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A Perspective on the Debt of Developing Countries

SINCE 1973, when the price of oil was raised very sharply, developing countries have incurred heavy debts. This paper looks at their ability to carry debt, first by examining the balance of payments and external borrowing of all developing countries that are not oil producers in general. It then focuses on a group of ten advanced developing countries that account for the bulk of the borrowing from private sources that has given rise to widely expressed concern.

The analysis that follows leads to an optimistic conclusion about the capacity of the ten countries not only to carry their present debt but to expand it. It does not follow that decisionmakers in private financial markets will come to the same conclusion. Thus attention is given also to supplementing private lending with resources supplied by the International Monetary Fund. Furthermore, questions are raised about what could go wrong—what international developments could make the outlook less rosy for the heavy debtors.

The Enlargement of Current Surpluses and Deficits since 1973

The current-account surplus for countries of the Organization of Petroleum Exporting Countries and the corresponding deficit of oil-importing countries is being financed in large part by the creation of international debt. The OPEC surplus (on goods, services, and private transfers, the

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concept used throughout this paper) increased from $6 billion in 1973 to $67 billion in 1974; it fell to $35 billion during the recession of 1975, rose again to $41 billion in 1976, and is expected to fall only slightly in 1977.[1]

The members of OPEC have been unable to sustain the rapid increases in imports of 1974 and 1975. Whereas the dollar value of OPEC imports rose about 64 percent in 1974 and 65 percent in 1975, the increase was only 24 percent in 1976, according to data from the International Monetary Fund. As is well known, the OPEC members with the largest output and largest oil reserves—those on the Arabian peninsula—have a limited capacity to absorb increased imports. However, as other OPEC members move into current-account deficit, the aggregate surplus of OPEC will decline even if Saudi Arabia and its immediate neighbors continue to run large surpluses. Just when the OPEC surplus will disappear and give way to deficit is uncertain. For the purposes of this paper it is assumed that the surplus will persist, probably on a declining scale, for a number of years. Consequently, the process of international debt creation will also go on for some time. As long as the imports of OPEC members as a group fall short of their export proceeds, a corresponding deficit must be incurred by the rest of the world. Unless they are directed at cutting oil consumption without depressing total output, efforts to depress this deficit will tend to reduce the aggregate demand either of the countries making the effort or of their trading partners.

Conceivably, these surpluses and deficits could be financed without debt creation. The OPEC and other surplus countries could acquire direct investments or equities in the deficit countries; or the IMF could issue special drawing rights in a volume large enough to permit the financing of deficits by countries that would otherwise exhaust their reserves if they did not borrow; or the countries in surplus could make grants to the countries in deficit. In fact, OPEC and other surplus countries have made some direct investment and purchased equities since 1973. And the OPEC group has provided some grants—mainly to military allies—while the industrial countries have continued to make development assistance available partly on a grant basis. To a major extent, however, the imbalances have been financed by borrowing on the part of countries in deficit and by the acquisition of securities and bank deposits on the part of countries in surplus.

1. International Monetary Fund, *Annual Report of the Executive Directors for the Fiscal Year Ended April 30, 1977*, p. 15.

It is also conceivable that the countries in surplus, while accumulating repayable claims, would lend directly to countries in deficit. If this practice were followed, the intermediary role of banks would be eliminated and, with it, the concern that has arisen about the ability of banks to continue this role. But, it seems clear, the countries in surplus have preferred to place most of their growing claims on the rest of the world in what they regard as secure and relatively liquid financial assets: U.S. government securities, other official and private securities in developed countries, and bank deposits. Countries in deficit, in turn, have issued securities in these markets and have borrowed from these banks.

Under the circumstances, questions have arisen about the debt burden that is accumulating, especially on the part of developing countries. Though less subject to publicity, many—in fact most—industrial countries have also been heavy borrowers. Only a few industrial countries—West Germany, Japan, the Netherlands, and Switzerland—have current surpluses; but they are sizable, totaling almost $17 billion in 1976. As a result, the rest of the world has incurred a current deficit equal to the OPEC surplus plus the surplus of these few countries. As noted, a large part of that deficit has been financed by borrowing. Net external borrowing by nonoil developing countries in 1974 and 1975 financed about 70 percent of their combined current-account deficit. In 1976, these countries borrowed an amount greater than their current-account deficit and added substantially to their reserves. In the three-year period, about 80 percent of the borrowings were on a long-term basis, about half from official sources and half from private sources. Short-term borrowing (less than one-year maturity) from private creditors, at about $5 billion in 1974–75, accounted for about one-fifth of total borrowing.[2] Of the total debt of nonoil developing countries outstanding at the end of 1976 ($140 billion), all but about $20 billion was either borrowed by official entities or officially guaranteed.[3]

This process is likely to continue and it is easy to demonstrate that as long as OPEC members in the aggregate remain in surplus, funds will be available from the proceeds of that surplus to finance the deficits of oil-importing countries in the aggregate. The OPEC surplus provides the means for its own financing.[4]

2. Ibid., p. 21.

3. World Bank, *World Debt Tables,* vol. 1 (September 2, 1977), p. 47.

4. Robert Solomon, *The International Monetary System, 1945–1976: An Insider's View* (Harper and Row, 1977), pp. 298–301.

Table 1. Growth of Output, Trade, and Debt, Nonoil Developing Countries, Pre-1973 and 1973–76

Percent

Growth item	*Pre-1973*	*1973*	*1974*	*1975*	*1976*
Real GNP	6.1[a]	6.7	5.2	3.4	5.1
Exports	6.5[b]	8.0	4.5	0.0	13.0
Imports	5.5[b]	15.0	8.0	−6.0	1.5
External public and publicly guaranteed debt (in 1970 prices)	9.8[a]	−11.4	−10.7	25.4	8.1

Sources: International Monetary Fund, *Annual Report of the Executive Directors for the Fiscal Year Ended April 30, 1977*, pp. 7, 9, except the last row, which is computed from row 10, table 2, below.
a. Compound annual rate of growth, 1967–72.
b. Compound annual rate of growth, 1962–72.

Such aggregative analysis leaves many observers uneasy. Isn't it possible, they ask, that the growing debt of some countries will threaten to become unmanageable (a concept to be examined below) and that lenders—those who are intermediating between the OPEC and other surplus countries on the one hand and the large number of deficit countries on the other—will stop lending or be left with bad debts? This type of question tends to focus on those nonoil developing countries that have been borrowing heavily from banks.

The sizable increase in debt by developing countries in recent years is a more complex matter than the financing of the OPEC surplus and the corresponding "oil deficits" of oil-importing countries. As noted above, the nonoil developing countries increased their reserves in 1976, and they did so by more than they increased their debt to private creditors. Furthermore, their enlarged deficits have resulted not only from the increase in oil prices but also from the impact of the recession and subsequent slow recovery in industrial countries. Real output in the industrial nations was unchanged in 1974 and fell 1 percent in 1975, while in nonoil developing countries output increased 5.2 percent in 1974 and 3.4 percent in 1975 (see table 1).

As a result of these and other influences, the current deficit of nonoil developing countries increased from $11 billion in 1973, to $30 billion in 1974, and to $38 billion in 1975; in 1976, the deficit declined to $26 billion and it is estimated at about the same level in 1977 (see table 2).

These deficits of nonoil developing countries rose in 1975 as the result of the recession in industrial countries. But the increase from 1973 to 1976 seems to be explainable entirely by the rise of oil prices.

