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Helmut Reisen*

The Brady Plan and Adjustment Incentives

The Brady Initiative has led to the conclusion of several debt-relief agreements. Opinion on the effects of these agreements on the debtor countries involved vary widely. The following article aims at clarifying the debate.

Capital formation in highly indebted developing countries has been weak since 1982. The widely accepted debt overhang proposition¹ interprets the investment drop as a moral hazard problem: a heavy debt burden raises the incentive to consume², since the marginal yields from investment would accrue to the creditors. The debt overhang hypothesis has provided theoretical support for the Brady Initiative of March 1989. International debt strategy no longer focuses on the provision of further credit—as under the 1985 Baker plan—in return for stabilisation and structural reform in problem debtor countries, but on debt relief.³

During 1990, four debt-relief agreements were concluded under the Brady Plan—with Mexico, the Philippines, Costa Rica and Venezuela. The Brady Initiative's incentive effects on debtor countries have thus been put to a first test. The test produced widely divergent, if not inconsistent, views at the last IMF/World Bank annual meeting. While according to the Institute of International Finance, "the strategy has encouraged some countries to consider debt reduction an entitlement and to run interest arrears to commercial banks", the World Bank writes in its Annual Report 1990 that the Brady Plan has "strengthened the incentives for member governments to embark on, or sustain, growth-oriented adjustment programs".

The following aims at clarifying that debate: first, by a short look at the nature of Latin America's recurrent debt problems; second, by a critical discussion of academic moral hazard interpretations (the debt overhang proposition and the sovereign risk approach); and third, by a closer look at the results of the most important debt agreement under the Brady Plan so far, which has been with Mexico.

Since 1982 Latin America has had to transfer abroad a net total (debt service minus new debt) of over \$200 billion. There have been no voluntary bank loans since then, a situation which has also affected less indebted countries

(Colombia) and those which have always paid up (Chile). High inflation, excessive real interest rates, depressed savings and investment as well as repeated currency crises are symptomatic of Latin America's unsolved budgetary problem.⁴ The recurrent debt problems in Latin America are mainly caused by fiscal rigidities.⁵

It is scarcely possible to distinguish whether the fiscal rigidities reflect unwillingness or inability to pay. Mainly public investment has been curtailed on the expenditure side. This could be interpreted as willingness to pay, but Corden⁶, for instance, interprets the cut in investment as "endogenous" default, since the basis for resources concerning the future debt service is narrowed and default is accordingly "objectively" enforced.

Fiscal rigidities were most pronounced on the revenue side. Tax ratios of developing countries tend to be much lower than those of industrial countries, less than half as large on average, but there has been no instance in which a developing country has been able to raise the ratio several percentage points of GDP over the medium term, as has happened in some developed countries.⁷ The erosion of the taxes in the debtor countries again hardly provides any distinctive evidence of either inability or unwillingness to pay. The many explanations include administrative and technical bottlenecks in tax assessment and tax

¹ Cf. Jeffrey Sachs: The Debt Overhang in Developing Countries, in: J. Sachs (ed.): *Developing Country Debt and Economic Performance*, Vol. 1, Chicago 1989; Paul Krugman: *Market-Based Debt Reduction Schemes*, NBER Working Paper No. 2587, Cambridge, Mass. 1988.

² In these publications the investment concept represents the wider concept of economic reform, i.e. foreign trade liberalisation, privatisation and tax reform. Both investment and economic reforms are expected to raise future output and accordingly the debt service capacity. A short description of the debt overhang hypothesis is given later in this article.

³ The Brady Initiative refers to debts owed to commercial banks. Debt and debt service reduction are to be achieved mainly by converting old bank debts into new loans or by buying back bank debts—in each case with a considerable discount—and by swapping old bank debts for new paper with the same value but lower interest rates. The specific country risk of this new paper is reduced by the provision of official funds (IMF, World Bank, Japan).

