Exposure in Latin America

Bank	*Exposure–book value ratio*[a]	*Stock price–book value ratio*[b]	*Price-earnings ratio*[c]	*Earnings–book value ratio*[d]	*Dividend-earnings ratio*[e]
		Banks with large exposure			
Citicorp	1.2	1.1	6.6	0.12	0.38
BankAmerica	1.7	0.5	5.4	−0.17	0.00
Chase Manhattan	1.4	0.8	5.1	0.12	0.33
Manufacturer's Hanover	1.8	0.6	4.7	0.12	0.37
J. P. Morgan	0.9	1.8	9.6	0.17	0.29
Chemical	1.4	0.8	5.4	0.13	0.37
Wells Fargo	0.7	1.6	9.3	0.14	0.31
Marine Midland	1.1	0.8	6.8	0.11	0.28
Irving Bank	1.4	0.8	6.1	0.12	0.33
Average	1.3	1.0	6.6	0.10	0.30
		Banks with no exposure[f]			
Midlantic Banks Inc.	0.0	1.6	9.5	0.17	0.27
Michigan National	0.0	1.3	8.5	0.11	0.34
Meridian Bancorp.	0.0	1.2	10.0	0.14	0.43
BayBanks	0.0	1.4	9.0	0.13	0.38
First Security–Utah	0.0	0.9	13.0	0.01	2.68
State Street Boston	0.0	2.7	15.1	0.16	0.22
Commerce Bankshares	0.0	1.1	9.2	0.11	0.29
Dominion Bankshares	0.0	1.5	9.3	0.15	0.36
Amsouth Bankcorp.	0.0	1.6	9.2	0.16	0.37
Average	0.0	1.5	10.3	0.13	0.59

Sources: Keefe, Bruyette, and Woods, Inc., *Keefe Nationwide Bankscan,* various issues; and Salomon Brothers, *Review of Bankperformance, 1986.*

a. Exposure to Argentina, Brazil, Mexico, and Venezuela over bank book value for 1986.
b. Stock price over per share book value as of mid-1987.
c. Price-earnings ratio expected for 1987 prior to recent major additions to loan loss reserves.
d. Per share earnings over book value for 1986.
e. Current annual dividend rate for mid-1987 over 1986 earnings.
f. No recorded exposure (banks must report LDC exposure only when exposure exceeds 1 percent of total assets).

secondary market.[19] Such a view helps to explain why, when Citicorp unexpectedly announced a $3 billion increase in loan loss reserves in mid-May, the markets reacted by raising Citicorp prices more than 10 percent the week of the announcement. Clearly, the announcement was received not as bad news of losses, but as good news of a management strategy to confront the losses aggressively. One investment analyst was

19. Thomas Hanley of Salomon Brothers is quoted in *Fortune Magazine* (March 30, 1987, p. 104) as declaring: "The discount [in the stock market] is even greater than the price concessions accorded Third World debt currently trading in the secondary market."

quoted as explaining, "There was a huge sigh of relief that the bad news was out."[20]

The remainder of this section presents regression results that provide a somewhat more precise estimate of the market valuation of LDC loans to the banks, as implicit in the banks' stock prices. Four parallel approaches yield largely consistent results. The first approach estimates the market value of LDC claims held by various banks. The second and third approaches relate the banks' price-earnings ratio and the returns to holding bank stocks to measures of LDC exposure. The final approach studies the movement of bank share prices in response to important LDC exposure-related news.

VALUING BANK ASSETS

The market values of the securities on the two sides of bank balance sheets should be equal. Thus the market value of a bank's assets should equal the market value of its combined shareholders' equity and liabilities. The market value of a bank's equity is observed in the stock market. A bank's liabilities are primarily short-term liabilities such as customers' bank deposits and short-term CDs and can be assumed to have a market value close to book value. The market value of a bank's preferred equity, which for most banks is less than 10 percent of shareholders' equity, can also be assumed equal to book value.[21]

Using θ_1 to denote the market value of one dollar of claim on the LDCs, with $1 - \theta_1$ the market discount on the LDC claim, and θ_2 to denote the market value of one dollar of other assets, we use the following relationship:

$$MVc + BVp + BVl = \theta_1 Aldc + \theta_2 Aother, \tag{1}$$

where

MVc = market value of outstanding common equity
BVp = book value of preferred equity
BVl = book value of liabilities
$Aldc$ = book value of LDC exposure
$Aother$ = book value of other assets.

20. Michael Metz, portfolio strategist of Oppenheimer and Co., quoted in Ellen Freilich, "Stock Prices Fall Fifth Session in Row," *Washington Post,* May 21, 1987.

21. This latter assumption is made to ease problems of data collection.

Using *Atotal* to denote total assets, we can substitute *Atotal* − *Aldc* for *Aother,* and divide by *Atotal* to get the relationship:

$$(2) \qquad \frac{MVc + BVp + BVl}{Atotal} = a + b\frac{Aldc}{Atotal},$$

where $a = \theta_2$ and $b = \theta_1 - \theta_2$.

The above equation is estimated for a cross section of banks for each of the years 1982 through 1986 and for June 1987. The regression for June 1987 uses the end-of-1986 data for exposure and asset values, but uses the June 1987 stock prices to compute the market value of assets. Because the banks are required to disclose LDC exposure to individual countries only if exposure is in excess of 1 percent of assets, comprehensive exposure data are available only for the major borrower countries. In particular, *Aldc* is limited to include the exposure to Argentina, Brazil, Chile, Mexico, and Venezuela. That limitation introduces a bias in the point estimate of *b* that we discuss below.

Table 14 reports the estimation results. For each of the years 1983 through June 1987 the estimated coefficient of the exposure-assets ratio is negative and is statistically significant. As the coefficient is equal to the difference between the market values of other assets and LDC loans, it is clear that a dollar on the books to the LDCs contributes less to bank market value than a dollar lent elsewhere. As noted, the exposure variable covers only about three-fourths of LDC exposure. The omission of other LDC loans biases the coefficient upward in absolute value to the extent that banks that are heavily exposed in Argentina, Brazil, Venezuela, and Mexico are also heavily exposed elsewhere, and to the extent that other LDC assets are also selling at a discount. Thus we should adjust the estimated coefficient downward.