Table 2. Selected Debt-Related Data on Nonoil Developing Countries, 1967 and 1971–76[a]

Billions of dollars

Debt-related item	*1967*	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*
1. Trade deficit (fob)	4.6[b]	8.6	7.0	6.6	22.8	29.1	15.5
2. Exports to OPEC	n.a.	n.a.	n.a.	2.3	4.7	6.4	6.1
3. Imports from OPEC	n.a.	n.a.	n.a.	8.1	23.1	22.8	25.9
4. Trade deficit with OPEC	n.a.	n.a.	n.a.	5.8	18.4	16.4	19.8
5. Current-account deficit[c]	7.1[b]	11.4	9.2	10.9	29.5	38.2	25.8
6. Total external public and publicly guaranteed debt[d]	28.7	47.3	53.8	63.5	77.2	94.7	116.1
7. Private nonguaranteed debt[d]	n.a.	n.a.	n.a.	15.0	18.8	20.9	24.0
8. Total external debt[d]	n.a.	n.a.	n.a.	78.5	96.0	115.6	140.1
9. External debt to private creditors[d]	7.8	n.a.	16.2	35.9	46.9	58.2	71.9
10. Total external public and publicly guaranteed debt in 1970 prices[d]	31.9	47.3	50.8	45.0	40.2	50.4	54.5
11. Total external debt in 1970 prices[d]	n.a.	n.a.	n.a.	55.7	50.0	61.5	65.8
12. Total reserves	12.2[b]	15.8	21.6	29.6	32.5	31.1	42.7

Sources: Row 1—IMF, *International Financial Statistics*, vol. 29 (August 1976), and IMF, *Annual Report, 1977*, p. 15; rows 2–4—United Nations, *Monthly Bulletin of Statistics*, Special Table C, August 1976 and June 1977; row 5—IMF, *Annual Report, 1976*, p. 20, and *1977*, p. 15; rows 6–8—World Bank, *World Debt Tables*, vol. 1 (October 31, 1976), pp. 31, 33; and vol. 2, country pages; and other World Bank sources (excludes advanced Mediterranean countries other than Turkey and Yugoslavia); row 9—same as row 8 except that data before 1973 also exclude Turkey and Yugoslavia; rows 10–11—rows 6 and 8 divided by export price index (excluding petroleum) of developing market economies, from UN, *Monthly Bulletin of Statistics*, July 1977, p. xx (1976 estimated by author); row 12—IMF, *International Financial Statistics*, various issues (data converted from special drawing rights to dollars).

a. Annual or year-end data.
b. Annual average, 1968–70.
c. Goods, services, and private transfers.
d. Debt with maturity of more than one year.
n.a. Not available.

As shown in table 2, the value of merchandise imports to all nonoil developing countries from OPEC members increased from $8.1 billion in 1973 to $22.8 billion in 1975. Their exports to OPEC increased from $2.3 billion to $6.4 billion. Thus their trade deficit with OPEC grew from $5.8 billion in 1973 to $16.4 billion in 1975 and accounted for 47 percent of the increase in their total trade deficit in this period. In 1976, the trade deficit of these developing countries with OPEC, at $19.8 billion, was larger than their total trade deficit. The growth in the trade deficit with OPEC from 1973 to 1976 ($14 billion) exceeded the increase in the total trade deficit of nonoil developing countries ($9 billion). Trade with OPEC countries includes more than oil, so that these results do not give a precise measure of the impact of the change in oil prices and oil consumption on trade balances; but it comes fairly close. (Even for one of the more developed and diversified OPEC countries, Venezuela, petroleum accounted for 94 percent of total exports in 1976.)

Faster recovery in the industrial countries could bring a further narrowing of the deficit of nonoil developing countries. But some of these countries have imposed stringent restrictions on a broad range of imports, and these might be relaxed as export proceeds increase. It is noteworthy that the volume of total imports into nonoil developing countries was 6 percent lower in 1975 than in 1974, despite the continued, though less than historical, real growth of their economies.

The notion that deficits of nonoil developing countries are abnormally enlarged is contradicted by an analysis of the International Monetary Fund that scales up these deficits for world inflation and real growth. On this basis, the average current-account deficit of $8.1 billion per year in 1967–72 becomes the equivalent of $27 billion in 1977 prices and levels of real output. It so happens that this is precisely equal to the fund's projection of the aggregate current-account deficit of nonoil developing countries in 1977.[5]

The conclusion drawn from the fund analysis is that the nonoil developing countries are absorbing resources in real terms from the rest of the world at about the same relative rate as before the OPEC price rise. The big change is that now the OPEC countries rather than the industrial countries have the corresponding surpluses. For purposes of this paper, the IMF analysis is reasonable in broad terms, and the paper therefore assumes that nonoil developing countries as a group should and will continue to incur substantial current-account deficits in the years ahead.

5. *IMF Survey*, vol. 6 (May 16, 1977), p. 149.

The question is whether or not the debt being incurred by nonoil developing countries is manageable.

Growth and Manageability of Debt

The literature on debt-financed economic development pictures the process as a race between two variables growing at compound rates: debt and income.[6] Debt is generated by the gap between domestic saving and investment, which can increase in absolute terms over time. As the gap widens and debt cumulates, interest charges also cumulate, and the country must borrow increasing amounts just to maintain a constant flow of net imports. It must also borrow to refinance maturing debt obligations. Income, in turn, grows as a result of the investment process. The capacity to service debt depends fundamentally on the continuing growth of output, which makes it feasible ultimately to close and then reverse the gap between domestic saving and investment.

The process can be depicted by a simplified model adapted from the difference-equation model presented by Avramovic and his associates.[7] In the model below, growth proceeds as the result of increasing investment and a fixed incremental capital-output ratio. All external debt is assumed to finance the gap between investment and domestic saving; changes in reserves and capital inflows other than interest-bearing debt are ignored and all prices are assumed to be constant. Amortization of past loans is also ignored on the plausible assumption that, as long as the gap exists, scheduled loan repayments will be offset by new borrowings. Thus debt accumulates as the result of the gap between investment and saving and of the interest on the growing debt.

Investment and saving are related to income as follows:

$$I(n) = krY(n) = krY_0e^{rn};$$
$$S(n) = sY(n) = sY_0e^{rn},$$

where I and S are investment and saving net of depreciation, Y is net national product, k is the incremental capital-output ratio, r is the growth of

6. See especially Dragoslav Avramovic and others, *Economic Growth and External Debt* (Johns Hopkins Press, 1964), and Goran Ohlin, *Aid and Indebtedness: The Relation Between Aid Requirements, Terms of Assistance and Indebtedness of Developing Countries* (Paris: Development Centre of the Organisation for Economic Co-operation and Development, 1966). These analyses are carried out on the assumption of stable world prices, an assumption relaxed below.

7. *Economic Growth*, pp. 188–92.

real and nominal net national product and income, s is the ratio of domestic saving to net national income, n represents time, and the subscript zero denotes the year before debt began to be incurred.

Then debt outstanding, D, at time T is the sum of loans taken up to finance the gap between investment and domestic saving from the time the process began, together with the accumulation of interest, i, at a compound rate on each of these loans from the time at which it was incurred to time T:

$$D(T) = \int_0^T (I(n) - S(n))e^{i(T-n)}\,dn$$

$$= \int_0^T (krY_0e^{rn} - sY_0e^{rn})e^{i(T-n)}\,dn$$

$$= (kr - s)Y_0e^{iT}\int_0^T e^{(r-i)n}\,dn, \text{ for } r \neq i.$$

Therefore,

$$D(T) = \frac{kr - s}{r - i}\,Y_0(e^{rT} - e^{iT}),\ r \neq i. \tag{1}$$

The ratio of debt to income is

$$\frac{D(T)}{Y(T)} = \frac{1}{Y_0e^{rT}}\left(\frac{kr - s}{r - i}\right)Y_0(e^{rT} - e^{iT}) = \frac{kr - s}{r - i}(1 - e^{T(i-r)}) \tag{2}$$

$$\lim_{T\to\infty}\frac{D(T)}{Y(T)} = \frac{kr - s}{r - i}, \text{ if } r > i.$$

Thus if the rate of growth of output exceeds the rate of interest on external borrowing, the debt-income ratio levels off ultimately at $(kr - s)/(r - i)$.

