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## Economic analysis of debt-equity-swaps

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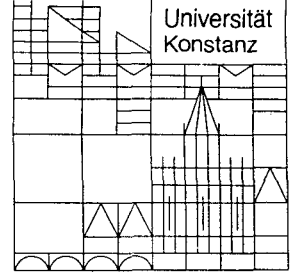
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Günter Franke

**Economic Analysis of Debt-Equity-Swaps**

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ECONOMIC ANALYSIS OF DEBT-EQUITY-SWAPS

Günter Franke

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# ECONOMIC ANALYSIS OF DEBT-EQUITY-SWAPS

by

Günter Franke

May 1987

The prospects to solve the financial problems of the heavily indebted less developed and developing countries are dim at present. With a few exceptions, these countries face substantial difficulties to pay the interest on their loans, not to speak about repayment of the principal. Apart from debt relief, economic growth of the indebted countries is viewed as the primary means of improving their financial status. Therefore debt-equity-swaps (DES) have been greeted with enthusiasm in the financial press as a device to improve economic growth and, at the same time, to reduce the foreign currency-denominated debt of the troubled countries (see, e.g., Economist <1987>, Schubert <1987>).

The mechanism of DES is as follows. Suppose that an investor wants to invest in an indebted country and that the proposed investment has been approved by the country's government. Then the investor can follow the conventional route and convert US-dollars into local currency (i.e. the currency of the indebted country) at the official exchange rate. Alternatively, he can arrange a DES, i.e., he can buy in New York outstanding dollar-denominated bonds (= \$-loans), issued by the indebted country, at a price substantially below the face value. Then the central bank of the indebted country buys these loans from the investor for

local currency such that the price equals the \$-face value of the loan, multiplied by the official exchange rate. The central bank usually subtracts a discount from this amount, the size of which depends on the desirability of the investment from the viewpoint of the indebted country. The investor finally uses the local currency to finance the proposed investment. Usually the investor raises the equity capital of some local firm and the firm pays for the investment. Thus debt of the indebted country is converted into equity of a local firm. Alternatively, foreign currency-denominated debt of local firms may be converted into local currency-denominated equity. This explains the term 'debt-equity-swap'.

A simple example illustrates a DES. Suppose Mexican \$-loans sell in New York at 60 percent of their face value. A multinational firm with a subsidiary in Mexico wants to expand its business there and, thus, the subsidiary needs more equity capital. Instead of simply buying Mexican pesos from the Mexican central bank at the official exchange rate, the multinational firm buys Mexican \$-loans at a price of 60 percent of their face value and sells these to the Mexican central bank. Thus it saves 40 percent. If the Mexican central bank deducts 10 percent, then the investor still saves 33 1/3 percent, provided that the simple purchase of pesos from the central bank is not subsidized.

This example illustrates what are considered to be the main advantages of the DES. First, it is argued that DES reduce the investment outlay and therefore increase direct investment in the indebted country. This stimulates economic growth and thereby

improves the country's financial status. Second, it is argued that the foreign indebtedness of the country is diminished by DES so that the debt problems are reduced. Therefore DES are viewed as an ingenious tool to improve the financial situation of indebted countries (Economist <1987>).

The purpose of this paper is to show that this favorable evaluation of DES is misleading. The main argument is as follows. DES can only be expected to improve the situation of an indebted country if they allow to improve the joint situation of the investors and the country as compared to conventional methods of financing investments. Such improvements can exist for three reasons:

(1) DES generate negative externalities. In other words, if DES allow investors and the indebted country, taken together, to gain something at the expense of others, of creditor banks e.g., then DES may prove to be valuable for the indebted country. In this paper it is argued, however, that DES do not allow the investor and the indebted country to reap appreciable gains from external effects imposed on others. The reason is that in an efficient capital market the \$-loans of the indebted country are priced such that their prices are not below the present value of the expected payments of interest and principal. Therefore DES do not allow investors and the indebted country, taken together, to gain something which they cannot gain by conventional financing of direct investments.

