

Developing Countries' External Debt and the Private Banks

I. Introduction

The purpose of this paper is to discuss the permanence of the post-1973 developing country borrowing problem and to assess the adequacy of the steps taken by the international private banking system to protect itself against the risk of default on developing country debt. The particular problem is the rapid build-up of private banking system assets that are the short and medium-term foreign currency obligations of governments and private enterprise in the developing countries. Seventeen major developing countries are estimated to have had \$37 billion in such debt outstanding at the end of 1974, \$51 billion at end-1975 and \$70 billion at end-1976. Private bankers feel that such borrowing will continue and is justified at least through the end of 1978.

The debt build-up appears problematic primarily because it is novel — bank debt has never grown quite this quickly, reached quite these levels nor encroached so rapidly and in such a visible way on the traditional province of the International Bank for Reconstruction and Development, the Export-Import Bank, the International Monetary Fund and individual government lenders. Being unfamiliar with government lending, the private banks have been criticised because they are unlikely to properly assess the longer-term prospects for developing country borrowing, to impose discipline on those governments when discipline is in order, nor protect themselves adequately against default in the event that all protective measures fail.

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On the face of it, concern with the private banks' position appears justified. After all there have been other instances when private financial institutions incorrectly estimated the future ability of foreign governments to meet their debts. During the period 1920-31, for example, over \$10.5 billion of US dollar bonds had been issued in New York by foreign governments — mostly South American or European — and of the \$5.5 billion still outstanding in October of 1933, \$2.5 billion, or about 24 per cent of the original total, were in default, while by 1967 the figure was just under \$400 million.¹ And there is good reason to believe that the banks may be in a poor position to correctly assess the prospects of future defaults. The principal worry is that banks have limited experience with government default or even debt reschedulings. While Brazil rescheduled payments in 1961 and 1964, Chile did so in 1965, Argentina rescheduled in 1962-63 and 1964, more recently Peru re-financed debt in 1968 and 1969-70, the problem of debt burden, even in these instances, has never been considered pressing.

In this paper we bring together evidence that the developing country borrowing problem may be temporary — that the high rate of developing country government borrowing should subside by 1980 — and that banks have acted to ensure themselves against the risk of default when that risk is high.

The rest of the paper is divided into three sections: a discussion of the sources of the lesser developed country (LDC) deficits and why the deficits ought to be temporary; a discussion of the actions taken by banks to protect themselves against the risk of default on developing country debt; and a summary and conclusion.

II. The Sources of the LDC Deficits

In this section we describe how the current-account deficits and therefore the borrowing requirements of the developing countries can be attributed to the recession in the developed countries, the effect of the Organisation of Petroleum Exporting Countries (OPEC) oil-price rise, development financing needs and macro-economic policy errors in the LDCs. We do this with a simple

¹ FOREIGN BONDHOLDERS PROTECTIVE COUNCIL, INC., *Report*, 1965 through 1967, p. v.

statistical model that is described in the following text. We use data from ten² developing countries for the period from 1965 to 1974 and a simple set of linear regressions using dummy variables to distinguish among countries.³ The first part of this section discusses the theoretical motivations for the statistical model and the second part presents a quantitative estimate of the sources of the past deficits and projections of future deficits based on reasonable assumptions about the future value of explanatory variables.

It is useful to divide developing countries' current-account imbalances into four possible sources. These are imbalances for development purposes, imbalances experienced as a result of the rise in the price of oil, imbalances experienced due to the recession in the developed world and imbalances that are due to divergences in monetary policy between the developing country in question and the rest of the world.

In brief, we find that the recession in the developed world explains most of the developing country borrowing during the last three years. The increased price of oil played an important rôle in causing current-account imbalance, but the major contribution of oil-price increases to the deficit was in 1974. Normal development demands continue to be a strong source of credit demand and should as the industrial world recovers be the single major ongoing cause for developing country borrowing.

For the sample of ten countries taken together, expansive monetary policies have not been a significant source of current-account imbalance, in contrast to the four major problem countries where the current account has been critically affected by the conduct of monetary policy. In Mexico, expansive monetary policy induced current-account deficits that were financed by "policy-induced borrowing". In the Philippines, Korea and Brazil expansive monetary policies forced the current account into deficit too, but in these

² The countries include: Argentina, Brazil, Chile, Colombia, Costa Rica, Jamaica, Korea, the Philippines, Taiwan and Thailand.

