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# Have Commercial Banks Ignored History?

Sule Özler

No. Creditors in the 1970s took into account the default histories of borrowers and gave defaulters worse credit terms on new loans.

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This paper -- a product of the Debt and International Finance Division, International Economics Department -- is part of a larger effort in PRE to analyze commercial bank lending to developing countries and to assess the prospects for future lending. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Sheila King-Watson, room S8-040, extension 33730 (32 pages).

What incentives do countries have to repay loans? Do banks credibly punish borrowers that behave badly — and if so, how? Two explanations are commonly offered for why countries repay debts: (1) to preserve their reputation as a good borrower or (2) to avoid direct sanctions, such as trade sanctions or the seizure of overseas assets.

Özler empirically investigated the effect of repayment problems in earlier eras on the spreads paid by developing country borrowers in the 1970s. She found that creditor banks did take account of borrowers' default histories.

Defaulters paid higher spreads than nondefaulters, and the defaulters that reneged on larger portions of their past debt paid (even) higher spreads.

Özler also found that countries that acquired sovereignty more recently were charged higher spreads than other countries.

These findings apply during an expansionist period. During an earlier crisis stage, markets failed to discriminate between borrowers that "behaved badly" and those that did not.

# Have Commercial Banks Ignored History?

by  
Sule Ozler\*

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## 1. Introduction

Have private creditors taken into account the repayment histories of developing countries in making them new loans? Specifically, were defaulters penalized by their creditors, either in the form of exclusion from the market, or by contracting worse credit terms on new loans? The empirical findings in this paper suggest that the answer is yes: creditors took into account default histories of borrowers and contracted worse credit terms on new loans to defaulters.

The question considered, the relevance of default histories of borrowers, is of great importance to understand whether and how banks can credibly punish badly behaved borrowers, and, thus, why a country has any incentive to repay.<sup>1</sup> In the recent body of ever growing theoretical literature on international lending, two distinct, but not exclusive, explanations for repayment of foreign debt are given. First, the reputational approach, assumes that a debtor's primary incentive to make repayments is to preserve its reputation as a good borrower (the seminal paper is Eaton and Gersovitz (1981)<sup>2</sup>). The second approach assumes that the primary motivation for repayment is the threat of direct sanctions, such as seizure of overseas assets and trade sanctions, that lenders can impose by influencing creditor country legislators (Bulow and Rogoff (1989 a,b)<sup>3</sup>). It is argued that having a reputation to pay does not enhance the borrowing ability of a developing country.

The belief, that primary motivation for repayment is the threat of direct sanctions, is based on creditors' legal system. The legal system typically gives right to the creditor government to seize a debtor's assets in the event of a default (enforcing the right beyond the jurisdiction of

the creditor's government requires the cooperation of another government). It is, however, difficult to justify the levels of existing debt, which has an aggregate market value of hundreds of billions of dollars despite the sizable discounts in the secondary markets, with this belief.<sup>4</sup> The threat of seizing overseas assets will not suffice if the borrower is a net debtor and the overseas assets are small, which currently is the case for many debtors. The threat of reducing the defaulting country's gains from trade is also problematic, since the creditor countries stand to lose along with the debtor from such an impediment. Unless creditor countries are willing to bear this cost, the banks threat to impose such sanctions may not be credible.<sup>5</sup> Thus, it appears, that short of military interventions to enforce a debt contract, which presumably are a thing of the past, direct sanctions are not sufficient.<sup>6</sup>

The current paper's contribution is a systematic, empirical investigation of the much debated issue of 'relevance of past defaults' in credit market access. The findings are important for providing validity for reputational approach.<sup>7</sup> In this paper we investigate 2184 bank loans made to 70 developing countries during 1968-1981. 27 of these countries had sovereign borrowing experience during the former episodes of lending. The repayment problems of these countries pertain to: 1820 through the 1930s and the post war (1955-1968) period. The primary finding of this paper is that countries with histories of default were charged higher interest rates than countries with no default history. Defaulters paid nearly 2-4 percent more to private creditors for interest servicing in the 1970s than they would had they not defaulted earlier. Second, we find that the countries that acquired sovereignty recently, e.g. many African countries, paid higher spreads than countries that had bad repayment records. These findings are

robust to alternative specifications of economic and political characteristics of the borrowers, that are employed to control for other determinants of credit terms.

