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## Incentive effects of self-enforcing contracts in international lending

Kiel Working Paper, No. 341

**Provided in Cooperation with:**

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*Suggested Citation:* Stüven, Volker (1988) : Incentive effects of self-enforcing contracts in international lending, Kiel Working Paper, No. 341, Kiel Institute of World Economics (IfW), Kiel

This Version is available at:

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Kiel Working Paper No. 341

Incentive Effects of Self-enforcing  
Contracts in International Lending

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ISSN 0342-0787

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Incentive Effects of Self-enforcing  
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November 1988

Ag 4987/88  
Weltwirtschaft  
Kiel

\* This paper is part of a research project on the optimal structure of capital transfers from developed to developing countries; financial support from the Deutsche Forschungsgemeinschaft is gratefully acknowledged. The author thanks Peter Nunnenkamp for helpful comments.

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## I. Introduction

The persistent debt crisis of major LDC-borrowers has led to various proposals on how to ease or even solve these problems. Most suggestions have in common that they concentrate on restructuring the old loans and suggest approaches to higher future lending<sup>1</sup>. These proposals are based on the assumption that the debt burden accumulated in the past represents the main obstacle to new bank lending in the future. It has to be doubted, however, that debt relief in one form or another will be sufficient for generating new lending. The high debt burden constitutes only one reason for the reluctance of banks to provide fresh money voluntarily. A more fundamental reason may be related to the behavior of creditors and borrowers that lead to the present instability of the international credit market. This behavior is influenced by the institutional incentive structure prevailing in this market. New lending would, therefore, be conditional on an improved institutional framework in the international credit market.

The importance of institutional incentives derives from their impact on the distribution of risks between creditors and borrowers associated with international lending. It has been suggested that debt problems are likely to occur in the future again even if the present repayment problems were solved, because future loans will bear the same risks as the present ones<sup>2</sup>. If that is true incentives for risk-reduction and more risk-sharing between creditors and borrowers are an essential ingredient to the solution of the debt problem.

For the purpose of the following analysis it is useful to differentiate the risk associated with a country loan into three categories:

- economic policy risk
- exogenous shock risk
- sovereign risk.

National credit markets provide an example of mechanisms for risk-reduction and risk-sharing which may also be able to promote increased stability of international credit relations. In national markets, bankruptcy laws create a disincentive for the borrower to become unable to repay a loan for reasons within his own responsibility while composition laws provide a solution for the inability to pay due to reasons beyond the control of the borrower. However, loans to sovereign states are not only subject to the risk of a reduced ability to pay but also to the risk of the borrower's unwillingness to repay the loan<sup>3</sup>. The so called sovereign risk in international lending renders it difficult to apply national concepts of risk treatment to international loans. For that reason it will be considered in this paper, if sovereign risk can be reduced by establishing incentives that strengthen the borrowing country's willingness to repay loans. Less sovereign risk will make national concepts of risk reduction and risk sharing more easily applicable to international lending. This is supposed to encourage risk-sharing between the borrower and the lender in cases of exogenous shocks that reduce the borrowing country's ability to pay. A modified institutional framework may also generate disincentives to apply ill-advised economic policy in the borrowing countries, so that the stability of future cred-

it relations in the international market would be further strengthened.

When the risk-illusion had been destroyed, which prevailed in international lending during the seventies the risks mentioned above now constitute an important reason for the insufficient net capital transfer to the mayor Latin-American LDC-borrowers<sup>4</sup>. This consideration is confirmed by the fact that the reduced and - since 1983 - even negative net transfers to these countries were mainly caused by a reduction in the new credit commitments. This indicates that the reduction of the debt burden via reschedulings was not successful in reducing the risks for future loans. As long as the institutional organization of the international credit market remains unchanged each new loan commitment is associated with the present risks. We thus have to look for other instruments to cope with the credit risks and to stabilize the credit relations in order to increase net capital transfers.

Section II. shows the crucial role of sovereign risk for the applicability of domestic concepts of risk treatment in the international credit market. In Section III. a contract system to reduce sovereign risk is proposed and Section IV. discusses the creditor's incentives for more risk-sharing implied by the contract system. The chances to introduce such a system are evaluated in Section V.

## II. Risks in Domestic and International Lending

Instruments, which help to maintain lending even in an environment that has proven risky in the past, can be found in the national credit markets. Bank lending to domestic firms faces risks that are equivalent to the economic policy and exogenous shock risks in the country case. After the loan is disbursed the firm may perform poorly and be no longer able to service the loan because of misguided management decisions or exogenous changes in its market<sup>5</sup>. The banks have developed instruments to limit the impact of these risks on the profitability of their loans. They are often willing to reschedule a loan after a reduction of the firm's ability to pay has taken place. Rescheduling and the associated sharing of risks with the borrower will be profitable for the banks, if the restructured loan has an increased expected present value, because reducing the debt increases its repayment probability. In general banks will agree to risk sharing arrangements, if the management policies of the debtor firm are on the whole sound and credible, i.e. the reduced ability to pay is due to exogenous shocks. However, banks will refuse to participate in risk sharing, if they believe misguided management policies to be the reason for the payment problems. Management failures that are expected to occur again in the future expose the rescheduled loan to the same risk as the old one and, therefore, discourage risk-sharing on the side of the banks. In such cases, banks will prefer to implement bankruptcy provisions.

