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## Debt-equity swaps: Panacea or the emperor's new clothes?

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Debt-Equity Swaps - Panacea or the  
Emperor's New Clothes?\*

by

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## Debt-Equity Swaps - Panacea or the Emperor's New Cloth?

### I. Introduction

Among recently discussed financial innovations aiming at facilitating financial problems of developing countries debt-equity swaps (DES) have received considerable attention and have been greeted by some advocates with enthusiasm (Fierman 1987, Rundt 1986). This paper analyzes how debt-equity swaps can be of benefit to highly indebted developing countries. In particular, it will be analyzed whether these swaps can be implemented without harming "old" creditors and thus hampering new lending. If this condition is fulfilled, swaps possibly provide an exit option for individual banks from syndicated rescheduling and thus might facilitate rescheduling negotiations through a reduction of the number of participating banks. The paper is organized in four chapters. Following the introduction, chapter II provides a general description and some background on the implementation of debt-equity swaps. Chapter III tries to set up a framework for the analysis of benefits and costs associated with these swaps, as they are suggested in the literature. In chapter IV, this conceptual framework is used for a general evaluation as well as some concluding remarks are provided.

## II. Some Background on Debt-Equity Swaps

Debt-equity swaps (DES) have been implemented by various countries in recent years. Chile was the first to launch a significant debt-equity swap scheme in 1985. The swap transactions undertaken by Chile so far account for almost 14 percent of its external bank debt or about one-fifth of the total volume of all swaps (about \$ 6 bill. or 2.2 percent of total external bank debt of developing countries). Among the follow-up countries Mexico, Brasil, Argentina and the Philippines should be mentioned as countries with significant formal schemes. DES can be negotiated on a case-by-case basis also with other indebted countries. The details of the schemes implemented vary though. This section provides a general description of the main features of these schemes (for further (technical) details see Appendix I; for more general discussions see for instance Watson (1986, 1988) and Roberts and Remolona (1987)).

Debt-equity swaps involve as one integral element the repurchase of public sector or public sector guaranteed foreign-currency-denominated external obligations (usually dollar denominated foreign bank loans) by the debtor country. The debt-titles are repurchased with the provision (or restriction) that the proceeds (in local currency) are used - in a second step of this swap transaction - to purchase domestic assets, equities or other investments, which are specifically designated. However, it is not necessary that the original creditor, usually a bank becomes the investor, or resells directly to the debtor. Besides the debtor country's government, a DES "normally" includes as active participants: a bank willing to sell a debt-title, an investor inclined to invest in the country concerned and unless no new investment project is taken up, agents selling equity. Thus, interested investors, who can be residents or non-residents, can purchase bank loans either from brokers already trading loans on the secondary market or directly from banks. The investor usually is attracted to this scheme because financing the foreign investment through the actually implemented DES provides more favorable terms to the investor than other ways of financing. The

government redeems the debt-title at a discount lower than the one obtained in the secondary market and/or it applies a more favorable exchange rate<sup>1</sup> in calculating the domestic currency equivalent of the redeemed foreign debt title than in a situation where other funds were transferred for direct investment purposes (for some standard calculations used as examples see Appendix II).

In the aggregated accounts for the debtor-country all "swap" operations would be recorded as a reduction of foreign debt and an increase of foreign equity liabilities. On a disaggregated level they can affect the balance sheets rather differently. In an extremely simplified case the debtor government might exchange equities out of its own portfolio (or issue new equity) against her liabilities with foreign banks with the result that the government's assets as well as liabilities are reduced claims leaving its net wealth unchanged. The creditor bank replaces its debt claims by equity claims and becomes an investor. Thus, a debt-equity swap would boil down to the delivery of a collateral. In another probably more "realistic" example, where foreign investors purchase debt titles (loans) from banks and resell it to the government (debtor) and proceed by purchasing equity in the private sector, foreign banks replace their asset "loans" by (possibly) cash and the foreign investor replaces his asset "cash" by equity. As in this more "usual" example - better described as a debt conversion - debt is not traded against and hence directly converted into equity, the debtor country purchases the debt title by paying with its own money. Unless an inflationary tax is levied (see for further discussion later), the country can pay by using its seigniorage or increase its domestic debt by operations on the domestic bond market neutralizing the impact on the money supply or by raising funds by directly increasing its domestic debt. In the latter case the government replaces foreign debt by domestic debt, while households replace equity by government debt titles. In this

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<sup>1</sup> Using the exchange rate raises the risk of roundtripping through the black market and requires preventive administrative measures.

situation domestic savings are replacing foreign savings previously used for financing the public sector while foreign savings are channeled into the private sector. The provision of foreign funds is unchanged, as foreign investors' funds are replacing retired foreign debt. This operation, therefore, does not provide additional foreign funds or create domestic savings by itself<sup>1</sup>.

Among the advantages or benefits of debt-equity swaps are usually mentioned in the literature (see for example World Bank 1987, Spieles 1987):

- a reduction or reduced rate of growth in the stock of external debt;
- increased opportunities to repatriate flight capital;
- incentives for increased private foreign investment;
- improvements in the balance of payments as outflows associated with payments of interest and principal on debt are replaced by deferred and less certain outflows associated with private direct investment.

Among the possible disadvantages or costs of these swaps are mentioned (see among others Roberts and Remolona 1987):

- a possible inflationary impact;
- rising imports due to rising investment;
- misallocation of resources.

These arguments, however, refer to rather different characteristics of the debt problem and provide only hints as to what possibly might be considered in a global cost-benefit analysis of these schemes. Thus, apart from the problem of identifying the various elements relevant for a consistent evaluation of swaps, there is a major problem of integrating these elements by help of a common denominator, which would allow to "calculate" the net impact of these swap operations. Thus, the following chapter is intended to organize the arguments and suggest such a conceptual approach to their evaluation.

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<sup>1</sup> This is also true, if investors start new projects. However, the use of domestic savings is affected.

### III. A Conceptual Proposal for the Theoretical Analysis of Swaps

#### A. How to Find a Framework for Analysis

Recent analyses of financial innovations reveal that these innovations tend to raise financial market efficiency by improving risk allocation. Higher efficiency results from completion of existing markets, reduced costs of financial transactions, and an increased liquidity in existing markets (Zimmermann 1987). These global efficiency gains are realized, because financial innovations involve transactions of mutual benefit. End-users in interest rate swaps exploit their comparative advantages in two markets<sup>1</sup>. Thus, the participants get involved in these transactions voluntarily. In the majority of cases the DES, subject of analysis here, is, however, not a voluntary arrangement of just two participants. As was shown in the previous section, only in very special cases governments and banks might swap claims. A more appropriate labelling of the subject for analysis here is provided by the term debt conversion, which describes the usually prevailing operation in which the debtor country (obligor) swaps from its external debt to domestic debt. This happens because the country issues domestic debt titles in order to obtain domestic currency necessary to pay the foreign investors who redeem foreign currency denominated external debt titles purchased from creditor banks in domestic currency. These debt-equity conversion schemes involve as an integral part besides the voluntary participants, the debtor-countries, which implement the schemes while their refinancing (new-lending) is done on a managed non-market basis. Thus, like in a bankruptcy-procedure when the legal mediator monitors, whether the activity of the company is to the benefit of the firm and the creditors, it is in this case necessary to analyse whether the debtor's country activity is to the benefit both of the country and other creditors.

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<sup>1</sup> Thus, a highly regarded borrower will raise fixed rate funds and swap these for floating rate funds, which are raised by a less well-regarded borrower. See for further discussion Watson (1988, p. 67f.).