The condition for the debt-income ratio to reach a maximum may be derived:

$$\frac{d\dfrac{D(T)}{Y(T)}}{dT} = \frac{kr - s}{r - i}[-(i - r)e^{T(i-r)}] = (kr - s)e^{T(i-r)}. \tag{3}$$

Setting this expression equal to zero,

$$(kr - s)e^{T(i-r)} = \frac{kr - s}{e^{T(r-i)}} = 0.$$

It is clear from equation 3 that the second derivative is negative if $r > i$. The debt-income ratio is thus asymptotic to $(kr - s)/(r - i)$ since the maximum is reached only when T is at infinity.

Thus with an unchanged $(kr - s)/(r - i)$, the rate of growth of the debt-income ratio will decelerate over time as long as $r > i$, an essential condition. Debt accumulation need not be an explosive process. The question may still be asked whether the limit is a reasonable one in terms of the ability of the borrowing country to service debt. I return to this question below.

If, more realistically, one allows for changes over time in kr and s, it is the closing of the gap between them—that is, between investment and domestic saving—that ends the process of net debt accumulation. The evolution of countries, including the United States in the late nineteenth century, from net capital importers to net capital exporters was presumably the result of such changes in the parameters that are treated as constants in the abstract model.

If world inflation is taken into account, the story changes somewhat. A steady rate of inflation from the beginning of the debt-accumulation process would, of course, lead to higher debt in nominal terms. In equations 1 and 2, the appropriate value of r would include the rate of increase of world prices (expressed in dollars or SDRs) added to the real growth rate. If this inflation is just fully reflected in the interest rate, i, both the nominal value of debt and the debt-income ratio would be higher than under stable prices. The less the inflation rate is reflected in the interest rate, the lower the limit of debt to income.

What must be analyzed is the effect of the acceleration of inflation in 1972–73. A number of impacts on debt may be identified. Nominal new borrowings had to increase merely to finance an unchanged real gap between investment and domestic saving, but this increase was roughly proportional to the increase in national product that resulted from higher prices. On the other hand, borrowings to refinance maturing debt declined relative to national product and the current gap. Nominal interest rates on new debt, to finance the gap and to replace maturing debt, rose by an inflation premium and thus enlarged the amount of subsequent new borrowing that was required; but interest rates on the borrowings by developing countries rose by less than the increase in the inflation rate, since the latter was generally expected to subside. Thus the greater the proportion of debt to national product and the longer the maturity on the debt a

country had incurred before the inflation began—inflation that was unanticipated and therefore not reflected in interest rates before 1972–73—the more it stood to gain.

It seems clear that the net effect of the unanticipated inflation has been to lighten the burden of debt. Even though the nonoil developing countries suffered a deterioration in their terms of trade, as did all oil-importing countries, the increase in world prices reduced the real value of outstanding debt in 1973–74, as shown in table 2, where the deflator is an index of the export prices of developing countries, excluding petroleum. Even when deflated debt did not fall, it rose less in real than in nominal terms.

Major Borrowers from Banks among Developing Countries

The ten more advanced nonoil developing countries that account for the bulk of recent external borrowing from private sources represented 44 percent of the current deficits of all nonoil developing countries in 1976 (see table 3). From 1973 to 1976, they were responsible for 61 percent of the *increase* in the aggregate deficit of nonoil developing countries. Furthermore, among the ten countries, Brazil and Mexico loom large in most years.

These ten countries owe a large proportion of the developing countries' debt to private creditors. Table 4 shows that, of the total debt to banks of nonoil developing countries (including short-term debt, which is excluded from the debt totals in table 2), the ten countries owe almost three-fourths, and Brazil and Mexico alone almost half. Bank debt in turn is the major form of debt from private sources. These countries have issued a relatively small amount of securities in foreign markets.

The more advanced developing countries were already borrowing from private lenders before the sharp increase in their current-account deficits in 1974. A number of them—notably, Brazil and Mexico—had established their access to the Eurocurrency markets and other banks in the late 1960s and early 1970s.

Borrowing from private sources accelerated after 1973. The external debt of forty-six middle-income nonoil developing countries to private creditors increased from $34 billion at the end of 1973 to almost $69 bil-

Table 3. Current-Account Deficits, Ten Advanced and All Nonoil Developing Countries, Selected Years 1968–76[a]

Millions of dollars except where noted

Country	*1968*	*1970*	*1973*	*1974*	*1975*	*1976*
Argentina	47	156	−704	−125	1,281	−617
Brazil	543	569	1,764	7,178	6,744	6,212
Chile	141	95	289	186	578	−25
Colombia	188	330	78	382	126	−320
Mexico	744	1,083	1,423	2,890	4,210	3,417
Peru	53	−146	299	751	1,574	1,231
Philippines	294	69	−439	241	990	1,142
South Korea	561	706	343	2,094	1,955	325
Taiwan	117	−7	−570	1,113	580	−395
Thailand	207	0	−130	−54	503	486
Subtotal	2,895	2,855	2,353	14,656	18,541	11,456
Subtotal as proportion of total	0.43	0.33	0.22	0.50	0.49	0.44
Total, all nonoil developing countries	6,800	8,700	10,900	29,500	38,200	25,800

Sources: Country data, IMF, *International Financial Statistics*, vol. 29 (August 1976), vol. 30 (September 1977); total, row 5, table 2, above; and IMF, *Annual Report, 1976*, p. 20.

a. Goods, services, and private transfers; minus sign denotes surplus.

lion at the end of 1976. For these countries, total debt in relation to exports of goods and services increased from 77 percent in 1967 to 105 percent in 1976.[8]

The changes from 1967 to 1975 in the ratio of external public and publicly guaranteed debt to gross national product and to exports are shown in table 5 for the ten major borrowers.

Except for Chile, Peru, and Mexico, the ratios of debt to exports decreased, increased moderately, or remained relatively low (Philippines) from 1967 to 1975. I shall consider the ratios to GNP below.

The debt-service ratio—annual interest plus amortization relative to exports—is often used as a measure of creditworthiness. But it is a defective measure, as Avramovic and his colleagues point out,[9] principally because maturities are bunched. Thus, for example, almost 60 percent of Brazil's public and publicly guaranteed debt outstanding at the end of

8. These data were supplied by the World Bank.

9. *Economic Growth*, p. 42.

Table 4. External Bank Debt and Increase of Reserves, Ten Advanced and All Nonoil Developing Countries, 1975 and 1976

Billions of dollars

Country	Bank debt[a]		Increase of reserves
	1975	1976	1976
Argentina	3.2	3.4	1.2
Brazil	14.8	21.2	2.5
Chile	0.8	1.1	0.3
Colombia	1.6	1.6	0.6
Mexico	13.5	17.9	n.a.
Peru	2.3	2.8	−0.1
Philippines	2.0	2.6	0.3
South Korea	3.3	3.9	1.4
Taiwan	2.1	2.6	0.4
Thailand	1.2	1.4	0.1
Subtotal	44.8	58.5	6.7
Subtotal as proportion of total	0.71	0.72	0.58
Total, all nonoil developing countries	63.0	80.9	11.6

Sources: Bank debt—Bank for International Settlements, *Forth-Sixth Annual Report: 1st April 1975–31st March 1976*, pp. 86–87, *1977*, pp. 112–14 (includes debt with maturity of one year and less); reserves—*IMF, International Financial Statistics*, vol. 30 (September 1977), p. 25, converted from special drawing rights.

a. End of year.

n.a. Not available.

1974 was repayable over the following five years. For most of the ten countries, a large proportion of debt outstanding to private creditors comes to final maturity in the next five years.[10]

There will thus be need for rollovers or for new loans to replace maturing loans. This is hardly a novel predicament for bankers. If the basic economic prospects for the debtors are satisfactory—a question examined below—the bunching of maturities represents a short-run liquidity problem, not a fundamental inability to carry debt.

In some cases, high debt-service ratios may not require formal debt refinancing, for private capital will be attracted by satisfactory economic performance. Such was the experience of Japan in the early 1960s and of Mexico in the mid-1960s.[11]

10. World Bank, *World Debt Tables*, vol. 1 (September 2, 1977), p. 210.

11. Reed J. Irvine, Yves Maroni, and Henry F. Lee, "How to Borrow Successfully," *Columbia Journal of World Business*, vol. 5 (January–February 1970), pp. 42–48.