⁴ Helmut Reisen: *Über das Transferproblem hochverschuldeter Entwicklungsländer*, Nomos-Verlag, Baden-Baden 1987.

⁵ Helmut Reisen: *Public Debt, External Competitiveness, and Fiscal Discipline in Developing Countries*, Princeton Studies in International Finance No. 66, Princeton, New Jersey 1989.

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collection; the stabilisation-induced contraction of important tax bases such as wages, consumption, corporate earnings and imports; the inflationary erosion of tax yields because of the small share of progressive income tax and delays in tax collection; as well as the prevention of tax reforms by pressure groups who fear the withdrawal of tax incentives and exemptions.

Fiscal rigidities have now resulted in demonetised economies with high public domestic debt on which governments often have to pay a higher real interest than on foreign debts,⁸ since domestic bondholders demand high inflation and default premiums. In particular with respect to public finances, the compliance with and accordingly the credibility of IMF conditionality has also declined considerably compared with previous decades.⁹

A few conclusions can be drawn from these observations. First, the Brady Initiative cannot make up for creditors' natural lack of information about the debtors' intentions so that, as in the past, it will be possible to distinguish only to a limited extent between "good" and "bad" payment behaviour. This implies that geopolitical motives will be over-emphasized in the choice of beneficiary countries. Second, it is important, precisely since it is so difficult to disentangle the moral hazard problems implied by sovereign risk, to highlight the incentive effects of international debt initiatives. Third, this is only meaningful if government finances are adequately stressed.

The Debt Overhang Hypothesis

According to Sachs¹⁰ and Krugman¹¹, a debt overhang reduces the incentive for a debtor country to undertake economic reform. Within a two-period model the debtor has to decide whether to invest or to consume. The economy "inherits" in the first period a given debt which must be serviced in the second period. According to the hypothesis, this decision is distorted in favour of consumption by the debt overhang, which is defined as the difference between the face value and the market value of debt, i.e. the expected present value of the future net

transfer from the debtor to the creditor.¹² The debt overhang may act as a tax on the debtor's output in phase two if the debt service no longer depends on the scheduled interest and repayment plans, but on the debtor's economic performance (through payment arrears and involuntary new lending). In this case lower consumption in phase one (to the benefit of investment) is no longer rewarded by higher consumption in phase two since most or all of the investment yield goes to the creditor. Krugman and Sachs therefore conclude that debt reduction will enhance the adjustment incentives since the debtor keeps a higher proportion of the investment yield.

The effect created by the debt overhang and therefore by debt reduction closely depends on assumptions about minimum consumption in phase two, below which the debtor would default.¹³ If this minimum consumption threshold is set at zero, i.e. if the possibility of a moratorium is ruled out, the investment incentive is always strengthened by debt commitments and weakened by debt reductions. The debtor must then invest in order to generate resources for the transfer to creditors. Debt reduction removes the pressure on the debtor to sacrifice a part of present consumption for future debt service. Even if default is not ruled out (i.e. if minimum consumption in phase two is positive), the debt overhang must not weaken the adjustment incentive. This applies firstly to the debtor who sets his anticipated output in period two far below the minimum consumption level: the increase in investment in phase one is not followed by any debt service in phase two or by any marginal tax on his adjustment effort. Neither should we forget the debtor whose commitments encourage him to make a special adjustment effort and go far beyond the threshold above which he no longer has to share the fruits of his investment with the creditor.

Whether the drop in problem debtors' investment is attributable to their debt overhang or to changes in external resource transfers has important consequences for international debt strategy. If the debt overhang were responsible for the drop in investment, new money would not reduce debt-related disincentives. Debt reduction would then hold out most hope of an upturn in investment. If, however, the lack of external liquidity was mainly responsible, the debtor countries would then need new

⁸ W. Max Corden: *Debt Relief and Adjustment Incentives*, IMF Staff Papers, 35 (4), pp. 628-643, 1988.

