



OECD DEVELOPMENT CENTRE

Working Paper No. 39  
(Formerly Technical Paper No. 39)

# BUYBACKS OF LDC DEBT AND THE SCOPE FOR FORGIVENESS

by

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Research programme on:  
Financial Policies for the Global Dissemination of Economic Growth

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## **Acknowledgements**

The author of this paper is a consultant to the OECD Development Centre. She gratefully acknowledges comments and very useful suggestions from Philippe Aghion, Patricia Armendariz de Hinojosa, and Angel Gurria Trevino. The views and opinions expressed in this article are the author's own and do not necessarily reflect those of the OECD.

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## **Summary**

This paper explains why a debtor country may be eager to spend foreign exchange reserves on the retirement of its cross-border obligations at market prices. A simple two-period framework shows that such spending can be profitable to both the debtor countries and their foreign creditors, and thereby provides an explanation as to why the so-called buybacks of LDC debt actually take place. An extended version of the basic framework shows how buybacks can be induced by having commercial creditors grant debt forgiveness, and why debt forgiveness thereby becomes an optimal strategy for creditors to follow.

## Preface

Foreign exchange reserves are known to be a very scarce resource in developing countries. In spite of this, an increasing volume of such reserves is being spent on buybacks (or debt retirement) of cross-border commercial bank obligations in the so-called Secondary Market for LDC debt. This may reflect developing countries' desperate attempts to shorten their way out from the financial autarky in which they have been since the early eighties.

This paper explains debt buybacks and their potential contribution to improve the developing countries' prospects for re-accessing the international credit markets earlier than they would otherwise. It is therefore of much relevance to the Development Centre's research within the context of its project on "Financial Policies for the Global Dissemination of Economic Growth".

First of all, this paper provides a non-technical overview of the main analytical issues raised by buybacks. It then presents a framework to show that buybacks can be in the mutual benefit of debtor countries and their foreign creditors and, hence, it provides an explanation as to why such transactions actually take place. Finally, it shows that buybacks can be induced by granting debt forgiveness. A main policy implication that can be drawn is that, in their attempts to obtain an early repayment on their LDC claims, creditors should adopt a debt-forgiveness strategy.

The issues raised in this paper merit further deepening. Beatriz Armendariz' contribution to the buyback debate is a timely one.

Louis Emmerij  
President of the OECD Development Centre

*“Repurchases of defaulted debt were a way to eliminate costly lending mistakes. By removing the residue of non-performing loans from the market, it would be possible to list new issues on the Stock Exchange and to get the lending process restarted....”*

Eichengreen and Portes (1989),  
“Dealing with Debt in the 1930s and 1980s.”

## **I. Introduction**

In previous debt crises, throughout the 19th century and the interwar period, as well in the more recent one that started in the early eighties, foreign creditors have been prompted to sell their claims on LDCs at depressed market prices. At the same time, debt-burdened LDCs have sought to take advantage of such prices and have, in many instances, used their foreign exchange reserves to engage in buybacks of their own cross-border obligations.

In 1988, Bulow and Rogoff wrote a seminal paper on buybacks whose main message is that LDC debtors should not throw good money after bad. The buybacks, as well as their close cousins debt-equity swaps, the argument goes, are to the debtors' detriment because “...diverting resources from consumption and investment into debt reduction represents a concession to the creditors...” This is the case, in particular, when such a concession is viewed from a zero-sum-game standpoint where neither the creditor nor the debtor can be better off without making the other be worse off.

Clearly, buybacks from such a standpoint remain, by and large, unexplained. In particular, Bulow-Rogoff's paper fails to explain why debtor countries seem to find it profitable to undertake such transactions in the first place.

This paper shows that buybacks can be to the mutual benefit of LDC debtors and their foreign creditors and, hence, it provides an explanation as to why such transactions actually take place. Buybacks are shown to make creditors unambiguously better off as they enjoy a higher debt-repayment stream (same as in Bulow-Rogoff, 1988). From the debtor's standpoint, however, the decision to undertake buybacks involves the following trade-off: shortening its way out of financial autarky (but having to sacrifice immediate consumption of foreign exchange reserves) on the one hand, and postponing debt repayments (but suffering a cut off from international credit markets for a longer period of time), on the other.