Table 5. Ratio of External Public and Publicly Guaranteed Debt to GNP and to Exports of Goods and Nonfactor Services, Ten Advanced Nonoil Developing Countries, 1967 and 1975

	Ratio			
	Debt to GNP		*Debt to exports*	
Country	*1967*	*1975*	*1967*	*1975*
Argentina[a]	0.11	0.08	1.04	0.84
Brazil	0.08	0.12	1.43	1.24
Chile	0.19	0.44	1.22	2.14
Colombia	0.14	0.18	1.15	1.22
Mexico[a]	0.09	0.15	1.01	1.89
Peru	0.13	0.21	0.72	1.52
Philippines[a]	0.03	0.08	0.19	0.41
South Korea	0.13	0.28	1.00	0.90
Taiwan	0.08	0.12	0.36	0.28
Thailand[a]	0.05	0.04	0.25	0.22

Sources: Data from the World Bank, except 1975 ratios for Chile, which are computed from *World Debt Tables*, vol. 2 (September 2, 1977), *World Bank Atlas: Population, Per Capita Product, and Growth Rates* (World Bank, 1976), and IMF, *International Financial Statistics*, vol. 30 (September 1977).

a. Total debt is substantially higher than public and publicly guaranteed debt.

Whether or not private lenders will be willing and able to refinance maturing debt while continuing to increase outstanding debt as required to finance deficits is not predictable. If the improved current-account positions of 1976 are maintained, the amount of net new bank loans needed by nonoil developing countries will be rather small. Even so, some of the banks that have been heavy lenders may feel incapable of increasing their exposure, or may choose not to do so even if they can. To throw light on this question would require a separate study. But the banks' eagerness to expand their lending will continue to depend on the underlying economic performance of the debtor countries.

The Economic Performance of the Advanced Nonoil Developing Countries

This section examines first the broad indicators of economic performance of the ten advanced developing countries in recent years. It then attempts to assign plausible values to the parameters of the growth-debt model in order to determine how far these countries are from the limit of

Table 6. Growth Rates, Ten Advanced Nonoil Developing Countries, Selected Periods, 1960–75[a]

Percent per year

Country	*1960–70*	*1970–73*	*1973–75[b]*
Argentina	4.4	3.8	2.7
Brazil	6.2[c]	11.4	6.8
Chile	4.9	1.2	−4.8
Colombia	5.2	6.9	5.3
Mexico	7.0	6.1	5.1
Peru	5.5	5.7	5.2
Philippines	5.4	6.8	6.0
South Korea	8.7	11.1	10.7
Taiwan	9.0	11.8	4.8
Thailand	7.9	7.5	5.5

Sources: Computed from country data in IMF, *International Financial Statistics*, vol. 30 (May 1977 and September 1977).

a. Compound annual rates of growth of gross domestic product at 1970 prices.

b. 1973–76 for Philippines, South Korea, Taiwan, and Thailand.

c. 1963–70.

the ratio of debt to income. Finally, it explores whether the service on the debt at the limit would be an unbearable burden.

Real growth rates for the ten countries are shown in table 6. Except for Argentina, even in the 1960s their growth rates were higher than the average of industrial countries. Five of the ten showed a significant acceleration in output growth in 1970–73. In 1974–75, output was affected by the rise of oil prices and the recession in industrial countries but, as noted earlier, developing countries were more successful than industrial countries in maintaining economic expansion. In 1973–75—or, where the data are available, 1973–76—growth rates exceeded 5 percent, except for Argentina, Chile, and Taiwan. (In the last the growth rate averaged 4.8 percent during 1973–76, but from the fourth quarter of 1975 to the fourth quarter of 1976 industrial production increased 20 percent.)

Meanwhile, real interest rates on external debt were quite low. According to the World Bank, interest paid on external public debt outstanding was 4.6, 5.2, and 5.5 percent, respectively, in the three years 1973–75 for all developing countries. On debt to private creditors, the rates were 7.0, 8.6, and 8.4 percent, respectively, for the three years.[12] If the rate of world inflation, in terms of dollars, is approximated at 7 percent, real interest rates on debt to private creditors could not be said to exceed 1 percent.

12. World Bank, *World Debt Tables*, vol. 1 (September 2, 1977), p. 39.

Table 7. Indexes of Volume of Exports, Selected Nonoil Developing Countries, 1973–76

1970 = 100

Country	*1973*	*1974*	*1975*	*1976*
Brazil[a]	173	195	203	206
Peru	72	72	66	67
Philippines	145	111	132	177
South Korea	305	333	410	557
Taiwan	221	211	209	322
Thailand	139	152	147	199

Source: IMF, *International Financial Statistics*, vol. 30 (September 1977), country pages.
a. Excluding coffee; including coffee, the volume indexes are 155, 158, 165, 167. Coffee constituted 20 percent of the value of exports in 1973 and 21 percent in 1976.

Data on the volume of total exports are available for only six of the ten countries. They are shown in table 7 for 1973–76 on a base of 1970 = 100. In some cases, notably South Korea and Taiwan, the performance is phenomenal. Except for Peru, which was affected by recession-induced decreases in demand for mineral products in industrial countries and by the fall in the fishmeal catch, the countries for which a measure of export volume is available outperformed most industrial countries by a considerable margin. In Japan, probably the industrial country with the largest export expansion, the volume of exports almost doubled from 1970 to 1976; for Germany, exports increased 53 percent and for the United States, 48 percent.

In assigning values to the parameters of the limit of debt to net national product, $(kr - s)/(r - i)$, the major problem is that estimates of saving rates derived independently of investment rates are not available. The alternative is an attempt to measure directly $kr - s$, the gap between net investment and net saving as a proportion of net national product.

I measure the gap by subtracting net payments of interest and dividends from the deficit on goods and services. The resulting figure should represent the absorption into domestic use of goods and services from abroad. When divided by net national product, it provides an estimate of $kr - s$. The year 1974 is chosen for the calculations because national-accounts data are not available for 1976 for many countries and because, in 1975, the trade deficits of developing countries were temporarily enlarged by the world recession. The results are presented in table 8. The gap shown in column 1 is larger than it appears it will be for 1976, given that the current-account deficits fell from 1974 to 1976 while net interest pay-

Table 8. Calculation of Gap between Investment and Saving as a Proportion of Net National Product, Ten Advanced Nonoil Developing Countries, 1974

Billions of dollars, except where noted

Country	*Gap (deficit on goods and services other than net interest and dividends paid)* (*1*)	*Net national product* (*2*)	*Ratio, gap to net national product* (*3*)
Argentina	−0.441	50.44[a]	−0.01
Brazil	6.278	88.53[a]	0.07
Chile	0.233	7.81[a]	0.03
Colombia	0.210	10.18	0.02
Mexico	1.860	58.59[a]	0.03
Peru	0.601	10.90	0.06
Philippines	0.429	13.23	0.03
South Korea	2.006	15.14	0.13
Taiwan	1.123	12.81	0.09
Thailand	0.283	12.38	0.02

Sources: Column 1—IMF, *Balance of Payments Yearbook, 1967–74*, vol. 27 (IMF, 1976), converted from SDRs to dollars; column 2—IMF, *International Financial Statistics*, vol. 30 (September 1977), converted to dollars, for all countries but Chile, for which the source is *World Bank Atlas: Population, Per Capita Product, and Growth Rates* (1976), p. 19.

a. Net national product is assumed to equal 0.9 times gross domestic product.

ments increased. On the other hand, the 1976 deficits may be abnormally low as the result of import restrictions and rates of growth that, for most countries, had not yet returned to the rates of 1970–73. For these reasons, it seems sensible to use the ratio of the gap to net product in 1974 as more or less normal.