⁷ Vito Tanzi and Mario Blejer: *Public Debt and Fiscal Policy in Developing Countries*, in: K. Arrow and M. Boskin (eds.): *Economics of Public Debt*, St. Martin's Press, New York 1988.

⁸ Helmut Reisen: *Public Debt, North and South*, in: I. Hussain and I. Diwan (eds.): *Dealing with the Debt Crisis*, The World Bank, Washington D.C. 1989.

⁹ Sebastian Edwards: *The International Monetary Fund and the Developing Countries: A Critical Evaluation*, NBER Working Paper No. 2909, Cambridge, Mass. 1989.

¹⁰ J. Sachs, op. cit.

¹¹ P. Krugman, op. cit.

¹² The debt overhang can be illustrated by the so-called debt relief Laffer curve. The curve relates the market value of debts to their book value. It starts with zero; it first rises at pari to the book value, and then continues to rise, although at a slower rate; it finally reaches a maximum, after which the market value continually decreases towards zero, while the book value stretches to infinity. The debt overhang is "weak" when it is to the left of the curve maximum and "strong" when it is to the right.

¹³ W. M. Corden, op. cit.

¹⁴ See in particular Daniel Cohen: *How to Cope with a Debt Overhang: Cut Flows Rather Than Stocks*, in: I. Hussain and I. Diwan (eds.), op. cit.

money in order to exploit profitable investment opportunities. Debt reduction alone would not achieve an investment upswing.

Empirical studies of the secondary market for LDC debt could not confirm the debt relief Laffer curve.¹⁴ Although these findings do not disprove the existence of a debt overhang, they imply that a debt reduction is not Pareto improving¹⁵, except for a very few countries with a large debt overhang such as Bolivia, Peru, Nicaragua and the Sudan. It therefore follows that the Brady Initiative would not lead very far as a voluntary debt strategy; the empirical evidence shows that banks usually do not gain from waiving their claims and that there is therefore more to solve than the banks' free rider problem.

Econometric specifications of consumption and investment functions tend to confirm the importance of the liquidity constraint.¹⁶ In a specification along the permanent income hypothesis, the debt overhang would have necessarily implied a greater marginal propensity to consume out of permanent income. This was not the case. Likewise, debt stocks proved to be insignificant in aggregate investment functions. On the other hand, the liquidity constraint was clearly significant, with positive values for the savings and transfer variables in the investment functions and a significant rejection of a negative correlation between the world interest rate and domestic investment.

Our results supplement the findings by Borensztein¹⁷ who simulated the debt versus liquidity constraints for investment behaviour in a simple neoclassical growth model. The debt overhang effect was modelled as a tax on production, while the liquidity constraint was modelled to raise the domestic interest rate in order to balance domestic savings and investment. In Borensztein's simulation model the liquidity constraint was found to exert a stronger negative effect on investment than the debt overhang tax unless the latter exceeded 20 per cent of a typical debtor country's GNP.

The literature dealing with debt-induced disincentives has failed to refer to the sovereign risk literature which had put the possibility of the debtor's default at the centre stage. The debt overhang hypothesis postulates that a reduction in the debt burden can induce the debtor to pay *and* to invest (reform the economy), as long as the creditor leaves the debtor with a part of the marginal yields from his efforts. It cannot explain what prevents the debtor from investing and from still *not* paying.

According to the sovereign risk approach debtor behaviour depends on the level, incidence and probability of the sanctions which the creditor can impose on the debtor in the event of default. The sanctions open to creditors are placed in two categories:¹⁸ a) the threat to

intervene in the debtor's international transactions (trade sanctions, impounding of assets); b) the threat to stop the debtor from obtaining further loans (reputation penalty). These *ex ante* threats, however, are not sufficiently credible to prevent default. The cost of *ex post* negotiated solutions for the creditor are usually lower than the costs of a clash with the debtor.¹⁹

Eight years of interrupted negative transfers have, from the debtors' perspective, also increasingly detracted from the credibility of the reputation penalty. Reputation-based models cannot explain why Latin America debtors have not completely stopped their payments. The limited explanatory power of the sovereign risk literature is probably due to the fact that the incentive effects of international debt relations on the debtor *governments*, which actually take the decisions, have been disregarded. When deciding whether to default, debtor governments must, for instance, also take into account the repercussions on the risk premiums which their nationals demand when purchasing domestic government bonds.