Depending on what measures serve his interest best the creditor



decides to enforce the repayment of his claim as far as this is possible and without regard to the survival of the firm (bankruptcy), or to reschedule the loan contingent on improvements in the firm's management (composition). A firm claiming inability to pay due to exogenous shocks and asking for rescheduling has to be aware of the options open to the creditors. Bankruptcy measures are generally more costly for the firm than servicing the loan as long as its ability to pay is given. Therefore, firms will seek to prevent management decisions that may reduce its ability to pay<sup>6</sup>. With respect to these arguments firms will request renegotiations only if the reduced ability to pay is due to exogenous shocks.

The debtor-creditor relations prevailing in international credit markets differ from those described above. Due to the lack of an international legal system claims against international borrowers cannot be enforced. The position of banks is much weaker in the international than in the national context when deciding on reschedulings. A bank may reject a rescheduling, because the demand for it is supposed to be due to policy failures or unwillingness to pay. However, banks have no means to enforce the repayment of claims which the borrowing country is still able to repay. With lacking enforceability the borrowing country has also no incentive to repay the highest amount possible. If the country is unwilling to pay, payments may unilaterally be reduced to a degree that is even more unfavourable for the creditor than the terms he could have reached in renegotiations. Therefore, the banks' response to the demand for reschedulings by LDCs is biased

in favour of an acceptance to minimize the probability of unilateral actions by the sovereign borrower. This situation has consequences for the behavior of creditors and borrowers:

- The borrowing LDCs obtain reschedulings not only in cases of exogenous shocks, but will also request softer loan terms, if policy failures reduce their ability to pay or if they are unwilling to pay.
- The banks have no incentive to differentiate between rescheduling requests due to exogenous shocks, internal policy failures, or unwillingness to pay. They take reschedulings as uniform events and try to minimize the negative effects on profitability. This leads to a reluctance of banks to participate in risk-sharing agreements also in cases of exogenous shocks.

A lower sovereign risk would have two effects. First, less sovereign risk would reduce the overall credit risk. Secondly, reducing sovereign risk should lead to a reduction in the economic policy risk and improve the stability of credit relations in international markets. This should be the case, because reducing the incentives for the borrowing country to defer payments due to unwillingness to pay promotes increased risk sharing on the side of the creditors. These expectations are based on the following considerations. Today the costs in terms of an increased debt burden arising from policy failures of LDCs may be socialized by asking for reschedulings. In such cases banks should actually refuse debt relief irrespective of whether the misguided policies have reduced the country's ability to pay or increased its unwill-

lingness to pay. But the threat of unilateral measures enables the sovereign borrower to press for reschedulings. The LDCs' incentives to follow sound economic policies may be strengthened, if this option can be rendered unattractive by some contractual mechanism. The stronger position of the creditors when sovereign risk is reduced enables them to reject reschedulings in the absence of exogenous shocks; on the other hand banks may be better prepared to share exogenous shock risks as they already do in national markets.

### III. A Contract System to Reduce Sovereign Risk

Before a contractual mechanism to reduce the sovereign risk can be designed it must be clarified in which way unwillingness to pay influences the country's repayment decisions. Due to the unenforceability of loans the country follows a simple cost/benefit-calculus in deciding on repayment. The calculus can be formalized as the integral of the future costs and benefits of a reduced debt repayment<sup>7</sup>:

$$\int_0^T [B(t/S, R, D) - C(t/S, R, D)] dt$$

The benefits and costs are subject to the repayment strategy chosen by the country. Distinction is made between contractual service of the loan (S), rescheduling or partial default by sovereign action (R), and outright default (D). With unenforceable claims the creditors can impose costs on the borrowing country only by denying future loans that would be advantageous for the

country or by demanding higher risk premiums. Continued lending may be profitable for the creditors as well. Their reaction thus will depend on the degree of debt relief pressed for by the borrowing country. An outright default can be expected to result in a total credit stop for future time. The syndication of international bank loans to LDCs and the use of cross default clauses has improved the credibility of this threat, which cannot be generated by a single creditor if the country maintains several credit relations. The LDCs seem to have been aware of this fact and avoided outright defaults in the past, but tried to reach reschedulings using the threat of an outright or partial default to induce the banks to participate<sup>8</sup>. This indicates that reschedulings are regarded as superior in cost/benefit terms to an outright default by the LDCs. Outright default might even be considered inferior to the contractual servicing of the loan as long as the country is able to repay and the consideration of default is only driven by unwillingness to pay<sup>9</sup>.