³ We also used the cross-section, time-series technique developed by Balestra and Nerlove (PIETRO BALESTRA and MARC NERLOVE, "Pooling Cross Section and Time Series Data in the Estimation of a Dynamic Model: The Demand for Natural Gas," *Econometrica*, July 1966, 34, No. 3, pp. 585-612) that allowed us to overcome two problems: (i) that of small sample bias that exists when contemporaneous error terms are correlated across countries; and (ii) the problem of serial correlation of error terms in the cross section of time series model when lagged values of the endogenous variable are included as explanatory variables. Test results using this technique were no better than the simple cross section results.

cases, the current-account deficit was financed by losses of foreign exchange reserves rather than by policy-induced borrowing. In these cases the expansive monetary policy did not generate more government borrowing but produced higher levels of risk for these countries' creditors as foreign exchange reserves dwindled.

So-called development deficits — current-account imbalances experienced as a normal consequence of growth — are not easily explained by existing economic theory. Kindleberger's stages of growth explanation of such deficits is an attractive analytical framework in which countries experience smoothly changing rates of current-account deficit or surplus. At early stages of development, when per capita income is low, countries import capital in order to hasten development and raise per capita incomes. Such countries run current-account deficits. As per capita income rises the country becomes a creditor, exports capital and runs a current-account surplus to finance the outflow. The United States, an international debtor prior to the First World War when per capita income levels were low and international creditor after World War I when per capita incomes were high, is evidently a good example of this experience.

Despite the framework's superficial appeal, Fischer and Frenkel⁴ have shown that rates of surplus or deficit have nothing necessarily to do with levels of per capita income but rather are determined by initial factor endowments and saving propensities. Countries with high saving propensities and abundant endowments of factors which are intensive in production of capital goods are likely to be net exporters of credit. The emphasis in such models is on relative factor endowments rather than on levels of per capita income.

Since these factor endowments are not easily measurable but no less critical for being so, we have treated the development deficit as an empirical issue, asking the question: What systematic current-account imbalance, expressed as a fraction of GNP, is experienced by each of the countries in our sample after all other factors are accounted for? In very general terms we find that each country in

⁴ STANLEY FISCHER and JACOB FRENKEL, "International Capital Movements Along Balanced Growth Profiles: Comments and Extensions", *Economic Record* 48 (June, 1972), pp. 266-71; and STANLEY FISCHER and JACOB FRENKEL, "Economic Growth and Stages of the Balance of Payments: A Theoretical Model." in G. Horwich and P. A. Samuelson (eds.), *Trade, Stability and Macroeconomics: Essays in Honor of Lloyd A. Metzler*, New York, Academic Press 1974, pp. 503-521.

the sample of ten runs a current-account deficit that is within one percentage point of 4 per cent of gross national product.

The cyclical sensitivity of current-account deficits also poses a problem for theory. In a simple Keynesian model of current-account adjustment to cyclical fluctuations in income, a given country will be in deficit depending on whether its marginal propensity to import exceeds an average of other countries' import propensities weighted by shares in world output. But the simple and unambiguous predictions of the Keynesian model disappear once the analysis is complicated for the sake of realism on other scores by introducing additional goods sectors. Whether a country runs a deficit or surplus in response to a change in world income in such expanded models depends on differences in tastes and in factor endowments. As was the case with the development models cited above, the need to measure factor endowments means that models of the cyclical behaviour of current accounts yield no falsifiable propositions. So we have treated the recession deficits as empirical issues as well, asking what proportion of the developing countries' post-1965 current-account imbalances could be explained by deviations of real output in the industrial countries from its trend growth path.

Treating the oil-price rise in a theoretically adequate way is problematic as well. In a simple world where each economy is characterised by fixed stocks of productive factors, an exogenous increase in the price of one traded commodity will affect the composition of world trade but will not affect the composition of individual country current-account balances — all will be identically zero. Such simple comparative static models are clearly incapable of resolving the problem of how long adjustment to the changed price of oil is likely to take. Complicating the model by allowing individuals to accumulate capital through saving out of current income is not much help either. For given factor endowments in each of the oil-producing and oil-consuming nations, the change in the price of oil and therefore the transfer of a portion of world income from oil consumers to oil producers would leave the total flow supply of savings unchanged but would alter the source of those savings. Savings would come increasingly from the oil producers and less from the oil consumers. This would imply a permanently higher current-account deficit on the part of the oil-consuming nations. But this increased deficit would be on the order of magnitude of the marginal propensity to save times the value of redistributed income

which is substantially smaller than the developing country deficit generally attributed to the change in oil prices.