Table 9 applies the debt-income model presented earlier but in nominal prices. The gaps of table 8 are divided by estimates of $r - i$, to offer, in column 3, a measure, country by country, of the limit of the debt-income ratio. For an estimate of r, I add a world-inflation factor of 7 percent to the real growth rates of 1970–73, which are assumed to represent long-term rates. I assume an interest rate, i, of 8 percent even though, as noted earlier, outstanding debt—a mix of loans from official and private sources—carried an interest rate in 1975 between 5.5 and 8.4 percent.

Comparison of column 3 with table 5 reveals that in 1975 all ten countries were substantially below their debt-income limit. But that observation may have little significance if the limit of the debt-income ratio is so high that it would involve an intolerable interest burden on the country.

Column 5 therefore shows the ratio of debt to exports of goods and services at the limit on the assumption that the ratio of exports to net national product remains what it was in 1974 (column 4). And column 6

Table 9. Debt-Income Limits and Interest Burdens, Ten Advanced Nonoil Developing Countries, 1974

Country	*Nominal growth rate minus interest* (1)	*Ratio*				
		Gap to net national product (2)	*Debt-to-income limit* (3)	*Exports to net national product* (4)	*Debt to exports at limit* (5)	*Interest to exports at limit* (6)
Argentina	0.03	−0.01	-0.33	0.10	...	...
Brazil	0.10	0.07	0.70	0.11	6.36	0.51
Chile	0.002	0.03	15.00	0.28	53.57	4.29
Colombia	0.06	0.02	0.33	0.19	1.74	0.14
Mexico	0.05	0.03	0.60	0.11	5.45	0.44
Peru	0.05	0.06	1.20	0.17	7.06	0.56
Philippines	0.06	0.03	0.50	0.27	1.85	0.15
South Korea	0.10	0.13	1.30	0.35	3.71	0.30
Taiwan	0.11	0.09	0.82	0.51	1.61	0.13
Thailand	0.07	0.02	0.29	0.26	1.12	0.09

Sources: Column 1—real growth rate in 1970–73 from table 6 above (divided by 100) plus 0.07 (a measure of world inflation) minus 0.08 (nominal rate of interest on debt); column 2—from column 3, table 8, above; column 3—column 2 ÷ column 1; column 4—exports of goods and services in 1974 from IMF, *International Financial Statistics*, vol. 29 (August 1976), net national product from table 8 above; column 5—column 3 ÷ column 4; column 6—column 5 × 0.08.

presents the ratio of interest payments to exports of goods and services that would prevail at the limit, still assuming an 8 percent nominal interest rate.

Several anomalies are evident in the table. Argentina was in surplus in 1974 on current account. Over the ten years 1967–76, Argentina's balance of payments fluctuated between surplus and deficit; on average there was a current-account deficit of about $75 million. Even that figure would yield a surplus on goods and services less interest and dividends. Thus it is difficult to come up with a gap between investment and saving for Argentina. In any event, the ratios of debt to GNP and to exports are relatively low; in 1976 and the first half of 1977, reserves increased substantially. Argentina, then, can be left aside in considering whether the group of ten countries is headed for difficulties because of overborrowing.

In the case of Chile, an extremely low growth rate in 1970–73 (1.2 percent per year) produced a very high and unrealistic limit of debt to income. Assuming the growth rate of the 1960s (4.9 percent), and using the other ratios shown in table 9, the last column would come out at 0.22, a not intolerable interest burden.

Chile's ratios of debt to GNP and to exports were high in 1975, as

table 5 shows, but partly because of low levels of exports and GNP. Real GDP fell 13 percent in 1975. Copper exports, which constitute a varying but high proportion of total exports, fell 8 percent in volume and 40 percent in price in 1975. In addition, the "chronic limitations on the economic system were aggravated during 1971–73 as the result of the drastic reorientation in economic policy and the reorganization of the country's productive structure, which have caused serious difficulties in recent years for the restoration of the economy's internal and external equilibrium."[13]

If, in the other countries, debt were to rise to its maximum ratio to income, the interest burden would be high, as a proportion of export proceeds, in the cases of Brazil, Mexico, Peru, and possibly South Korea. The remaining countries—Colombia, the Philippines, Taiwan, and Thailand—would, at the debt limit, have annual interest payments equal to 15 percent or less of their exports of goods and services.

In 1975, Brazil's ratio of public debt to GNP was 0.12, as shown in table 5. In 1976, the ratio of *total* debt—amounting to $26 billion—to GNP was about 0.20.[14] Applying the interest rates estimated by the World Bank for 1975 to the distribution of this debt between official and private creditors yields total interest payments in 1976 of $1.9 billion. This comes to 17 percent of Brazil's exports of goods and services in 1976.

It appears that Brazil does not have unlimited leeway for further increases in external debt *relative to its exports.* On the other hand, in a growing world economy, that country has considerable scope to increase its debt without raising the ratio of interest payments to exports.

If Brazil's real GNP were to expand 9 percent per year in the future (compared with 11 percent in 1970–73); if its exports keep up with the growth of its GNP (in the years 1971–75, Brazil's exports in real terms rose faster than its real GDP); and if world prices continue to rise at 7 percent per year, Brazil's debt could increase more than $4 billion a year in the next few years without raising the ratio of debt to GNP or to exports. A higher rate of growth of GNP and exports would permit larger annual increases in debt without raising the debt burden.

How fast would the debt-income ratio creep up if Brazil continued to maintain a gap equal to 7 percent of its net national product, as is as-

13. Inter-American Development Bank, *Economic and Social Progress in Latin America: 1976 Report,* p. 186.

14. From data supplied by the World Bank.

sumed in table 9? Equation 3 of the model helps to answer this question. After twenty years of debt-financed growth, the ratio increases by 0.01 a year; after thirty years, by 0.003. By now, therefore, the ratio is likely to rise rather slowly. Still, the ultimate limit is too high.

Plainly, Brazil cannot go on indefinitely with a gap as large as that assumed in table 9. In fact, the gap has decreased since 1974, both absolutely and in relation to GNP. Brazil grew at a real rate of 8.8 percent in 1976,[15] while the gap was about 4 percent of net national product. A gradual narrowing of the gap, relative to GNP, should be possible without interfering with a rapid rate of growth. What it requires is an increase in the saving rate, public or private. Given the rapid growth of real per capita income in recent years (6.3 percent a year in 1965–74), Brazil should be able to adopt policies to accomplish this increase.

For Mexico, too, the ultimate ratio of debt to income appears too high, though not as high as that of Brazil. Mexico's total debt at the end of 1976 was about $20 billion. If its growth rate returns to 6 percent and world inflation continues at 7 percent, Mexico's debt could rise by $2.6 billion a year without increasing the ratio. In any event, the discovery of large oil reserves bodes well for Mexico's exports. Mexico is unlikely to become a problem case.

Peru's export difficulties have already been alluded to. It is a "problem" country and negotiations, with the International Monetary Fund and with private creditors, are currently under way.

South Korea is the only other country among the ten with a high limit of debt to income and, at the limit, a relatively high ratio of interest payments to exports. Korea is now far from those limits. Total debt at the end of 1976 is estimated by the World Bank at $7.5 billion, which amounts to 30 percent of Korea's net national product. Equation 3 indicates that, after ten years of debt-financed growth, the debt-income ratio rises by 0.05 a year; after twenty years by less than 0.02.

With the same method as for Brazil, Korea's interest payments in 1976 may be estimated at $473 million, which amounted to only 5 percent of its exports of goods and services in that year. South Korea thus will have ample time before it must narrow the gap because the interest burden of debt has become oppressive.

Thus from the viewpoint of the growth-cum-debt process, the countries considered here fall into three categories: (1) those that can go on in-

15. *Economic and Social Progress in Latin America: 1976 Report,* p. 175.

definitely borrowing abroad to finance an excess of investment over domestic saving; (2) those that may have to curtail their borrowing somewhat but appear to be in a position to do that without too much sacrifice of domestic consumption; and (3) two mineral-exporting countries that have been strongly affected by the recession and slow recovery in the industrial nations. These two countries account for only 7.5 percent of the total debt of the ten countries.

In general, therefore, the performance and prospects of the major borrowers permit an optimistic judgment about their creditworthiness.