The basic characterization of sovereign risk consists of a borrowing country's unwillingness to pay notwithstanding that it is able to pay. In the following paragraphs, we thus focus on countries unwilling, but able to repay their debts when discussing as to how to reduce the sovereign risk within a contract system. Subsequently the possibility of an reduced ability to pay as the reason for payments difficulties will be considered. The mechanism to induce sovereign borrowers not to defer debt payments due to unwillingness to pay has to modify the cost/benefit-calculus in a way that makes reschedulings and partial defaults unfavourable for the country compared to servicing the loan contract.

### III.1. Self-enforceable contracts

With regard to the above arguments the possible actions of a borrowing country can be ranked as follows with respect to their utilities for the debtor country and the creditor.

Table 1

	highest utility	->	lowest utility
Borrower	Rescheduling	Contractual Loan Repayment	Outright default
Creditor	Contractual Loan Repayment	Rescheduling	Outright default

We are looking for modifications of the present loan contracts that shall make contract servicing the best choice for the borrower, as well. This is equivalent to establishing self-enforcing contracts, that are characterized by the following utility ranking for the borrower<sup>10</sup>:

$$\int_t^T [B(t=S) - C(t=S)] (1+\delta)^{-t} dt >$$

$$\max_{R,D} \int_t^T [B(t=R,D) - C(t=R,D)] (1+\delta)^{-t} dt$$

for all  $t = 0, \dots, T$ .

The reduction of sovereign risk should not only be in the interest of the lending banks but also favourable for the borrowing LDCs. Without the enforceability of loan contracts the banks cannot distinguish whether deferred payments are caused by in-

ability or unwillingness to pay. The presence of unwillingness to pay induces the banks to expect a relatively higher risk of reschedulings, which leads to higher risk premiums or even credit rationing. In order to achieve better terms, the LDCs could try to bind themselves credibly not to press for reschedulings because of unwillingness to pay. This could be done by offering some form of collateral for the loan. This collateral must consist of foreign assets of the borrowing country that are not subject to sovereign risk. Claims on foreign banks or foreign direct investments of the country meet this requirement as well as future claims on official development assistance or financing agreements with international organizations such as the World Bank, IMF, or IDA. However, these binding devices do not look very promising, especially for the middle-income LDCs that would profit most from enhanced private borrowing facilities.

- The recent offer by Mexico to swap bank loans against bonds with the principal of the later guaranteed through a zero-bond deposited at the US-Treasury did not attract as much participation as expected. Apparently the discount on the loan's face value was regarded as too high<sup>11</sup>.
- Foreign assets and reserves of the mayor borrowing countries are rather small relative to the loan disbursements in 1982 which is regarded as the last year before the debt crisis led to drastic credit rationing (Table 2).
- The same applies to ODA-payments that are negligible for middle-income countries as well (Table 2). The commitment of the borrowing country to forgo these payments in case of de-

Table 2 - Central Banks' Foreign Assets in Latin-American LDCs and received ODA  
(Mill. US\$)

	Foreign Assets	ODA	Loan Dis- bursements	Total Debt
	1986 <sup>a</sup>	1985	1982	1986 <sup>a</sup>
Argentina	7062	31	7054	43012
Bolivia	591	126	259	4078
Brasil	8625 <sup>b</sup>	64	15377	97164
Chile	2275 <sup>b</sup>	46	2678	17930
Costa Rica	551	239	244	3889
Ecuador	532	71	1309	7977
Kolumbia	2371 <sup>c</sup>	37	1653	13022
Mexico	6729	123	12484	91062
Peru	1866	286	2560	12386
Uruguay	1161	6	533	2802
Venezuela	5946	13	2698	32419

<sup>a</sup> Stocks are end-of-period values. - <sup>b</sup> 1985, III. Quarter. - <sup>c</sup> 1986, III. Quarter.

Sources: The World Bank, World Debt Tables. Washington, D.C. 1987/88, Vol. II. - International Monetary Fund, International Financial Statistics. Washington, D.C. Jan. 1988. - Organisation for Economic Cooperation and Development, Geographical Distribution of Financial Flows to Developing Countries 1982-1985. Paris 1987.

ferred loan repayment thus constitutes no credible binding device.

Moreover, it is generally questionable, whether international organizations should be included in the process of imposing sanctions on countries which willfully refuse payments. Payment difficulties that are due to an inability to pay constitute the cornerstone for the activities of these organizations. They may thus be strongly inclined to classify deferred payments as caused by inability to pay. Even if the borrowing country agreed ex ante to sanctions in case of unwillingness, it is in the interest of both the international organization and the country to deny that a given default is due to unwillingness<sup>12</sup>. Such an outcome will be most likely, if it is difficult to decide whether payment difficulties are due to unwillingness or inability to pay.