Simple models of individual accumulation behaviour help resolve the timing issue, however. Assuming that individuals hold assets whose proportions in the portfolio depend on the level of income and on the assets' particular risk characteristics, a once-and-for-all change in the level of real income could be expected to produce a change in accumulation behaviour that was attenuated over time. Specifically, an individual faced with an unanticipated but permanent loss of income would choose to decumulate assets to attain a new desired ratio of assets to income. He would do so slowly because consumption has value in all time periods, including the present, but he would do so more quickly now than later because the marginal utility of a dollar's consumption today is worth more than the marginal utility of a dollar's consumption tomorrow. Conversely, an individual experiencing an unanticipated but permanent increase in income would be expected to accumulate wealth to re-establish desired asset to income ratios but he would do so only over time albeit at a faster rate now than later. In the case where one man's loss is another man's gain, and desired rates of accumulation differ from desired rates of decumulation, interest rate movements should be expected to equate the rate at which the loser decumulates with the rate at which the winner accumulates. According to these models, the current-account deficit of a country experiencing an unanticipated but permanent decrease in real income should be related to current and past values of the change in real income, with the degree of dependence diminishing over time.

Finally, the monetary approach to balance-of-payments theory⁵ suggests that divergences in the degree of monetary expansiveness among countries which fix their currencies in terms of one another's should experience payments imbalances that will increase or diminish the rate of foreign borrowing. The country pursuing the expansive monetary policy should be losing foreign exchange reserves and, *ceteris paribus*, be borrowing from abroad at a lesser rate than if monetary policy were the same as in the rest of the world. This

⁵ Classic examples of this approach are ROBERT MUNDELL, *Monetary Theory* (Goodyear Publishing Company: Pacific Palisades, 1971), and H. G. JOHNSON, "The Monetary Approach to Balance of Payments Theory," in Harry G. Johnson and Jacob Frenkel (eds.), *Essays in the Monetary Approach to Balance of Payments Theory* (London, 1975).

simple analysis is complicated, however, by an inconsistency in the policy goals of some governments. Some monetary authorities — the Korean during late 1974 and the Brazilian during 1975, for example — appeared to be pursuing expansive monetary policies at the same time as they attempted to stabilise the level of foreign exchange reserves. This meant that balance-of-payments outflows which would have resulted in reserve losses were made good by increased foreign borrowing. Under such circumstances, the simple monetary conclusion that expansive monetary conditions diminish the rate of foreign borrowing is reversed — expansive monetary policies increase foreign borrowing, at least by official agencies.

In assessing the relative importance of each of the considerations described above we estimated equations of the form [1] and [2]:

$$[1] \quad CAB_i/Y_i = a + b Y_i/N_i + c Y_w/Y_{tw} + d M_{oil_i} + e \overset{*}{M}_i$$

$$[2] \quad CAB/Y - CAB/Y_{-1} = L ((\widehat{CAB}/Y) - (CAB/Y)_{-1})$$

where: CAB_i is the current-account balance of country i ,

Y_i is the current value of nominal income in country i ,

N_i is population in country i ,

Y_w is the current value of real income in the OECD countries,

Y_{tw} is the trend value of real income in the OECD countries, calculated from a regression of the log of real income summed at current exchange rates on time for the period 1960 to 1974,

Y_i is the real value of income in country i ,

M_{oil_i} is the change in the value of oil imports by country i ,

$\overset{*}{M}_i$ is the rate of growth of domestic credit in country i in excess of real income growth and depreciation of the currency in country i plus the trend rate of growth of narrowly defined money's income velocity all multiplied by the monetary base. (Domestic credit is net credit by the central bank to the government and private sector), and

L is a constant factor of proportionality.

In equation [2] (the subscript 'i' is understood on all variables) the change in the ratio of current-account deficit to nominal GNP in country i is assumed to be related to the difference between desired current-account balance at time period t (\widehat{CAB}/Y) and the actual rate in the prior period. The desired current-account deficit is defined by equation [1].