What Could Go Wrong?

One of the dangers often cited by those who are concerned about the heavy buildup of debt by developing countries since 1973 is that the borrowers may be using the external resources to finance consumption rather than investment. Table 10 presents data for the ten countries on the ratio of gross fixed capital formation to gross domestic availabilities—domestic product plus net imports of goods and services.[16] Except those for Brazil, the data are in current prices and a question arises about what results would be shown by deflated accounts. Nevertheless, it is striking that only two of the countries, Chile and Colombia, exhibit a decline in the ratio of gross fixed investment to available resources after 1973, and in the case of Colombia the decline was slight. From this evidence, no basis exists for the fears that heavy borrowers among developing countries are not maintaining their rates of investment.

Another concern relates to the ability of the debtor countries to export in the future. The analysis of the growth process here has focused only on the investment-saving gap. The so-called foreign-exchange gap, or trade limit,[17] was ignored. In other words, it was assumed implicitly that this

16. What this amounts to is a measure of I as a percentage of $C + I + G$, where I is gross domestic investment, C is private consumption, and G is government consumption. If I were measured as a proportion of Y (gross domestic product), the ratio would not go down if a large increase in consumption were matched by increased imports, since $Y = C + I + G + X - M$, where X is exports, and M imports, of goods and services. Adding $M - X$ to Y and dividing it into I yields a measure of I divided by $(C + I + G)$.

17. Hollis B. Chenery and Alan M. Strout, "Foreign Assistance and Economic Development," *American Economic Review*, vol. 56 (September 1966), pp. 679–733.

Table 10. Gross Fixed Capital Formation as a Percentage of Total Absorption, Ten Advanced Nonoil Developing Countries, 1970–76[a]

Country	*1970*	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*
Argentina	20.0	19.2	20.1	19.9	20.2	20.8	n.a.
Brazil[b]	n.a.	20.7	22.6	24.2	27.6	28.4	n.a.
Chile	13.8	12.9	11.5	13.1	13.9	11.7	n.a.
Colombia	20.0	20.0	18.4	17.7	19.1	18.2	n.a.
Mexico	19.1	17.8	19.4	20.7	21.6	22.6	n.a.
Peru	13.4	14.7	14.1	15.1	17.3	17.6	16.6
Philippines	15.7	16.2	15.6	15.8	17.9	22.3	22.9
South Korea	22.6	20.9	19.1	22.9	23.3	23.5	22.6
Taiwan	21.8	23.5	26.0	27.7	26.7	29.2	30.4
Thailand	22.8	21.7	21.4	21.0	22.2	22.2	22.3

Sources: Except for Brazil, computed from IMF, *International Financial Statistics*, vol. 30 (September 1977), country pages; for Brazil, Inter-American Development Bank, *Economic and Social Progress in Latin America: 1976 Report*, p. 397.

a. Total absorption = GDP − exports + imports of goods and services = consumption + gross fixed investment + increase in stocks + government consumption.

b. Computed from data expressed in 1973 prices.

n.a. Not available.

group of advanced developing countries could expand its exports, if necessary, to compensate for a reduction in net capital inflow. This in turn requires that the industrial countries keep their markets open to the exports —particularly exports of manufactures—of the developing countries. Quite apart from the usual arguments against import restrictions, in this case they would create a transfer problem for developing countries and force them to rely more on external borrowing.

Another recession in the industrial nations would be a problem for the debtor countries. As in 1975, their exports would decline and their current-account deficits would swell. Unless they too fell into recession, their borrowing needs would increase. One can only hope that banks would act rationally and exhibit even greater willingness to extend maturities or in other ways refinance debt while meeting the additional borrowing requirements. From past experience, banks have every reason to act sympathetically. Their loss experience on foreign loans in recent years has been only one-fifth of their chargeoffs on domestic loans.[18]

There is no concrete evidence that lenders perceive increasing risk on international loans to developing countries. For example, two Eurobond issues by the government of Brazil with similar terms in other respects sold to yield 10.00 percent in May 1976 and 8.92 percent in July 1977.

18. Robert R. Davies, "Tests Show Banks are Rational, Efficient in Granting LDC Credit," Bond Buyer, *Money Manager*, vol. 6, no. 30 (August 1, 1977), pp. 9–10.

Over this same interval the average yield on long-term international bond issues of governments fell from 9.31 percent to 8.36 percent.[19] Even if the perception of risk has changed, the question of concern is whether the change will be reflected in a reduced willingness to lend to developing countries.[20]

Finally, it can be predicted with a fair degree of confidence that even if external conditions do not create problems for developing countries, some of them will encounter balance-of-payments problems of their own making. Economic policy formulation has been less than fully successful even in the industrial countries in recent years. In the developing countries policy mistakes, if not earthquakes, droughts, blights, and other natural disasters, can be expected to occur from time to time and the consequences will have to be dealt with. These consequences could involve public and formal debt renegotiations, as in the case of Zaire recently. Such isolated instances do not invalidate the major thrust of this paper—that the advanced developing countries look to be good credit risks worthy of a continued flow of new loans as well as refinancing of maturing loans.

It is also a fair judgment that, while other developments in the world economy could make it more difficult for the advanced developing countries to service their debts, the generation of debt in itself is unlikely to cause serious general problems for the world economy or its financial system.

One justification for the establishment of a new supplementary facility in the IMF is that it will calm the disquietude of bankers who may worry about the several contingencies discussed here. In fact, the IMF could handle a very large proportion of the intermediation between countries in surplus and countries in deficit that is now being carried by the banks. The fund has the legal authority to borrow not only from governments but also in financial markets. Thus it could absorb funds from OPEC countries and from other surplus countries and pass them on to countries in deficit. In other words, should the private market falter in performing

19. Morgan Guaranty Trust Company of New York, *World Financial Markets,* various issues.

20. A bit of anecdotal evidence seems pertinent. During the annual meeting of the International Monetary Fund and World Bank in late September 1977, I had a conversation with the minister of finance and the governor of the central bank of one of the ten countries. They told me that because the country's reserves had increased sharply over the past year, they had visited banks in New York seeking to repay debt. None of the banks showed interest in receiving repayment.

the intermediation function—either by reducing its lending or by exacting excessive rates of interest—there is both a rationale and a means for the substitution of official action. Meanwhile, even if lending by the IMF facility does not mount, the very fact that it exists should strengthen the confidence of private lenders and encourage them to keep the financing process going.

Concluding Observations

The question to which this paper is addressed may soon be a nonproblem; that is, new borrowing from banks could drop off sharply from the levels of the past three years. If the industrial countries resume a healthy rate of expansion, the current-account deficits of developing countries could fall further in 1977. As table 3 shows, in 1976 four of the ten countries considered here were in current surplus, and the deficits of all but one of the others fell.

It seems appropriate to conclude this paper on the theme with which it began—the OPEC surplus. Although much of the analysis has been concerned with the *demand* for international debt by developing countries, there is also a *supply* of international claims emanating from OPEC and other surplus countries.

By almost perfect analogy with the Keynesian saving-investment process in a closed economy, one can argue that ex ante deficits on current account must equal ex ante surpluses if a high level of world income is to be maintained. As long as members of OPEC, West Germany, and Japan are unable to reduce their ex ante surpluses, either other countries must incur current-account deficits or world income will fall until ex post surpluses and deficits are equated.

Today, no world body functions analogously to the makers of fiscal and monetary policy within individual countries. In time, that may come. Meanwhile, balance-of-payments deficits and the resultant debt creation should be viewed in macroeconomic terms. The lessons of the 1930s have been learned, albeit imperfectly, regarding domestic policies. It is not evident that the lessons for international policies have yet been adequately appreciated.

Comments and Discussion

Alan Greenspan: Solomon has carried us through a fairly general analysis of the debt burden of the less developed countries, and, as far as it goes, the case he makes is credible. There is nothing inevitably disastrous about the state of debt now owed by the LDCs taken as a whole. There is a probability, perhaps a significant one, that ten years from now we will look back at the current period and conclude that our concerns about LDC debt were misplaced, in the same sense that our concerns over a dollar shortage in the early postwar period, and our fears that the Eurocurrency market would become unhinged several years ago, were misplaced. In fact, the current problem in the debt and balance-of-payments position of the string of countries across Southern Europe may well be more serious than the problem of LDC debt.