### III.2. Sanctions in Case of Reschedulings due to Unwillingness to Pay

In view of these difficulties the mechanism of sanctions imposed on borrowing countries in cases of reschedulings<sup>13</sup> must meet the following objectives: the imposition of sanctions must be in the interest of the party that has to decide on them and it has to be prevented that the countries escape the sanctions by sovereign measures. The sanctions consist of inducing the country's creditors to change their lending behavior after reschedulings in a way that imposes costs on the borrower. The creditor's reaction effects the utility ranking of the possible actions available to the sovereign borrower when deciding on loan repayments. In par-



ticular, the countries take into account the threat of a credit stop after an outright default. For that reason the proposed mechanism aims at inducing the creditors to react after reschedulings in a way comparable to the case of an outright default. Today LDCs prefer reschedulings to outright defaults exactly because of the fact that a uniform reaction in both cases is not favourable for the banks.

To generate the new incentives necessary to induce the creditors to change their behavior new loan contracts should incorporate the obligation for the creditor to enter an additional contract with a third party belonging to the same jurisdiction as the creditor. Because the third party contract would be subject to national jurisdiction problems of enforceability do not exist and incentives can be specified which will drive the behavior of the creditors in case of reschedulings. For that purpose the contract can specify a premium the creditor will have to pay to the third party, if he wants to continue the loan contract with the borrowing country after reschedulings have taken place. The premium would be fixed in advance at a level high enough to lead to a negative present value of the loan contract for the creditor if the premium payments are taken into account<sup>14</sup>. The premium may take the form of a front-end fee in percent of the outstanding loan or of annual percentage payments over the loan term. The creditor can be supposed to prefer to withdraw from the loan contract as soon as the third party requests premium payments after a rescheduling. In this case there will be no subsequent repayments and no premium payments, too. The third party would

have a strong incentive to enforce the premium payment after a rescheduling has occurred, because it entails no obligation for considerations and therefore constitute an unusual profit opportunity. The creditor would thus insist on continuing the old loan contract rather than renegotiate, because this still entails some probability of repayment. Knowing about this, the borrowing country can be supposed to abstain from pressing for a rescheduling and service the loan. Otherwise the costs to be born by the country would be as high as in the case of an outright default. To secure this result the third party must be given the right to enforce the premium payments also in the case of a partial default. This provision rules out that the country attempts to circumvent the contract system by reducing the loan terms unilaterally rather than asking for a rescheduling. The fact that the country has expectations about the results which the creditor would accept if renegotiations took place, would otherwise lead the country to imitate these results through unilateral actions.

Until now, the contract proposal has been advanced with regard to only one creditor. In reality LDCs obtain credit from many banks with the credit volume of each bank typically being small relative to the LDCs total debt. This was especially true in the 1970s when syndicated bank loans dominated LDC-borrowing. Syndication of the loans to sovereign borrowers aimed at protecting individual banks against defaults and forced reschedulings due to unwillingness to pay. Cross default clauses serve to ensure that the syndicate holds together. They allow each member bank confronted with deferred payments to pass on losses to the other

banks according to their quotas in the syndicated loan. However, spreading losses arising from LDC actions over the whole syndicate does not necessarily provide a credible threat to prevent the borrowing LDC from deferring payments. The latter requires collective actions by the syndicated banks to impose costs on the LDC. As long as the division of the costs from willful payment deferments does not induce collective actions with some high probability the LDCs have the incentive to reduce their debt burden by unilateral modifications of the loan terms or forced reschedulings.

But the threat of collective actions by the loan syndicate is not credible even if it agreed ex ante that all banks will withdraw from their present and future loan contracts in case of deferred payments. If the LDC reduces debt payments unilaterally, each bank will have the incentive to break with the syndicate and continue its credit relations with the LDC on the basis of the easier terms, because receiving a reduced repayment is more favourable for the individual bank than to withdraw from the loan contract completely. This incentive problem on the side of the lending banks characterizes the dilemma exploited by the LDCs when pressing for renegotiations in the present situation.

In order to keep the threat of the creditor's withdrawal from the loan contract credible, the premium must ideally be claimed from all banks that want to continue their credit relations. That would require all creditors of a country to participate in the contract system. In this setting the third party will achieve the

right to enforce the premium payments, if the LDC forces only one bank into reschedulings or defaults partially. All banks would then prefer to withdraw from the loan contracts and stop future credit relations with the LDC. It can be expected that the reaction of the banks with regard to future credit would be equivalent to their response to an outright default. It does not make any difference whether the loan is lost because of an outright default or "voluntary" withdrawal. To summarize, the proposed contract system assures that loans are self-enforceable as long as the country's ability to pay is not reduced. This is because the costs of deferred payments would be higher than the costs of contractual servicing of the debt.