(2) The assumption underlying the preceding argument is that the capital market is efficient. This need not be true. It could be

that the capital market and/or other institutional arrangements are inefficient and that DES remove part of these inefficiencies. Then DES would be beneficial even if they generate no externalities.

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The problem with discussing inefficiencies is that we do not have a satisfactory theory of efficient arrangements. Hence the discussion of DES-effects on inefficiencies will be fragmentary. Given this caveat, we do not see any substantial improvements in efficiency, generated by DES.

(3) DES may, however, generate illusions about their nature. People may believe, for instance, that DES impose a burden on the country's creditors. In addition, accounting conventions, applied in setting up a country's budget, may favor DES as compared to conventional financing methods. Finally, DES may improve the indebted country's sovereignty. Thus politicians may prefer DES to conventional financing.

In summary, we do not see any substantial improvements, generated by DES as compared to conventional methods of financing investments. Therefore the enthusiasm about DES does not appear to be well-founded.

The paper is organized as follows. Section 1 presents some facts about DES, section 2 describes the economic setting of the following analysis. Section 3 analyzes DES from the perspective of the investor, section 4 from the perspective of the indebted country. The results are summarized in section 5.

First, some facts about DES will be summarized. In practice, DES are quite complicated because the indebted country has to make sure that the DES are not abused to arrange profitable arbitrage. Suppose, for instance, one could buy Mexican \$-loans at 60 percent of their face value, convert them to pesos at the face value, multiplied by the official exchange rate, and then reconvert the pesos into dollars at the official exchange rate. This would yield a profit of 40 percent for the arbitrageur and reduce the dollar reserves of Mexico. Even if the investor purchases securities for the local currency, sells them after a few years and reconverts the money at the official rate, he might reap a substantial profit. Therefore the indebted country has to set up rules in order to prevent investors from these deals.

Mexico restricts DES to specified portfolio investments and direct investments such that disinvestment is not allowed before January 1998. In addition, DES have to be approved by the Mexican government. The government does not award the full face-value of the \$-loan in Mexican pesos, but deducts up to 25 percent, depending on the type of investment (UNCTAD <1986, p.144>). Interestingly, the government converts the loans at the free rate, not the official rate. But it does it only if the free rate exceeds the official rate by less than 10 percent (Euromoney <Sept. 1986>).

Only rough estimates of the DES-volume are available. For 1986, the Mexican volume is estimated at about .7 billion US-dollars, a small amount compared to the Mexican foreign debt of more than



100 billion dollars (see Marton <1987>, Fehr <1986>). Perhaps the DES-volume would be greater if the Mexican bureaucracy acted faster and in a less restrictive manner. Moreover, Mexicans are not yet allowed to participate in DES. Thus, repatriation of flight capital is not yet supported by the official rules.

Brazil offered cash rewards to companies that convert debt into equity at face value, multiplied by the official rate. These rewards ranged from 5 to 10 percent (UNCTAD <1986, p.144>). To prevent speculation, dividends on the new equity were restricted to the level of the previously paid interest. The DES-volume for Brazil is estimated at 1.8 billion dollars. But Brazil has abandoned its DES-scheme in 1984. At present, DES are approved only exceptionally. The central bank claims that the foreign investments would have been the same without the scheme (Marton <1987>).

In Chile DES-rules are less restrictive. Chile awards the full face value, multiplied by the official rate. The pesos can be used to pay domestic debts, purchase local assets or, in the case of foreigners or Chileans residing abroad, for direct investment (UNCTAD <1986, p.144>). Foreign capital must remain in Chile for at least 10 years, profit remittances are not allowed in the first 4 years. The DES-volume for 1986 is estimated at about 1 billion US-dollars which is about 5 percent of Chile's foreign debt (Fehr <1986>).

## 2 The Economic Setting of the Analysis

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The model economy for which DES will be analyzed will be specified now. In this economy there exists an official market for foreign currencies with fixed exchange rates. Foreign currency can be bought from or sold to the central bank at the official exchange rate. This rate is assumed to be the same for all transactions.