The Mexico Test Case

Can the Brady Initiative provide positive adjustment incentives for severely indebted developing countries? It has been discussed here that indebted governments compare the savings from default with the surpluses they can obtain from negotiations under the Brady agreement:

- ☐ in the case of public finances, the aim is to minimise total public debt service and hence to limit the tax burden, inflation and the rise in local interest rates as a result of growing domestic debt;
- ☐ with regard to foreign relations, the resource transfer to creditors must be kept to a minimum or even reversed by reducing debt service, providing access to new loans and encouraging expectations of future capital inflows;
- ☐ the decision will also be based on the economic return from the debt reduction agreement by comparing it with the opportunity costs of the resources to be spent on debt relief operations. The parameters for this calculation are interest rates and capital productivity.

¹⁵ Kenneth Froot: Buybacks, Exit Bonds, and the Optimality of Debt and Liquidity Relief, NBER Working Paper No. 2675, Cambridge, Mass. 1988.

¹⁶ Bert Hofman and Helmut Reisen: Debt Overhang, Liquidity Constraints, and Adjustment Incentives, OECD Development Centre Technical Paper No. 32, Paris 1990.

¹⁷ Eduardo Borensztein: The Effect of External Debt on Investment, in: Finance and Development, September 1989, pp. 17-19.

¹⁸ Jonathan Eaton, Mark Gersowitz and Joseph Stiglitz: The Pure Theory of Country Risk, in: European Economic Review, 30 (3), pp. 481-513.

¹⁹ Martin Hellwig: Comments on the Eaton, Gersowitz and Stiglitz paper, in: European Economic Review, 30 (3), pp. 521-527.

On these criteria, the discussion of the Brady Initiative's incentive effects has been too narrow in scope. First, the financial press has focused on the contraction in the face value of foreign debt, although financial transfers and their net present value matter for the economic implications of foreign debt. Second, the theoretical debate has overemphasized the importance (and efficiency) of the secondary markets. One side fears that the Brady Initiative will increase moral hazard, by encouraging debtors to implement policies that raise the discount on the secondary markets. The other side maintains that the marginal value of foreign debt is worth less (or nothing) than its average price on the secondary markets. The

debtors would therefore be at a disadvantage and the banks would benefit since a) the banks would siphon off economic rents and b) the market value of the remaining debts would rise. Both viewpoints overlook the fact that the Brady Initiative works largely independently of the secondary market. Firstly, a creditor has no further country risk on the discounted debt after the sale of his claims on the secondary market, while a creditor taking part in the Brady Initiative exchanges old for new paper at a lower discount depending on the remaining country risk. Secondly, the discount under the Brady agreement is the outcome of negotiations between creditors and debtors, independently of the secondary market.

Mexico: Effects of the Brady Agreement

	Early 1990	March 1990
I. External position, \$ billions		
Face value of gross foreign debt ¹	95.1	93.8
Foreign exchange reserves	6.0	4.7
US zero bonds and other assets	—	7.0
Face value of net foreign debt	89.1	82.1
II. Debt burden, \$ billions		
Market value of gross foreign debt ²	34.2	38.0
Present value of debt relief ³	—	14.1
Net resource transfer per year ⁴		—3.7
New debt		+ 0.3
Repayment		—2.1
Interest service		—1.3
III. Announcement effects		
	June 1989	August 1989
Real interest rates on CETES (Mexican Paper with 28 day maturity), annualised	36	19
	February 1989	March 1990
Secondary market price (cents/\$ 1)	36	40.5

¹ The decrease in face value is due to a debt waiver of \$ 6.96 million ($0.41 \times 0.35 \times 48.5$), minus "enhancement" money from the IMF, World Bank and Japan (\$ 1.64 + 2.06 + 2.05 billion) for the acquisition of US zero bonds and other securities. The new money option (\$ 1.45 billion between 1990 and 1992) is not included here.