If a bank's exposure to the four major debtors were perfectly correlated with other LDC exposure, if the markets knew about the remaining exposure, and if the rest of the LDC debt sold at the same discount as that of the four major debtors, then an unbiased estimate of *b* for all LDC debt would be approximately three-fourths of the actual estimate, since the four major debtors account for about three-fourths of the total bank exposure. In the absence of perfect correlation and perfect knowledge of the rest of the banks' LDC portfolios, an adjustment factor of something greater than three-fourths is appropriate. We decrease the

Table 14. Market Valuation of Bank Assets and Latin Exposure, 1982–June 1987[a]

Year	*Constant*	*Exposure-assets ratio*[b]	*Summary statistic* $\bar{R}^2$	*Summary statistic* *Number of observations*
1987[c]	1.026	−0.576	0.18	33
		(−2.6)		
1986	1.020	−0.610	0.18	33
		(−2.7)		
1985	1.008	−0.456	0.30	48
		(−4.4)		
1984	0.994	−0.223	0.17	50
		(−3.1)		
1983	0.992	−0.174	0.16	50
		(−3.0)		
1982	0.980	0.049	0.01	49
		(0.8)		

Source: Authors' calculations.

a. The dependent variable is the sum of the market value of common stock plus the book values of preferred stock and liabilities. Numbers in parentheses are *t*-statistics.

b. The exposure-assets ratio denotes exposure to Argentina, Brazil, Chile, Mexico, and Venezuela over book value of bank assets.

c. Data through June.

point estimate by a factor of 0.8 to get our preferred point estimate of the value of the LDC debt.

We use the estimates of table 14 to find the implicit market prices per $100 of face value of claim, as shown below.

1982	*1983*	*1984*	*1985*	*1986*	*1987 (June)*
$102	$85	$82	$64	$53	$57

The series shows that the market started discounting the LDC debt not in 1982, when Mexico first announced its inability to service its foreign debt, but in 1983. Ever since 1983 there has been a trend towards greater discounts, a finding consistent with the trend in secondary market prices observed in table 4.

BANK STOCK EXCESS-RETURN EQUATIONS

These findings are supported by the results of a set of bank stock excess-return regressions reported in table 15. Excess returns for a particular bank in a particular period are measured as the difference between the holding-period yield for the bank (capital gains plus dividend yield) and the holding-period yield of the Standard and Poor 500 stock

Table 15. Bank Stock Excess Returns and Latin Exposure, June 1982–June 1987[a]

Year	*Constant*	*Exposure–book value ratio*[b]	*Dummy*[c]	*CUM*[d]	*Summary statistic* $\bar{R}^2$	*Summary statistic* *Number of observations*
1982–87[e]	0.156	−0.650	−1.851	. . .	0.41	27
	(0.64)	(−2.54)	(−3.47)			
1982	−0.035	−0.034	. . .	−0.035	0.01	38
	(−0.80)	(−0.69)				
1983	0.266	−0.180	. . .	−0.214	0.23	38
	(5.79)	(−3.26)				
1984	0.387	−0.158	. . .	−0.372	0.02	39
	(2.91)	(−0.94)				
1985	0.129	−0.049	. . .	−0.421	0.01	38
	(2.56)	(−0.68)				
1986	−0.451	0.070	. . .	. . .	0.03	26
	(−6.92)	(0.83)				
	−0.410	0.031	−0.484	−0.390	0.20	26
	(−6.50)	(0.39)	(−2.23)			
1987[f]	−0.165	−0.020	. . .	. . .	0.02	26
	(−2.37)	(−0.23)				
	−0.111	−0.071	−0.628	−0.461	0.27	26
	(1.74)	(−0.89)	(−2.88)			

Source: Authors' calculations.

a. The dependent variable is the stock holding rate of return (computed from stock price change and dividends) minus the Standard and Poor 500 holding rate times the bank beta coefficient. Numbers in parentheses are *t*-statistics.

b. Exposure to Argentina, Brazil, Chile, Mexico, and Venezuela over bank book value. For the five-year regression, exposure for 1984 was chosen.

c. Dummy equal to 1.0 for a Texas bank (First City Bank).

d. Cumulative negative excess return.

e. Data from June 1982 through June 1987.

f. Data through June.

market index multiplied by the individual bank's beta coefficient. The regressions relate excess return to the ratio of exposure to Argentina, Brazil, Chile, Mexico, and Venezuela to bank book value. The table reports an excess-return equation spanning the entire 1982–June 1987 period and also a set of yearly regressions. The five-year excess-return regression and alternative regressions for 1986 and January–June 1987 include a dummy variable equal to 1 for banks located in Texas. The dummy captures the effects of the oil slump on the profitability of Texas banks.

The five-year regression indicates that a bank with an exposure-to-book-value ratio of 1 would have suffered a negative excess return of 65 percent. From the yearly regressions, we find a statistically significant effect of exposure only for 1983. However, the estimated coefficients are negative for all years except 1986. By summing the coefficient

Table 16. Bank Price-Earnings Ratios and Latin Exposure, 1982–June 1987[a]

Year	*Constant*	*Exposure–book value ratio*[b]	*Summary statistic*	
			$\bar{R}^2$	*Number of observations*
1987[c]	0.628	−3.771	0.29	36
	(13.74)	(−3.71)		
1986	9.703	−3.632	0.20	36
	(10.34)	(−2.95)		
1985	10.264	−4.138	0.41	48
	(20.31)	(−5.63)		
1984	14.674	−5.242	0.04	48
	(4.62)	(−1.31)		
1983	7.662	−1.443	0.09	49
	(13.85)	(−2.10)		
1982	5.839	−0.210	0.02	49
	(28.81)	(−0.91)		

Source: Authors' calculations. See text description.
a. The dependent variable is the price-earnings ratio. Numbers in parentheses are *t*-statistics.
b. Exposure to Argentina, Brazil, Chile, Mexico, and Venezuela over bank book value.
c. Data through June.

estimates for each of the years, we can get an alternative estimate of the cumulative negative excess return (*CUM*) associated with LDC exposure, as shown in the fourth column of table 15. On this basis, by June 1987 the cumulative excess return was −46 percent for a bank with an exposure-to-book-value ratio of 1.

PRICE-EARNINGS RATIOS

As a third way to test the relationship between stock prices and LDC exposure, we regress the banks' price-earnings ratios on the ratio of exposure to the four major LDC debtors to book value. As the sovereign borrowers have been current in their interest payments, with the major exception of Argentina during 1984, earnings associated with Latin exposure have not suffered much. Low expectations about future debt servicing, however, should be expected to depress the price-earnings ratios. Table 16 shows that the estimated coefficient on the exposure variable is indeed negative for all six years and that it is statistically significant after 1984.

The relative value of the constant term and the coefficient on the exposure variable provide an indication of the discount on LDC exposure

relative to other assets. A bank with no exposure has a price-earnings ratio given by the constant term. A bank with the same book value but with assets that are only LDC claims (with an exposure-capital ratio of 1) has a price-earnings ratio equal to the constant minus the coefficient on the exposure variable. Assuming that current earnings are proportional to book value, regardless of the distribution between LDC claims and other assets, we can divide the two price-earnings ratios to get the market price of the LDC claims relative to the price of other assets (for the same size book value of each type of asset). Assuming that other assets have a price of 1 and that the coefficient on the exposure variable is overstated by a factor of (1/0.8) for reasons described earlier, we get the alternative estimates of the LDC prices shown below.