In order to simplify the exposition, besides the local currency of the indebted country only one foreign currency will be taken into consideration, say, for instance, the US-dollar. Moreover, without loss of generality, the fixed exchange rate is assumed to be 1. The exchange rate is defined as units of local currency per dollar.

Besides the official exchange market a black market exists. The black exchange rate is denoted  $b$ . For indebted countries which face a \$-shortage, usually  $b \geq 1$ , i.e. the black rate is higher than or equal to the fixed rate. These countries usually buy unlimited amounts of dollars at the official rate, but sell only limited amounts. Suppose  $b > 1$ . Then everybody who wants to convert dollars into local currency, would prefer to do it in the black market. Everybody who wants to convert local currency into dollars would prefer to do it in the official market. In order to prevent arbitrage between both markets, the government has to restrict access to at least one market. It can, e.g., threaten the existence of the black market by high penalties for black trade, or it can force receivers of current account \$-income to convert the dollars at the official rate, and it can restrict \$-

sales at the official rate to specific purposes. The separation of both markets is usually imperfect, however, there is always some leakage (Zedillo (1986)).

DES represent a third market for buying local currency against dollars. This third market has various special features: (1) It is a one-way street since it is only possible to convert dollars into local currency, but not vice versa. (2) It can only be used with a special permission of the government which will be given only for specific purposes.

Let  $p$  denote the New York-dollar price for a \$-loan of the indebted country, measured as a fraction of the face value of the loan. Hence a 1 000 \$-face value-loan would sell at 1 000  $p$  \$ in New York. Let  $d$  denote the discount which the central bank subtracts when it buys the loan. This discount can be positive or negative. In the latter case, the central bank grants the investor a subsidy on DES. Hence, at an official rate of 1, the investor would get  $1(1-d) \cdot 1\,000$  local currency units for a 1 000 dollar-face value-loan. Thus, the actual exchange rate in a DES,  $s$ , is

$$s = 1(1-d)/p.$$

### 3 The Investor's Analysis

The investor looks for the cheapest way to finance his investment. The total investment expenses are determined by the net dollar amount required. This amount depends on the applicable exchange rate, on transaction costs and on potential arbitrage

profits which can be derived from financing the investment. The following analysis will provide some insight into the investor's choice between the three exchange markets and into sustainable differences between the corresponding exchange rates.

Suppose that the transaction costs are the same in every exchange market. The transaction costs in the black market include potential penalties for black trade if this is prohibited. Can the official exchange rate be higher than the black rate and the DES-rate? If this were true, then every investor would buy local currency at the official rate unless the official exchange is associated with some disadvantages. Such disadvantages exist, for instance, if all official exchanges are officially registered so that the investor cannot escape taxation of the future investment income or he cannot reconvert the money back into dollars. These disadvantages could motivate a premium of the official over the black rate. If exchange at the official rate were anonymous such that the government does not know the identity of the investor, then nobody would buy local currency at a rate below the official rate. Hence the black rate could not stay below the official rate.

As all DES are officially registered, the potential disadvantages of official conversion apply to DES, too. Hence the DES-rate cannot be below the official rate if (1) the DES-market is active, (2) investors are allowed to change in the official market and (3) no differences between both exchange markets besides the difference in exchange rates exist.

The question then is whether the black rate exceeds the DES-rate. Governments usually prohibit black currency exchanges for financing direct investments. But this is not sufficient to render the DES-rate independent of the black rate.

Suppose  $s > b > 1$ . Then every local citizen who wants to invest in his country, would try to reap an arbitrage profit. Instead of investing local currency directly, he would buy  $1/b$  dollars for one local currency unit at the black rate and then reconvert these dollars into local currency at the DES-rate  $s$  so that he can invest  $(s/b)$  local currency units. Thereby he reaps an arbitrage profit of  $(s/b - 1) \cdot 100$  percent. If local citizens have no access to DES, then they might have to arrange this transaction with the help of foreigners. This would create additional transaction costs, however. As long as the DES-volume is relatively small, the indebted country can tolerate this arbitrage between both markets and pay the arbitrage profit.