Buybacks are shown to benefit developing countries that have a relatively low debt burden, and/or are relatively impatient to re-access the international capital markets.

An extension to the above framework is developed in order to show that by granting debt forgiveness, commercial creditors can induce buybacks that a developing country would not have otherwise undertaken. This is yet another argument in favor of a Brady-style debt-forgiveness strategy<sup>1</sup>: by inducing debt repurchases, such a strategy can allow for debtor countries to choose a timely return to voluntary lending, and it can also help creditors to get a higher expected repayment.

This paper is structured in four parts. It starts in Section II with an overview of the main analytical contributions encountered in the buyback literature. It then develops a simple two-period framework to show how buybacks may, under certain conditions, benefit both parties, namely the debtor countries and their foreign creditors (Section III). Such a framework is extended in Section IV to account for induced-buybacks from the perspective of a debt-forgiveness strategy. Section V spells out some conclusions.

## **II. Overview of the Main Analytical Issues Raised by Buybacks**

Buybacks refer to the retirement by a debtor country of its cross-border commercial bank obligations at market prices. Specifically, the analysis hereafter refers to such transactions where the Central Bank in the debtor country uses foreign exchange reserves for debt-reduction purposes. Debt-equity swaps, cash buybacks, and debt exchanges fall into this category.<sup>2</sup>

The main question addressed in the existing literature on buybacks is whether such transactions benefit the debtor country, the commercial creditors, or both. This question has been dealt with via three different research avenues.

### **Investment incentives.**

This research direction was first stated in Sachs' (1988) and Krugman's (1989) papers on the debt-overhang<sup>3</sup>. Their main idea relies on an incentive argument: by having a reduced debt overhang a country is better induced to make the required effort to improve its investment performance. [Such will be the case when the country is originally discouraged from improving its investment performance because it anticipates that most of the extra benefits to be generated will accrue to the creditors -- when, in particular, the country is originally on the right-hand side of the debt-relief Laffer curve, as Krugman puts it]. Now, suppose the country is allowed to repurchase part of its excess debt, at discounted market prices. Then, investment incentive effects will be triggered to the benefit of both parties involved: the country will improve its investment performance and the creditors will obtain (in expected terms) a higher debt-repayment stream. At the same time, the country's debt in the so-called secondary market will be higher-priced as a result of the buyback. This is because the increased probability of repayment on such a country's remaining obligations.

### **Bargaining over debt repayments.**

This approach was first developed by Bulow and Rogoff in their (1989) article which borrows heavily from Rubinstein's (1982) bargaining model. Consider the case where a debtor country and its creditors bargain over how much the former must repay to the latter every period. Clearly, the amount of debt repayments will greatly depend upon each party's relative impatience rates -- and as such, they will be quite independent of the country's foreign exchange reserves.<sup>4</sup> Assume the country decides to use some of its "extra" reserves for retiring part of its foreign obligations at market prices. Following the country's announcement on how much extra reserves will be utilised for debt retirement, the market valuation of the country's debt will increase because of the following reason: the repurchase will eliminate some of the creditors who were previously sharing the periodic repayments made by the debtors -- when, in particular, such repayments had been fixed ex-ante at the Rubinstein's bargaining solution. But creditors deciding to sell will only do so if they are at least as well off as those who do not sell. Hence, the price of the country's remaining obligations will increase in proportion to the announced amount of debt to be repurchased. Intuitively, one can see that such a country will be retiring its debt at a higher price than the one prevailing before the repurchase was announced. (Put in Bulow-Rogoff's terminology: the country will be repurchasing marginal-sovereign debt at average sovereign prices.) Since such a framework rules out efficiency gains, i.e., there are not investment-incentive effects à la Krugman, the buyback benefits the creditors at the expense of the debtor country.