In order to determine a basic conceptual framework, we focus in the following analysis on the likely impact of the scheme on the valuation of outstanding debt. The price of outstanding debt is a crucial catch-all variable, which indicates the market's assessment of the debt problem by discounting future debt service capabilities and thus the country's economic situation<sup>1</sup>. We assume that an increase of the value of outstanding debt indicates an improvement of the debtor's economic situation and in particular the investment climate and thus reflects a favorable impact of the swaps engineered<sup>2</sup>. We proceed by determining the likely impact of these swaps on the price of outstanding debt in relatively simple examples and then add further qualifications. To begin with it is assumed that the country believes that it is to its own benefit to operate in a way that tends to raise the secondary market valuation of its debt. If it does so it also serves the interest of the banking syndicate, the judgement of which is important for the swap operation, because the syndicate has to provide "fresh money".

## B. Conceptual Framework

Three examples are introduced in order to illustrate what can be gained or lost through the implementation of swaps. The first example analyzes a situation where the state is the obligor for debt and issues equity. The second and third example deal with debt conversion procedures, where the public sector is the obligor, but the area for investment is the private sector.

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<sup>1</sup> This indicator has been suggested by Dooley (1986) as an important measure for the assessment of the debt problem.

<sup>2</sup> If we focus here only on government debt, this affects nevertheless the general investment climate through its impact on the covariance of risks associated with private sector debt and public sector debt and thus the risk assessment of private sector investment.

## 1. Example

In the first example<sup>1</sup> the entire contractual liability of a country is assumed to amount to \$ 100 billion<sup>2</sup>. Potential as well as actual investors have identical expectations of the pay-off by the country. These expectations are characterized by a probability distribution<sup>3</sup> for the present value of various possible pay-offs (see Figure 1). Thus, market prices would reflect the mean of the probability distribution of the present value of expected payment flows. For the assumed normal distribution this would correspond to the price of 50 billion before any swap takes place.

We start out by assuming that a swap of loans or bonds for equity would involve a change in property rights in the sense that the relative position of creditors in the priority list for payments changes while the swap leaves the expected pay-off stream which can be generated by the debtor unchanged. In order to analyze the questions of how a change in the contractual rights of creditors will alter the market value of credits and under what circumstances a beneficial swap can take place, it is useful to imagine an auction in which a benefactor would buy outstanding debt at the market discount and forgive a portion of the existing debt.

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<sup>1</sup> This presentation draws on an example presented by Michael Dooley in an IMF working paper (1987). Dooley analyzes the distribution of benefits of buy-backs orchestrated by a benefactor in combination with debt relief. Both debtors and creditors benefit in this analysis under plausible circumstances. The debt-equity swap presented here - also implemented by a benefactor - is analyzed as one variant of a possible buy-back scheme.

<sup>2</sup> This example ignores interest payments. It focusses on the repayment of the principal. The analysis would hold in case of for instance zero-bonds. Issues related to differences in the service on claims, as for instance loans (fixed rates) vis-à-vis equity (share in revenues) thus have to be analyzed separately.

<sup>3</sup> The distribution function in the example is defined by a mean of 0.5 and 98 percent of the probability density between 0 and 1.0.

Figure 1

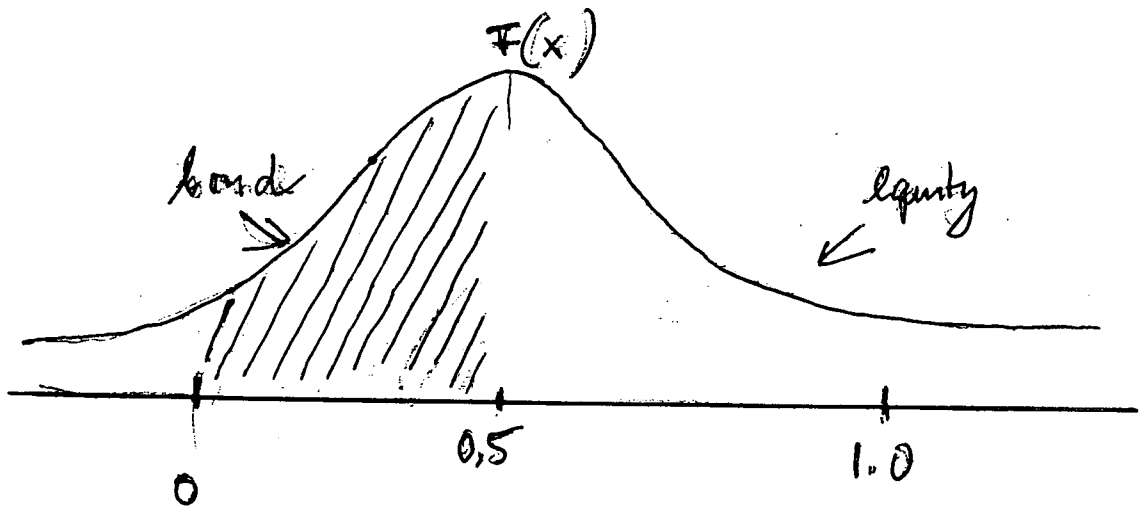


Figure 2

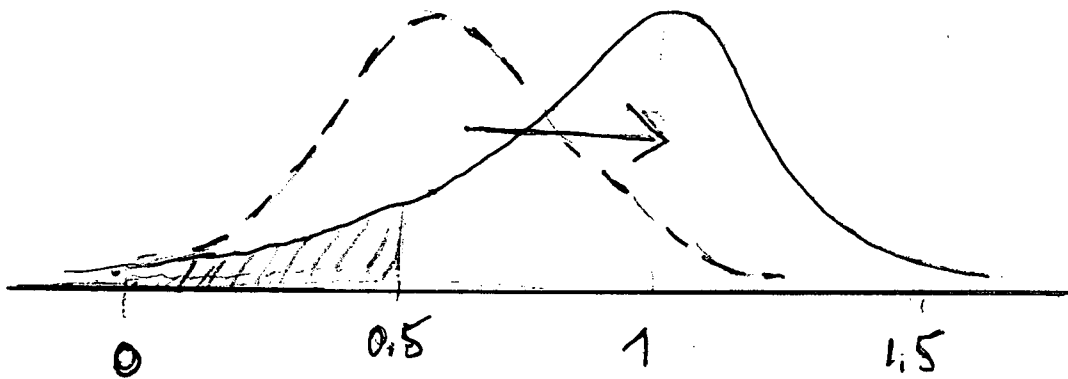
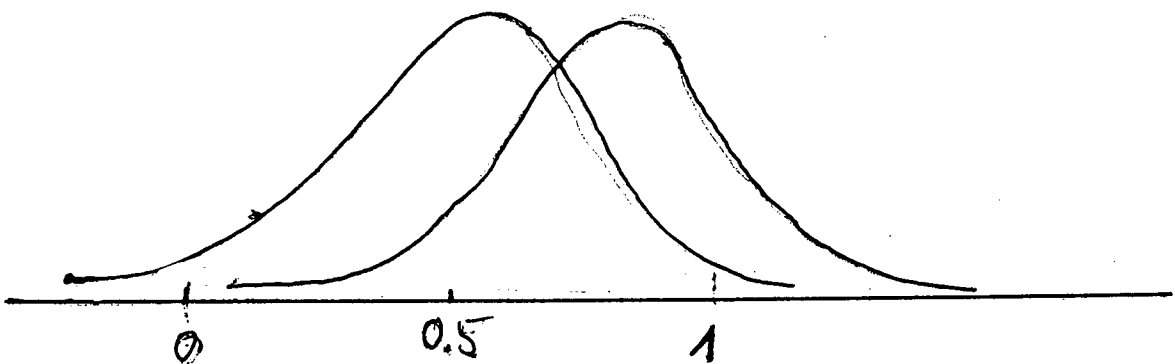


Figure 3



The benefactor would then reissue claims (equities) on the debtor country that would carry inferior property rights compared to the existing debt titles. Thus, all relevant information about prices and quantities transacted are known to the creditors.