Now suppose  $b > s > 1$ , i.e. investors get most local currency for one dollar in the black market and the least in the official market. Then local citizens who want to invest their dollars in their country would change their dollars in the black market. Foreign investors usually get a permission for direct investments only if they prove that they change the invested money in a government-approved manner. Therefore  $b > s$  would channel repatriated flight capital into the black market and foreign direct investment into the DES-market.

The question then is whether foreign investors, being barred from the black market, would be deterred from direct investments. If

the black rate would emerge as the free rate in an unregulated exchange market, the foreign investors would regard the difference  $(b - s)$  as a government-imposed penalty on DES and adjust their investment decisions accordingly. It can be shown under fairly general conditions, however, that the free rate which would emerge after unifying the black and the official market, would lie between the black and the official rate (Lizondo <1987>). Hence the black rate does not provide an unbiased estimate of the free rate. Thus foreign investors will not interpret  $(b - s)$  as a government-imposed penalty on DES. Therefore the government is free to choose a DES-rate below the black rate without necessarily deterring direct investments.

So far it has been assumed that conversion at the official exchange rate is not combined with any subsidies or penalties. As a result, no investor changes dollars at the official rate if  $s > 1$ . The preceding results remain the same if the government subsidizes conversion at the official rate, but only to an extent such that this deal is still more expensive for an investor than a DES.

#### 4 The Government's Analysis

The investor may regard the difference between the DES-rate  $s$  and the free rate  $f$  which would emerge in an unregulated exchange market, as a government subsidy ( $s > f$ ) or penalty ( $s < f$ ). If the government takes the same view on the difference  $(s - f)$ , then the investor and the government together can benefit from DES as compared to a currency exchange at the rate  $f$  only if the DES

provides additional advantages. These potential advantages can be split into three groups. The first group includes advantages which derive from external effects of DES forced upon third parties. The second group includes gains from reducing inefficiencies of the international capital market. The third group includes advantages which derive from the political process associated with DES.

Discussion of these potential advantages requires a standard of comparison. The standard of comparison for the evaluation of DES will be the conventional method of financing direct investments. This method entails conversion of dollars at the official rate plus, perhaps, a subsidy or penalty. The investor is indifferent between a DES and conventional financing if the latter implies conversion at the official rate 1 plus a subsidy of  $(s-1)$  local currency units per dollar.

#### 4.1 External Effects of Debt-Equity-Swaps

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The investor and the indebted country together prefer DES if DES impose negative externalities on third parties.

Two types of potential external effects of DES will be discussed, the first being external effects forced on the country's creditors and the second being external effects forced upon others.

##### 4.1.1 External Effects Forced On Creditors

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Do the country's creditors suffer from DES as compared to conventional financing? As the creditors do not suffer from conventional financing, the question is whether the country and/or the

investor gain from DES at the expense of the creditors. The DES implies conversion of long term-\$-loans into long term-local currency-loans if the local money supply is to be held constant. Let us call this 'loan currency substitution' (= LCS). If the central bank awards local currency in cash to the investor, then the money supply would increase thereby pushing inflation. In order to avoid this effect, the central bank either has to give the investor a long term-local currency-loan which is not regarded as a substitute for cash or it gives the investor cash and, at the same time, sells long term-local currency-loans in the open market, thereby withdrawing cash from other investors. Therefore the DES implies LCS if the money supply is held constant.

2 As a DES affects the country's creditors only via LCS, DES can generate an externality, to be borne by the creditors, only if LCS does. Two types of externalities have to be distinguished. First, externalities which impair the creditors' wealth without benefitting the country and/or the investor. An example are costs of a creditor's financial distress, due to the country's debt servicing policy. These externalities, by definition, neither represent a gain to the country nor to the investor and, therefore, will be ignored. Second, externalities which benefit the country and/or the investor at the expense of the creditors. Such externalities, being created by LCS, can exist only if LCS reduces the market value of the country's total debt. Hence the country or the investor cannot gain from a DES at the expense of the creditors if the market value of the country's total debt is not changed by LCS.