### **Rate of return**

According to this approach (see, Dooley 1989) buy backs have an opportunity cost which can be estimated by considering the rate of return on alternative investment projects. Suppose there are bad and good states of nature. In the bad states the country has no foreign exchange reserves left to undertake buybacks, i.e., the country uses all its reserves to service outstanding debt. In the good states, the country can decide between the following two alternatives: it either uses all its "extra" reserves to undertake an investment project on which a risk-free return will be earned, or, it uses such reserves to buyback a portion of its foreign debt on which a risky return is currently being paid. Intuitively, one can see that the country will be better off by undertaking the buyback because such a transaction boils down to giving away reserves that would have earned a risk-free return in exchange of liabilities that bear a risk premium. Hence, the buybacks benefit the debtor country. The creditors will be worse off, however. Creditors who sold, i.e., former creditors, will now be getting a risk free return instead of a risk premium. At the same time, remaining creditors will no longer enjoy any of the country's good fortune, i.e., extra reserves are now gone. Such a "bad" effect on creditors makes the market valuation of the country's debt go down.



The discussion so far can be summarised in the following:

Table 1.

**Effects of the Buybacks**

Framework	Market valuation of the debt	Creditors	Debtors
Investment incentives	Increases	Better-off	Better-off
Bargaining	Increases	Better-off	Worse-off
Rate of return	Decreases	Worse-off	Better-off

The investment-incentives approach as shown in Table 1, is the only one to provide a rationale for buybacks. It should be noted, however, that such approach leaves the following unexplained phenomenon. Suppose the country wants to retire its debt gradually by undertaking a sequence of buybacks. What the investment-incentive model predicts is that following each buyback the country has to pay a higher price for each unit of debt in future repurchases.<sup>5</sup> However, if the country rationally anticipates such an increase in price, it may not find it profitable to undertake buybacks, unless such transactions can be made secret (as in Cohen and Verdier, 1990). But then, we cannot explain why, in some instances, countries like to undertake “open” buybacks, i.e., the Bolivian buyback in 1988, the Chilean buyback in November 1988 and in November 1989, and the Philipinian buyback last year.

Acharya and Diwan (1990) explain the open-buyback puzzle in a signaling model. they show that countries like to undertake buybacks so as to signal creditworthiness vis-à-vis their foreign creditors who would not be willing to grant debt forgiveness otherwise. Assume that creditors would like to induce investment by granting forgiveness (as in Krugman 1988). Ex-ante, however, creditors face “good” and “bad” debtors, respectively, who will spend more on investment and more on consumption. Since creditors ignore ex-ante the debtors' true identity, buybacks can be used as a screening device -- when, in particular, such transactions reveal that the country has a low discount rate indicating the country's willingness to sacrifice consumption to increase investment. In equilibrium, debt forgiveness is not granted to those countries that do not undertake buybacks.

This paper's approach to buybacks is similar in spirit to Cohen-Verdier's and Acharya-Diwan's, respectively, in that it aims at providing an explanation as to why debtor countries like to engage in such transactions secretly and/or openly. However, this paper presents a much simpler framework to show that buybacks can allow for a debtor country to enjoy an early re-access to the international capital markets. Such will be the case in particular, when the debtor country is relatively impatient to shorten its way out from financial autarky, and/or has a relatively low debt burden.