1982	*1983*	*1984*	*1985*	*1986*	*1987 (June)*
$97	$85	$71	$68	$70	$72

These estimates are broadly consistent with those from the asset-value approach, though the implied discounts are somewhat smaller. Note that if the measured current earnings on the LDC assets are smaller than the earnings on the alternative assets per dollar of book value, then our procedures in this section would *understate* the discount on the LDC claims.

PRICES AND LDC DEBT NEWS

Movements of bank prices a day or a few days following important news about LDC claims also help to bolster the views that the markets are sensitive to the value of the LDC claims. We have already mentioned the market's positive reaction to Citicorp's announcement of the increase in loan loss reserves. Three other examples—the announcement of the Austral plan in Argentina, the announcement of the Cruzado plan in Brazil, and the announcement of Brazil's unilateral suspension of interest servicing—reinforce the point.

On Friday night of June 18, 1985, President Alfonsin of Argentina announced an accord with the International Monetary Fund on an imaginative stabilization program and monetary reform. Simultaneously, the U.S. Treasury announced in Washington that it had succeeded in assembling a multilateral $480 million short-term loan for Argentina to assist with its immediate loan obligations. Even though on the

following Monday the *Wall Street Journal* headlined an article, "Argentina's Latest Austerity Program is Greeted with Skepticism by Analysts," bank stock prices did well that day. The results of a regression of bank stock returns on that Monday on the ratio of Argentine exposure to bank book value is shown in the first line of table 17. According to the equation, Argentine assets rose in market value approximately $12 per $100 of claims (the coefficient 0.097 is scaled up by the ratio of market value to book value to get 0.12).

On Monday, March 3, 1986, Brazil announced a similar austerity program that included an agreement reached the previous Saturday with foreign private creditors. The agreement called for a reduction in interest payments of $150 million in 1985 and 1986 on $1.5 billion of debt and a refinancing of $6 billion that matured in 1985. The second line of table 17 shows that the combination of the rescheduling negotiations and the new program was disappointing to bank stock investors, with bank stock returns on that day significantly negatively related to the banks' Brazilian claims. Each $100 of Brazilian public claims is estimated to have declined in value by $8.10, and each $100 of private claims by $2.70.

Almost a year later, on Friday, February 20, 1987, the Brazilian Minister of Finance, Mr. Dilson Funaro, sent a telex to Brazil's 700 creditor banks announcing a moratorium of interest payments on medium-term and long-term commercial bank debt. The *Wall Street Journal* commented that international bankers had grown used to debt alarms and that they were taking Brazil's action in stride. Indeed, the third line of table 17 shows that on February 20 bank stock returns were only weakly negatively related to the ratio of exposure to Brazil to book value. However, during the following week, bank stocks tumbled as Brazil took further steps that indicated its resolve. On Monday, February 23, Chase Manhattan Bank, Chemical Bank, and Citicorp each lost more than 5 percent of their stock values. On Wednesday, February 25, Brazil tightened its policy by telling its banks not to repay foreign creditors seeking to recall short-term credit. The fourth line in table 17, which relates the return on bank stocks between February 20 and February 26 to the exposure–book-value ratio, shows that the cumulative effect during the week of Brazil's interest moratorium on bank stock prices is significant and highly negative.

The fifth line of the table focuses on the announcement by Citicorp on May 19, 1987, that it would add $3 billion to its loan loss reserves in

Table 17. Event Studies of the Returns to Bank Stocks[a]

Event	Constant	Exposure–book-value ratio			Dummy	Summary statistic	
		Total	Public borrowers	Private borrowers		$\bar{R}^2$	Number of observations
Announcement of Austral plan							
June 18, 1985	−0.018	0.097[b]	. . .	. . .	. . .	0.31	19
	(−3.08)	(2.77)					
Announcement of Cruzado plan							
March 3, 1986	0.009	. . .	−0.079[c]	−0.026[d]	. . .	0.23	19
	(0.93)		(−2.02)	(−0.91)			
Announcement of Brazil suspension							
February 20, 1987	0.005	−0.30[e]	. . .	. . .	. . .	0.08	21
	(0.59)	(−1.28)					
February 19–26, 1987	0.006	−0.114[e]	. . .	. . .	. . .	0.27	21
	(−0.35)	(−2.67)					
Announcement of Citicorp reserving							
May 18–20, 1987	−0.022	−0.014[f]	. . .	. . .	0.056[g]	0.29	24
	(−2.80)	(−1.69)			(2.61)		

Sources: Authors' calculations. The returns for June 18, 1985, are from the Compustat CRSP database and include any dividend distributions; other returns are the stock price appreciations as reported by the *Wall Street Journal*. Numbers in parentheses are *t*-statistics.

a. The dependent variable is the return to stockholders, generally the change in the stock price, of different banks over a short interval spanned by the event. See text for fuller description.
b. Exposure to Argentina over bank book value.
c. Exposure to public borrowers in Brazil over book value.
d. Exposure to private borrowers in Brazil over book value.
e. Exposure to Brazil over book value.
f. Exposure to Argentina, Brazil, Chile, Mexico, and Venezuela over book value.
g. Dummy equal to 1.0 for Citicorp.

anticipation of future write-downs of Latin loans. Line 5 relates Latin exposure over book value to stock price movements between the day before and the day after Citicorp's announcement. The added dummy variable is for Citicorp itself. The regression shows that Citicorp stock went up 4 percent, while other banks' stocks went down slightly (and without statistical significance).

Stock Market Values and Debt Renegotiation

The evidence on the market value of LDC debt has a crucial implication for future negotiations between debtors and creditors, as well as for the policy options of the official community. Since banks' stock prices already reflect significant losses on the debt, banks should be willing to trade their LDC debt of a given face value for a safer asset with a lower face value. In the simplest case of such a debt conversion, for the moment ignoring tax and accounting complications, if the stock market values the debt at \$60 per \$100 of face value, then a bank's shareholders will benefit if the bank sells each \$100 of debt for cash at any price in excess of \$60. Of course, the swap need not be for cash; any marketable security, such as a bond or an equity claim, with a market value in excess of \$60 will do. Such a debt conversion could result either from direct negotiations between creditors and debtors or through the policy actions of the official community, as illustrated below. Several benefits are likely to result from debt conversion schemes that convert the current debt, now priced at a discount, into cash or into new claims at a reduced face value that are then priced near the new lower face value. We shall suggest that there is a strong case for policymakers to take positive actions to support such debt conversions.

DEBT CONVERSIONS THROUGH BILATERAL DEBTOR-CREDITOR ARRANGEMENTS

Debt conversions may be arranged directly between debtors and creditors in many ways. The simplest, with a long tradition, is for the debtor to enter the secondary market for its debt and to repurchase some or all of the debt for cash at a deep discount. Such repurchases of heavily discounted bonds took place in the 1930s. A widespread use of debt repurchases, however, carries with it several problems.

