A BALANCE OF PAYMENTS ANALYSIS OF THE LATIN AMERICAN DEBT CRISIS

BY J. THOMAS ROMANS

SUNY Buffalo

AND

STANTON A. WARREN

Niagara University

In this paper we offer a definition of a country "debt crisis" based upon the amount of new borrowing relative to the cost of servicing past debt. Policy implications for both debtor countries and their creditors are examined. An empirical application is made to Latin American countries, 1978-82. The causes of the debt problems created during this period are investigated with respect to the extent they were the result of rising interest rates *vis à vis* increased borrowing.

In this paper the authors develop a balance of payments taxonomy for Latin American debtor countries. It has three purposes. First, a functional definition of a debt crisis is offered. Second, it provides a framework for discussion of the policy implications of a country's placement in the taxonomy. Third, it can be used to measure the extent to which various debt crises have been caused by rising interest rates versus increased borrowing. Alternative policy options considered are (partial) repudiation on the part of the borrowers, (partial) forgiveness on the part of creditors, or "buying time" on the part of both.

1. A DEFINITION OF COUNTRY DEBT CRISIS

For a private individual or firm (as opposed to a country or government) there are two distinct causes of a "debt crisis". The first is a liquidity crisis wherein a debtor does not have the cash to meet debt payments (interest plus principal) when due, even though net worth is positive. The second is insolvency, a negative net worth. Much of the discussion of the Latin American debt crisis involves the first type, a liquidity crisis or a lack of reserves. However, it can be argued that the crisis is not a problem of liquidity, certainly not initially anyway, and in any event the private sector analogy is misleading. A shortage of liquidity (reserves) is not nearly so binding a constraint on a country as on an individual or firm. A country has many ways of acquiring international reserves: borrowing, selling assets, expanding the money supply, etc. On the other hand, reserve acquisition may be very costly to the economy. In any event, illiquidity is more the result of a crisis than the cause of one. For private borrowers, insolvency

leads to a confiscation of assets. A debtor country's assets cannot be confiscated short of war. Nevertheless, policy prescriptions for the debt crisis have generally perceived it to be a liquidity problem (curable through another "involuntary" loan or IMF loan, perhaps).

It seems more reasonable to view a crisis as one where the borrowing country no longer benefits from net foreign disinvestment. This creates an incentive to repudiate. Such a situation arises when all proceeds of new borrowing go to pay interest on past loans. This is a functional definition of a debt crisis point. In this paper it is equated with the achievement of "mature" debtor status.

2. A Balance of Payments Classification of Countries

In the balance of payments statistics a measure of a country's current borrowing is the current account deficit $(M - X)$ which represents the net balance of imports (M) over exports (X) of trade, transfers and factor services. This deficit does not necessarily represent *institutional borrowing* since it involves the flow of equity as well as debt capital, but from the country's point of view, it is all acquisition of debt.

In the interplay between new borrowing $(M - X)$ and net payments for factor services (FS) which represents the burden from past borrowing, three possibilities emerge for debtor countries (a symmetrical three exist for creditor countries):

Current Account Deficit	Net Payments for Factor Services	Classification
$(M - X) > 0$	$FS < 0$	New Debtor
$(M - X) > 0$	$0 < FS < (M - X)$	Immature Debtor
$(M - X) > 0$	$FS > (M - X)$	Mature Debtor

In the taxonomy, if a debtor country has negative net payments for factor services, i.e. a net receiver of factor income, it must have been a creditor in the past, thus, the term *new debtor*. If a debtor country has net factor payments less than its new borrowing (the payments burden arising from debt accumulation has not overtaken its new borrowing), it is termed an *immature debtor*. However, if its net factor payments are greater than new borrowing (the payment burden from past borrowing is greater than new borrowing), it is termed a *mature debtor*.[1] This taxonomy is similar, but not the same as that developed by Kindleberger (1963).