Does LCS reduce the market value of the country's total debt? Suppose, first, that the DES-rate  $s$  equals the free rate  $f$ . From this and the definition of  $s$  follows  $f = 1(1-d)/p$  or  $pf = 1(1-d)$ . Hence  $pf$ , the local currency-market value of the \$-loan, converted at the free rate, equals  $(1-d)$  local currency units. The government awards the investor  $(1-d)$  local currency units in cash or in long term-local currency-loans with a market value of  $(1-d)$  local currency units. Hence its local currency-denominated debt increases by  $(1-d)$ . At the same time, the local currency-market value of the country's foreign debt is reduced by  $pf$ . Thus the local currency-market value of the country's total debt is not affected by LCS.

Therefore the government cannot increase its wealth by the DES if it applies the free rate in computing its wealth and if it values its dollar-denominated debt at the price  $p$  instead of the face value. The latter may seem questionable.

One might argue that the country should value its foreign debt at face value instead of the market price  $p$ . But this argument is not valid. Suppose, first, that the capital market in New York is informationally efficient and there exist no barriers to trading \$-loans of indebted countries. Then the price  $p$  represents an unbiased present value of the expected payments on the loan. Expected payments include expected interest payments and repayments of principal, expected "fresh money" payments from the creditors to the country, being part of rescheduling agreements, have to be subtracted. If the indebted country and the creditors share homogeneous expectations, then the country expects to pay less than

its contractual obligations. Hence the burden from these loans is smaller than the present value of the contractual obligations. The market price  $p$  is a measure of this burden. Thus the country should value its foreign debt at the market price  $p$ , not at face value.

A counterargument might be that the country faces costs of breaching the \$-credit contract by not paying (default costs) and that these costs have to be added to  $p$ . Such costs are, for instance, additional transaction costs from barter trade as compared to trade, financed by trade credit, if the banks react on a breach of contract by a reduction of trade credit. Even if the indebted country takes these costs into consideration, these costs do not represent an externality to the benefit of the country's creditors, but to the benefit of those involved in barter trade.

Moreover, as the DES involves LCS, the costs of breaching the local currency-credit contract have to be added to  $(1-d)$ . If the default costs are the same for both contracts, then still the market value of the country's total debt is not affected by LCS. No net effect of default cost is generated then. One might argue that the country can always repay its local currency-denominated debt by printing money. But then the default costs are replaced by the costs of additional inflation. It is not clear whether these costs are lower than those of breaching the \$-credit contract.

So far it has been assumed that the price  $p$  is unbiased. This assumption may be incorrect. Primarily European and Japanese cre-

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ditor banks sell these loans to other financial intermediaries or to investors who want to arrange a DES. US-banks which have a large portfolio of these loans but no default reserves, are reluctant to sell loans at a price below the face value because they are afraid of being forced to write off their other loans to the price  $p$ . As a consequence, this accounting problem diminishes the loan supply so that the price  $p$  should be biased upwards. Similarly, only specific loans are eligible for DES according to the rules of the indebted country. This may reinforce the upward bias.

Another bias may be generated by asymmetric information about the country's future debt servicing policy. The 'market' might be overly pessimistic so that the price is downward biased. As long as the 'market' correctly anticipates the behavior of the country's government, the loan price is not biased downward.

This argument does not rule out another potential effect of DES, however. The existence of DES might change the government's debt servicing policy in order to signal a lower loan quality which, in turn, reduces the loan price  $p$ . Similarly, the government may intervene in the \$-loan market to reduce the price  $p$ . This may be easy since the loan market appears to be rather illiquid. The rationale behind such a policy is as follows: The lower the price  $p$  is, the higher is the DES-rate  $s$ , ceteris paribus. Alternatively, if a certain DES-rate  $\bar{s}$  is needed to attract a certain volume of direct investments, then a lower price  $p$  permits the government to increase the discount  $d$ . Hence the government pays less local currency units per dollar. This explains why the very existence

of DES creates an incentive for the government to reduce the loan price. Hence the existence of DES reduces optimal debt servicing. This produces an externality for the creditors.