Concerning the relative rights of asset holders, it is assumed that bond holders will always be first in line for payment. From the bond holders point of view, the substitution of equity for debt would be equivalent to a forgiveness of the outstanding debt purchased by the benefactor. Assuming a repurchase of 50 percent of the outstanding debt by the benefactor and a given pay-off stream, this would mean that the post-auction value (PA) of the bonds would correspond to the mean of the shaded area of Figure 1, plus the probability of a pay off of 1.0 for all outcomes to the right of 0.5<sup>1</sup>.

$$PA = 1 - F(S) + \frac{1}{PA} \int_0^{PA} xf(x) dx$$

Based on the specified normal distribution, one can calculate that, if one half of the initial debt is purchased, the equilibrium price would be  $PA = 0.85$ . As an auction is assumed bondholders know about the equilibrium price. Thus, the benefactor will purchase \$50 billion in bonds at a 15 per cent discount, a total expenditure of \$42.5 billion. The benefactor would now sell equities to the market. The value of the equities will reflect the value of all outcomes that will yield a payment after all bond holders are satisfied. In this case the value of outcomes above one will also go to equity holders. Thus, equities will sell for the mean of the probability distribution to the right of 0.5. The essence of a bond-equity mix thus is that different

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<sup>1</sup> For pay-off outcomes (x) to the right of 0.5 a dollar will be paid back for each dollar of debt outstanding. For pay-off outcomes between zero and 0.5 the funds allow to pay back  $\frac{x}{0.5}$ , what means, for instance if the pay-off is 0.25, that, as half of the debt is retired, for every dollar still owed, 50 cents can be paid back. Thus, the price of outstanding debt is equal to the sum of expected realization of the two sets of events.

creditors "own" different parts of the probability distribution. Equity owners are assumed to own all of the outcomes that exceed the contractual rights of bonds holders.

As in this example, one half of the outstanding bond debt is purchased by a benefactor and reissued as equity, the value ( $P_E$ ) of the newly issued equity would be

$$P_E = \int_{PA}^{\infty} (x-PA) \bar{f}(x) dx \quad \text{for } x > PA \quad \text{for } x \leq PA \rightarrow P_E = 0$$

The price function for equities differs from the bond pricing function because outcomes from 0 to 0.5 imply a zero price for the equity since all the pay-off would go to bondholders and the payoff to equity holders would be zero. Since by assumption there is very little probability weight above 1.0 the value of the equity plus bond claims on the outcomes behind this probability distribution are worth only slightly more than the original bond contracts. Thus, the benefactor could sell the equity claims for \$14 billion and when this is netted against his expenditure to purchase the bonds realize a total cost of \$28.5 billion. The lesson from this auction - swaps changing the property rights - is that a conversion of debt into equity could lead to a substantial increase in the market value of remaining bonds but would do so at a considerable cost to the benefactor.

In the above "Dooley case", a benefactor is assumed to be willing to pay for the engineered increase of the price of debt and its associated benefits. For a given pay-off stream unchanged by the swap, we thus either have to look for possible benefactors or other ways of financing. Looking for ways of financing means for those which will not reverse the results, as for instance financing out of the issue of domestic debt would reverse the agreements of the swap and would tend to lower the price of "old bonds" and thus erase the benefits of higher debt prices. However, the country or government could be the benefactor by itself, if funds were raised by increasing taxes or reducing public consumption.

A special case would be financing through an increase in the money supply, which would mean an increase in the inflationary tax, given the situation of most highly indebted countries. A financing through non-inflationary increases of the money supply seems to be a solution out of question, as in all countries concerned all available sources for financing, in particular the money supply, are fully used. The growth of the money supply in all countries clearly exceeds rates compatible with price stability. A financing through a further increase in the inflationary tax which is already levied, might result in very high additional costs for the economy turning the net contribution to government finances even negative. The limits of inflationary taxation and thus the risks of hyperinflation are obviously in most cases already reached (for a detailed discussion of issues related to the inflation tax in developing countries Reisen and Trotzenburg 1988, S. 41ff). Thus, while increases in taxes might be considered in order to finance debt-equity swaps, increases in inflationary taxes certainly are the inferior solution.

So far it was assumed that the pay-off stream would not be affected by the swap itself. However, equity as a form of direct investment might not only change the contractual rights in the sense of the relative position of lenders/investors in the line of payment of revenues, but also the power of control and the use of funds and hence the ability to generate a pay-off stream (see Dunning 1972). A financing gap, therefore, might not emerge, because the mere execution of a swap could affect the expected pay-off stream through the fact that equity might involve a different management of the resources used by the government. Thus investors might pay more for the equity (rights) obtained, but also debt holders are likely to demand higher prices.

Assuming that the probability of pay-off streams shifts to the right (Figure 2), allowing that pay-offs beyond the contractual rights of bonds increase (with the new mean of 1.0), the price of bonds in the auction likely reach its face value<sup>1</sup>. Thus, the re-

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<sup>1</sup> This procedure assumes flexibility in the rate at which loans are repurchased by the government. Chile's auction system for instance allows for such flexibility.

tired debt would have to be repurchased at face value, leaving the value of the remaining outstanding debt also at face value. Thus, in retiring 50 percent of the debt, \$50 billion would have to be spent. In exchange equities could be sold worth more than \$50 billion. Given the above distribution function actually equity could be sold worth \$100 billion.

$$P_E = \int_{0.5}^{\infty} (x-0.5) g(x) dx \quad \text{with } P_E = 0 \quad \text{for } x \leq 0.5.$$

Based on these extreme assumptions a solution to the debt-problem would be found, leaving the debtor country even with a net benefit.

## 2. Example

The analysis gets more complicated, if elements of the more "normal" conversion procedure are included. If the government repurchases foreign debt at a discount from the potential investor and issues domestic debt in order to obtain the equivalent amount of funds for financing this transaction, a foreign for domestic debt swap has to be analyzed. Thus, departing from the above example half of the outstanding debt is retired at its secondary market value - bondholders would know that the debt retired is not forgiven - and replaced by a domestic issue. The amount of funds of both transactions should match as long as the expectations of foreign and domestic market participants are the same. If 50 percent of debt is retired at 50 percent of its face value (secondary market discount) funds necessary amount to \$25 billion. For given expectations funds replacing \$25 billion can only be raised on the domestic capital market by issuing claims in the face value equivalent to \$50 billion. Thus, total debt and its price is left unchanged by the swap. However, residents might consider the default risk<sup>1</sup> to be higher or/and for given savings

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<sup>1</sup> In addition as the country achieves additional sovereignty (Franke, 1987) in the sense that the debt now is valued in money, which can be created by the government, the government might, even with index clauses, try to inflate its way out of the obligations.

the funds freed by foreign investors might be used for capital flight and thus lower the domestic supply of funds. Both factors would tend to raise interest rates in the country. The amount of debt retired could be replaced only at more favorable conditions than those for the "old bonds". This would result for a given pay-off stream in a lower valuation of "old bonds".

A favorable impact on the pricing of debt, however, might be realized because government revenues are expected to rise in the wake of investment in the private sector, since direct investment is usually accompanied by a transfer of technology, such as knowledge and ideas. This would possibly be reflected in a shift of the likelihood functions describing the pay-off streams to the right (Figure 3). The expected value of outstanding debt is raised from \$50 billion to \$80 billion. With the view of this favorable impact and perfect foresight the bond prices would jump immediately to this level. This would leave the government's financial position unaffected. If bond prices rise with a lag, however, some bondholders might lose, while the government might gain, as it might replace the retired debt at more favorable terms.