Nonetheless, while I concur with Solomon's general conclusion, I do so with considerably more reservations than he expresses.

Solomon's major concern is, apparently, that his optimistic appraisal is not shared by the decisionmakers in the private financial markets and that the commercial and investment banking houses will not be as forthcoming in financing LDC current-account deficits as they have been in recent years. I suspect that Solomon is right. In their public statements the international banking houses follow a line not terribly dissimilar to Solomon's, but their recent lending policies—as, in fact, Solomon points out—raise some question about the depth of their convictions. Their fears, as best I can judge, are not simply that it is just a matter of time before they run into a string of defaults and their infelicitous consequences. Rather, their caution reflects a broad uncertainty about the outlook, which the state of current financial evaluation is not sufficiently sophisticated to penetrate. There is a sense throughout the financial com-

munity that the tools of evaluation are inadequate to the problem they confront, and the hesitancy on the part of the bankers is more a state of uncertainty than of negative conviction.

What the bankers would obviously like is not a series of historical ratios, but a forecast of the future. In this respect, it is fairly evident why the standard measures of evaluating the debt problems, such as the ratio to GNP or the so-called debt-service ratio, have limited usefulness. The application of Solomon's model to this problem is not clear to me. It does not set any useful standards. It is a static structure in a very dynamic situation.

To a large extent, Solomon's optimism rests on a continuation of past trends. Certainly, export growth and gains in real GNP are critical elements in his outlook, and he cites an impressive history in this regard. But how easy is it to project these benign trends? What does one make, for example, of the potential for Brazil's export growth, when partly as a consequence of the sharp decline in prices, coffee exports in August amounted to only $38 million, compared with a monthly average of more than $300 million during the first half of the year? With coffee futures selling at significant discounts from spot, export proceeds cannot improve measurably over the next year for this very important LDC commodity. Similarly, Solomon ends his discussion of Peru with data through the end of 1976, when the outlook appeared to be improving considerably. But the situation has apparently deteriorated in recent months for political and military reasons.

While I believe that the record is, at least, not inconsistent with the view that LDC external debt on balance has been financing investment rather than consumption, there is disturbing evidence that in some LDCs weapons may become a larger segment of budgets. Hence, the general presumption of a fixed incremental capital-output ratio is questionable if military outlays are included with capital. Finally, there is the concern that the developed countries are slowing their rate of growth and this, in turn, will lower the export potential of the LDCs.

If the international bankers are somewhat cautious in their optimism about the LDC debt problem, then, their caution is scarcely irrational. Certainly, they are not as relaxed as is Solomon about the rollover problem.

Solomon rejects the debt-service ratio because it is not a measure of capacity to carry debt over the long run if maturities are bunched. But

that is precisely what that measure is attempting to pick up. Granted, it is a limited measure for a certain problem. But whatever may be said about the general applicability of the debt-service ratio is also extendable to the debt-GNP ratio, which bypasses the problem of the structure of maturities. In fact, we may dismiss the maturity problem much too readily because we tend to think of long- and short-term debt availability as largely interchangeable.

When lenders choose to make a loan, obviously their conditions are significantly more stringent for a long-term loan than for a short-term one. Moreover, to the extent that interest rates tend to be somewhat lower on short-term borrowing than on long-term borrowing, a lower interest burden, if it is caused by a heavy bunching of short-term maturities, is scarcely a position financially superior to one characterized by higher interest rates caused by advantageously staggered long-term debt. Similarly, while short-term debt is usually rolled over, this doesn't happen—at least, it doesn't happen voluntarily—unless the borrower is in good financial shape. But if the purpose of this analysis is to judge the creditworthiness of borrowers, we have to assume that all short-term debt will be called at maturity. To assume otherwise begs the question of financial soundness. In the short run, repayment difficulties owing to a bunching of short-term maturities are as great a problem as heavy interest charges on long-term debt. In both instances, the problem is one of cash flow, a shortage of foreign exchange.

Obviously, when appraising the longer-term stability of an economy, the aggregate level of debt and the debt capacity of a country are clearly the more relevant considerations.

But short-term debt is not interchangeable, dollar for dollar, with long-term debt. A dollar of short-term debt capacity is worth less than a dollar of long-term debt capacity. Since lenders' terms are more stringent for long-term than for short-term debt, for any borrower the capacity to raise short-term debt must be larger than the long-term one. Hence, any general measure of debt burden must distinguish between short- and long-term debt, since any measure of aggregate debt outstanding relative to debt-raising capacity must recognize that short-term debt capacity is not convertible dollar for dollar into long-term debt capacity.

Thus, on a maturity-equivalent basis, funding short-term liabilities is the equivalent of an increase in debt, rather than a mere exchange.

Finally, in this regard, I believe that Solomon too readily assumes an

expansion of IMF activity as a fallback for LDC borrowing. The IMF's resources are limited by the willingness of hard-currency members (including OPEC members) to contribute or guarantee, and here I have doubts about how forthcoming the United States and others will be. I doubt, for example, that the U.S. Congress, in balancing funds for domestic and foreign programs, is likely to be generous in expanding its contributions to the IMF. Moreover, it is likely to balk at the partial U.S. government guarantees implicit in expanded IMF borrowings. Accordingly, there are significant political constraints on the type of LDC funding that I believe Solomon has in mind.

John H. Kareken: Reading Solomon's paper, I was reminded of a story Paul Samuelson once told. When it was I don't remember, but the average of equity prices had just decreased sharply, sufficiently to make Paul wonder whether private spending plans might be altered. So he did the obvious. He asked Mr. Wealth Effect, Franco Modigliani, whether he was worried. And Franco replied with a reassuring "no." Then Paul realized that there was something else he had to find out. Did Franco ever worry about anything? And, of course, Franco again replied "no."

All that is by way of saying that Solomon hasn't told us all we should know. He isn't worried about the recent increase in private bank loans to LDCs. But does he, like Franco, always walk the sunny side of the street?

I am, however, being unfair. For one thing, Solomon has made a case that the borrowing LDCs are, with high probability, going to manage—perhaps very nicely, thank you. He has put us in his debt by putting LDC debt in perspective, and, more particularly, by pointing out how much of total bank debt is owed by two countries, Mexico and Brazil. If estimates of recent oil discoveries in Mexico are anything like accurate, it should get by. And what to say of Brazil? That a well-armed authoritarian regime is maybe a better credit risk than a democracy?

I am myself a little less sanguine than Solomon is, possibly because I see our economic future differently, or because I am too gullible a reader of the *Wall Street Journal* and *The Economist,* which recently carried articles on the loans banks have made to Turkey and Peru. And I wish he had been able to tell us how important the LDC loans are in the portfolios of the lending banks. Are they as important as REIT loans were? It would be helpful to know how exposed banks are. What little I have discovered has not reassured me. Harold Cleveland and Bruce Brittain report in a

paper that at the end of 1976 Citibank had LDC loans amounting to about 6 percent of its total assets. And we know it had capital, as conventionally measured, amounting to 5 percent of its assets. That suggests, at least to me, that there may be some slight danger, particularly if Citibank is not all that untypical. The Federal Reserve, which along with other central banks can make good loans out of bad, may in certain circumstances be tempted to do just that. There is the risk, if banks have more than trivial exposure, that the Federal Reserve will adopt a more inflationary policy than it otherwise would.

But the threat, as Solomon sees it, is not that the LDCs are going to default on their bank loans. It is rather that lenders, private and official, will become too concerned. He is worried only that others may get worried. According to Solomon, we (economists, that is, and responsible government officials) have learned well enough, or nearly so, what the 1930s had to teach us about the conduct of domestic economic policy, but nothing like well enough what those tragic years could teach us about what international economic policy should be.