### III.3. Reschedulings in Case of Inability to Pay

Up to this point unwillingness to pay has been assumed to be the only reason for deferred payments and following this assumption reschedulings should be made as unfavourable for the borrowing country as an outright default. However, deferred payments may also be due to a reduced ability to pay. For that reason the contract system has to be modified in a way that it is capable to deal with these cases as well. Principally the contract system must allow for reschedulings if the country proves unable to pay. As in national credit markets it seems reasonable to promote risk-sharing between borrowers and creditors in cases of exogenous shocks that reduce the borrowers' ability to pay. On the other hand it must be maintained that creditors are in a position to control the borrower's unwillingness to pay and by doing so to reduce the economic policy risk as well. These objectives could

be achieved by granting creditors the option to reschedule their loans without activating the third party contract, if the rescheduling creditor declares the rescheduling to be in his own interest. A lending bank confronted with the request for rescheduling would then have the choice to put the third party contract out of force and reschedule the loan, or to reject the rescheduling, if it expects full repayment of the loan under the contract system.

It is not in the bank's interest to reject all demands for rescheduling, because the utility ranking of the possible repayment strategies for the borrowing country will change if it is unable to pay and no longer just unwilling. A reduced ability to pay increases the costs of repaying the loan whereas the costs of a default remain constant. If the bank rejects to reschedule and keep the contract system in force, the country is left with the options to repay the full amount or to default on the whole loan. Every partial default would be transformed by the contract system into a withdrawal of all banks which results in a situation equivalent to an initial outright default. The borrowing country will choose to default, if its ability to pay is severely reduced and this strategy thus results in a higher utility for the country than repaying the loan. For the bank an outright default is certainly associated with higher costs than every rescheduling agreement that would have prevented the country from defaulting. For that reason it would be advantageous for the lending banks to agree to reschedulings when they expect the borrowing country to take resort to an outright default after its request for a rescheduling has been rejected.

The calculus of the bank can be depicted by assigning expected pay-offs and probabilities to the possible situations that can arise from rejecting or accepting to reschedule. The relevant probability refers to the behaviour of the borrowing country after the bank has rejected the rescheduling. The bank must thus form an expectation about the probability of an outright default [E Prob (D)]. The utility ranking of the possible pay-offs for the bank is assumed to be  $u(X_1) > u(X_2) > u(X_3)$ .

Table 3

Creditor's Choice \ Borrowers Status	unable to pay	unwilling to pay
	$X_3$	$X_1$
reject a rescheduling		
accept a rescheduling	$X_2$	

The condition that is decisive for the acceptance of a rescheduling by the creditor follows directly as

$$u[X_2] > u[(1 - E \text{ Prob (D)}) \cdot X_1 + E \text{ Prob (D)} \cdot X_3]$$

Rearranging this expression and assuming a risk-neutral creditor with a strictly increasing utility function yields

$$E \text{ Prob (D)} > \frac{X_1 - X_2}{X_1 - X_3}.$$

#### IV. Incentives for a Better Monitoring by the Creditors

The proposed contract system requires that the creditors engage in forming expectations about the ability to pay of the borrowing country. Only if the creditor makes use of the rescheduling option in cases he believes to be characterized by a reduced ability to pay, he can obtain the whole benefit from the system. Serious evaluation of the countries' ability to pay is required, e.g. by establishing an appropriate monitoring system. Monitoring is costly, however, and the banks will only devote more resources to this activity, if they expect the associated benefits to outweigh the costs. It is thus most important to discuss whether or not the proposed system constitutes positive incentives for the banks to evaluate the LDCs' ability to pay more carefully than without the system.

The monitoring systems for the evaluation of the LDCs' ability to pay will be improved, if the necessary investment outlays are compensated by expected profits due to better decisions on requests for reschedulings. The expected profits will be the higher the stronger the relation is between a good evaluation of the country's ability to pay and a correct decision. Furthermore high losses in case of wrong decisions are expected to increase monitoring expenses. At present the creditor's evaluation of the borrowing country's ability to pay is not the only factor that influences his decision. He has to take into account as well the possibility of unilateral actions by the sovereign borrower after rescheduling has been refused. These actions might be more costly

than an unwarranted rescheduling. The proposed contract system reduces the sovereign risk and upgrades the technical aspect of evaluating the country's ability to pay. Thereby the position of the creditor in the contract relation becomes comparable to that in the national credit markets.

In addition, the introduction of the contract system changes the pay-off structure of a creditor's decision on rescheduling requests in a favourable way. In case of accepted reschedulings the pay-off can be expected to remain the same irrespective of whether or not the contract system is introduced. The incentive for the creditor to improve his indicator system can only result from a better repayment structure in case of refused reschedulings. Today there are three possible strategies for the borrowing country after its request for a rescheduling has been rejected:

- The country unilaterally reduces the debt payments because it is really unable to service the whole debt. Pursuing this strategy the country will act in accordance with its cost/benefit-calculus and abstain from a complete outright default (case 1).
- The country unilaterally reduces the debt payments although it is able to pay. Though driven by an unwillingness to pay the degree to which debt payments are reduced nevertheless depends on the cost/benefit-calculus; an outright default is rather unlikely in this case as well. The creditor is not able to distinguish this second strategy from the first one (case 2).