How and whether banks can credibly punish defaulting borrowers has vast welfare and policy implications, beyond its relevance for the current academic debate. Among these implications are whether borrowers should take into account future inability to borrow in their decision to default, and whether banks should direct their resources to lobbying to influence the creditor country legal system that makes the imposition of direct penalties more effective. A main policy implication of our findings, therefore, is that borrower country governments should be concerned with future difficulties in accessing credit markets in their decision to default.<sup>8</sup>

The findings in this paper are in contrast to those of other empirical studies that address the issue, which differ in terms of their methodologies and the period of study. In the first set of these studies, a period of stagnation in lending following a period of widespread defaults is investigated. The main finding is that borrowers that behaved "well" during the general default crisis did not have easier access to credit markets than others (Eichengreen (1987), Jorgensen and Sachs (1988), Lindert (1988)). The second set of studies analyzed the behaviour in the syndicated loan market in its expansion stage, the 1970s (Lindert and Morton (1977), and Chowdry (1988)). The conclusion is that defaulters were not penalized, in fact it appeared that they had better credit terms than governments with "unblemished records". A discussion of why this paper reaches different conclusions and what we may learn concerning the long term behaviour in these markets when all the evidence is viewed together, is later provided in this paper.

The remainder of the paper is organized as follows. In Section 2 the empirical method and the data are described, Section 3 contains the results, Section 4 is a discussion of the results and Section 5 contains concluding remarks.

## 2. Empirical Issues

### 2.1. Methodology

The impact of a borrower's repayment history on the credit terms it later faces in the Eurocurrency market is examined. In the Eurocurrency credit market the rate of interest has two components: the interbank interest rate, which represents the cost of capital to banks, and the spread above the interbank rate. The interbank interest rate is exogenous to the lending decision to specific borrowers. Hence, the determination of spreads will be investigated, with particular regard to the relevance of repayment histories.<sup>9</sup>

The relationship between the spread,  $s$ , and the probability of default,  $p$ , can be posited (see Feder and Just (1977), Edwards (1984)) as:

$$(1) \quad s = \frac{p}{(1-p)} \theta ,$$

where  $\theta$  represents other variables, such as the discount rate that affect the spread (For notational convenience the subscripts that would indicate country- and time-periods are not employed.). This equation is easily justified if perfect competition and risk neutral banks are assumed.<sup>10</sup>

In implementing this model empirically, consistent with the convention, we assume that the functional form of  $p$  is logistic.<sup>11</sup> Geographic region dummy variables and time-specific dummy variables are also employed. Time-specific dummy variables are incorporated to capture the variations of

spreads over time, and geographic region dummy variables are incorporated to capture differences across regions that may not be captured by the other variables incorporated. In fact, spreads varied considerably over-time in the 1970s (Ozler 1990).<sup>12</sup>

Incorporating a dummy variable,  $D$ , that is unity for a country that had any prior repayment problems and zero otherwise, the equation we estimate (using ordinary least squares methods) is as follows:

$$(2) \quad \ln s = \alpha_0 + \sum_j \alpha_j x_j + \ln \theta + \alpha_c C + \alpha_t T + \delta D + \omega$$

where

$\underline{x}$  = a vector of  $k$  variables relevant to the probability,  $p$ . A

discussion of of the variables included in this vector will be provided in the next section,

$C$  = region specific dummy variable,

$T$  = time specific dummy variable.

## 2.2. Data

Equation (2) is estimated, employing data on commercial bank loans from Eurocurrency credit markets during the 1970s.<sup>13</sup> The data contain information on the month and the year of each loan contract as well as some characteristics of the contract. We use LIBOR (London Interbank Offer Rate) as the base rate, and include only \$U.S.-denominated loans that have variable interest rates to avoid complications that may arise from comparisons across different types of financial instruments. After these restrictions, the data set contains information on 2184 loans to 70 developing countries for the 1968-81 period.

The 70 countries in our sample are of three types in terms of their repayment histories of sovereign debt. The first main division is between



those countries that were sovereign in the former episodes of lending and those that became sovereign in the period following World War II, such as many African countries. 27 of these 70 countries have been sovereign in the former episodes (1534 loans out of 2184 in our sample) of lending and therefore have 'good' versus 'bad' repayment histories. Repayment histories of these countries are summarized in Table 1. Defaults on privately held bonds are considered and are presented for three episodes: 1820-1899, 1900-1929 and the 1930s. In order to distinguish and investigate the effect of more recent repayment problems, an indicator for problems with privately held bonds during the 1958-68 period, and an indicator of multilateral rescheduling agreements with official creditors during the same period are also employed.