The dependent variable, (CAB_i/Y_i) , is the ratio of country i's current-account balance to its own nominal gross national product. The variable is in ratio form so that the experience of relatively large LDCs does not dominate the results. In particular, the experience of Brazil, Korea and the Philippines, would be likely to overwhelm the experience of other smaller borrowers if we were to attempt explaining current-account imbalances in absolute terms. Since the dependent variable is constructed in this form, the constant term in the estimating equation can be interpreted as the average ratio of current-account deficit or foreign borrowing (as long as the overall balance of payments is zero) established over the estimating period. We assume that this constant represents what is normal in LDC borrowing and, along with the influence of the second explanatory variable, the ratio of the country's real income to its own population (Y_i/N_i), reflects the influence of development demands on foreign borrowing.

The ratio of current developed world income to the trend of developed world income (Y_w/Y_{tw}) represents the influence of cyclical fluctuations in income in the developed world. If the estimated coefficient were positive and significant, we would conclude that the current-account balance of the LDCs improves when the current value of developed world output rises relative to its trend growth.

The fourth explanatory variable is the change in value of oil imports in country i and represents the influence of the changed oil price on the current account of that country. The variable is not, in principle, correctly specified because the value of oil imports is simultaneously determined with all other variables in the model and may therefore be correlated with other explanatory variables in the estimating equation. In fact, this correlation does not exist. In the case of the world income variable, for example, there is probably no correlation because most of the variance in this series is in the years 1973 and 1974 and is substantially greater for some countries, e.g. Korea and smaller for others, e.g. Brazil. By contrast the deviation

of developed world income from trend is equally variable for all countries and most variable in 1974 and 1975.

The final variable — the excess of domestic credit and trend velocity growth over the trend of real income growth and rate of depreciation of the exchange rate (\dot{M}_i) — is constructed on the assumption that the income elasticity of money demand is one for all countries. By adjusting the domestic credit growth rate for trend velocity and real income growth we attempt to compensate for differences in the trend growth of money demand. Adjusting for the change in the exchange rate is an attempt to correct for any excess money supply that is absorbed through depreciation of the exchange rate and increase in the domestic price level rather than through adjustment in the overall balance of payments.

Equation [1] embodies the assumption that observed current-account balances are always desired, in the sense that adjustment to changes in underlying conditions is, on average, complete within each year in each country during the sample period. Equation [2] embodies the assumption that adjustment is incomplete but proceeds smoothly as a constant function of the difference between desired and actual rates of current-account imbalance. (The '-1' subscript denotes the lagged value of the relevant variable.)

Equations [1] and [2] were estimated in different forms using three different techniques over two different time periods.⁶ The first technique was a simple pooling of all country data, without distinction among countries; the second distinguished among countries by introducing dummy variables for the constant term; the third used estimates of the pure cross-section regression error variance and the pure time series regression of country means error variance to transform the data according to the technique developed by Balestra and Nerlove. The final results were not significantly different as between the second and third methods.

The total explained variance in the current-account balance was increased neither by a simple distinction among intercept terms, nor by application of the Balestra/Nerlove technique. Distinguishing among intercepts and applying the Balestra/Nerlove technique diminished the importance of the change in the value of oil imports by a significant margin, reducing the value to economically believable magnitudes when the regression was estimated over the period

⁶ A complete set of statistical results is available from the author on request.

1965-73, keeping the value within reasonable economic magnitudes in the period 1966-74. Coefficients on per capita income and monetary policy variables were always statistically insignificant. Our results showed that adjustment of the current-account imbalance was incomplete within one period and attenuated over time. The constant term was consistently significant but application of the Balestra/Nerlove technique suggested that LDCs, on average, experienced current-account deficits amounting to 2 per cent of GNP, while the simple pooled regression indicated the average experience was closer to 4 per cent. Regardless of model specification, the world recession variable explained most of the fluctuation in the current-account balances in the years 1973 and 1974.

This is evident from Table 1 which is a representative division of the sources of deficit based on the estimated equation reported in that table. Indeed, in 1972 the developing countries were experiencing exceptionally large surpluses, when only the influence of OECD real output is taken into account. But subsequent developments in the OECD countries forced the current amount to deteriorate sharply — by \$6.3 billion in 1974 and \$5.4 billion in 1975. Assuming that the OECD countries grow at between 5 and 7 per cent between now and 1980, the developing nations should experience an improvement of about \$3.3 billion on this account.