- The country services the debt contractually, because it is able to do so and its unwillingness to pay is not strong enough to trigger unilateral measures after the creditor has rejected a rescheduling (case 3).

The first case is associated with a wrong decision of the creditor on the rescheduling. The second and third case are both possible after a correct decision, but only in the last one losses will be prevented, if the country's ability to pay is correctly evaluated. Without the contract system it seems unlikely that the country's willingness to pay will recover as in case 3, because no credible mechanism exists that imposes sanctions in case of sovereign measures reducing the debt payments.

Under the proposed contract system the strategies open to the borrowing country after a rejected rescheduling would be limited to the following:

- Stop of all future credit relations because the ability to service the debt is not given and the country has no choice but to reduce the debt payments unilaterally (case 4).
- Contractual debt servicing despite of unwillingness to pay (case 5).

The expected total benefit for the creditor from a decision on the request for a rescheduling under the contract system can be depicted in a matrix (Table 4). The benefit is given as the reduction of the losses due to wrong decisions compared to the

Table 4

Creditor's Choice \ Borrower's Status	Borrower's Status	
	unable to pay	unwilling to pay
accept a renegotiation	$v^r ; v^r$ (1- $\pi$ )	$v^r ; v^r$ ( $\pi$ )
reject a renegotiation	$v^1=v^* ; v^4=d$ ( $\pi$ )	$\phi \cdot v^2 + (1-\phi) \cdot v^3 ;$ (= $v^*$ ) (=0) $v^5=0$ (1- $\pi$ )

Capital letter: without contract system

Small letter : with contract system

$v^r=v^r$  : the losses associated with a rescheduling are assumed to be the same

$v^1=v^2=v^*$  : the cases 1 and 2 result in the same loss due to the borrowing country's cost/benefit-calculus

$v^4=d$  : the loss in case 4 equals the present value of the loan

$\phi$  : probability of unilateral measures due to unwillingness to pay after the creditor rejected the rescheduling (case 2)

$\pi$  : probability of a wrong decision on the side of the creditor

present situation without third party contracts. The matrix shows a bayesian decision problem<sup>15</sup>. The expected loss for the creditor after the borrowing country has asked for a rescheduling is given by the sum of the expected losses under the two possible states of the country's ability to pay. The two outcomes are weighted with the probabilities the creditor assigns to each of them.

$$V = p [(1-\pi)V^r + \pi V^*] + (1-p) [\pi V^r + (1-\pi)\Phi V^*]$$

$$v = p [(1-\pi)V^r + \pi d^*] + (1-p) \pi v^r$$

p: probability, as expected by the creditor, that the request for a rescheduling is due to inability to pay.

The expected loss will drop, if the creditor improves his monitoring system and thus reduces the probability  $\pi$ . The proposed contract system strengthens the incentives for a better evaluation of the countries' ability to pay since the reduction in losses for a given reduction of  $\pi$  is greater with the contract system than without. Formally this can be proven by partially differentiating the loss functions:

$$\frac{\delta V}{\delta \pi} = v^r (1-2p) + v^* [p-(1-p)\Phi] \stackrel{>}{<} 0$$

$$\frac{\delta v}{\delta \pi} = v^r (1-2p) + p d > 0$$

The derivation  $\delta v / \delta \Pi$  is always greater than  $\delta V / \delta \Pi$ <sup>16</sup>, which confirms the positive incentive produced by the system.

However, it is open to question, if the incentive is strong enough to make the creditors act accordingly. The analysis presented above cannot determine whether or not the reduction of the expected loss outweighs the higher evaluation costs necessary to reduce  $\Pi$ . However, it can safely be ruled out that the proposed contract system creates "wrong" incentives in the sense that the creditor's behavior under the system results in an inferior development as compared to the present situation. At present, the banks' attitudes are strongly biased in favour of accepting reschedulings if the LDCs are pressing hard. This behaviour is rational, if the banks expect the losses from possible sovereign measures after reschedulings have been rejected to be higher than the costs associated with reschedulings. It is also possible that banks regard the general acceptance of reschedulings to be cost minimizing because of the expenses otherwise required for establishing and maintaining an elaborate monitoring system. This consideration is enforced by the fact that monitoring system alone cannot cope with sovereign risks. The proposed contract system may be seen by the banks as a viable enforcing mechanism that makes monitoring attractive. In the worst of all worlds, the introduction of the contract system will have no impact on the banks' calculation of the benefits associated with respect to acceptance or rejection of reschedulings. In this case the banks will still regard the general acceptance of reschedulings as the most profitable choice, because the incentives created by the

contract system in favour of a differentiated behavior remain too weak. But the system does also cause no harm, because the creditors still have the option to accept reschedulings and thereby prevent the premium payments. The banks are thus able to generate a situation comparable to the present one.