A first problem is contractual. Most of the existing debt contracts with the commercial banks have a "sharing provision," which requires that all payments by the debtor to the creditors must be equally shared by the participating banks. Technically, a debt repurchase violates this clause, since the bank that sells its claim gets a lump-sum payment that is not received by the other banks. The creditors and debtor can negotiate a waiver to eliminate the sharing provision, though such a waiver generally requires the nearly unanimous consent of the bank creditors. A waiver was negotiated during 1987 in the case of Bolivia, under the restrictive condition that Bolivia will repurchase its debt only with funds that have been donated to Bolivia by foreign governments expressly for the purpose of debt repurchases.

A second problem involves the regulatory environment facing the banks. The main difficulty is that when a bank sells its claim for cash, it must record a capital loss equal to the difference of the face value of the claim and the purchase price. This capital loss reduces the book value of bank capital and may trigger regulatory problems by reducing the ratio of primary capital (measured at book value) to assets. If the bank sells a $100 claim, valued in the secondary market at $60, for $65, it would enjoy a $5 gain at market prices. In book value, however, it would have to record a $35 loss. Although the stock market generally responds to the change in market valuation, and not in book valuation, if the decline in book value were large enough to cause the bank to come close to or fall below regulatory limits on book-value capital-to-asset ratios, then the freedom of maneuver of the bank might be jeopardized.

Clearly, the regulatory environment imposes a bias against debt sales, since it now allows an asset worth $60 to be held on the books at $100 until that asset is actually sold at its reduced value. One possible response of the regulators could be to ease the regulations to allow the capital loss from debt sales to be amortized over a period of several years, an approach recently introduced for some kinds of bad farm loans. Other "tricks" are also available to disguise the debt repurchase and avoid an immediate write-down.[22]

22. One such trick is for the debtor country to put the $60 cash in a custodial account managed by the creditors, to guarantee a bond with below-market interest rates that has a present value equal to $60 (for example, a $100 face value consol, with a coupon rate 40 percent below market interest rates, that gives the bond a market value of $60). The creditors then swap their $100 of debt for the guaranteed ("defeased") bond, also with a

A related regulatory problem is that if a bank sells some of its claim on a country at a discount, then the regulators and the bank's own auditors might force it to write down the rest of its claims on the debtor. Uncertainties about the regulatory response have apparently prevented many banks from selling off small portions of their exposure in a particular country.

A third problem with repurchases is that the debtor country generally does not have the cash available to make a major repurchase of its debt. If the required cash were available, the debt itself would likely not sell at a deep discount. To the extent that debt conversions are desirable, it might make sense for the official community to give or lend money to debtors to make possible a large-scale repurchase. This is essentially the experiment now under way with Bolivia. We return to the possible involvement of the official community to support debt conversions in the next section.

Other forms of debt conversion have a similar effect as debt repurchases, though they may be different in appearance. In a debt-equity swap, for example, a potential foreign direct investor purchases some debt from the banks on the secondary market and brings the debt to the debtor country's central bank. The central bank purchases the debt using local currency, under the restriction that the domestic currency then be used to make a foreign direct investment. As long as the central bank repurchases the debt from the investor at close to the secondary market price, that is, at the price, converted into local currency, that the investor paid to the banks, then the transaction is essentially a cash repurchase of debt when viewed from the perspective of the central bank. From the debtor country's point of view, the key, and perhaps only, advantage of such a mechanism over a direct repurchase of debt is that it allows the debtor to get around the sharing provision discussed earlier.[23] Otherwise, debt-equity swaps have the same advantages and disadvantages of direct debt repurchases.

face value of $100, but a safe market value of $60. Under standard accounting rules, a swap of $100 of debt for $100 of bonds of the same debtor generally does not require a write-down in book values of the claim.

23. Until recently, most central banks were redeeming the debt at close to par, rather than close to the secondary market price, giving the foreign investor the spread between the secondary market price and the face value of the debt. In principle, a repurchase at par

A new form of debt conversion that may be similar to a repurchase, though less costly to the debtor in terms of current cash flow, is an exit bond. With an exit bond, the creditor swaps his bank debt (say, of $100) for a bond of the debtor country with the same face value, that is, the same eventual principal repayment, but with a below-market coupon rate. The bond therefore has a contractual present value (a present value assuming no default) that is below the face value of the existing bank debt.[24]

Why should a creditor swap a bank loan for an exit bond of the same debtor that has a lower contractual present value? The bond is supposed to be superior to the existing bank debt for several reasons. First, holders of the bonds are explicitly relieved of the obligation to make contributions to concerted-lending packages that may be negotiated between the banks and the country in the future. Second, the debtor undertakes, either explicitly or implicitly, to give the bonds a senior status relative to the remaining bank debt, that is, to service the bonds before servicing any of the bank debt. If the senior status is credible, the bond may be a very safe claim.[25]

Third, as discussed in the next section, the creditors as a group may benefit from the introduction of exit bonds, since certain efficiency gains

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may act as an investment incentive, though as with many incentive schemes, the largest effect was to give a large lump-sum transfer to inframarginal investors that would have invested in the country anyway. Recently, central banks have been finding ways to recapture most of the discount on the debt, either by repurchasing the debt at close to the secondary market price or by auctioning the right to participate in a debt-equity swap among potential foreign investors, thereby recapturing the surplus previously accruing to the foreign investors.

24. In contractual terms, the current bank claim has a present value equal to its face value, since it carries a market rate of interest.

25. Consider the case of Brazil, for example, with about $70 billion of bank debt, and recent annual net resource transfers to the banks of about $6 billion. If Brazil were to convert $10 billion of its debt into exit bonds with a long maturity and a fixed interest rate of 6 percent, given a safe market rate of 10 percent, the interest due on the bonds would be $600 million per year. If the $600 million is credibly senior to the remaining bank debt, there would be little doubt about Brazil's capacity to service the bonds, since the $600 million is far less than Brazil's revealed annual capacity and willingness to pay. The bonds would therefore be a relatively safe asset, and would therefore be priced at about $60 per $100 of principal (that is, 0.6 market interest rate $\times$ $100, assuming a long maturity on the bond). Assuming that bank claims on Brazil are now selling at below $60 per $100, individual banks should be willing to swap their bank debt for the exit bonds.

may arise from the fact that the exit bonds reduce the debtor country's contractual debt service obligations. We shall see that the debtor country's ability and willingness to service its debts may well rise as the contractual obligations to do so fall.

SOME TAX AND REGULATORY ASPECTS OF DEBT CONVERSIONS

Two details are important in understanding the full regulatory and financial ramifications of debt conversions. The first involves book accounting. As indicated earlier, debt conversions may or may not require immediate write-downs of book values of the banks' claims, depending on how the transaction is carried out. In general, if an asset is swapped for cash or some nondebt claim, the bank must book the new asset at its current market value and write down any difference between the face value of the debt and the market value of the asset received in return. Thus, if debt with face value of $100 is priced at $60 and is traded for cash or equity worth $65, the bank records a loss of $35.