The change in the value of oil imports contributed significantly to the deficits only in 1974 and the policy variable did not, in a statistical sense, systematically influence the rate of deficit for the countries in the sample. Development has always been and is likely to continue a significant source of developing country deficit.

That the monetary variable did not influence the rate of foreign borrowing on average for the ten countries in our sample is an intriguing finding because it is contrary to our prior beliefs. Since the endogenous variable had been corrected to neutralize the effects of scale on the current-account balance, we conjectured that smaller countries in the sample had not pursued policy which was greatly at variance with monetary conditions in the rest of the world. This would have had the effect of reducing the variability of the monetary variable in the multi-country sample below what it would have been had the endogenous variable not been corrected. Our conjecture seemed reasonable since smaller countries, whose capital and goods markets are well integrated with markets in the rest of the world have little to gain by pursuing expansive monetary policies since the

TABLE 1

10 NON-OIL LDCs^{1,2}
ESTIMATED SOURCES OF CURRENT ACCOUNT DEFICITS
(billions of dollars)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Actual current account deficit net of unilateral transfers	-2.1	-3.3	-3.1	-2.5	-10.8	-12.2	—	—	—	—	—
Development	-4.5	-4.9	-5.0	-6.5	8.0	8.0	8.6	8.8	9.4	9.6	9.8
World Recession	-1.5	-1.6	7	4.7	-1.6	-7.0	-7.2	-6.4	-5.9	-4.5	-3.7
Oil	-1	-3	-2	-5	-3.7	-1.4	-1.5	-1.6	-1.6	-1.5	-1.5
Total Explained	-6.1	-6.8	-4.5	-2.3	-13.3	-16.4	-17.3	-16.8	-16.9	-15.5	-15.0
Residual	-4.0	-3.5	-.6	2	2.5	4.2	—	—	—	—	—

¹ The 10 countries include Argentina, Brazil, Chile, Colombia, Costa Rica, Jamaica, Korea, the Philippines, Taiwan and Thailand.

² These estimates are based on the cross-section of time series, ordinary least squares relationship:

$$[1] \quad (CAB/Y)_t = -0.448 + -0.014 (\Delta N)_t + -1.440 M_{0,t} + 395 (Y_w/Y_w)_t + -0.011 M_t \\ (-2.648) \quad (-1.038) \quad (2.607) \quad (3.307) \quad (-0.018)$$

where variables are defined on page 371 and 't' statistics are in parentheses.

Note that the experience of larger countries influences the results in the same way as that of smaller countries because relevant variables have been scaled with division by domestic income.

effects on the stock of foreign exchange reserves are likely to be immediate thereby neutralising the effect of policy changes through foreign exchange outflows.

In order to evaluate this conjecture we estimated simple monetary models of the current account and overall balance of four of the larger borrowers which are also perceived by the market to present particularly tricky credit situations. These are Mexico, Brazil, the Philippines and Korea. Rudimentary equations of the form [3], [4] and [5] were estimated for periods in which data were available. More complicated models were constructed and estimated, but results discussed here were adequate to support the point.

$$[3] \quad NFA = a + b NFA_{-1} + cB \cdot Y^* + d DCR$$

$$[4] \quad NFA/B - e = a + b (NFA/B)_{-1} + cY^* + d DCR/B$$

$$[5] \quad CAB = a + b (CAB)_{-1} + cB \cdot Y^* + d DCR$$

Where: NFA = change in net foreign assets of the central bank

B = monetary base,

DCR = change in domestic assets of the central bank,

Y^* = percentage change in real income,

CAB = current-account balance,

e = rate of exchange rate change.

These estimating equations were constructed to highlight the monetary variable, which was discussed above, by expanding it and stating it in a slightly different form. The point here is to determine whether policy-induced borrowing was important in Mexico, Brazil, Korea and the Philippines. The regression results showed that the effect of domestic credit expansion was uniformly a source of overall balance-of-payments deficit except in Mexico where the overall balance of payments was held close to zero by "policy-induced" foreign borrowing. In Brazil and the Philippines, expansive domestic credit conditions also appear to be a source of current-account imbalance of an equal or lesser order of magnitude. This suggests that expansive monetary policy, defined to be a high rate of expansion of

central-bank holdings of claims on the local government and local private sector, in at least Brazil, Korea and the Philippines was a source of overall external deficit.