### 3. Example

As in most schemes a subsidy element is included in order to attract investors the impact of subsidy financing has to be included in the analysis. This could be done through a cut in other expenditures, for instance in public consumption, which very likely would leave the valuation of debt unchanged. If instead expenditures and thus the indebtedness for given revenues are increased, this step will lower the value of outstanding debt. A tendency for a higher valuation of debt again is assumed to occur, if future revenues and thus the pay-off streams are affected favorably through higher tax payments resulting from more growth due to the impact of the associated investment.



Thus, assuming that investors purchase debt at a market value of 50 percent of face value and a redemption rate of 70 percent is granted, the subsidy element would amount to 20 billion<sup>1</sup>. If the subsidy payment were financed out of additional debt, the probability distribution for pay-offs (see Figure 3) would tend to be shifted significantly to the left making a pay-off at contract value even less likely. Thus, the net effect on the value of outstanding debt will depend on the net impact of the subsidy factor and tax factor on government finances. For the exact pricing the above mentioned qualifications hold.

Summing up: A swap establishing only different contractual rights with respect to the participation of creditors/investors in the pay-offs could be carried out only with additional financing from another source. Only if the switch in property rights has a favorable impact on revenues resulting from the attributes associated with the capitalization of government liabilities, an outcome without additional financing is possible. A future rise in profits (revenues) allowing for higher payments of dividends as well as higher service on remaining outstanding obligations, would make a conversion of bonds or loans into equity likely to happen with a corresponding increase in the price of debt. This development could be possible, given that the DES operation is earmarked for capitalizing a state company because changed property rights might allow for new management strategies resulting in more efficient use of (company) resources. A debt for equity swap would be a prerequisite for the realization of such a favorable outcome.

As demonstrated in the second example, the chances for stable or even rising debt prices indicating successful swap-operations, tend to be less pronounced when the investment takes place outside the public sector. Then, no directly accruing benefit out of the change in the structure of foreign financing of the public sector can be constructed. The operation would result in a trans-

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<sup>1</sup> If a more favorable exchange rate is granted, the subsidy would amount to the difference between the favorable rate and the "market rate" multiplied by the dollar equivalent of the debt redeemed.

formation of public sector debt held by foreigners into debt held by residents financed out of funds generated either out of the sale of existing real wealth to foreign investors or new savings, always assuming that the government does not use the money printing machine in order to finance the operation. The revenue increase benefitting the public sector can occur only indirectly through more growth and higher taxes and thus depends also on the tax system. If in this example also subsidy payments are introduced a negative impact on debt prices is conceivable.

Needless to say, that net benefits of debt-equity swaps on a "nationwide" basis will arise only, if there is a lack of entrepreneurship of or technology know-how in the debtor country and private sector development can benefit from increased foreign influences. For this reason the success of swaps does not only depend on financial considerations but also on the country's attractiveness for foreign investment.

### C. Some Qualifications

#### 1. A splitted evaluation

The circumstances of most of the DES-schemes as for instance described in the second and third example, tend to allow for a separate evaluation of two parts of a scheme better described as a subsidized investment cum debt repayment. The government attracts foreign investors by paying subsidies and issues in a second step domestic debt in order to obtain funds for purchasing and retiring foreign debt. In a case as for instance in the first example, where foreign debt claims are replaced by foreign investment the operation immediately involves the retirement of debt as a prerequisite and thus a package analysis seems to be justified. A package analysis is also necessary, if the retirement of foreign debt is aimed for. The debtor country faces a currency problem when it were up to repurchase assets in foreign currency. By combining this repurchase with the attraction of foreign investment it solves this problem. However, the impacts of the first part might be positive, while the second part's

(debt retirement) contribution in terms of its impact on the value of outstanding debt might turn out to be negative. As the first step could be done without the second, it seems reasonable to analyze the two steps separately in more detail in order to investigate in what cases an (even) more favorable development can be achieved by dropping the second part.

#### a. Subsidized Investment

Given the long discussion on subsidies to investors (see among others Agarwal 1980) just a few general arguments shall be recalled in order to discuss the economics of such a measure. In particular, the following reservations have been put forth:

- "Additionality" (see Morgan Guaranty 1987, p. 13) in the sense of induced additional investment will arise only, if in addition to investors, who wanted to invest anyway investors are attracted that increase foreign direct investment above the level attainable without the DES scheme.
- Foreign investment can be counterproductive due to other distortions (see Agarwal 1987, p. 154f). One might stress in this context also, that due to the designation of investment areas also other possibilities of a misallocation rise (see for this argument Roberts and Remolona 1987).
- The scheme might discriminate against domestic investors to the extent that they are excluded or there are barriers to their access to the scheme, which certainly holds for smaller investors<sup>1</sup>.

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<sup>1</sup> If, however, there is no access to the private firm's management involved, the scheme boils down to mere subsidized financing, which might be only to the benefit of the domestic entrepreneurs. Instead of discrimination of domestic investors the opposite, a selective treatment of special domestic investors would occur. For such elements see the recent Argentine programme.

The observation of an investment gap might make paying subsidies an economically reasonable step based on second-best arguments<sup>1</sup> in view of a long list of other subsidies and distortions in the country concerned<sup>2</sup>. However, this is crucially<sup>3</sup> depending on empirical circumstances and thus subsidized investment should be judged against other measures encouraging foreign direct investment at the command of the government including deregulation, wage policy etc.

#### b. Debt Repayment

In a situation where financing at market rates, domestically or abroad, is no problem at all for the government or the country, a decision for debt repayment can be favorable, as there might be no better alternative use or there are arbitrage opportunities. In a situation, however, where savings fall short of funds needed and financing is a problem, the decision to retire requires more intensive analysis in the macroeconomic context.

As long as government debt does not decline, the retired foreign debt has to be replaced by debt funded out of domestic savings. Because of the above mentioned costs associated with domestic financing of the public sector and the tendency for a crowding-out foreign debt retirement under these circumstances might result in a worse solution than a situation in which no foreign debt is retired. The domestic financing of government debt could hamper growth prospects because of its impact on smaller domestic investors. This might be possible because of access barriers to foreign capital markets or because new domestic investment is hampered by a penalty rate to be paid on new country debt.

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<sup>1</sup> For a discussion of second-best arguments in the context of direct foreign investment see H.G. Johnson, (1970).

<sup>2</sup> See for instance Morgan Guaranty (1987, p. 12).

<sup>3</sup> Crucial, in particular, for this judgement is the way the subsidies are financed.

If, however, the funds for retiring foreign debt were released by a reduction of the public deficit this conclusion would have to be altered. Given the situation of many developing countries, a reduction through cuts in expenditure or an increase in taxes can be favorable in terms of contributions to growth. Whether one decides for higher taxes depends on the specific circumstances such as the prevailing level of taxation. In some countries, as for instance Argentina, actual taxation of higher incomes is low in part due to inflation (see Reisen, Trotzenburg 1988). In some cases financing through an increase in taxes is likely to be hampering incentives and encouraging further the "informal" economy and thus would probably even reduce government revenues.

If a release of funds could be achieved through a reduction of the budget deficit, it might, nevertheless, be reasonable to assure the availability of these foreign funds for domestic investment projects. This could be done through credible overall adjustment providing the necessary incentives.