This loss is important for two reasons. First, it reduces the bank's book capital, which is the measure used for regulatory purposes. Second, it can be charged against taxes. If the bank pays the corporate tax rate on the margin (34 percent in 1988), then the tax savings would be worth $40 \times 0.34, or $13.60. Thus, the full value to the bank of selling a debt for $60 would be $73.60. Put differently, if the stock market is valuing the debt at $60, the bank should be willing to sell the debt for $39 in cash, since $39 plus the tax saving of $21—$0.34 \times ($100 - $39)—equals the market value.

If the bank debt is swapped for a new form of debt, however, then the accounting and tax rules may be different. If $100 of bank debt at market interest rates is swapped for a $100 exit bond with a below-market interest rate, the bank does not in general have to write down the value of its claim unless and until the exit bond is sold on the market, at which time the write-off would be the difference between $100 and the price received for the bond. This accounting rule (known as FASB 15) gives the banks great flexibility with respect to exit bonds. They can choose the time to take the capital loss on the debt even after they swap the debt for exit bonds.

WHY DEBT CONVERSIONS ARE ATTRACTIVE

Debt conversions can benefit the creditors as a group as well as the debtors.[26] Most debtor countries' current debt far exceeds the expected discounted value of net debt servicing, that is, debt servicing net of new concerted lending. Keeping on the books debt that is far in excess of what can reasonably be expected to be repaid entails efficiency losses that are often ignored, but are a central aspect of the case for debt conversions.

The efficiency losses are widely recognized in the context of corporate or personal bankruptcy, but not yet in the context of excessive sovereign debt. There are good efficiency reasons why a corporation or individual with excessive debts is allowed to discharge those debts in the context of bankruptcy. In a corporate Chapter 11 proceeding, it is recognized that economic efficiency may dictate that an overly indebted firm should continue to operate, but that efficient operations require an *explicit* conversion of the debt into claims with a reduced contractual debt service obligation. Otherwise, the firms cannot operate except in a crisis mode: they are denied suppliers' credits; they are subjected to creditor lawsuits; they have a hard time collecting on accounts receivable; they cannot get new financing for investment projects; and they cannot get workers to invest in job-specific training. Bankruptcy courts do not tell the corporation to continue to operate with all of its debt intact, simply to roll over the debt and pretend that it can service all of the debt in the future. It is recognized that the overhang of debt itself prevents the smooth operation of the firm, to the ultimate detriment of the creditors.

The same kinds of efficiency losses apply to sovereign debts. The overhang of the debt itself can hamper economic performance, even if the reality is being concealed by concerted loans or by arrears. As a simple illustration, suppose that a country owes $10 billion of debt. Assume that principal repayments are always rescheduled (that is, that the debt has infinite maturity). The safe market interest rate is 10 percent.

26. The argument in this section, that debt relief can provide efficiency gains, was first set forth in Jeffrey Sachs, "The Debt Overhang of Developing Countries," forthcoming in the memorial volume for Carlos F. Diaz-Alejandro to be published by the Wider Institute, Helsinki, Finland, 1988. Another recent paper that explores a similar theme is Paul Krugman, "Bootstrap Debt Relief" (MIT, 1987).

To begin, suppose that the country's annual debt servicing capacity, its capacity to make a net resource transfer, is $600 million, assuming no change in policies. The country repays all that it can each period, though its repayment capacity may depend on the kinds of policies that it follows. The market value of the debt would simply be the discounted value of $600 million, or $6 billion at market interest rates. The secondary market price would therefore be $60 per $100 of debt.

In the present debt-management arrangements, assuming no breakdown in negotiations, and without debt conversions, the country would pay the full $1 billion of interest in the first year, and get a concerted loan of $400 million, so that its net resource transfer would be $600 million, which is its ability to pay. Next year, the debt would be $10.4 billion, with interest due of $1.04 billion. The country would again make a net resource transfer of $600 million, requiring a new concerted loan of $440 million. Each year the country would get a new concerted loan in order to keep the net transfer at $600 million. The debt would eventually grow at a rate approaching 10 percent per year, the rate of interest. Obviously, the debtor and creditor are engaged in a simple "Ponzi scheme" to hide the fact of partial default.

Suppose that, instead, all of the debt were converted into exit bonds with 6 percent interest. The bonds would be perfectly safe, since the country would and could pay $600 million per year on the bonds. There would be no defaults and no concerted lending, because the debt conversion would obviate the need for concerted lending. It would leave the position of the debtors and creditors unchanged with respect to net resource transfers each year. The debt conversion would impose no losses to the creditors regarding debt service receipts, and would allow both debtors and creditors to avoid the costs of negotiating the concerted loans each year.

Perhaps more important, the debt conversion would avoid the risk of an actual breakdown in debt negotiations at some point in the future, leading to an outright default. The risk of a negotiating breakdown is present in most kinds of negotations, but is particularly acute in the bargaining between banks and debtor countries, because both the creditors and debtors are negotiating on a wide variety of fronts, and so have the incentive to stake out tough positions to avoid the appearance of weakness in other settings. Actual breakdowns of negotiations, which have occurred with Nigeria, Peru, and several other countries, are

costly. The debtor's international trade can be hampered by a drying up of international trade credits or other forms of disruption. This disruption represents a dead-weight loss to both the debtor and the creditors, a loss that can be avoided by the debt conversion.

Note that the market price of debt will in general reflect the fears of such a future breakdown. In our example, therefore, in which the country can service 60 percent of the debt, the market price of the debt would generally sell at below 60 percent, say $55 per $100. Then, a switch to exit bonds would involve a capital gain from $55 to $60 that would be shared by the creditors and debtors.

Next, suppose that by undertaking a structural reform program that would require it to forgo $100 million in current consumption, the debtor country could raise its output and therefore its debt servicing capacity by $20 million this year and every year in the future. Debt servicing capacity, and therefore debt servicing (under the assumption that the country pays all that it can), would rise to $620 million per year. The secondary market value of the debt would rise to $62 per $100.

Such a reform would require the debtor to sacrifice consumption for the sake of the foreign creditors, since the returns to the structural reform effort would be appropriated by future debt servicing. The debtor would have little incentive to make such a structural change, which could also be politically suicidal if opposition parties attack the government for sacrificing current consumption for the sake of foreign creditors. The assumption behind such an attack, that the creditors would appropriate a large portion, if not all, of the improvements in the economy, is reasonable. Concerted lending and reschedulings are granted to countries in dire economic difficulties. Once an economy improves, the debtor is expected to service its debts in full, and its power to resist debt servicing is diminished. No player, not the banks, the IMF, the World Bank, or the creditor governments, will excuse a country with a healthy economy from debt servicing on the grounds that it was once in trouble and chose to undertake needed reforms.