III. The Banking System's Response

In the previous section we concluded that the borrowing problem of the LDCs is likely to be temporary, principally because the developed countries are likely to recover from the current world recession. In this section we show that market response to changes in the circumstances of less developing countries is rational — first because banks charge higher rates on loans to countries that have higher burdens of debt relative to their ability to pay and second because there was a substantial change in market perceptions of the risk of default on a loan to a country of a given debt income ratio between 1974 and the period 1975 through now. In particular, after 1974 the banks began viewing the developing countries as greater risks on the whole, while reducing their view of risk dispersion within the developing countries.

Ability to pay — the basis for our conclusions — is a difficult concept to define and has, within banking circles, and in an extensive economic development literature, been represented by a number of quantitative indicators such as ratios of debt to exports, debt to reserves, absolute levels of reserves and the like. As a first measure of all these variables we have used a ratio of debt to income in an attempt to show that the rates paid on loans by different countries are rationally tied to the underlying risk of default on the loan. We chose debt to income rather than any other ratios on *a priori* grounds — we felt that income provides a better measure of the flow of revenues that could ultimately be garnered for debt service payment if ever the need arose, than to other measures such as exports which measure foreign exchange earnings under normal conditions.

Figure 1 plots debt income ratios calculated from Citibank estimates of developing countries' debt and nominal income in each of the years 1974, 1975 and 1976 against the interest rate spreads over the London Inter Bank Offer Rate (LIBOR) on publicly announced Eurocurrency credits as published by the World Bank.

EUROCURRENCY LOANS TO 12 NON-OIL LDCs

FIGURE 1

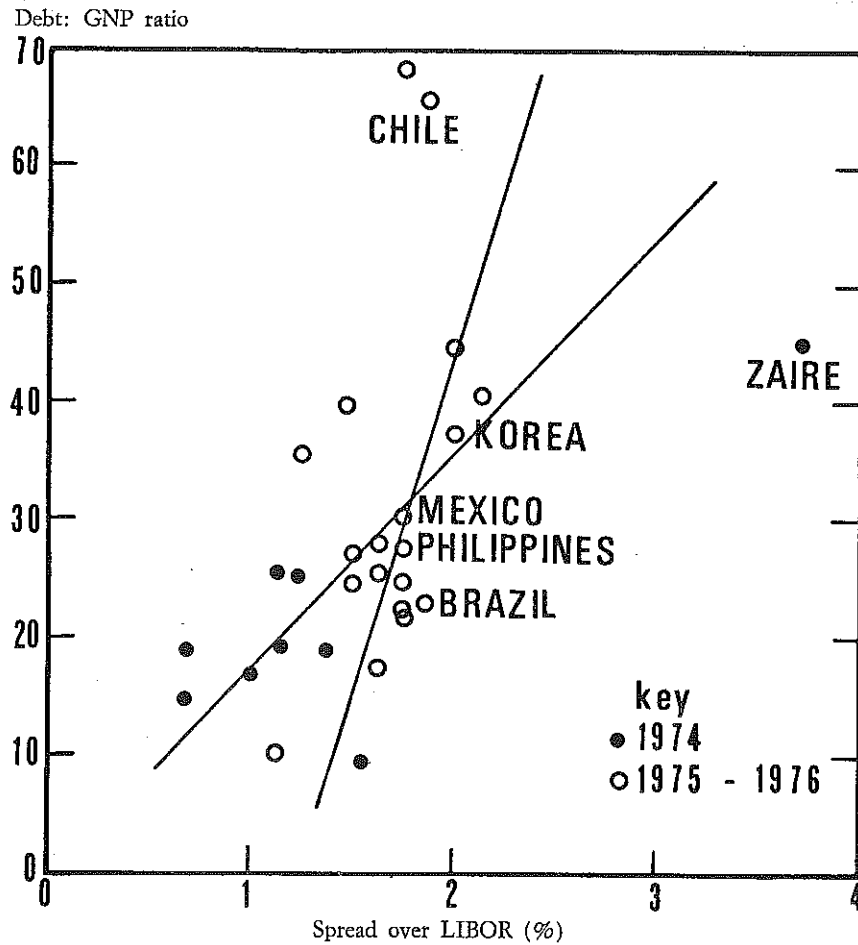


Figure 1's data are reported in Table 2. As can be readily seen from the diagram, higher debt income ratios imply higher spreads over LIBOR. This implies that countries presenting a greater risk of default are forced by the market to pay greater amounts for their medium-term credits.