#### 2.2.a Economic Determinants of Spreads

Two types of variables are considered as possible economic determinants of the spreads. First, some characteristics of the loan contract, second, borrower characteristics which are important in measuring the riskiness of the borrower are used.

Characteristics of the loan contract that are possible determinants of spreads are: a dummy variable that indicates whether the borrowing is public or publicly guaranteed, a dummy variable that indicates if the loan is syndicated, and maturity of the loan. A possible problem could arise from the inclusion of maturity to the extent that banks determine spread and maturity simultaneously. However, based upon practices in the Eurocurrency market and the previous literature, loan maturity is assumed to be determined prior to the spread determination (Euromoney (1973), Feder and Just (1977b), Edwards (1984)).

To capture borrower characteristics, that are presumably important in

measuring the riskiness of the borrower, we employed variables that are similar those in previous studies of credit terms: total debt-to-GNP ratio, debt service-to-exports ratio, imports to GNP ratio, GNP growth, lagged value of investment to GNP ratio, rate of devaluation and rate of inflation.<sup>14</sup> In addition, the existence of IMF standby agreements between 1955 and our sample period is considered. This variable is incorporated as a measure of economic difficulties of the recent past, and an earlier indicator of recent repayments problems, which may not be captured by the other variables employed.<sup>15</sup>

The expected signs of these indicators have been discussed extensively in the literature ( for reviews see McDonough (1982), Eaton and Taylor (1986) and Edwards (1984)), hence we will only briefly comment on this issue. Total debt to GNP ratio is expected to exhibit a positive sign, since it can be considered as an indicator of solvency for a country. Liquidity problems will be measured by the ratio of debt service to exports and the sign of this coefficient is expected to be positive. Reserves to GNP ratio is an indicator of the level of international liquidity of a country, thus it is expected to have a negative sign. Ratio of investment to GNP will be negatively related to spreads, since it indicates the prospects of a countries future growth. Ratio of imports to GNP is expected to have a negative coefficient as it measures the vulnerability of the borrower to trade embargos. Alternatively positive sign would be expected to the extent that it measures the vulnerability of a country to outside shocks. Higher rate of growth is argued to result in lower probability of non-payment. High inflation is employed as an indicator of a larger probability of balance of payments crisis. Rate of devaluation is used to measure a country's willingness to use exchange rate adjustments to avoid balance of

payments crisis.

As an alternative empirical specification of borrowers' characteristics, we implemented a procedure similar to Ozler and Tabellini (1990). For this specification the contract level data are aggregated to annual level (annual weighted average of spreads are calculated where the weights are the amounts of loan contracted for each contract within that year). Reserves to gdp, and ratio of exports to major creditors as a share of total exports are incorporated to measure the vulnerability of a country to non-payment penalties. Agriculture as a share of gdp is used as an indicator of economic instability that affects a borrowers capacity to pay. Real gdp per capita, total debt to gnp, and presence of IMF standby agreements are also incorporated.

#### 2.2.b. Political Determinants of Spreads

An important addition to the set of economic variables discussed is the introduction borrowers' political characteristics. The theoretical model considered by Ozler and Tabellini (1990) isolates the discount factor as an important parameter in a country's level of external borrowing. Previous work by Alesina and Tabellini (1989), and Cukierman, Edwards and Tabellini (1989) showed that the size of the discount factor for a country reflects an important feature of the political system: namely, the degree of political instability, defined as the probability of imminent government change. Accordingly, it is important to incorporate such political factors as potential determinants of the spreads so as to ensure that the results in this investigation are robust to this consideration.

The measure of political instability employed here, which is an annual estimate of probability of government change, is the same as in Ozler and Tabellini (1990), and similar to that of Cukierman, Edwards and Tabellini

(1989). Specifically, the political instability variable is obtained from a probit model of government change, that uses time-series and cross-section data over the period of 1955-82. The specifications of the probit regressions contain three broad classes of explanatory variables: economic variables designed to measure the recent economic performance of the government, political variables accounting for significant political events that may signal the imminence of a crisis, and structural variables accounting for institutional differences and country specific factors that do not change or change slowly over-time, such as the nature of their political institutions i.e. democracies, democracies in which the election date is determined by a coalition and democracies ruled by a single majoritarian party. In addition to the probability of regime change, variables that capture the degree of political polarization have been considered. These variables are political challenges to the regime, violent challenges to the regime, unsuccessful attempts to change the government and political repressions.