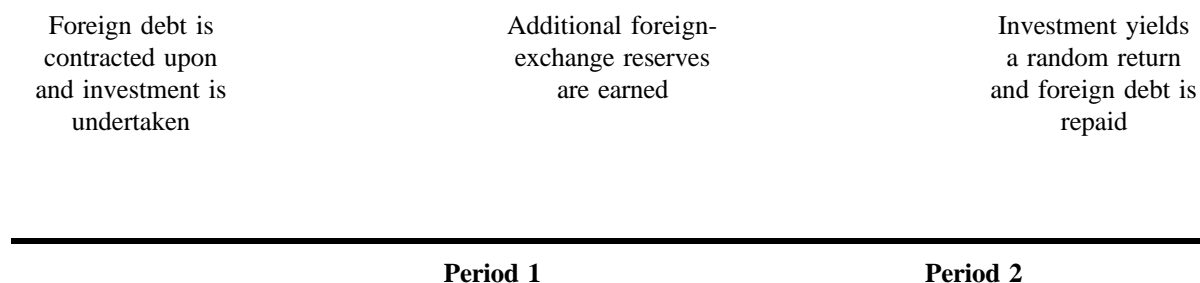
Our approach is therefore bringing in a new element to account for buybacks, namely, that of the early re-access incentive element which, indeed, differs from the investment

incentive effects highlighted in Krugman's debt-relief-Laffer curve. In contrast with Krugman's approach, this paper views debt-relief as an incentive device for buybacks to be undertaken by a developing country, and shows that creditors will find it profitable to grant debt forgiveness even when the debtor country is on the left-hand side of the Laffer curve.

### III. A Basic Model of Buybacks

Consider a two-period framework where a debtor country has already undertaken an investment project financed by foreign loans of total face value  $D$ . Such a project yields a random return  $\theta$  at the end of period two. The country is assumed to be cut off from the international credit markets: to borrow again it must first repay  $D$ . Specifically, the country cannot contract a new loan before the end of period two (when  $\theta$  is realised and creditors are repaid). Assume, however, that in period one the country earns "extra" foreign exchange reserves,  $R$ , which can allow for an early re-access to the international credit markets -- when, in particular the country decides to use such reserves to repurchase a fraction of  $D$  in order to shorten its way out from financial autarky by one period. The timing just described is illustrated in the following:

**Figure 1: The Timing of the Model.**



Assume a continuum of creditors whose discount factors are the same,  $\delta$ , and also the same as that of the debtor country.<sup>6</sup>

Assuming a continuum of creditors rules out strategic behavior, even though creditors are assumed to form their expectations rationally regarding future debt prices. When the country does not undertake a buyback, then the market value of the debt will simply be:

$$V(D) = E_{\theta} \min(D, \theta) \quad (1)$$

Assuming  $\theta$  is uniformly distributed between 0 and 1, and  $D \in (0,1)$ , we have:

$$V(D) = \int_0^D \theta d\theta + (1-D)D = \left(1 - \frac{D}{2}\right) D \quad (2)$$

Therefore, the price for each unit of debt is:

$$\frac{V(D)}{D} = \left(1 - \frac{D}{2}\right) \quad (3)$$

Now suppose the country undertakes a buyback at the end of period 1. The reserves spent on the buyback could alternatively be spent on consumption in period 1. Assume the country's intertemporal utility function is:

$$u(c_1, c_2) = c_1 + \delta c_2 \quad (4)$$

The question then is why should the country spend reserves on a buyback when it can otherwise increase its first period consumption.

A crucial assumption in this model is that by undertaking a buyback the country can re-access the international credit markets earlier, i.e., in period one instead of period two, and thereby increase its utility.

Let  $W$  be the net present value (measured in units of consumption goods) of re-accessing the international credit markets. Assume  $W > R$ .

Now suppose the country decides to buyback the fraction  $X$  of its outstanding debt. Creditors will accept to sell their claims to the country if and only if they obtain as much by selling than by keeping such claims. If they hold on to their claims, the price they get in the second period is:

$$1 - \frac{(D-X)}{2} > 1 - \frac{D}{2} \quad (5)$$

This is the well known Bulow-Rogoff result: debt prices increase after the buyback to the benefit of the average creditor.