The significance of this externality appears to be small, however. First, at present, the DES-volume as a fraction of a country's foreign debt may range between 1 to 5 percent. Suppose the country changes its debt servicing policy such that the associated price drop enables it to reduce its local currency payments for DES by 20 percent. Then multiplying 20 percent by the fraction of 1 to 5 percent yields savings of .2 to 1 percent as a fraction of the country's foreign debt. This saving accrues once. Now consider the cost of a debt servicing policy change. Creditors may cut back trade credit lines, thereby imposing transaction costs of barter trade on the country. In extending loans, the creditors will require a larger spread over LIBOR which has to be paid annually. In addition, investors expect more restrictions on future profit remittances and require a higher DES-rates. These costs may easily exceed the savings. Therefore it seems safe to conclude that the government's incentive for such a policy change is small.

The question then is why creditors push the indebted countries to set up DES-schemes. A first answer would be that DES create additional demand for \$-loans so that the price  $p$  goes up. The price can rise above the expected present value of debt service payments if DES are so attractive for investors that they are ready to pay a premium for the \$-loans. This premium enables the creditors to sell their loans for a higher price and reduces the pressure for write offs. But this answer is superficial. Demand

for DES requires that DES-financing is cheaper for investors than conventional financing. If it is cheaper, then the country, its creditors or somebody else has to pay the difference. If the price  $p$  rises above the expected present value of debt service payments, then the creditors receive a positive externality. Hence they do not pay. If others do not pay, then the country itself has to pay.

This points to a strong reason why creditors should push for DES-schemes: They hope that the indebted countries grant more favorable terms (on their own expense) to investors on DES as compared to conventional financing and that they (the banks) can reap some of these benefits via a higher price  $p$ .

Some of the indebted countries appear to recognize this danger. Chile, for instance, sells the rights for DES in auctions so that investor rents from DES disappear to a large extent. The proceeds from the auction are earned by Chile, not by the investors nor by the creditors.

Summarizing, in an efficient capital market DES do not generate externalities which benefit the indebted country at the expense of its creditors. Some reasons for inefficiencies have been mentioned so that a net pricing bias may exist. But there is no evidence for a strong bias which benefits the indebted country and/or the investor at the expense of the creditors.

This result remains valid if the DES-rate  $s$  differs from the free rate  $f$ . Then the premium  $(s-f)$  may be considered a subsidy. This is earned by the investor and paid by the indebted country. But this subsidy does not reduce the creditor's wealth.

#### 4.1.2 External Effects Forced On Others

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Another external effect could be that DES enable the country to attract investments from other countries and thereby derive benefits at the expense of these countries. A necessary condition for this effect to exist is that a DES as compared to conventional financing creates additional wealth for the country and the investor, taken together. Then part of this wealth can be granted to the investor so that he redirects his investments from other countries to the country with the DES-scheme.

It has been shown before that DES do not force any appreciable loss on the country's creditors which benefits the country and/or the investor. Similarly, it is questionable whether LCS can reduce the country's default cost. Can the investor reap substantial tax benefits from a DES as compared to conventional financing at the expense of other countries? Although a tax effect may exist, it is hard to find a substantial effect. Hence the joint wealth of the country and the investor are likely to be about the same regardless of whether the investment is financed by a DES or by conventional methods. If this is true, then DES cannot attract investments at the expense of other countries as compared to conventional financing.

Summarizing, this section shows that presumably DES do not generate substantial external effects for the indebted country and the investor at the expense of others. It may be, on the contrary, that creditors gain from DES at the expense of the country.

#### 4.2 Gains From Reducing Inefficiencies in the International Capital Market

Even if the indebted country and the investor do not benefit from externalities, they might benefit from DES if DES reduce inefficiencies in the international capital market as compared to conventional financing.

First, the creditors may prefer DES in order to reduce moral hazard of the indebted countries. With conventional financing, the country receives dollars but may use these for consumption rather than for debt servicing. With DES-financing, the dollars go directly to the creditors, thus eliminating consumption.