### 3. Results

#### 3.1 Sample Characteristics

In what follows the average spreads in the sample for three country groupings will be described. Overall, these averages indicate that the countries that acquired sovereignty recently, were charged higher rates than countries that were sovereign but had defaulted on their foreign debt; the sovereign countries with default record, were charged higher spreads than the sovereign countries with no default record.

Countries that were not sovereign anytime during 1820-29 or the 1930s were contracted spreads in the order of 1.28 percentage points (with a

standard error of .48), while the defaulters paid 1.22 percentage points. In the group of countries that newly acquired sovereignty (43 countries), African countries (24 countries) were charged the highest spreads. The average spread for the African countries is 1.41 (with a standard error of .40) while it is 1.20 (with a standard error of .49) for the remaining countries

Next, we defined a repayment record dummy variable as in Lindert and Morton (1987) ( $LD_{3020}$  in Table 2). For this purpose, we collected the countries that were not sovereign at any time during the period of 1820 through 1930s, with the countries that were sovereign but had no repayment problems, and assigned zeros to all those countries (countries with "unblemished repayment records"). Countries that were sovereign and had repayment problems were assigned ones. It is interesting to observe that when countries are grouped in this way are the spreads of "good" countries ( $LD_{3020}$  zero) higher than those of "bad" ones.

In contrast to above procedure, we next look at only the countries that were sovereign and compare the mean spreads of defaulters to those of non-defaulters, as they were described for various historical episodes in Table 1. Table 2 indicates that defaulters paid higher spreads than non-defaulters for each definition of the dummy variable.<sup>16</sup> (An "F" test rejects the null hypothesis that the means of the two samples are equal.)

One may suspect that the above results are a consequence of timing of borrowing for the countries in our sample, since the entry dates of countries to the market under consideration differ and that the spreads varied over-time. However, the finding that defaulters paid higher average spreads than non-defaulters hold separately for each year of the sample. For every year in the data, the null hypothesis that the means of the two

samples are equal is rejected.

### 3.2 Estimation Results

The estimation of equation (2) yields three important findings consistent with the sample averages reported above: First, countries that were sovereign in the former episodes of lending were contracted lower spreads in comparison to the countries that acquired sovereignty recently. Second, countries that were sovereign and defaulted were charged higher spreads than countries that were sovereign and did not default. It is important to note that more recent defaults are found to have been more important in influencing the spreads: defaults prior to 1930s did not have any impact, defaults of the 1930s, and repayment problems of the 1955-1968 period had a significant impact. Third, defaulters that reneged larger portions of their debt were charged higher spreads than ones that reneged smaller portions of their debt. Finally, these results are robust to considering borrowers' political characteristics as potential determinants of spreads. The results are presented in tables 3-7 as will be discussed below. In this discussion the focus will be on the sovereignty and repayment dummy variables (a discussion of remaining variables is contained in the previous section).

In the first columns of Table 3 and Table 4, the impact of recently acquired sovereignty is presented by considering two alternative specifications of economic variables. The dummy variable *sovereign*, is one for countries that were sovereign in the former episodes of lending and zero otherwise. The parameter estimate of this variable is  $-.13$ , and  $-.16$  in the two alternative specifications and the associated 't' values are  $-3.8$

and .24 respectively

In the second column of Table 3 and Table 4, the impact of defaults in the 1930s are presented. The sample is restricted only to those countries that were sovereign borrowers in the period. The dummy variable  $D_{30}$  is estimated to have a positive and statistically significant effect on the spread (the coefficient of this dummy variable is .11, and .10 in the two alternative specifications with respective t-values of 4.0, and 2.1).

In Table 5, a summary of estimated parameter and 't' values for the remaining dummy variables that were described in tables 1 and 2 are presented. The model presented for this estimation is the one of Table 3. The results indicate first, that the effect of defaults prior to 1930s were not statistically significant. Second, the repayment problems in the recent history (post-war -pre 1968 period) are found to be important. Finally, even when we control for the more recent repayment problems of the post war era, dummy variables defined to incorporate information on the repayment problems of the 1930s are still found to be significant, though the parameter estimate is reduced. (This is evident from a specification which contains both  $OR_{60}$  and  $D_{30|9}$  dummy variables.)