What the selling creditors get in the first period is simply:

$$P(X) = \delta \left( 1 - \frac{D-X}{2} \right) \quad (6)$$

From the country's standpoint, to re-access the international capital markets means the whole  $D$  has to be repurchased at a price:

$$P(D) = \delta \quad (7)$$

i.e., reserves on the amount  $\delta D$  must be spent to obtain a new foreign loan in period 1. So, the possibility for the debtor country to undertake buybacks only exists if  $R > \delta D$ . This follows from our assumption that a country cannot contract new loans before the outstanding debt has been fully repaid. We shall discuss this assumption below. Then the country's total utility when a buyback is undertaken will simply be:

$$R - \delta D + W \quad (8)$$

Now suppose the country does not undertake the buyback, and that it spends  $R$  on immediate consumption. The country's total utility in this case will then be:

- (a) if  $\delta W < 1$ , the country prefers to consume its reserves immediately. Its utility will then be:

$$R + \delta W(1 - D) \quad (9)$$

- (b) if  $\delta W > 1$ , and  $R < D$ , the country prefers to use its reserves to increase its probability of re-accessing the capital markets in period two. Its utility will then be:

$$\delta W(1 - D + R) \quad (9')$$

- (c) if  $\delta W > 1$  and  $R > D$ , again the country prefers to increase the probability of re-accessing the capital markets in period two, except that in this case it will have  $R - D$  left for immediate consumption. Its utility will then be:

$$\delta W + (R - D) \quad (9'')$$

Let's now compare (9), (9'), and (9''), respectively with expression (8):

- when  $\delta W < 1$ , then the country decides to undertake the buyback if and only if:

$$R - \delta D + W \geq R + \delta W(1 - D) \quad (10)$$

$$\Leftrightarrow W(1 - \delta(1 - D)) \geq \delta D \quad (10')$$

$$\Leftrightarrow W \geq \frac{\delta D}{1 - \delta(1 - D)} \quad (10'')$$

The above inequality is more easily satisfied when  $D$  and/or  $\delta$  are sufficiently small, i.e., when debt burdens are low and or when debtor countries are impatient to re-access the international capital markets.

Policywise, the above result implies that the creditors could induce buybacks by granting forgiveness, i.e., by simply giving away a portion of their claims on the country. Such an argument in favour of forgiveness is indeed different from the standard investment-

incentives' argument à la Krugman. (We will come back to the forgiveness-buyback issue more formally in the following section).

- when  $\delta W > 1$ , and  $R < D$ , then, the country decides to undertake the buyback if and only if:

$$R - \delta D + W \geq \delta W(1 - D + R) \quad (11)$$

$$\Leftrightarrow W(1 - \delta(1 - D + R)) \geq \delta D - R \quad (11')$$

Which is always true as long as long as  $R > \delta D$  (If  $R < \delta D$  there will not be room for a buyback to start with). This result is not surprising since  $W > 1/\delta$  means that it is extremely valuable for the country to re-access the international credit markets. Such is the case, for example, when creditors offer to provide high enough new loans upon repayment of old debts.

Pure intuition then tells us that the more quickly creditors co-ordinate their actions to offer debt relief the earlier they can induce buybacks, and the earlier debt prices will increase.

Buybacks in this model are mutually profitable when undertaken publicly, and so can be debt forgiveness when aimed at facilitating them. We shall now develop this last point more formally in the following.

#### IV. Buybacks and the Scope of Debt-Forgiveness

We shall now analyse the conditions under which it would be in the creditors' interest to forgive part of a country's debt, taking into account that in so doing, creditors may induce mutually profitable buybacks.

The relevant case for such analysis is when  $\delta W < 1$  and  $W < \delta D / 1 - \delta(1 - D)$  =  $g(D)$ , i.e., when  $W$  is not too large. Only in this case will the country decide not to undertake a buyback unless it is granted debt forgiveness.

If creditors do not forgive, the market value of the debt will then be:

$$V(D) = \delta \left(1 - \frac{D}{2}\right) D \quad (12)$$

If creditors forgive an amount  $X < D$  and the country does not undertake a buyback, then the market value of the debt will be:

$$V(D - X) \quad (13)$$

In the absence of buybacks, creditors should forgive if and only if  $D > D_m$  where  $V(D_m) = 0$  ( $\Rightarrow D_m = 1$ ); since it is assumed that  $D < 1$ , creditors would never forgive in this model in the absence of buybacks.