Second, it is possible that the default cost is reduced by LCS so that DES are preferable. But, as has been argued before, empirical evidence does not support a clear answer.

Third, LCS might improve the international allocation of default risk. LCS means that the default risk is shifted from the \$-loan creditors to the local currency-loan creditors. The latter are primarily local citizens. Therefore the shift tends to reduce international diversification of foreign creditors. The local citizens who own the local currency-loans have to bear the default risk associated with these loans and the risk associated with their government's policy. These risks presumably reinforce each other. Hence an argument can be made that LCS impairs the allocation of risk.

Fourth, transaction costs of DES might be different from those of conventional financing. A DES involves the cost of purchasing the

\$-loan in New York and the costs of getting the approval of the government for the DES. Conventional conversion of dollars at the official rate and getting the approval of the government for the investment and the subsidy create transaction costs as well. If the government recognizes the equivalence of both arrangements, then the costs of getting the governmental approval should be about the same. If the political process is simplified by DES, then the transaction costs associated with DES may be smaller. On the other side, a DES requires the purchase of a \$-loan in New York. This purchase is usually mediated by a marketmaker who commands a fee. It has narrowed down to about one percent of the loan's face value (Marton <1987>, Euromoney <August 1986, p.73>). Still this cost may be higher than that of conversion at the official rate. Thus a clear answer to the question which arrangement produces higher transaction costs, is not available.

Fifth, the existence of DES means a third exchange market and thus augments the scope for profitable arbitrage between exchange markets as discussed before. This may be viewed as an inefficiency generated by DES.

Summarizing, it is difficult to detect substantial improvements in the efficiency of the international capital market from DES as compared to conventional financing.

#### 4.3 The Political Process and Debt-Equity-Swaps

The government of the indebted country might prefer DES to substitute arrangements for political reasons. DES could improve the government's power vis-a-vis creditors and/or the country's citi-



zens. These effects would not affect the country's wealth, but induce the government to prefer DES to substitute arrangements.

The benefits accruing to the government could come from

- a) improvements in the government's ability to pay,
- b) improvements in the government's creditworthiness,
- c) improvements in the government's sovereignty,
- d) budget illusions.

Ad a): By LCS being part of the DES, \$-claims are replaced by ----- local currency-claims. As the country can always print local currency, it faces no liquidity problems servicing local currency loans. But it cannot print dollars, thus \$-loans create a liquidity risk. Hence it appears that DES reduce the government's liquidity risk.

But this statement has to be taken with caution. Printing money represents an option of the government which may be exercised at the expense of the creditors. Exercising this option raises the inflation rate and thereby expropriates the holders of nominal claims. Creditors anticipate this, therefore they demand compensation for the expected inflation and the inflation risk. As a result, presumably the expected real interest rate is higher for local currency-loans than for \$-loans. If the government refuses to pay a sufficiently high interest rate, then investors will move their funds out of the country and invest them abroad at more profitable terms.

The government can avoid the premium for inflation risk by issuing indexed local currency-loans such that interest and principal

claims are always inflation-adjusted. Although indexed local currency-bonds are issued in various countries, foreign investors prefer \$-bonds. The reason may be that (1) foreign investors face an exchange rate risk, (2) the government can cheat by manipulating the recorded inflation rate, and, (3) \$-loans grant foreign investors some control by imposing a liquidity risk on the government. Thus the government's liquidity risk may be an important element of efficient contracting.

Ad b): The government's creditworthiness, i.e. its ability to obtain credit, cannot be assured by DES. A DES involves either LCS or printing money. It has been shown before that LCS does not alleviate the country's total debt burden. Printing money undermines creditworthiness. Thus there is no indication that DES improve the government's creditworthiness.

Ad c): The government's degree of sovereignty may grow through the use of LCS as printing local money for servicing local currency-loans is controlled by the government only whereas issuing \$-loans requires the consent of the creditors.