While not so obvious from the graph, another interesting relationship emerges from a regression of the spreads over LIBOR on debt income ratios when 1974 is distinguished from 1975 and 1976. While 1975 and 1976 are not different from one another in a statistical sense, taken together the two years differ from 1974. This

SPREADS OVER LIBOR AND DEBT-INCOME DATA

TABLE 2

(Sources: Citibank and World Bank) *

	1974	1975	1976
Zaire	3,7086 (45.1)	(49.6)	(78.3)
Chile	1.14 (25.3)	1.75 (68.3)	1.86 (65.4)
Zambia	(31.1)	2.0 (37.1)	2.125 (40.5)
Korea	1.25 (35.4)	2.0 (44.4)	1.47 (39.5)
Egypt**	1.235 (25.1)	(28.2)	1.125 (36.6)
Mexico68 (18.8)	1.5 (24.4)	1.75 (30.2)
China	1.0 (16.9)	1.5 (27.0)	1.625 (27.7)
Colombia	(29.2)	1.75 (27.4)	1.625 (25.2)
Philippines	1.375 (18.8)	1.75 (21.4)	1.75 (24.6)
Brazil	1.14 (19.1)	1.75 (21.7)	1.86 (22.8)
Thailand6875 (14.7)	(15.3)	1.625 (17.1)
Argentina	1.55 (9.4)	(11.5)	(13.2)

* Total outstanding external debt as a percentage of nominal income measured at current exchange rates are reported in brackets.

Where spreads over LIBOR are unavailable, either no credit was made to that country in that year or the World Bank did not report the rate on the credit.

** In the accompanying chart, the most recent 1976 credit to Egypt was concluded at 11/8 percentage points over LIBOR and was guaranteed by the Gulf Organization for Development of Egypt (originally established in August 1976 as the Gulf Fund for Egyptian Development with capital of \$2 billion subscribed 40% by Saudi Arabia, 35% by Kuwait, 15% by United Arab Emirates, and 10% by Qatar to provide development finance and balance of payments support to Egypt). We therefore divided the stock of Egyptian debt by the combined incomes of Egypt and members of the Organization in the 1976 Egyptian plot.

relationship is summarised in the following regression where D/Y is the debt income ratio, R is the spread over LIBOR and D takes the value 1 during 1975 and 1976, 't' statistics are in parentheses.

$$R = .0541 + 1.1733D + (.1650) + (2.6616) + .0599 (D/Y) - .0424 D X (D/Y) (4.5339) (-2.6465)$$

$$\bar{R}^{-2} = .5138$$

$$SEE = .4155$$

$$F(3.21) = 9.454$$

Clearly both slope and intercept are different as between 1974 on the one hand and 1975-76 on the other. Specifically, the interest rate spread charged on a loan to a country with no debt was approximately zero in 1974 while it increased to 117 basis points over LIBOR in the period 1975-76. And while an increase of 10 percentage points in the debt-income ratio led to an increase in spreads of almost 60 basis points in 1974, such an increase increased the spread by approximately 18 basis points in the period 1975-76. In a statistical sense then, countries with higher debt income ratios pay greater spreads over LIBOR while all countries were viewed as greater credit risks in the period 1975-76 than in 1974.

IV. Summary and Conclusion

The substantial increase in the foreign borrowing of developing country governments is in large part due to the severity and duration of the developed world recession. Unambiguously less important causes are ordinary demands for development finance and the fourfold increase in the price of oil. Domestic policy errors in the LDCs added little to borrowing demands by the group as a whole but have been important in particular instances. Since the bulk of the problem borrowing is due to the recession, the problem should gradually lessen as the industrialised world nears full utilisation of its resources.

Furthermore, the private banking system which provided the lion's share of developing country financing during the recent debt build-up, appears to have reacted rationally to changing debt structures and to changes in the position of the developing countries as a group. Rates charged on credits to sovereigns have always borne a relation to the total stock of a country's debt outstanding and therefore to the risk of debt rescheduling. But 1975 marked a significant change in the attitudes of the banks who saw their developing country clients as greater credit risks and who changed their pricing strategies accordingly.

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