### C. Summing-up

Thus, while subsidized investment might be justified on second-best grounds a rejection of debt retirement as engineered in the swaps might have to be rejected on second-best grounds. In particular, a justification for subsidized investment does not imply debt retirement as a necessary next step. As long as these schemes do not raise foreign investment to a level, which would help to close the "financing gap" because the scheme attracts more funds outside the scheme<sup>1</sup> through complementary effects, debt repayment in schemes, which do not genuinely in the sense that foreign debt has to be replaced depend on the package element, might affect the economic performance unfavorably.

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<sup>1</sup> Which has a meaning different from additionality. However, incentives for such a reaction in investor's behavior are only likely, if the subsidized investment scheme is part of a general restructuring and liberalization. By use of compulsory arrangements (see Appendix II on Argentina) this seems to be unlikely.

## 2. Discussion of other possible Costs and Benefits associated with the Scheme

A few considerations on more general aspects, relevant to the evaluation of the swaps, should be added. These are due to factors, which are likely to affect the value of outstanding debt only through a delayed, indirect impact or are resulting from external costs or benefits and thus have to be considered from a global development point of view.

- So far only the effects of the structural change in foreign financing with respect to the use of funds were considered. In a sense, the impact of DES on country risk was evaluated. The possible impact of changes in the structure of creditors in the sense of a broadening of the "creditor" base providing funds through the inclusion of new participants<sup>1</sup> should be addressed, too, because it might reduce global financial risks. Such a base broadening might reduce the expectation of a debt crisis and thus a likely default of the debtor in the wake of a creditor default and hence raise subsequently the value of outstanding debt.
- In addition to attracting foreign investors the scheme has been praised as it might induce the repatriation of flight capital. As flight capital very unlikely carries the attributes of direct foreign investment, the question is what benefits actually are involved. It might, as increases in direct investment reflect increased confidence in the economic performance and thus affect the country's standing on credit markets favorably. Revenues on repatriated flight capital might in the short-run involve higher taxes compared to taxes associated with profits on direct investment. However, in the medium-run the induced increases in GDP growth are likely to be higher

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<sup>1</sup> Demand for secondary market loans has mostly come from residents of countries whose debt is trading at a discount and from institutions and corporations with interests in the particular country interested in debt conversions in order to finance their activities. Private investor demand in the secondary market for sovereign debt has been virtually non-existent. See for a discussion Watson (1988, p. 9).

with direct investment and as tax revenues are increased because of a broadening of the tax base, the benefits associated with direct investment are likely to be higher. Specific "costs" might be involved as the "subsidized" reversal of capital flight might result in round-tripping, either because the control of adherence to the required "repatriation" (investment) period is difficult or the repatriated flight capital just releases through switches new funds for capital flight (for a detailed general discussion of issues associated with the definition and measurement of flight capital see M. Deppler and M. Williamson, IMF 1987).

- Apart from the possible reduction of barriers to direct investment associated with the implementation of the DES-scheme the global capital market efficiency could be raised. However, available information points to the contrary, as transaction costs associated with direct investment are not lowered, when for instance, a third exchange market is introduced. In addition, significant regulatory administrative measures are involved (for a discussion of these issues see Franke 1987).
- Direct investment instead of foreign debt (profit repatriation vs. fixed interest payments) might lower payments to abroad and might affect the balance-of-payment (or foreign exchange) situation favorably. A possible exchange rate change or a reduced need for this are per se no indication whether the country loses or benefits. The sometimes expressed expectation of these measures facilitating the problem of scarcity of foreign exchange actually is based on the prevalence of a non-optimal level of the exchange rate in the first place. Thus, optimality might be reached with the introduction of DES, but could be reached anyway by changes of the exchange rate. There is no indication based on second-best reasoning that by using the scheme this is done in a superior way.

### 3. Some Qualifications from the Point of View of Participants

From the point of view of the debt management or the bank syndicate price increases of existing debt associated with a DES are indicating favorable adjustment. This is important, as swaps actually allow individual banks to exit from the arrangement of new money packages, because the debt claim constituting the "obligation" to participate in new lending is "disappearing". As long as new lending is below market rate, banks will consider this in their assessment of the optimal scope of debt-equity swaps. Their judgement will also depend on the fact whether all banks are "free" to participate in the sale of debt or are out of regulatory reasons restricted (see Appendix III). The benefits of higher prices will be considered by the syndicate all the more as positive, if they are achieved through "positive adjustment", as for instance a cut in public consumption, which directly sets free the resources needed.

So far it was assumed that the debtor's willingness to implement such a debt-equity scheme reflects that the debtor behaves in a way which brings the economy or the system back to a situation where the value of outstanding debt equals its face value. Thus, it was assumed that the benefits out of the reduction of the foreign debt in combination with rising prices of outstanding debt are perceived to exceed the costs in terms of the adjustment necessary. However, from the debtor's point of view, also those swaps might be reasonable which do not indicate adjustment in the sense defined here. A moral-hazard problem might arise as an accompanying decline in the price of outstanding debt might be accepted, because of the expectation of debt relief or favorable interest rates provided through international authorities, while the government directly benefits from the fact that the public welcomes the reduction of external debt. Foreign direct investment might be accepted with the view of future confiscation. The increase of the share of domestic debt in public sector financing might allow to reduce real domestic debt by means of future inflation. While this reasoning assumes that the public and the



syndicate can be fooled, these considerations underline that a mere implementation of swaps does not reveal that it is based on intentions compatible with medium-run growth.

Even if the swap is "beneficial", the implementation of swaps involving subsidies does not exclude the possibility that there are more efficient solutions and thus both the debtor country and the syndicate, have to analyze the costs and benefits of this scheme against measures not involving swaps (examples). The question arises whether there are cheaper, e.g. more efficient ways of increasing direct investment and improving the economic performance. In order to increase foreign investment the investment climate could be "directly" improved and thus the inflow of foreign capital increased or capital flight decreased. The pricing of public debt could be improved directly by adjustments in the public sector. While there might be superior solutions from the point of view of positive theory, however, the debtor country government might consider these swaps to be the only feasible way to promote foreign investment in the public (Frankel 1982).

From the individual creditor's point of view the sale of loans even at a discount might provide the opportunity to adjust balance sheets in the sense that possibly much needed liquidity can be achieved and thus the individual would be better-off. However, any chance to sell a loan on the secondary market, independent from a swap, would provide this result. Prices, however, are likely to differ favorably, if there is a feedback of schemes on the market price.

From the investor's point of view this swap arrangement might provide the opportunity to get access to investment, which was so far not possible or the exchange rate involved is more favorable than otherwise, because a subsidy element is involved. The willingness of investors to exploit investment opportunities in the debtor country will continue to be determined also by the general investment "climate". If the swap operations indicate a shift towards "openness" (liberalization) and more market

orientation this might attract investment funds even outside the swap scheme. Thus, beyond additionality a positive adjustment process might be triggered. If this perception shapes the perspective of investors participating in the scheme, the subsidy element necessary to induce their participation might be of minor nature.

#### IV. Summary and Conclusions

The above analysis suggests that the secondary market value of outstanding debt is a good indicator for the assessment of debt-equity swaps, because it allows to capture all relevant economic influences. However, this theoretical characteristic of a catch-all variable results in difficulties in its empirical application, as other developments independent from the swap operations like a recession or for instance disasters in the crop will affect it, too. Thus, besides an analysis of recent price developments, additional indicators will have to be looked at, such as trends in investment, domestic financing costs, etc. Swaps can be "beneficial" to the economic development of the developing country as long as the structure of foreign liabilities can be improved through their implementation. Such a favorable development should raise the price for foreign debt on secondary markets. This result is likely, when the debtor government sells out of its own equity stock, or state companies are privatized by means of swaps. A beneficial result is also likely as long as a direct foreign investment gap in terms of a lack of management skills, technology, market knowledge etc. can be narrowed. However, benefits reaped through more rapid economic growth and increasing tax revenues have to be large enough to offset possible negative effects of subsidies for investment, high financing costs and crowding-out. Limits to the implementation of DES are reached when the scheme would merely trigger a reshuffling of domestic savings to the public sector associated with a crowding-out of domestic investors, while no benefits can be derived from foreign investment<sup>1</sup>.