Now, suppose creditors contemplate the option to grant (partial) debt forgiveness in order to induce the debtor country to undertake buybacks. The minimum amount of debt-forgiveness required for buybacks to take place is simply given by the equality:

$$W = \frac{\delta(D - X)}{1 - \delta(1 - D + X)} = g(D - X) \quad (14)$$

It will be in the creditors interest to actually forgive that amount of debt if and only if what they obtain by forgiving is at least equal to the market value of the debt in the absence of forgiveness; i.e.:

$$\delta(D - X) \geq V(D) = \delta \left(1 - \frac{D}{2}\right) \quad (15)$$

where:  $\delta$  is the unit price of buybacks; and  $(D - X)$  is the amount of buybacks.

We then want:

$$D - X \geq \left(1 - \frac{D}{2}\right)D \quad (16)$$

where  $D-X$  is defined by (15).

From (15), the above inequality (16) can be rewritten:

$$D - X = \frac{(1 - \delta)W}{\delta(1 - W)} \geq \left(1 - \frac{D}{2}\right)D \quad (17)$$

This inequality will automatically be satisfied if  $\delta$  is sufficiently small. The intuition is clear: if  $\delta$  is small the country does not require much forgiveness before deciding to repurchase the remaining debt ( $D-X$ ) at price  $\delta$ . I.e.,  $X$  can be small, so that the market value of the remaining debt  $\delta(D-X)$  will exceed the market value without forgiveness, the latter value being limited by the positive probability ( $D/2$ ) that the country will default on the overall debt  $D$ .

### **Remarks**

- 1) The above analyses implies that there is scope for debt forgiveness policies even on the left-hand side of Krugman's Laffer curve, i.e., for  $D < D_m$  (where this author would rather recommend debt rescheduling).
- 2) The above result is sensitive to the assumption that the country cannot re-access capital markets until it has repaid all its outstanding debt. Suppose instead that the debtor country can start re-accessing capital markets as soon as it starts reimbursing its debt. For example, by reimbursing (or repurchasing) the fraction  $X$  of its outstanding debt, the country can appropriate:

$$W[1 - (D - X)] = W(X) \quad (18)$$

(In particular the debtor country can appropriate the whole value  $W$  by repurchasing its whole outstanding debt).



Then the country will chose the amount of debt it will repurchase (X) and the amount of future reserves it will save in order to improve the period 2 repayment of the remaining debt (y) so as to maximise:

$$\max_{x,y} \left\{ W [1 - (D - X)] + R - p(X)X - Y + \delta W \left[ \int_0^{D-x-y} \theta d\theta + \int_{D-x-y}^1 (D - X - Y) d\theta \right] \right\} \quad (19)$$

$$\text{where } p(X)X + Y \geq R$$

$$\text{and } p(X) = \delta \left( 1 - \frac{D - X}{2} \right)$$

For W sufficiently large, and/or  $\delta$  sufficiently small, we can show that  $Y=0$ , i.e. the country prefers to consume  $(R-p(X)X)$  rather than save this amount of foreign reserves for future debt repayments.

From first-order condition, we then derive:

$$X^* = D - \frac{1-D/2}{1+W} \quad (19')$$

$$\text{i.e.: } \frac{dX^*}{dD} > 0$$

In other words, there is no scope for debt-forgiveness in this case; indeed, the larger the outstanding debt D, the more the country will be willing to repurchase in order to appropriate a larger fraction of W. To reintroduce a role for debt-forgiveness as a device to stimulate buybacks, we must have:

$$W(X) = W[1 - f(D - X)] \quad (19'')$$

Where  $f$  is illustrated in the following:

**Figure 2.**

This corresponds the following shape for  $W(X)$

**Figure 3. Re-access to Capital Markets as a  
Function of Debt-repayment**

In other words, the re-access to capital markets must be sufficiently difficult in terms of pre-required debt repurchases.