Another political argument in favor of DES could be that LCS as part of the DES amounts to an automatic partial debt relief since LCS is based on the \$-loan's price instead of its face value. In other words, the argument is that LCS saves the government conflicts as compared to an agreement on debt relief, and thereby improves the government's sovereignty.

But this argument is misleading. First, there is an important difference between LCS and a debt relief. Banks today refuse a

debt relief because the indebted countries try to get a relief for nothing. Thus the banks deny debt reliefs. A bank selling a \$-bond at the price  $p$  does not grant a debt relief, it changes \$-claims against dollar notes. No gift is involved. Second, LCS implies for the indebted country the purchase of \$-bonds against local currency-bonds. Again, no gift is involved. Therefore it is not surprising that the government need not spend much energy on LCS as compared to debt relief.

Ad d): Illusions associated with DES may explain part of their ----- popularity. First consider the budget illusion. Suppose that, in the central bank's balance sheet, the country's \$-loans are valued at face value, multiplied by the official rate. Hence a DES generates a profit to the central bank which equals the discount  $d$ , multiplied by the face value and the official rate. Thus DES look favorable for the indebted country.

Alternatively, suppose the foreign investor converts dollars at the official rate 1 and gets a subsidy of  $(s-1)$  local currency units per dollar. This subsidy shows up in the current government's budget as an expense if the subsidy takes the form of a cash subsidy or it shows up in future budgets if the investor is granted future tax reliefs. In any case, the government has to declare a subsidy to the foreign investor which will be opposed by local competitors and, perhaps, by political parties which advocate a free market economy.

Although the foreign investor is indifferent between the DES and the substitute arrangement, the government's budget shows a profit for DES while it shows a loss for the substitute arrangement.

Hence the DES appears to be much more favorable for the indebted country. If people do not recognize that this budget effect is generated only by specific accounting rules, then a budget illusion in favor of DES exists.

The budget illusion may be closely associated with the illusion that in a DES the creditors loose money, that the creditors' loss accrues as a gain to the investor and that this gain enables the government not to subsidize the investment. Hence the political opposition to DES can be expected to be weaker than that to substitute arrangements. Therefore governments which want to attract foreign investments may well prefer DES.

Summarizing, the DES reduces the governments's liquidity risk, improves its sovereignty and facilitates political decisions in favor of foreign investments. Thus DES may well appear favorable to the governments of indebted countries as compared to substitute arrangements.

#### 4 Summary and Conclusion

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The preceding analysis has shown that the effects of DES are very similar to those of dollar conversion at the official rate, combined with a subsidy of  $(s-1)$  per dollar. DES do not permit investors and indebted countries to reap appreciable gains from forcing negative external effects on other parties. Hence they cannot expropriate creditors or others by DES. There is no evidence that DES improve the efficiency of the international capital market. The loan currency substitution which is part of the

DES, reduces the indebted country's liquidity risk and increases its sovereignty. Illusions, associated with DES, may reduce political opposition to attracting foreign investments. Thus the governments of indebted countries may prefer DES. Apart from these political aspects, DES do not appear to increase the opportunity set of indebted countries and investors.

Thus the enthusiasm with which DES have been greeted is not well founded. There is no evidence that direct investments in indebted countries will grow and thereby improve the economic prospects of these countries.

Sometimes it is argued that DES will induce repatriation of flight capital. This argument is not well founded, either. With respect to direct investments, it makes no difference whether the dollars are funded with flight capital or other capital. With respect to portfolio investments, two cases have to be distinguished.

Case 1: In order to acquire officially part of a firm's equity or debt capital, the dollars have to be converted at the official rate, perhaps combined with a subsidy, or by DES. Thus the situation is the same as for direct investments.

Case 2: The owner of flight capital wants to buy securities, denominated in local currency, without reporting to the government. Then he has to convert dollars at the black rate because conversions in the other exchange markets are registered officially.

Hence there is no reason to expect DES to foster repatriation of flight capital. The advantage of DES as compared to substitute arrangements may be to facilitate political decisions in favor of foreign investments, but apart from this it is hard to identify substantial favorable effects on the international debt situation.

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