² Prior to the announcement of the Brady Initiative (February 1989) and the conclusion of the agreement, the secondary market price was 36 cents per US dollar. Following the announcement, it "overshot" to 44 cents and after the agreement stood at 40.5 cents, the figure which was used to calculate the market value.

³ The new money option does not involve any debt relief; the interest relief option produces debt relief worth 31.3 per cent on the basis of 9.1 per cent LIBOR (World Bank projection) ($1 - 6.25/9.1$); the debt reduction of 35 per cent is equivalent to debt relief worth 35 per cent with an unchanged spread over LIBOR.

⁴ Over the period 1990-94 (period of validity), the reduced net transfer includes: \$288 million a year in new inflows, yearly savings on the repayments which would have been due in this period, and interest savings of \$650 million from interest reduction and \$630 million from debt reduction.

Sources: Secretaria de Hacienda y Credito Publica: The renegotiation of Mexico's debt, Mexico City 1990; Banco de Mexico: Indicadores Economicos; own calculations.

While debt-reduction agreements under the Brady umbrella have also been concluded for Costa Rica, the Philippines and Venezuela, Mexico has been seen as the test case.²⁰ The table shows that the Brady agreement has indeed raised the market value of Mexico's gross foreign debt while leaving its face value unchanged,²¹ but on the other hand has reduced the face value of net foreign debt by \$7 billion and the discounted present value of future debt service by \$14.1 billion. The net resource transfer has been reduced by \$3.7 billion a year, although this includes the repayments deferred until 2019 which would also have been postponed under the previous conventional restructuring process. The yearly reduction in interest for Mexico amounts to \$1.3 billion, which is equivalent to an economic return from the official resources put up for this purpose (\$7 billion by the World Bank, the IMF, Japan and Mexico) of 18.6 per cent. This is a reasonable yield even for an undercapitalised country such as Mexico, which is likely to have a high capital return on investment (the shadow price of the official resources provided for debt relief). The Mexican government estimates the net resource transfer implied by foreign debt at 2.43 per cent of GDP for the current sexennio (89-94), as compared with 5.57 per cent of GDP in the sexennio 1982-88.

After the announcement of the agreement at the end of July 1989, the annualised inflation-adjusted interest rates for Mexican government bonds (CETES) fell from about 36 per cent to 19 per cent; they have remained at this level since then. At this juncture the government's domestic debt amounted to \$54 billion, on which interest payment was reduced by over \$9 billion (about 4.5 per cent of GDP)

²⁰ Helmut Hesse: Aktuelle Probleme der Internationalen Verschuldungskrise, in: Deutsche Bundesbank: Auszüge aus Presseartikeln, Frankfurt, 20.2.1990.

²¹ The renegotiation of Mexico's external debt covered \$48.5 billion. The commercial banks faced three options. 41 per cent of the claims chose debt principal reduction, with an exchange of debt for bonds bearing a 35 per cent discount. 47 per cent selected interest reduction, with an exchange of debt instruments at pari, but subject to a fixed rate of 6.25 per cent. The remaining 12 per cent chose the "new money" options.

as a result of the decrease in CETES rates. Assuming no change in the private savings of 26 per cent of GDP, the aggregate savings ratio (public and private) would therefore rise by the amount of interest saved (from 18.9 to 23.4 per cent of GDP). This would mean that Mexico's investment ratio could be 6.9 per cent of GDP higher than prior to the Brady agreement, since the postponement of amortisation and new loans would result in an increase in foreign savings of 2.4 per cent of GDP. Capital formation in real terms would therefore be about 30 per cent higher than before the Brady agreement.