Could the reforms be financed by the foreign creditors to increase the country's debt servicing capacity, rather than reducing its consumption? Probably not. Supposing that $100 million is lent to the country in addition to the $400 million of interest refinancing, with the overall concerted loan totaling $500 million. There is no guarantee that the structural reforms would actually be undertaken. The country might

promise to undertake the reforms, receive the loan, use the money for consumption purposes instead, and continue to pay $600 million in net resource transfers in the future. It would benefit from this policy choice by raising current consumption by $100 million at no real future cost. Because promises to reform are notoriously difficult to regulate and because most IMF and World Bank conditionality requirements are not met by borrowing countries, it is a good bet that such lending would simply not be undertaken.

Now suppose that the debt-conversion exercise is undertaken instead. The contractual debt burden is reduced to $600 million per year through the use of exit bonds. If the country undertakes the reform effort, it would reduce current consumption by $100 million, but increase future consumption potential by $20 million per year. The foreign creditors would no longer appropriate the benefit, since their claims have been reduced to a fixed $600 million by the debt conversion. As long as the consumers' rate of time discount is sufficiently low, the reform will now look attractive. The creditor's welfare is unchanged by the debt conversion, and the debtor's is raised.

As a result of the efficiency gains, it would generally be possible to structure the debt conversion to benefit both the debtor and the creditors. For example, the debt worth $60 in this example could be swapped into exit bonds worth $61 (for example, paying 6.1 percent interest), still leaving the debtor with enough incentive to carry out the reforms.

The key point of this extended example is that an overhang of debt creates various inefficiencies. First, it requires continuous and costly renegotiation of the debt. Second, it raises the specter of a costly breakdown of negotiation, which would disrupt the trading arrangements of the debtor, and thereby impose costs on both the debtor and the creditors. Third, and perhaps most important, the debt can act as a heavy tax on economic reform. Under the current arrangements, the returns to reform are appropriated heavily, if not entirely, by the foreign creditors. The result is twofold: no individual government has an incentive to undertake adjustments, and political parties that are opposed to reform have an attractive case to take to the electorate. This latter concern is far from abstract. In recent legislative elections, the reformist government of President Alfonsin in Argentina lost heavily to the Peronists, who have been arguing against reforms to increase foreign debt repayments, urging a debt moratorium instead.

A CRUCIAL CAVEAT ON EXIT BONDS

The previous discussion has highlighted the potential usefulness of exit bonds by showing how the conversion of all bank debt into exit bonds could reduce the contractual obligations of the debtor country while at the same time maintaining, or even raising, the market value of the resulting claims held by the creditors. But in a more general setting, the conversion of bank debt into exit bonds may result in a fall in the value of the creditors' claims rather than a rise, thereby undercutting the case for exit bonds.

As an illustration, suppose that a debtor country will be able and willing to repay its debt fully if world commodity prices recover (probability 0.6), and will default entirely if commodity prices stay the same or fall further (probability 0.4). In the secondary market, $100 of debt would sell for $60. Now suppose that the debt is converted to exit bonds, carrying a coupon interest rate at 60 percent of the market interest rate. The contractual present value of a $100 long-term bond would be reduced to $60. What would be the new market value of the creditors' claims? Evidently, the new exit bonds would also have a 60 percent chance of being fully serviced and a 40 percent chance of being fully defaulted. Thus, the exit bonds would sell at a 60 percent discount relative to the contractual obligations of the bonds. In other words, the market price would be 60 percent of $60, or $36. Obviously, in this case, the creditors lose substantially by giving up their bank claims worth $60 for an exit bond worth $36.

Therefore, a discount on the bank debt in the secondary market does not mean that creditors can automatically benefit, or at least stay even, from a conversion of debt into exit bonds. In the example just cited, there is no efficiency gain to making the debt conversion, since payoffs depend purely on the exogenous world commodity price, not on the policies of the debtor. There is, however, a loss to the creditors, since with the conversion to exit bonds, the banks give up the chance of receiving the full $100 repayment of their debt in the event of favorable world commodity prices. Technically, part of the value of the creditors' claims on the country is the option value of sharing in high commodity prices. When the debt is converted into exit bonds with a lower contractual value, part of that option value is lost.

Exit bonds therefore have the following minuses and pluses from the perspective of the creditors as a group. On the negative side, since exit bonds reduce the contractual present value of future debt repayments, the banks lose the option value of getting fully or substantially repaid on their bank debt if exogenous events are highly favorable. On the positive side, the exit bonds offer various efficiency benefits, which can raise the market value of the resulting claims. To reiterate, these efficiency gains include: avoiding the costs of continuous debt negotiations, avoiding the chance of a costly breakdown in future debt negotiations, and stimulating economic reform in the debtor country. The balance of costs and benefits depends on the relative importance of these considerations.

We are inclined to believe that the benefits of debt conversion for many debtor countries outweigh the possible costs, though our reasons are necessarily impressionistic and must be considered on a case-by-case basis. The 50 percent discount on bank debt for most countries reflects the fact that the debt is twice too large to be serviced with regularity, rather than the fact that exogenous events will result in all or no repayment with probability 0.5. In other words, the option value of waiting for full or nearly full repayment is of little value. Moreover, as we have pointed out, it is likely to be seriously self-defeating, since if the creditors wait for full repayment, the debt overhang will stifle reform and tend to bring to power less reformist and more radical regimes that indeed will choose to suspend all debt repayments.

Put yet another way, to the extent that the creditors really face a probability distribution involving complete, as against no, repayments on the debt, it is a probability distribution that they themselves can influence. A reduction in the contractual debt burden through some form of debt conversion will bolster the political standing of those who would repay the debt.

Debt Conversions and Public Policy

We believe that the benefits of debt conversion warrant public policy action. At the minimum, the regulatory environment can be modified so that arbitrary book-value calculations do not stand in the way of desirable exchanges. But many commentators have proposed going further by using public money to smooth the debt-conversion operations. In one

popular proposal, the debt conversion would be intermediated by a new international debt facility. The facility, which could, for example, be part of the World Bank, would accept the exit bonds of the debtor country and issue its own bonds to the commercial banks in return for the existing bank debt, which then would be extinguished. The country would owe money to the facility in the form of exit bonds. The facility would owe money to the banks in the form of guaranteed bonds. The banks would get a safe claim, the bond of the debt facility, rather than a risky exit bond of the debtor country.

This proposal is nearly identical to two others. In the first, the official creditor community, again, perhaps, the World Bank, would provide a guarantee on the exit bonds issued by the debtor country. In the second, the official creditor community would lend the debtor countries the money necessary to make cash repurchases of debt in the secondary market. In all three cases, the contractual burdens of the debtor country would be reduced in line with the discount on its debt in the secondary market, and the claims on the debtor country would effectively be shifted to the official creditor community and away from the commercial banks.