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<sup>1</sup> For a discussion of these issues see also Preusse, Schinke (1982).

DES-schemes involving the capitalization of state companies are likely to be favorable in the above sense. Most of the actual schemes, however, are not straightforward debt-equity conversions. Although sometimes labelled market-based, as some participants like the investor or the individual creditor bank are participating voluntarily, these schemes strongly depend on active financing decisions by the debtor country (government), which is not financing itself at market conditions. Whether these operations leave the interests of other creditors unaffected cannot be shown easily. Such DES-schemes tend to boil down into an operation in which subsidized investment is combined with retirement of foreign debt. For these swaps a welfare increasing outcome is less likely in an environment where markets in general are distorted through various government interventions. The DES-scheme might provide only favorable financing terms to domestic residents without generating any favorable impact in terms of the benefits of foreign direct investment. Foreign investment then might even become outright counterproductive.

Finally, it has to be emphasized that the contribution of DES-schemes to the solution of the debt problem can only be limited. Thus, swaps offer no panacea. The debt problem is only in part due to wrong finance structures. Much more important is "over-borrowing" of the public sector and policy failures resulting in large public sector deficits as well as severe structural problems of the economy. The scope for those DES-schemes, which leave the net debt of the public sector unchanged, is limited to facilitating structural adjustment through encouraging private (foreign) investment. Thus, DES-schemes provide support along traditional lines, as they are favorable only if they are part of market-oriented overall adjustment strategies<sup>1</sup> implemented by the governments of highly indebted countries. Only then, they might facilitate rescheduling also because exit options are created without hampering new lending.

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<sup>1</sup> For discussion of these strategies see Donges (1985), Fischer and others (1985), Hiemenz Langhammer (1986).

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## Appendix I - Technical Details on Debt-Equity Swaps

The group of major problem countries that have or are currently implementing debt conversion schemes includes Chile, Argentina, Brazil, Mexico, the Philippines, Costa Rica and Ecuador. About US\$ 4 billions of external debt claims have been converted so far (see Table A1). (For further details see Roberts and Remolona 1987; Morgan Guaranty 1986; Watson 1987; Mewes 1987, Salomon Brothers 1987).

In Brazil, foreigners in principle were always permitted to convert debt into equity since 1965 at face value and at the official exchange rate, subject to the existing regulations on foreign investment. From 1982 until 1984, however, when major conversions took place, a tax credit of 10 percent was granted. From 1984 onwards conversions were limited to those done by the original creditors. Thus much of the debt conversions have been made by multinational corporations. The exclusion of debt traded in secondary markets shall be eliminated by an ongoing redesign of the current program. Because the Brazilian economy is relatively large and provides a variety of investment opportunities, the new program, once implemented, should draw considerable attention. The Brazilian plan would offer several unique and attractive features, such as generous remittance limits for investments in export-related sectors. It is expected that the external debt will be converted into local currency at 65%-100% of face value and may be used for new capital investments or expansion, but not for local debt repayment or working capital.

To encourage investments in selected sectors or economically disadvantaged regions such as the Northeast and the Amazon region, foreign firms will be permitted to exchange debt at 100% of face value. Accordingly, the percentage of face value given for nonpriority investment can be as low as 65%. The Brazilian plan may, similar to the Argentine program, call for one-for-one matching of new capital for each dollar of debt converted. Profit and dividend remittances for investments in export operations will be based on a percentage of net exports, rather than of

Table A1: Debt/Conversion Programs (\$ billions) (active programs)

|             | Debt-Conversion 1984-<br>third quarter 1987 |       |       |       | External<br>Debt<br>end-1986 <sup>1</sup> | Projected<br>Interest<br>Service <sup>2</sup><br>1987-91 <sup>2</sup> | Assumed Swaps of<br>10% of end-1986<br>Debt to Private<br>Creditors | Interest Savings<br>1987-1991         |                                       |
|-------------|---|-------|-------|-------|---|---|---|---------------------------------------|---------------------------------------|
|             | 1984  | 1985  | 1986  | 1987  |   |   |   | Swaps done <sup>3</sup><br>over 5 yrs | Swaps done <sup>4</sup><br>over 2 yrs |
| Argentina   | 31  | 469   | -     | -     | 53.0 (33)                                 | 25.2  | 4.4   | 0.9                                   | 1.6                                   |
| Brazil      | 731   | 537   | 176   | 84    | 107.8 (77.9)                              | 49.0  | 8.1   | 1.7                                   | 3.0                                   |
| Chile       | -   | 371   | 969   | 964   | 21.6 (13.9)                               | 11.0  | 1.8   | 0.3                                   | 0.6                                   |
| Mexico      | -   | -     | 413   | 909   | 101.5 (77.3)                              | 46.4  | 8.2   | 1.5                                   | 2.8                                   |
| Philippines | -   | -     | 15    | 157   | <u>28.3</u> (15.4)                        | <u>14.0</u>   | <u>1.8</u>  | <u>0.3</u>                            | <u>0.6</u>                            |
| Ecuador     | -   | -     | -     | 109   |   |   |   |                                       |                                       |
| Costa Rica  | -   | -     | 7     | 84    |   |   |   |                                       |                                       |
| Total       | 762   | 1,377 | 1,580 | 2,307 | 312.2 (267.3)                             | 145.6   | 24.3  | 4.7                                   | 8.6                                   |

<sup>1</sup> Commercial debt; in brackets bank debt, derived calculations based on commercial debt.

<sup>2</sup> Base case assumptions: Between 1987 and 1991, OECD real growth averages 2.6 percent per annum; nominal oil prices average \$18/barrel, and LIBOR averages 7.6 percent over the period.

<sup>3</sup> Assumes 2 percent of end-1986 commercial debt is swapped each year.

<sup>4</sup> Assumes 5 percent of end-1986 commercial debt is swapped in the first two years.

Source: National sources; IMF; Morgan Guaranty; IIF (1987); and own calculations.