## V. Concluding Remarks

Debt forgiveness in this paper is viewed as an incentive device for Pareto-improving buybacks to be undertaken by debtor countries. The scope for debt-forgiveness may then be greater when, in particular, debtor countries can default without incurring a prohibitive cost. Indeed, going default (or the mere threat of default) would allow for debtor countries to undertake secret buybacks at low market prices. Such an incentive to default would be lessened if debt-forgiveness were sufficiently large for debtor countries to be eager to buyback their remaining debt without having to incur unnecessary default costs.

The granting of debt forgiveness, however, greatly depends upon how effectively creditors can co-ordinate their debt policies vis-à-vis the debtor countries. Co-ordination failures have been ruled out in this paper, where creditors are assumed to be homogenous. In reality, however, heterogeneity, and lack of co-ordination and communication among international lenders limit the scope for debt forgiveness. The potential role that international organisations can play as coordinating agencies is therefore crucial for debt relief packages to succeed.

## Notes and References

1. Typically, Brady-style debt forgiveness deals allow for a debtor country to buyback its remaining obligations. There are, however, some very reasonable restrictions: upon undertaking the buyback the country must (a) be current on interest payments, and (b) not have drawn up from the collateral accounts which support the “newly” created debt-instruments (see, Van Wijnbergen, 1990, for the case of Mexico's Brady deal).
2. Specifically the debt-equity swaps can have a negative impact on foreign exchange reserves when: (a) the debtor government does not own the equity, and in order to undertake the swap it must first buy the equity from the private sector, i.e., use foreign exchange reserves to pay for private sector assets, which will then be exchanged against foreign debt; (b) there is round tripping, i.e., after swapping the debt for equity, an investor then sells the equity and withdraws the proceeds from the country, and (c) when a debt-equity swap is undertaken by a foreign firm to make an investment that was going to be carried out anyway (see, Krugman, 1989, and Diwan and Claessens, 1989). Cash buybacks refer to non-earmarked foreign exchange resources spent on debt retirement at market prices (see the IMF *International Capital Markets*, 1990, for recent examples on the undertaking of such transactions by LDCs). Debt exchanges refer to the use of foreign exchange reserves to collateralise principle and interest payments on newly created debt instruments. The 1988 Mexico-Morgan scheme is an example of such type of transactions. For more on debt exchanges, see the IMF *International Capital Markets*, 1990).
3. These two authors' main idea was not really new. It was first introduced in the Corporate Finance Literature by Myers in 1977.
4. On the one hand, extra reserves may strengthen a country's ability to pay cash-in-advance for many imports and thus lessens its dependence from the foreign creditors. On the other, lower reserves may make the country's insistence on lower repayments more credible under “You can't squeeze blood from a stone” theory. Hence, reserves have little impact on debt repayments (Bulow-Rogoff, 1988, p. 7).
5. Specifically, Krugman fails to explain that upon undertaking a buyback a debtor country faces a trade off between having a reduced debt overhang (but having to pay a higher price for each unit of debt in future repurchases) on the one hand, and increasing immediate consumption from foreign exchange reserves (but sacrificing

investment-efficiency gains) on the other. This way of stating the problem makes it clear that the buybacks will only benefit both the debtor country and its creditors when investment-efficiency gains are sufficiently large, i.e., when the country is on the left hand side of the Laffer curve. Now suppose such a Laffer curve argument was not relevant on explaining low investment in LDC debtors, as it has indeed been the case in most empirical findings (see, Cohen 1989 and Hofman and Reisen, 1989), then, the buyback puzzle remains unexplained.

6. The case where creditors' discount factors differ is out of the scope of this paper. An earlier article of mine deals with such a case within the context of debt-reduction schemes in the aftermath of the 1930s debt crisis. (see, Armendariz de Aghion, 1989). The case where the average discount factor of the creditors and the debtor differs would only complicate the analysis without adding much insight.

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