The cost to the official community would be the difference in value of its own bonds, which are a safe asset, and the exit bonds of the debtor country.[27] Suppose, for example, that the country's debt now sells at \$60 per \$100. If the facility issues \$60 of guaranteed bonds to the banks and accepts exit bonds from the debtor country with contractual obligations also worth \$60, that is, the same coupons and principle as the safe bonds, the facility's net worth will be reduced if the exit bonds sell at a discount because of default risk. We have given examples in which the \$60 of exit bonds will indeed be worth the full \$60, with no costs to the facility, and cases in which the bonds would be worth only \$36, with the facility losing \$24 in present-value terms.

Why is such a facility needed at all? The main reason is that a large-scale debt conversion poses significant collective action problems that can best be overcome with official intervention. Bankers' fears about regulatory problems, the legal status of exit bonds, the problem of contagion effects whereby terms to one country influence negotiations

27. The facility might even sell off some or all of the exit bonds in the open market to realize the capital loss and reduce future risks.

with other countries, and the difficulty of collective decisionmaking among many banks make it difficult to carry out a large-scale debt conversion without considerable official support.

The likely costs to the official community of intermediating a large-scale conversion would be modest. Suppose that each creditor country participates in the international debt facility in proportion to the exposure of its banks in the problem debtor countries. As table 1 showed, U.S. banks hold approximately $57 billion in claims on governments of the problem debtor countries. The secondary market value of those claims was some $32 billion in July 1987. If the debt facility gave the U.S. banks guaranteed bonds worth $32 billion in return for the debt and accepted exit bonds from the debtor countries with contractual obligations worth $32 billion, the capital cost to the United States would be the market discount from the $32 billion contractual value. At best, the claims on the LDCs would be worth the full $32 billion: there would be no residual cost to the United States. At the very worst, the bonds would sell at the same discount as the original bank debt, at 55 percent of contractual value. The claims on the LDCs in that case would be worth $17.6 billion, and the transaction would cost the U.S. government $14.4 billion. Presumably, this capital loss could be amortized over many years, so that U.S. taxpayers would end up paying $1 billion to $2 billion each year for several years. Such costs could be reduced further by conditioning the debt relief on economic reform measures in each debtor country. (We have stressed that the debt relief itself should strengthen the incentives for actually carrying out the reforms.)

Even this upper limit of $14 billion seems a modest cost to reduce LDC debt to the secondary market levels for all thirty problem debtor countries in table 1. The achievement, from the U.S. perspective, is considerable: the debt is reduced to levels that the market deems manageable; the U.S. banks are taken out of the game, and out of risk, without imposing further losses; the elimination of the debt overhang enhances the possibility of efficiency gains in the debtor countries; the political positions of moderates in the LDCs is bolstered; and new democratic regimes in much of Latin America and the Philippines would likely be strengthened by a reduction of their contractual debt servicing obligations. Finally, this kind of relief is an efficient form of foreign aid, since the U.S. contributions would also be matched by the other creditor governments. The Germans, Japanese, British, and other countries

Table 18. Secondary Market Value of Claims of Financial Institutions on the Problem Debtor Nations

Millions of dollars except where noted

Country	*Debt to financial institutions*[a]	*Secondary market*	
		Bid price[b] *(dollars)*	*Total value*
Argentina	20,395.3	47	9,585.8
Bolivia	126.3	10	12.6
Brazil	49,624.7	55	27,293.6
Chile	12,084.8	67	8,096.8
Colombia	4,144.2	81	3,356.8
Costa Rica	1,530.4	33	505.0
Dominican Republic	328.4	42	137.9
Ecuador	4,972.5	45	2,237.6
Gabon	532	82	436.2
Guatemala	101.1	72	72.8
Honduras	164.8	38	62.6
Ivory Coast	2,486.6	60	1,492.0
Jamaica	406.5	37	150.4
Liberia	41.4	5	2.1
Malawi	53.7	74	39.7
Mexico	58,757.3	53	31,141.4
Morocco	2568	65.5	1,682.0
Nicaragua	1,144.9	5	57.2
Nigeria	6,515.2	28	1,824.3
Panama	1,877.6	64	1,201.7
Peru	3,224.6	11	354.7
Philippines	4,206.6	67	2,818.4
Romania	2,261.4	87	1,967.4
Senegal	233.5	61	142.4
Sudan	553.6	2	11.1
Uruguay	1,300.5	68	884.3
Venezuela	9,968.2	67	6,678.7
Yugoslavia	4,510.3	70	3,157.2
Zaire	402.9	24.5	98.7
Zambia	226.5	18	40.8
Total	194,743.8	. . .	105,542.3

Sources: World Bank; and Salomon Brothers, *Indicative Prices for Less Developed Country Bank Loans* (July 27, 1987).

a. End of 1986.

b. Bid price for a $100 claim on the secondary market as of July 1987.

would also be contributing their share, so that the United States would avoid carrying an undue part of the burden.

The costs, from the point of view of the entire creditor community, are shown in table 18. As of the end of 1986, the world's financial institutions, almost exclusively banks, had medium- and long-term claims on the governments of the problem debtor countries of $195 billion, with a secondary market value of $105 billion. Thus a complete swap of debts into exit bonds for the thirty countries in table 18 would require official guarantees of $105 billion. At best, the capital cost of these guarantees will be zero: the debtor countries will fully service the reduced burden of the exit bonds. At worst, the exit bonds would be valued at essentially the same discount as the current bank debt, about $54 per $100 of face value.[28] The international capital loss would thus be on the order of $(1 - 0.54) \times \$105$, or $48 billion for the entire creditor community, of which the U.S. share would be approximately $14 billion.

28. The discount is slightly different from the discount for the U.S. banks because of the composition of the global portfolio.

Comments and Discussion

John B. Shoven: I liked this paper a lot, possibly because I am not nearly as knowledgeable as the authors about this subject, and therefore I learned a lot. The basic story is not a new one. The policy of bank regulators has been to allow banks to carry their LDC loans at full face value and treat the interest flow from them as income, even if that interest is largely financed by additional loans. It looks now as though the object has been to hide the facts from American depositors. But I have been on this Brookings Panel for a long time, and a review of our previous insights on this subject puts things in a different light. Robert Solomon's conclusion in the fall of 1981, less than a year before the onset of the debt crises, that Argentina, Brazil, Chile, Mexico, Peru, the Philippines, South Korea, and Thailand were "creditworthy" met with general agreement in the discussion. Jeff Sachs noted that only Ghana and North Korea had repudiated their debt in the postwar period and that Ghana had later rescheduled. Some sympathy may be due the bank accountants who were carrying this debt at full value for so long. Now that default and severe concessions have become commonplace, we say that the regulators were trying to hide something. But, at least for a while, we too could not see the true value of these assets.