All in all, the system offers the chance to improve the stability of future credit relations in the international market at the minor risk to give rise to some transaction costs when establishing the third party contracts.

#### IV.1. More Stable Credit Relations as a Result of the Contract System

Assuming that the incentives generated by of the contract system are strong enough to induce banks and LDCs to change their behaviour, the stability of international lending will be enhanced in various ways. First of all, the willingness of banks to engage in risk-sharing with the LDCs is likely to increase, because debt renegotiations and reschedulings can now be limited to those cases of payments difficulties the banks consider to be due to exogenous shocks.

Secondly, the decision of single banks to renegotiate their claims is no longer constrained by the bank syndicate pressing for unanimous actions to maintain its bargaining power. The contract system removes the necessity to syndicate bank loans for reasons of loan security; the third party contracts would assume

this role. Each bank may thus decide individually on the acceptance of a country's request for renegotiations on the basis of its own monitoring system of the country's ability to pay and its risk preference. The rescheduling improves the borrowing country's ability to pay and reduces the repayment risk for the non-rescheduling banks, because the country will only default due to an inability to pay. For that reason the individual rescheduling bank generates positive external effects. It may thus be possible that each bank chooses to act strategically and reject reschedulings. But this strategic behavior does not make reschedulings unlikely; it just requires that the individual bank's expected losses in case of a rejected rescheduling, which include the possible external benefits from reschedulings by other banks, exceed the bank's rescheduling losses. Still the bank with the lowest failure rate in deciding on reschedulings realizes higher loan pay-offs than its competitors. This strengthens the incentives for a good monitoring of the countries' ability to pay.

Thirdly the introduction of self-enforceable contracts might reduce the economic policy risk in international lending, although this cannot be determined conclusively. Legal measures to seize assets of the borrower as a means of forced repayment, that are available to creditors in national markets are not at the disposal of international creditors even under the proposed contract system. Financing unprofitable projects with loans often implies later reschedulings. Nevertheless, this may benefit a country, if it is possible to claim exogenous shocks to be the reason for the necessary rescheduling and thus maintain future

credit relations. Under the contract system, however, the country may find it harder to convince the creditor of exogenous shocks, especially if its own economic policy decisions are responsible for the payment difficulties. The reduction of sovereign risk weakens the bargaining position of the borrowing country and makes it easier for the creditor to argue that the country's references to exogenous shocks are unjustified. This may force the country to provide more specific information on its economic situation in order to convince the creditor. For that reasons, the borrowing country will face an increased risk of being excluded from future credit if it channels loans into inefficient projects.

#### V. Chances to Introduce the Contract System

It is open to a market test whether or not the proposed system of self-enforceable contracts can be introduced in the international credit market. The intention of an LDC to raise new spontaneous loans with the help of the contract system must be met by a corresponding conviction of the banks that a reduced sovereign risk makes new loans profitable. The incentives for the introduction of the scheme are contingent on the prevailing and expected credit market conditions. Borrowers generally prefer loans without further obligations. But under present conditions LDCs relying only on unconditional loans are typically subject to credit-rationing<sup>17</sup>. They should thus have an incentive to reduce the supply constraints by suggesting third party contracts. The

lending banks can be expected to participate voluntarily in the contract system, because they can perform at least as good as without the system by using their option to accept renegotiations<sup>18</sup>. For that reasons it seems possible that the proposed contract system improves international credit relations in the paretian sense.

The introduction of the contract system would not rule out additional credit financing outside the system. As in the present situation, banks lending without third party contracts would not be sheltered against reschedulings enforced by the sovereign power of the borrowing LDCs. Higher interest rates of such loans would reflect the higher risks. The share of loans inside and outside the contract system has an influence on the interest rate of secured loans. A high share of loans inside the system implies high potential costs for the borrower in case of deferred payments and reduces the risk of sovereign measures. This implies lower interest rates. Therefore it is in the LDC's interest to induce as many banks as possible to participate in the contract system. This may be accomplished by LDCs initially offering that the interest rate of loans under the contract scheme is reduced only gradually, despite of the reduced sovereign risk.

The central element of the proposed scheme to reduce sovereign risk consists of additional contracts between the creditors and a third party. The enforcement of the premium payments by the third party in cases of deferred payments is decisive for the functioning of the system. It has to be determined, if the third party



can be a private institution or if public involvement is required. For that purpose the content of the third party contract must be considered. In this contract no payments and considerations have to be specified except the premiums payable by creditors willing to continue their loan contracts with a country that has unilaterally reduced some or all of its debt payments. The contract seems to offer an unusual profit opportunity to the third party. However, the expected profit is zero, because every creditor would prefer to withdraw from the loan contract rather than to continue it with the obligation to pay the premium. Moreover, the third party bears the costs of the surveillance of the loan contracts. Although surveillance costs are supposed to be marginal, they render the role of the third party unprofitable for private institutions. Due to the negative expected pay-off, the public provision of the third party function seems to be necessary. This can be justified, because the contract system would serve as a partial substitute for an international legal system. The third party engages in the supply of a public good. The surveillance costs may even be passed on to the favoured creditors and borrowers<sup>19</sup>.