In order to investigate the robustness of our results we first conducted influence diagnostics suggested by Krasker Kuh and Welch (1983), so as to ensure that our results are not driven by a few influential observations. We find that the results are not a consequence of disproportionately influential results. Second, we have employed specifications in which the IMF standby agreement variable is not incorporated. 'F' tests support the specifications that incorporate standby agreement variable. As would be expected, specifications that exclude the standby agreement variable yield a higher parameter for credit history dummy

variables

In Table 6, we present results from a specification that investigates the impact of the extent of default. These results are based on regressions that estimate the relation between the spread on bank loans and a measure of the cost of former defaults. A measure of the cost of default to the lenders could be obtained for a small set of the borrowers in our sample. Jorgensen and Sachs (1988) use long-term, nationally guaranteed bond debt issued in dollars and outstanding through the 1930s to estimate the post-default present value ratio. This ratio is defined as the ratio of repayments after default to principal outstanding at default, both discounted to 1931. The cost of default measure is available only for 4 of the countries in our sample and have a total of 158 observations.<sup>17</sup> We estimated equation (2) by replacing the repayment problem dummy variable with this measure of cost. The results indicate that the degree of default had an impact on the spreads charged: countries with less costly defaults paid lower spreads. The coefficient for the measure of loss is estimated as .44 with a "t" value of 3.9. The beta coefficient for this parameter, which is estimated as .56 indicates that a one standard deviation increase in the cost of default to the lenders causes the spreads to increase to 1.55 percentage points from 1.29.<sup>18</sup>

In Table 7, we present results from a specification that incorporates various measures of political instability. In the first column main characteristics of a political system are controlled for by incorporating various indicators of political polarization. The second column, instead, incorporates a measure of instability calculated as the probability of regime change. The primary finding is that the default history indicator,  $D_{30}$ , at this table, continues to be an important and statistically significant



determinant of spreads. In both of the specifications political instability indicators are not found to be important in determining the spreads.

Overall, our investigation suggests that defaulters were charged higher spreads than non-defaulters. How important is the magnitude of this penalty? One simple approach to this question is to assume that the spread penalty is applied each year on the servicing of the outstanding long term debt stock to financial creditors. For concreteness consider the penalty for defaults of the 1930s. Our estimations suggest that the ratio of the penalty to interest payments, were near 2-4 percent during the 1970s.<sup>19</sup>

#### 4. Discussion

The main finding of this paper is that defaulters were penalized by being charged worse credit terms than non-defaulters. In contrast, the established view appears to be that creditors have paid little attention to the debt histories of developing countries, as is evident in recent citations:

"The empirical case for the pure reputation approach is also weak. Eichengreen (1987) and Lindert and Morton (1987) both show that, historically, past repayment records have had little bearing on a country's ability to borrow." (Bulow and Rogoff (1989, p 158, see also Bulow and Rogoff (1988, p.18 ) for a similar citation).

"...the major banks...did not discriminate between countries that had or had not defaulted in the past, or those that had or had not required rechedulings by charging the former higher premiums." Schwartz (1989, p 8-9).

The view that default history is not important is based on two sets of studies: those that investigate a period of stagnation in lending following a a period of widespread defaults, and those that investigate an

expansion stage in lending. The closest studies to the present one are those of Lindert and Morton (1987) and Chowdry (1988), where the authors investigated the relation between the contractual interest rates and the default histories of borrowers in the former episodes of lending (1820 through the 1930s). The important similarity to the present paper is that both of those studies focus to a period of boom in the financial markets. A boom that was separated from the previous widespread non-payment crisis by a period of stagnancy in lending. Their conclusions are that defaulters were not penalized, in fact it appeared that they paid less than governments with "unblemished records". Our finding is in contrast to theirs despite very similar methodology and same data sources. The difference, as demonstrated in this paper, is a consequence of how one defines "unblemished repayment record". In their investigations, countries in the unblemished record group contain not only governments with good repayment records, but also governments that had no record because they were not sovereign in the former episodes of lending.