3. Debt Status and the Alternative Policy Options

In this section the taxonomy is applied primarily to private bank debt and not to total country debt. Several policy options are explored: debt forgiveness from a lending bank's point of view, debt repudiaton from a borrowing country's

---

[1]Set in more conventional terminology, new and immature debtors have deficits on trade account and mature debtors have surpluses (ignoring transfer payments and employee compensation which for many countries are zero). In other words, mature debtors are in the position of operating a trade *surplus* in order to service their interest burden.

point of view, and the implications of "buying time" for both. Buying time is defined as a rescheduling agreement where the present value of the outstanding debt does not change (see Bergsten, 1985). Where the present value does change, forgiveness or repudiation has occurred but it is frequently unclear which.

Forgiveness:	From the Lender's point of view.
Costs:	(a) Forego future interest and/or principal payments which might otherwise have been repaid, or lengthen the maturity of the loan which lowers its present value.
	(b) Lower asset values and net worth positions of the lenders. In the extreme, insolvency is a possibility.
Benefits:	Increase the probability that the remaining, unforgiven portion of the loan will be repaid.
Repudiation:	From the borower's point of view.
Costs:	(a) Potential cutoff from international financial markets. Further borrowing may be impossible and imports may be forceably reduced.[2]
	(b) Potential expropriation of financial and real assets in foreign countries.
	(c) Potential political consequences as domestic markets become uncertain in regard to expectations of government honoring internal contracts after defaulting on external ones (Dornbusch, 1985).
Benefits:	Eliminate the income drain or the financial capital flow from the debtor country.

If the costs are less than the benefits of forgiveness to the lender, presumably the lender will forgive debt; if the costs of repudiation are less than the benefits, presumably the borrower will repudiate. In those cases where the costs are greater than the benefits for both parties, then presumably neither forgiveness or repudiation takes place. Both lender and borrower, in effect, must "buy time."

Buying Time:	
Costs:	The benefits of forgiveness or repudiation are not realized by either party.
Benefits:	(a) The costs associated with repudiation or forgiveness are avoided.
	(b) Future economic growth might solve the debt problem. Sufficient income may be generated by increasing exports or by import substitution to repay debt without imposing excessive costs on the debtor country. Economic growth may be encouraged by a restructuring agreement without a change in the present value of the obligation.
	(c) A bailout may occur either by the creditor bank's government or central bank, or an international organization.

[2]History suggests that lenders have short memories.

209

(d) Real interest rates may decline in the future thus reducing the burden of the debt and better enabling the country to repay.

(e) Creditors are allowed time to supplement loan loss reserves.

If a country is a mature debtor, the costs of repudiation should be lower than for any other debtor category since its interest payments exceed new borrowing. It may have little to lose from repudiation. Similarly, for the lender, the benefits of forgiveness should be greater and the costs lower because the probability of otherwise being repaid is low. For the immature debtor, buying time may be the more viable policy option. The repudiation cost to the borrower of being cut off from international capital markets is greater and the net benefits of forgiveness to the lender are lower since repayment in full is more likely.

4. THE DEBT CRISIS: INCREASED BORROWING VERSUS INCREASED INTEREST RATES

The classification technique was applied to the largest countries in Latin America. Annual data for exports, imports and net payment for factor services were obtained from the United Nations, *Statistical Yearbook*, 1984. These were aggregated over the period 1981–83. The results are shown in Table 1.

TABLE 1

DEBTOR CLASSIFICATION OF LATIN AMERICAN
COUNTRIES 1981–83

New Debtor	Immature Debtor	Mature Debtor
Paraguay	Colombia	Argentina*
	Dominican Republic*	Bolivia*
	El Salvador	Brazil*
	Guatemala	Chile*
	Honduras	Costa Rica*
	Jamaica*	Ecuador*
	Nicaragua*	Mexico*
	Peru*	
	Trinidad–Tobago*	
	Uruguay*	

*Countries with debt rescheduling prior to 1981 are denoted by asterisks. Two Latin American countries, Panama and Venezuela, were not borrowers during this period. They are what symmetrically would be called "new creditors", i.e. $M - X < 0$ and $FS > 0$. They are lenders but their net payments to service past borrowing are still positive.

A country's classification may have been affected by a prior debt rescheduling agreement which, in all likelihood, reduced FS. Kettell and Magnus (1986, p. 147) list rescheduling agreements, 1974–83. The seven mature debtors all had prior rescheduling, yet remained mature debtors. Six of the ten immature debtors

210

also had prior rescheduling agreements. They may have otherwise been mature debtors.