The paper reviews the exposure of U.S. banks, particularly the largest ones, to Latin American debt, gives us the value of that debt on secondary markets, and finds that the implicit value of these loans in the U.S. stock market (found by analyzing the market value of the bank stocks) is consistent with the quotes from the secondary market.

For the lay audience, including myself, some interesting facts are uncovered along the way. First, both shareholder equity and loan loss reserves count as primary capital for the bank. Therefore, a bank that recognizes that it has inadequate loan loss reserves and increases them

does not lower its primary capital by doing so. I have to agree with the authors that this seems a little crazy and that regulators should be looking at stockholders' equity in determining a bank's primary capital. For many banks today, the majority of primary capital is loan loss reserves.

Second, the additional reserves that Citibank and others have been setting aside are not allocated to particular loans or even countries. Therefore, while they reduce reported income, they do not reduce taxable income. And, from the best that I can tell, almost all of these banks are taxpayers. This behavior is somewhat curious. Most of us like to report as small an income as possible to the IRS, and companies often report lower earnings on tax account than they report to stockholders. Here, just the opposite is happening. The banks are reporting large loss set-asides to their shareholders, without taking the steps necessary to reduce taxable income.

While I learned much from the Sachs and Huizinga paper, I would like to have learned more. First, I would like to know more about the secondary market for LDC debt. What is the volume, who are the participants, what is the bid-ask spread, and so forth? Are the major buyers (as well as sellers) of the troubled loans the commercial banks? Can the third-world countries buy back their own obligations at 56 cents on the dollar? I will say more about this in a minute.

Second, after what the authors revealed about bank accounting practices, I was surprised to find them using (apparently) book-value figures for shareholders' equity in table 11, where they are examining the adequacy and composition of primary capital. Their own table 13 shows that ratios of market to book value range widely across banks (from 0.5 to 2.7 for the banks listed). My impression is that the ratio has also changed through time and that table 11 understates the improvement of the last few years in shareholder equity at market value. The problem of using book figures is illustrated by their June 1987 number, which shows that shareholders' equity had dropped sharply from year-end 1986. This reflects the loan loss reserves, which are just a paper entry, and not the stock market valuation of the equity claims on banks.

The authors find that stock investors were not fooled by the overstated income statements and balance sheets, but suggest that management may have been, at least in the setting of dividend policy. I think they are a bit naive here. I would be the first to admit that, although there is no shortage of theories, we don't know why firms pay dividends. But the

payment of dividends does seem to set up expectations for their continuation. The banks have been aggressively trying to sell new equity. Several banks are now preparing new equity issues, and almost all of them have actively used dividend reinvestment plans to increase equity. Cutting or eliminating dividends in this situation may appropriately be viewed as a costly strategy to be followed only if absolutely necessary.

The authors discuss briefly the idea of an international debt facility that would shift claims on the debtor countries from the commercial banks to the official creditor community. The idea seems like a good one. But if the creditor countries participating in the facility offer only market prices to the banks and borrowers, they are not following an aggressive policy. The governments are simply making official what the markets have already recognized. I fail to see why this price is a natural one for the terms of the debt swap, and feel that more generous terms to both lenders and borrowers could be considered by the creditor governments, obviously at substantial cost to those governments.

General Discussion

Discussion about the relevance of secondary market prices on LDC debt was spirited. Robert Lawrence noted that the use of secondary market prices creates a moral hazard by providing debtor countries with an incentive to adopt policies that reduce the market price of their debt. He suggested that relief should be based on some concept of sustainable debt, rather than on the secondary market value of LDC loans. Charles Schultze added that, so far as the debtor countries have already anticipated debt relief of the Sachs variety, they may already have acted so as to reduce the price of their debt. Thus there is no way to know what combination of economic fundamentals and bargaining strategy is reflected in present prices. Schultze was also concerned that the use of secondary market prices would produce perverse political rewards by providing more debt relief to those countries that had done a relatively poor job of managing their affairs. To the extent that the U.S. government wanted to provide some subsidy to the debtor countries, he argued, it would be politically difficult to do so in a way that appeared to bail out the lending banks or that helped debtor countries in relation to those secondary market prices.

James Duesenberry supported the main policy argument that some form of debt relief is desirable, both for its economic benefits to the debtor nations and for its foreign policy importance for the United States. But he reasoned that the market value of debt and the value of bank stocks bear no necessary relation either to the needs of individual countries for aid or to the extent that banks should be helped out of their problem by the government. He suggested that a better plan for solving the debt problem might guarantee a cross-section of debt and provide relief to debtor nations on a basis that is more closely related to their individual needs and to the scope for economic improvement in response to debt relief in individual countries.

Robert Hall extended Sachs's point that the debt relief plan would entail both efficiency gains and losses. At present, bank loans represent a call option on the LDCs with adverse incentive effects on their performance: good economic performance results in larger payments to the U.S. banks, while poor performance reduces those payments. He agreed with Sachs that a write-down of the LDC debt could reduce this adverse incentive effect, thus providing a present efficiency gain. But Hall noted that future lending would be less efficient because lenders would take account of the fact that previous contracts had been rewritten ex post. Dwight Jaffee added that debt relief involving the sale of bank loans to third parties might reduce the quality and quantity of LDC loans in the future because if banks got rid of many existing loans, they would lose their incentive to continue lending in order to maintain payments on outstanding loans.

Paul Krugman countered that we could conceivably be on the far side of the "debt-relief Laffer curve," in the sense that debt relief reduces the probability of default in the future so that the expected value of payments on future contracts becomes larger and more secure. He emphasized that that outcome would be far more likely if debt relief were made conditional on economic reforms, as Sachs suggests. However, George von Furstenberg questioned whether any new facility for purchasing debt in Sachs's scheme could enforce such economic reforms, observing that the IMF and World Bank are unable to do so. Sachs reemphasized that removal of the present disincentives to institute economic reforms—the banks' call options to which Hall referred—would make the future different from the present, and that further efficiency gains would come from reducing the dead-weight loss now associated with bargaining between debtors and lenders.

Several participants questioned the regression results relating debt exposure to the market value of banks. Benjamin Friedman warned that regressions explaining the excess returns on bank stocks by their LDC debt exposure would be biased if that exposure itself affected the beta coefficient that was used in forming the excess-returns variable. The banks' beta could be affected in this way because improving general economic conditions would improve the prospects of debt repayment and thus benefit bank stocks disproportionately. James Poterba reasoned that the relation between bank exposure to LDC debt and market value or excess returns would be exaggerated by other portfolio decisions that banks may have been induced to take because of their large LDC debt exposures. Similarly, von Furstenberg reasoned that the relation of market value to book value of banks with and without large exposure to LDC debt could reflect long-standing differences in lending behavior between major money-center banks and others.