Table A2: Features of Debt Conversion Schemes

|                                      | Argentina       | Brazil          | Chile <sup>1</sup> | Costa Rica | Ecuador <sup>2</sup> | Mexico <sup>3</sup> | Philippines    | Venezuela       |
|--------------------------------------|-----------------|-----------------|--------------------|------------|----------------------|---------------------|----------------|-----------------|
| Eligible Investors                   |                 |                 |                    |            |                      |                     |                |                 |
| Non-residents                        |                 |                 |                    |            |                      |                     |                |                 |
| Any creditor                         | x               | x <sup>4</sup>  | x                  | x          | x                    | x                   | x              | x               |
| Original creditor only               |                 |                 |                    |            |                      |                     |                |                 |
| Residents                            | x               |                 | x                  | x          | x                    | x                   | x              |                 |
| Eligible external debt               |                 |                 |                    |            |                      |                     |                |                 |
| Public sector                        | x               | x               | x                  | x          | x                    | x <sup>5</sup>      | x <sup>6</sup> | x               |
| Private sector                       | x               | x               | x                  |            | x                    |                     | x              |                 |
| Exchange rate for conversion         |                 |                 |                    |            |                      |                     |                |                 |
| Official exchange rate               |                 | x               | x                  | x          | x                    |                     | x              | x               |
| Parallel exchange rates              | x <sup>7</sup>  |                 |                    |            |                      | x <sup>7</sup>      |                |                 |
| Valuation of debt for conversion     |                 |                 |                    |            |                      |                     |                |                 |
| Face value                           |                 | x               |                    |            | x                    |                     | x <sup>8</sup> |                 |
| Below face value                     | x <sup>9</sup>  |                 | x <sup>10</sup>    | x          |                      | x                   |                | x <sup>11</sup> |
| Eligible domestic investments        |                 |                 |                    |            |                      |                     |                |                 |
| Equity                               |                 |                 |                    |            |                      |                     |                |                 |
| Parastatal enterprises               |                 |                 | x                  |            |                      | x                   | x              | x               |
| Private companies                    | x <sup>12</sup> | x               | x                  | x          | x                    | x                   | x              | x               |
| Original obligor only                | x               |                 |                    |            |                      |                     |                |                 |
| Debt                                 |                 |                 |                    |            |                      |                     |                |                 |
| Public sector                        |                 |                 | x                  | x          |                      |                     |                |                 |
| Private sector                       |                 |                 | x                  |            | x                    |                     |                |                 |
| Repayment of domestic obligations    |                 | x               | x                  |            |                      | x                   |                |                 |
| Restrictions on eligible investments |                 |                 |                    |            |                      |                     |                |                 |
| Restrictions on capital repatriation | x               | x <sup>13</sup> | x                  | x          | x                    | x                   | x              | x               |
| Restrictions on profit remittances   |                 |                 |                    |            |                      |                     |                |                 |
| Same as for all foreign investment   |                 | x               |                    |            |                      |                     |                |                 |
| More restrictive than the above      | x               |                 | x                  | x          | x                    | x                   | x              | x               |
| Other features                       |                 |                 |                    |            |                      |                     |                |                 |
| Limit on value of conversions        | x               |                 | x <sup>14</sup>    | x          |                      |                     |                |                 |
| Auction of conversion rights         |                 |                 | x <sup>14</sup>    |            |                      |                     |                |                 |
| Conversion fees                      |                 |                 |                    |            |                      | x <sup>15</sup>     | x              |                 |
| Additional foreign exchange required |                 |                 | x                  | x          |                      | x <sup>15</sup>     |                | x               |
| Tax credits                          |                 | x <sup>16</sup> |                    |            |                      |                     |                |                 |

<sup>1</sup> Compendium of Rules on International Exchange, Chapters XIX and XVII. - <sup>2</sup> Introduced in February 1987 and temporarily suspended in August 1987. - <sup>3</sup> Mexico has temporarily suspended receiving applications under the scheme in October 1987. - <sup>4</sup> Before June 1984, any non-resident could participate. - <sup>5</sup> Rescheduled debt only. - <sup>6</sup> Rescheduled debt and debt falls due on or after January 1, 1987. - <sup>7</sup> Free market exchange rate. - <sup>8</sup> Debt redeemed at face value, but conversion fees apply. - <sup>9</sup> Discount, if any, determined by an auction. - <sup>10</sup> Conversions of public sector debt are subject to a small discount; conversion terms of private sector debt are negotiable. - <sup>11</sup> Discount, if any, determined by newly formed commission with oversight responsibility. - <sup>12</sup> Private sector debt only. - <sup>13</sup> Since March 1987, investment through debt conversion must remain at least 12 years in Brazil before becoming eligible for repatriation. - <sup>14</sup> Chapter XVIII investments only. - <sup>15</sup> Investments in the non-priority sectors only. - <sup>16</sup> Introduced December 1982; eliminated June 1984.

Source: Watson 1987; see there for detailed sources.



invested capital. In addition, special stock market investment funds or mutual funds can be established by using converted equity as long as they are managed by local subsidiaries of foreign banks that are engaged in the transactions or by local brokerage houses. This incentive is designed to permit direct foreign ownership of essentially state-owned enterprises, an investment that is otherwise prohibited.

In Argentina, a scheme was in effect until August 1985, which allowed for conversion of publicly guaranteed private sector debt at face value and at the official exchange rate. The conversion scheme was open to domestic residents, who mainly used the swap operation in order to obtain a cheaper source of local currency funds. The recently announced new program includes any type of registered external debt, which can be converted into australs at the official exchange rate. The local currency funds have to be used for new investments in export-oriented activities with the provision that the investor invests additional foreign-exchange funds equivalent to the amount of debt converted.

Initiated in 1985, the Chilean debt-for-equity swap program remains the largest, best-established and most flexible arrangement of any developing country. During the May 1985-August 1987 period, we estimate that \$2.5 billion in loan-for-stock conversions were completed in Chile, which represents approximately 9% of Chile's entire external debt. Regulations outlining the conditions of the Chilean loan-for-stock exchange programs are contained in Chapters XVIII and XIX of the Compendium of Rules on International Exchange issued by the Banco Central de Chile. In Chile, foreign creditors as well as foreign investors or residents who bought foreign-currency debt (residents are allowed to use only foreign currency not acquired in the official market) in the secondary market can redeem the debt at the official exchange rate and at face value. In order to participate in the scheme, residents as well as non-residents are required to purchase the rights at a monthly auction from the Central Bank. The investments not affected by the auction are subject to the

Central Bank's approval and subject to special restrictions on profit and capital remittances. The authorities have directed the investment mainly into quasi-bankrupt state companies, which thus have been privatized.

Chilean nationals can purchase external debt and use the local currency proceeds for noninvestment purposes. Under the terms of the Chilean restructuring agreements of 1984 and 1986, credits may be withdrawn from the restructuring agreement for the purpose of making "qualified investments". The proceeds of the debt-for-equity swaps may be used for a variety of purposes, including the payment of debts to and the purchase of selected assets from Chilean banks or financial institutions, although long-term fixed investments are preferred.

In Mexico, non-resident creditors or investors, who purchased debt in the secondary market, are allowed to redeem these loans at the free exchange rate for pesos and at a discount of between 70-100% of face value, depending on what investment, which are subject to government approval, the proceeds are used for. The discounts are set by the government, favoring investments in state companies most. The program also allows for investments in fixed assets, expansions, new product lines, or new economic activities. In particular, new investments that improve the trade balance and create new jobs are favoured.

In 1986, Mexico authorized 90 debt-for-equity swaps totaling roughly \$1 billion. In Mexico, proposed loan-for-stock exchanges must be approved by the National Commission for Foreign Investments. To date, the program has been restricted to allow public-sector debt to be exchanged for equity investments; however, the plan may soon be expanded to permit Mexican nationals to participate. Emphasis is also accorded to transactions in which the local currency proceeds are used to pay obligations owed to Mexican banks or Mexican suppliers or used as portfolio investments in the Mexican stock market. Mexico has maintained its restrictions on foreign investments, prohibiting 100% overseas

ownership of most companies and disallowing any investment in selected key industries. The redemption rate ranges from 100% for buyers of state enterprises or export-oriented activities to 70% for other firms.

To reduce the impact of these arrangements on the country's liquidity targets, the local currency proceeds are disbursed to the local enterprise according to the company's need for funds, primarily for capital expenditure purposes. Any excess will be deposited with the Mexican Treasury and will accrue interest in favor of the beneficiary until released. During the initial five years of the investment, profit remittance is limited to the amount of interest that would have been earned on the original debt.

In the Philippines, in August 1986, the Central Bank of the Philippines announced its "Program for the Conversion of Philippine External Debt Into Equity Investments".