Controversy exists as to what pushed these seven countries to the debt crisis point in 1981–83. Was it the rising interest rates of the early 1980s or continued, perhaps even profligate, increases in borrowing? One way of approaching this question is to separate out that portion of the change in net payments for factor services (FS) which was due to increased country borrowing from that portion which was caused by rising interest rates. Such a distinction can be relevant only to a specified time period. If during a particular period, say the 1978–82 interest rate increase, it is concluded that it was the rising interest rates rather than new borrowing which caused a debt crisis. It must also be the case that there was significant borrowing in previous periods, otherwise, the increase in interest rates would have had an insignificant effect.

This approach abstracts from the reasons for the increased borrowing (poor economic policies or recessions in creditor or debtor countries, a fall in the terms of trade, etc.) and also from the reasons for the rising interest rates. For a survey of these reasons, see Errunza and Ghalbouni (1986) and Sachs (1985). The difficulty in separating interest rate effects from borrowing effects is in determining the appropriate average interest rate or rate of return to use since interest rates are numerous and many rates of return on equity capital are unobservable. In the empirical model, interest rate effects become functions of alternative hypothetical interest rates. The assumption is made that all debt has variable interest, and equity capital always earns the current market return.

Over any time period, the change in FS is:

$$\Delta FS = i\Delta D + \Delta iD + \Delta i\Delta D$$

where FS = net payments for factor services (exclusive of employee compensation), i = interest rate or the average rate of return paid on foreign equity investments, D = country debt, ΔD represents new borrowing which is the current account deficit, $\Delta D = M - X$. The level of debt is the capitalized value of FS, $D = FS/i$. Thus,

$$\Delta FS = i(M - X) + \Delta iFS/i + \Delta i(M - X),$$

and

$$1.0 = \frac{i(M - X)}{\Delta FS} + \frac{\Delta i}{i} \cdot \frac{FS}{\Delta FS} + \frac{\Delta i(M - X)}{\Delta FS}.$$

The first term is the proportion of the increase in FS due to increased borrowing. The second is the proportion due to the increase in the interest rate. The third, the interaction term, is assumed to be small in value and to be part of the interest rate effect. This may lead to an overestimate of the interest rate effect and an underestimate of the borrowing effect.

Define $P = i(M - X)/\Delta FS$, as the fraction of the increase in FS due to the borrowing effect. Then $(1 - P)$ is due to the increased interest rate and interaction effects. Note that the size of P depends on i. Values of the interest rate are calculated which result in a borrowing effect of 50 percent and 100 percent of the change in FS. Tables 2 and 3 show this relationship between i and P. $(M - X)$

TABLE 2

INTEREST (RATE OF RETURN) REQUIREMENTS TO MAKE NEW
BORROWING EFFECT ACCOUNT FOR 50 PERCENT AND 100 PERCENT
($P = 0.5, 1.0$) OF THE INCREASE IN NET PAYMENTS FOR FACTOR
SERVICES FOR THE FOUR-YEAR INTERVAL PRECEDING THE DEBT
CRISIS POINT

Country	Period	Required Interest Rate	
		$P = 0.5$	$P = 1.0$
Bolivia	1978–81	19.1	38.2
Costa Rica	1978–81	21.5	43.0
Ecuador	1973–76	0.5	1.0
El Salvador	1973–76	3.1	6.1
Honduras	1979–82	7.7	15.5
Jamaica (1)	1974–77	10.6	21.3
Jamaica (2)	1976–79	35.8	71.6
Jamaica (3)	1977–80	80.1	160.3
Nicaragua	1975–78	1.4	2.7
Panama	1977–80	9.9	19.8
Peru	1978–81	47.7	95.4

and FS are calculated over four-year intervals for several Latin American countries. The interest rates which would have been required to make $P = 0.50$ and $P = 1.0$ are listed. Any other values can be interpolated.

Table 2 lists the results for the four years preceding the year a country became a mature debtor (inclusive of that year). Eleven such occurrences are recorded for nine countries. For five of the eleven the increase in FS was at least 50 percent due to new borrowing rather than rising interest rates if the average interest rate (including other rates of return) was less than ten percent. On the other side, for three occurrences, P could not be equal to 0.5 even at a 35 percent interest rate.