And what is it that we should have distilled from the experience of the 1930s? Evidently, that if some governments desire current-account surpluses, then others must be "allowed" to run current-account deficits. Financing for those deficits must be assured. If it is not available, and in consequence the would-be deficit countries have to adjust, then inevitably world demand, and therefore world income, will decrease.

That, however, is far from obvious. Imagine that private banks have decided to lend no more to the LDCs, and that for one reason or another official lenders do not step in. Then LDC import demand decreases. But world demand does not necessarily decrease. It is enough to ask whether the banks have found other clients. The point is that an exogenous change in bank asset preference, an exogenous change of the relevant sort, does not necessarily result in a decrease in aggregate demand. It may. But then again it may not.

I said "an exogenous change of the relevant sort." Of course, if the change is an increase in money demand, then aggregate demand does decrease. But Solomon's concern is not that private banks are going to stop lending to LDCs because they want to hold more cash.

So Solomon can relax. In his judgment, there are few if any LDCs out there about ready to default on their bank loans. Thus, there is little danger that governments or central banks, concerned about the fate of the

private banks, will adopt more expansionary policies. And as I have argued, the presumption must be that there is no danger of a decrease in world demand—a decrease caused, that is, by private banks changing the pattern of their lending. Nor is it then of any consequence whether that new $10 billion IMF credit facility is approved by participating governments.

Unless of course Solomon is worried, not about the future course of the world economy, but about the fate of "middle-income" LDCs, those countries that, being relatively well off, have been able to borrow from private banks. But that is not the concern Solomon expressed in his paper.

I should like now to comment briefly on what our private banks have been doing, and, more specifically, to argue that their lending to LDCs should be, if not prohibited, then very stringently regulated, much more stringently than to date it has been. My guess is that Solomon, his concern being what it is, was not thrilled when a while back Chairman Burns thundered so about bank lending to LDCs. Presumably, his intent was to intimidate—to persuade banks to decrease, or at the very least not increase further, their portfolios of LDC loans. And he was right, I believe, to have made the try. If he is to be faulted, it is for not having done more. But then maybe on the sly he has.

Having lived through the Franklin National affair, we are now even clearer than we were that all of the deposits of the larger U.S. banks are insured, and by the Federal Reserve System, not the FDIC. (With the introduction of the so-called large-denomination CD, the world has pretty much passed the FDIC by.) Moreover, those deposits are insured at an inappropriate price, a price that is independent of risk. And we know what in general providing insurance at such a price does: encourage risk taking, which if not checked by regulation distorts resource allocation.

So the temptation is for our banks to hold riskier portfolios than they otherwise would. And that some have become rather substantial creditors of certain of the LDCs is further evidence that the temptation has been too great—or better, that bankers know what is in the best interest of those who own their banks. It is further evidence that regulation has not been sufficiently stringent. For no one can pretend that the outstanding LDC loans, even the best of them, are riskless, or that the average loan is less risky than the average bank asset.

And that is why, as I said earlier, Chairman Burns was right to have thundered so. I don't know that he worries particularly about resource

allocation, but he should, and therefore had an obligation at least to warn the banks that had become substantial creditors of LDCs. He had an obligation, that is, to try to make bank regulation a little more stringent than it had been.

Why single out LDC loans? Why indeed? After all, they are not the only risky assets that our banks own. Nor do I have an answer to that question, other than that it is with LDC loans that we are currently occupied. (And, as I said before, they seem to be among the more risky of bank assets.) But I would not single out LDC loans. Until our insurance scheme is altered, or done away with, regulation should do much more than prohibit or limit loans to the LDCs.

Goran Ohlin: For the kind of issues Solomon addresses in his paper, aggregate analysis—whether global or national—is a useful way to establish the magnitude of the problem. We now find, in fact, that the relative magnitude of LDC debt has not changed substantially from what it was before oil prices increased. That is reassuring as far as it goes. But the real problems, after all, are not ones of trends or magnitudes, but rather of the stability of the relationships between creditors and debtors. And from that point of view, I find it extremely difficult to formulate any adequate or satisfactory observations on the present situation.

The LDC debt situation has been appraised in terms of historical credit environments. But today we are talking about the operation of the international capital market under very special circumstances. As a result, we cannot specify and evaluate risk without a great deal more institutional detail.

The contemporary international capital market is similar neither to the 1930s nor to the 1960s, when most lending to LDCs was official lending. Today, private banks are operating in markets with which they are not very familiar. They are not lending to governments, but to public agencies. And the relationship between the management of that debt and the government's balance-of-payments policy remains unclear.

The 1960s saw numerous reschedulings and refinancings. But those were reschedulings and refinancings among governments, and they arose because there was a great deal of politically motivated lending. At that time, it was natural for debtors to feel that, because of the terms and motives of these loans, political reasons might similarly motivate some alterations in the arrangements. Today, it is all much more businesslike, and

I feel that this is advantageous. But, again, that is simply a personal judgment; and I am unhappy about the need, when contemplating possible difficulties, to fall back on some inspired speculation about how people will behave in certain situations.

A few more points concerning these loans should be kept in mind. The risk of technical default must be distinguished from "loss" risk. The more frequently noted risk of technical default is the risk that countries will, for various balance-of-payments reasons, declare themselves unwilling or unable to honor their obligations as originally contracted. There will be problems, delays, and rollovers, but the loss risk for the loans involved will be minimal. It is also important to take into account the high returns and earnings received by lending banks in the LDC market. Risk premiums and the actual benefits derived from such activities are obviously great enough to provide incentives to stay in the LDC market. Therefore, some problems with some debts would not necessarily be cause for alarm.

What of the risk of chain reactions? Will temporary problems of large countries such as Brazil or Mexico damage major banks or market psychology enough to produce serious consequences in the rest of the market? One of the principal factors determining the ability of countries to continue to honor their debt obligations is the magnitude of their reserves relative to their debts. And, according to that factor, the situation is fairly reassuring (with the notable exception of Peru, where things have not turned out as expected). Thus, I do not believe a string of defaults in the LDCs is likely.

Despite these generally reassuring feelings, the principal message I would like to deliver is that the specific details of bank loans to various LDCs and of bank portfolios are more important in appraising the risks of institutional collapse than are the aggregate figures.

General Discussion

Pentti Kouri felt that Solomon's optimistic conclusions reflected his concentration upon the group of LDCs that had experienced particularly rapid growth in exports. He cautioned that the slowness of the current recovery, coupled with the growing demands for protection by domestic industries in the developed countries, might prevent these countries from sustaining their export drives. Kouri also called attention to the poorer

LDCs, such as Bangladesh, and the smaller developed countries, which did seem to be in trouble. The former experienced difficulties because they had been simultaneously affected by adverse movements in their terms of trade, poor weather, high oil and fertilizer prices, and the recession; the latter faced problems because they had sustained their growth during the recession, betting on a speedy world recovery. Solomon replied that the very poor LDCs were primarily indebted to official institutions rather than private banks and thus he had not dealt with them in the paper. He endorsed Kouri's call for a stronger world recovery.

William Fellner observed that if LDC debt was a fast-growing component of private bank assets, there might be a limit to the proportion of their portfolios the banks would be willing to hold in this form. Several participants discussed whether such a shift in bank asset preferences would be deflationary to the world economy. Marina Whitman felt that it would be, because it might disrupt financial markets and national development plans. James Duesenberry and George Perry agreed, arguing that if loans financing LDC deficits were restricted, those countries would have to take contractionary measures that would not be automatically offset by stronger demands elsewhere. On the other hand, John Kareken argued that a compensating increase in bank loans would occur elsewhere in the system, thus leaving global demand unaffected.

Robert Solow observed that what was particularly remarkable about Solomon's Domar-like model was that everything depended upon the relation between nominal interest rates and nominal growth rates. Given the peculiarities of the current global economy, with real interest rates at approximately 1 percent, it is not particularly surprising that, for countries that are growing at all, the asymptotic ratios look good. But would lending continue indefinitely at such a real rate of interest?