**Footnotes**

- 1 For a detailed discussion of mayor proposals see William R. Cline, *Mobilizing Bank Lending to Developing Countries*, Institute for International Economics, Washington, D.C., 18. June 1987, pp. 75-92.
- 2 See Peter Nunnenkamp, *Kapitalabflüsse aus der Dritten Welt und Schuldenerlaß*. Kiel Discussion Papers, 139, June 1988, pp. 9-10.
- 3 See Jonathan Eaton, Mark Gersovitz, "Debt with Potential Repudiation: Theoretical and Empirical Analysis". *The Review of Economic Studies*, Vol. 48, Edinburgh 1981, pp. 289-309. Jürg Niehans, "International Debt with Unenforceable Claims". *Economic Review*, Federal Reserve Bank of San Francisco, Winter 1985, pp. 64-79.
- 4 Argentina, Bolivia, Brasil, Columbia, Costa Rica, Ecuador, Mexico, Peru, Uruguay, Venezuela; Data from The World Bank, *World Debt Tables*, Washington, D.C. 1987/88, Vol. II.
- 5 See Michael C. Jensen, William H. Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure". *Journal of Financial Economics*, Vol. 3, Amsterdam 1976, (pp. 305-360) pp. 334-337. This concept has been applied to LDC-borrowing by Jeffrey D. Sachs, *Theoretical Issues in International Borrowing*. NBER Working Paper Series, 1189, Cambridge, Mass., August 1983, pp. 30-35.

- 6 See Clifford W. Smith, Jr., Jerold B. Warner, "On Financial Contracting, An Analysis of Bond Covenants". *Journal of Financial Economics*, Vol. 7, Amsterdam 1979, pp. 117-161. Firms try to convince their creditors by contractual provisions that they will adhere to sound management policies.
- 7 See Eaton, Gersovitz (1981) and Niehans (1985).
- 8 See e.g. Jeffrey D. Sachs, "LDC Debt in the 1980s: Risk and Reforms". In: Paul Wachtel (Ed.), *Crisis in the Economic and Financial Structure*, Lexington, Mass. 1981, (pp. 197-243) pp. 199-200.
- 9 For the same explanation see Jeremy I. Bulow, Kenneth Rogoff, *A Constant Recontracting Model of Sovereign Debt*. NBER Working Paper Series, 2088, Cambridge, Mass., December 1986, p. 2.
- 10 See Lester G. Telser, "A Theory of Self-enforcing Agreements". *The Journal of Business*, Vol. 53, Chicago 1980, pp. 27-44.
- 11 See e.g. Hildegard Stausberg, "Mexiko ist mit seiner Umschuldungsaktion alles andere als zufrieden". *Frankfurter Allgemeine Zeitung*, 7. March 1988.
- 12 See e.g. Bruno S. Frey, *International Political Economics*. Oxford 1984, Chapter 8.

- 13 Nowadays the situation seems to be quite the contrary, because the IMF partly forces banks to participate in reschedulings by making its own commitment conditional on sufficient bank participation.
- 14 A similar contract scheme that is used in agriculture and employs "most-favored-customer" clauses is discussed in Charles R. Knoeber, "An Alternative Mechanism to assure Contract Reliability". The Journal of Legal Studies, Vol. 12, Chicago 1983, (pp. 333-343) pp. 340-342.
- 15 See e.g. Taro Yamane, Statistics, An Introductory Analysis. 3. Auflage, New York 1973, pp. 634-645 and for an application Hartmut Picht, "The Political Economy of Sovereign Risks in LDCs". In: D. Laussel, W. Marois, A. Soubeyran (Eds.), Monetary Theory and Policy. Berlin, Heidelberg, New York 1988, forthcoming.
- 16  $v^r = v^r$  and  $pd > V^*[p-(1-p)\Phi]$   
 due to:  $d > V^*$  and  $p > p-(1-p)\Phi$ .
- 17 Up to a certain point borrowers will be able to compensate for higher risks by paying premiums, but especially the large Latin-American LDCs seem to be beyond this point and have no longer free access to the international credit markets.

18 A creditor would suffer from a worsening of his position, if the borrower only requests reschedulings from the other creditors and if those reject the reschedulings. In this case the sanctions from the third party contracts would also come upon the not involved creditor. But this is improbable, because selective rescheduling requests would be directed towards the creditors that are most likely to agree to reschedulings.

19 The contract scheme is virtually a club-good, because its benefits are limited to its subscribers.