Without detailed empirical studies, however, the question of how far the fall in CETES interest rates can be attributed to the debt agreement must remain debatable. The shallowness of the Mexican financial market thwarts any attempt at quantifying foreseeable inflation by analysis of the term structure of interest rates. Reduced expectations of currency depreciation can only partly explain the decrease in interest rates since the debt agreement has only moderately lowered the net transfer abroad; in fact the Mexican peso has been further devalued in real terms since June 1989.

The return of flight capital after the Brady deal supports the assumption that the debt agreement has improved the government's credibility and that accordingly lower default risk premiums are being demanded by Mexican bondholders. The Mexican government's fiscal discipline, which transformed the earlier primary deficit into a primary surplus of 8 per cent of GDP, had not been enough in itself to overcome the government's credibility problem. Calvo²² has recently shown the possibility of dual equilibria introduced by high public debt in determining interest and inflation rates. Since high interest rates increase government indebtedness, they not only reflect but also determine inflation expectations. With high public debt, only the government's credibility decides whether the economy ends up with high interest rates, high default risk and high inflation or with low equilibrium values. In this specific situation the Brady Initiative therefore could help to improve confidence and exerted considerable leverage in the form of an automatic improvement in Mexico's public finances that far exceeded its direct effects.

Fiscal Rigidities

It is not to be expected that the Brady Initiative will also immediately restore confidence in other debtor countries, in particular where the political situation creates lasting fiscal rigidities.²³ Fiscal rigidities originate when every social group is powerful enough to obstruct taxation or cuts in subsidies, but has not enough political clout to shift the costs of fiscal adjustment onto other groups. Accordingly, the Brady Initiative can be successful only in countries

where competing demands for budget resources are not very pronounced, or where one political group is in firm control of economic policy decisions and is therefore able to shift the government debt burden onto groups not represented in the government.

Despite the fact that the Brady Initiative can only have decisive effects on fewer than the 19 middle-income countries concerned, it remains underfunded for the time being. Total public debt of these countries can be reduced only if "enhancement" money for debt reduction is provided from abroad. Of the \$30 billion in resources approved so far, \$5.7 billion have already been granted to Mexico.

Taking the negotiation with Mexico as an example, the debt burden of the remaining countries works out as follows: the remaining enhancement resources of \$24 billion are available for the negotiation of bank claims amounting to \$166 billion ($48.5 \times 5.7/7 \times 24$) with a 35 per cent bargaining discount (assuming a residual country risk). Net debts can thus be reduced by \$58 billion and interest reduced burden with LIBOR at 9.1 per cent, by \$5.3 billion. The total foreign interest of this group of countries (excluding Mexico) amounted to \$47.6 billion in 1989;²⁴ their interest payments would therefore be cut by a mere 11 per cent.

If the available official resources, however, were concentrated on quite a small number of countries, the Brady Initiative would encounter other limits. Market-based debt agreements of the Brady type will probably never restore the debtors' full creditworthiness, for two reasons. First, the commercial banks would find themselves in the prisoner's dilemma: with the expectation that the market value of their claims will again draw closer to their face value, no individual banks would still be prepared to waive their claims; they would then prefer to keep their book claims rather than to sell cheap. Second, every market-based debt reduction would then become too expensive for the debtor: the dwindling bargaining discount would depress the economic return from debt reduction under the opportunity costs. Debtors would prefer to use available official resources for investment instead of replacing their commitments to private banks by those to the IMF and the World Bank, without achieving any appreciable relief in the process.

²² Guillermo Calvo: Servicing the Public Debt: The Role of Expectations, in: *American Economic Review*, Vol. 78, No. 4, pp. 647-661.

²³ Alberto Alesina: The End of Large Public Debts, in: F. Giavazzi and L. Spaventa (eds.): *High Public Debt: The Italian Experience*, Cambridge University Press, Cambridge 1989; Helmut Reisen: *Public Debt, North and South*, op. cit.

²⁴ World Bank: *World Debt Tables 1989-90*, Vol. 1, Analysis and Summary Tables, Washington D.C. 1989.