The local currency proceeds of redeemed debt may be used by either Filipinos or non-Philippine residents for a limited number of equity investments, which include businesses engaged in export production activities, the provision of services outside of the Philippines, agriculture, health care, housing and education. For investments in these preferred industries, the capital investment cannot be repaid to the investor during the initial three years of the investment. In the fourth through eighth years, only 20% of the capital may be repaid. Guaranteed dividends or similar arrangements that are not linked to profits are prohibited. For investments permitted outside of the preferential industries, the capital portion may not be repaid to the investor during the first five years of the investment. In the sixth through tenth year, not more than 20% of the capital may be repaid. No dividends or current income may be repaid during the first four years after the investment is completed; thereafter, dividends and current income may be paid out of the profits of the local equity investment.

In addition, the Philippines has developed a Philippine Investment Notes (PINs) program. Under this plan, six-year, zero-coupon notes will be issued to finance interest payments on external debt. Debt-for-equity swaps will be required to include some portion in the form of PINs. If PINs are employed as part of a conversion of loans into a Government priority project, the Central Bank of the Philippines has agreed to waive routine conversion fees.

In the Venezuelan program, investors that wish to exchange public external debt into equity holdings must first obtain approval from a commission made up of the Finance Minister, the Minister of Development, the Central Bank President, and the Superintendent of Foreign Investment. Specifically, the commission permits loan-for-stock conversions for investments in export-oriented firms, import substitution enterprises, failing companies, and selected sectors, including agriculture, construction projects and heavy industry. This commission has been granted considerable discretion in setting the swap discount rate, as well as payment procedures. In addition, the exchange rate for swaps has been set at 14.5 bolivars/US\$, double the current free market rate, and dividend and profit repatriation has been restricted in the initial years of investment.

Costa Rica's program has not yet been formally ratified by its creditor banks. Preference may be given to investments that favorably affect balance of payments. The proposed program would allow profits to be remitted as earned.

In February 1987, Ecuador issued regulations that permit holders of Ecuadorian foreign currency-denominated credits to be transformed into equity investments in local entities if the beneficiary of the local currency proceeds repays all of its outstanding obligations to the Central Bank of Ecuador. Foreign investment via debt conversions is permitted in agriculture, fishing, agro-industry, manufacturing, mining, forestry, tourism, banking, finance, and insurance. Debt conversions are limited to

\$1.3 billion, which represents total private-sector secured debt. Capital outflows cannot occur during the initial 12 years. Because of the inflationary impact of these transactions on the economy, Ecuador has temporarily suspended its debt-for-equity program.

In Jamaica, the debt-for equity swap program calls for debt to be exchanged primarily for state-owned equity in addition to free trade zone assembly facilities and tourism areas. To control the payout of local currency by the central bank, notes issued will be sold at a discount.

#### Appendix II - Possible DES Calculations

Two examples as presented in information for investors (see Salomon Brothers 1987 and Rundt 1987) might help to demonstrate important features of DES calculations.

The Financial Accounting Standards Board (FASB) uses the following debt-for-equity swap model: A U.S. company with operations in Mexico (through a Mexican subsidiary) purchases a U.S. dollar-denominated loan from a financial institution for \$5 million (the loan's secondary market value). The loan's principal is \$10 million and is owed by a Mexican entity. The Mexican Government purchases the loan from the company for Mexican pesos worth \$8.5 (at current exchange rates). Upon purchase of the loan, the Mexican Government remits the pesos to the subsidiary, and the subsidiary issues capital stock to the company. The agreement requires that the pesos be used for a specified purpose in the Mexican operation (such as to make a capital expenditure). A \$3.5-million credit arises in the company's consolidated financial statements, because its Mexican subsidiary's net assets increase by \$8.5 million, while the company "invested" only \$5 million to achieve such an increase.

Another example could be provided by the considerations of a company that needs P\$100 million (\$90,909 at the official exchange rate of P\$1100 to the dollar) in order to build a plant in Mexico. Assuming that the investment project was approved by the Mexican government, the company could buy the pesos from the central bank for \$90,909. A DES could save the company considerable money compared to traditional ways for financing, if the company's project is among those designated by the DES-scheme.

Given the approval of the government and the central bank, a second participant necessary in the DES would be then a bank, that has a \$1000,000 loan extended to the government of Mexico. If the market discount is 60%, the bank will sell that loan asset to the company for \$60,000 (if it presumably wants to get rid of its exposure to Mexico). The bank will then take a write-down on the loan of \$40,000 but

The third participant is the government of Mexico. The government buys the loan from the company at a discount, but at a smaller discount than the company paid the bank. In our example, the company might sell the loan for \$82,645, realizing a 38% profit on the trade. The government agrees to disburse the purchase amount in pesos for use in the investment project over an extended period, perhaps years. In this example, if the central bank offers a 10% discount on the price of the peso, the \$100,000 loan would be converted at P\$1210 to the dollar rather than the official rate of P\$1100. This would raise the required P\$100 million from the proceeds of the loan. The company has paid \$60,000 for these funds rather than \$90,909. The country has retired \$100,000 worth of foreign debt without exhausting any foreign currency reserves, and at a 17% discount.

### Appendix III - Developments on Secondary Markets

The secondary market for LDC debt is of recent origin (1982/83) (see World Bank, 1987; Weinberg 1987). While the market was initially quite limited and mainly used for debt swaps between commercial banks in order to diversify portfolios by swapping exposure to one country for exposure to another, it has become more important since the implementation of debt-equity swaps. Due to the fear that large scale sales of loans will depress the market, major banks, in particular US banks, seem to have kept the supply to the market limited. In part this is also due to accounting regulations. While swapping assets between banks mainly took place at face value - not discounted value - accompanied by cash payments, the sale at discounted prices as part of the DES would enter the discount in the banks' books and thus possibly trigger write-offs. While in 1986 the volume of trading was about \$ 7 billion (1983: \$1.5 bill.) or less than 1 percent of external debt of developing countries, estimates are that the market has expanded to \$10 bill. in 1987. Recent changes in the interpretation of accounting and banking regulations in the US - a bank taking losses on sales of loans would not be required to reduce the book value of other loans - have contributed. However, due to the narrowness the impact on the market prices could be felt (see Table A2), when, on May 19, 1987, Citicorp announced its intention to establish a \$3bill. loan loss reserve as well as its desire to reduce its exposure through various methods among others DES. Due to this and similar moves of other money centers, the supply of loans has increased and put pressure on prices.

Table A3: Secondary Market Selling Prices for Developing Country Debt  
(percentage of face value)<sup>a</sup>

|             | June<br>1985 | June<br>1986 | December<br>1986 | March<br>1987 | August<br>1987 | September<br>1987 |
|-------------|--------------|--------------|------------------|---------------|----------------|-------------------|
| Argentina   | 60-65        | 63-67        | 62-66            | 61            | 48             | 38                |
| Brazil      | 75-81        | 73-76        | 74-77            | 63            | 48             | 40                |
| Chile       | 65-69        | 64-67        | 65-68            | 66            | 66.5           | 58                |
| Columbia    | 81-83        | 80-82        | 90+              | 86            | ..             | ..                |
| Ecuador     | 65-70        | 63-66        | 63-65            | 58            | 40.0           | 48.0              |
| Mexico      | 80-82        | 55-59        | 54-57            | 57            | 51.5           | 48.0              |
| Peru        | 45-50        | 17-23        | 16-19            | 16            | ..             | ..                |
| Philippines | n/a          | n/a          | 72-76            | 70            | 67.5           | 60.5              |
| Venezuela   | 81-83        | 75-78        | 72-74            | 72            | 66.0           | 56.0              |

<sup>a</sup> Up to march 1987 source Shearson, Lehman; August and September 1987 Salomon Brothers.

Source: Shearson, Lehman Brothers Loan Transaction Group; Salomon Brothers Inc.