To achieve mature debtor status (the crisis point) through new borrowing exclusively (i.e. no interest rate effect), interest rates would have had to be 160 percent for Jamaica (1977–80) and 95 percent for Peru (1970–76). On the other hand, rates could have been as low as 1.0 percent for Ecuador (1973–76), 2.7 percent for Nicaragua (1975–78), and 6.1 percent for El Salvador (1973–76). When one looks at each country's borrowing behavior over the four-year interval preceding a debt crisis point, it is clear that Jamaica and Peru were caught by rising interest rates. On the other side, Ecuador, Nicaragua and El Salvador borrowed themselves into mature debtor status during the period.

The data in table 3 details the 1978–82 period leading to the 1981–82 interest rate peak. It shows that the rise in net payments for factor services was at least 50 percent due to new borrowing for ten of the twelve countries if the average interest rate and other rates of return were less than 12.5 percent.[3] For the rise in FS to be 100 percent due to borrowing, vis à vis rising interest rates, rates could have been as low as six percent for Honduras and Guatemala, but would have had to be 68 percent for Peru. Peru's rise in FS is explained by rising interest rates; Honduras' and Guatemala's rise was due to new borrowing.

[3]The average LIBOR one-year rate between 1978 and 1982 was 12.8 percent.

TABLE 3

INTEREST (RATE OF RETURN) REQUIREMENTS TO
MAKE NEW BORROWING EFFECT ACCOUNT FOR 50
PERCENT AND 100 PERCENT $(P = 0.5, 1.0)$ OF THE
INCREASE IN NET PAYMENTS FOR FACTORS SERVICES
FOR THE FOUR-YEAR INTERVAL PRECEEDING THE 1982
INTEREST RATE PEAK

Country	$P = 0.5$	$P = 1.0$
Bolivia	8.7	17.3
Chile	6.7	13.3
Colombia	20.9	41.8
Costa Rica	12.4	24.7
El Salvador	3.0	5.8
Ecuador	12.2	24.4
Guatamala	3.2	6.3
Honduras	3.1	6.2
Mexico	12.0	23.9
Panama	8.9	17.7
Peru	33.8	67.6
Venezuela	10.1	20.1

5. CONCLUSION

This paper defines a country in a debt crises if it reaches "mature debtor" status, i.e. the interest burden on past borrowing surpasses new borrowing. For such a country both repudiation and/or forgiveness become more cost effective. For other debtor countries, "new" or "immature" debtors, buying time may be a more viable option.

Responses may also be influenced by the manner in which a debtor country reached the debt crisis point. If rising interest rates explain the crisis for a particular country, a "buying time" policy may be better than forgiveness. The crisis may be cyclical or at least short-lived. However, for a country which borrowed its way into mature debtor status, partial forgiveness by lenders may be necessary in order to discourage outright repudiation.

Whatever the cause and whatever the policy responses, the achievement of mature debtor status is a functional definition of "debt crisis."

LITERATURE CITED

Bergsten, C. Fred, Cline, William R., and Williamson, John, Bank Lending to Developing Countries: The Policy Alternatives, Institute for International Economics, Washington, D.C., 1985.

Cline, William R., International Debt: Systematic Risk and Policy Response, Institute for International Economics, Washington, D.C., 1984.

Dornbusch, Rudiger, Policy and Performance Links Between LDC Debtors and Industrial Nations, Bookings Papers on Economic Activity, 2, 303-368, 1985.

Errunza, V. R. and Ghalbouni, J. P., Interest Rates and International Debt Crisis, Banca Nazionale del Lavoro Quaterly Review 157, 1986.

Kettell, Brian and Magnus, George, The International Debt Game, Graham and Trotman Ltd., London, 1986.

Kindleberger, Charles P, International Economics, 3rd ed., Richard D. Irwin, Inc., Homewood, IL, 1963.

Sachs, Jeffrey D. External Debt and Macroeconomic Performance in Latin America and East Asia, Brookings Papers on Economic Activity, 2, 523-573, 1985.

United Nations, Statistical Yearbook, 1984, New York, 1985.