Our result, that creditors paid attention to repayment record of borrowers, is consistent with that of Eichengreen and Portes (1989). The authors, again, as in this study, investigate a period of buoyancy (the 1920s) and suggest that in pricing of foreign bonds investors discriminated borrowers according to their past repayment record

The remaining studies that investigated the impact of borrowing experience on later market access has a fundamental difference from the present one. Specifically, they focus to a period of stagnancy in private lending, following a widespread crisis. The overall conclusion of these studies is that badly behaved borrowers were not discriminated against; there was a general cut-off of lending and the borrowers that behaved

'well' prior to the widespread crisis, suffered from this as well. Among the best known studies, Eichengreen (1987) analysed borrowed amounts by a cross section of 32 countries in the first post-war decade, and found no apparent relation between the severity of interwar defaults and the ability to borrow immediately after World War II. Jorgensen and Sachs (1988) focused on six Latin American countries and concluded that the non-defaulter country of the 1930s (Argentina) did not have easier credit access during the 1950-1964 period. Lindert (1988) investigated the spreads for 1985 and suggested that the spreads in that year were not affected by the repayment problems of the 1980s.

This evidence suggests that financial market behaviour differs during periods of stagnancy or buoyancy in terms of its tendency to discriminate among countries according to their past repayment record. During a period of buoyancy, when defaults are isolated events, the financial markets appear to focus on creditworthiness of particular countries. During a period of widespread repayment problems, however, lenders do not seem to pay attention to creditworthiness of particular borrowers.<sup>20</sup>

One plausible way of interpreting these facts is to take an approach analogous to that of Sachs (1983) (a similar idea is also in Krugman (1985)). In that framework, a borrower with large outstanding debt to a large number of small creditors, though fundamentally healthy, experiences a liquidity crisis and is unable to obtain loans in a competitive equilibrium. This is because, each individual bank that has an upward sloping schedule of loan supplies to the country, which is itself a consequence of upward sloping cost of funds, develops the expectation that all other banks will stop lending to that country.

Analogously, when defaults become frequent and reach a certain

threshold level, banks may develop beliefs that all borrower countries will fail to make payments leading to a general cut-off of lending. From the point of view of the borrower countries, the notion that banks have developed such expectations, and, therefore, no new loans will be forthcoming will make generalized defaults more likely. This is because even solvent countries will find it worth while to default since they expect that in the future they will be penalized even if they do not default. Thus, it is rational for each bank to stop lending on the basis of these expectations. In addition, the latter becomes self- confirming, and a widespread crisis emerges. Overall, this discussion suggests that, except for a crisis situation of generalized defaults, banks do pay attention the borrowers reputation of good or bad behaviour.

## 5. Conclusions

This paper investigates the impact of historical defaults on terms for bank loans in developing countries during 1968-81. The primary finding is that those countries that had repayment problems were charged higher spreads than countries that had good repayment record, during the 1970s. In addition, more recent defaults are found to have had a more significant impact: defaults of the 1820-1929 period are not important in the determination of spreads, in contrast, defaults of the 1930s are found to be significant determinants of spreads, and the repayment difficulties of the 1955-68 period have had even a stronger impact on the spreads.

It is interesting that the repayment behaviour of countries as far back as the 1930s have mattered, even though they matter less than recent reschedulings with government creditors and the IMF standby agreements, both of which would be considered as signs of more recent repayment difficulties.

One may think that the nature of borrower governments and identity of the lenders would have changed until the surge of lending in the 1970s, and that history would be forgotten. Even though the governments may have changed since the 1930s, the different politicians may continue to be the expressions of the same social groups or constituencies. As a consequence it is not unreasonable that the creditors would punish early defaulters as a deterrent. As to the creditor country institutions, it is not clear that 1930s decade is much of a distant history. A number of institutional changes concerning banking in the creditor governments, such as the deposit insurance system, has been developed in response to the crisis of the 1930.

A second finding of the present study is that countries that acquired sovereignty more recently paid higher spreads than countries with bad repayment records. A large number of these countries are African countries, and the result continues to hold even after a number of economic and political factors are controlled for. This may suggest a closer investigation of what recently acquired sovereignty captures. The colonial history of these countries in relation to their later access to credit markets should be considered.

Finally, this investigation contributes to the existing literature in several ways, suggesting important areas of future work for a more complete understanding of long term behaviour in credit markets. First, this study raises the point that financial market behaviour may differ during periods of stagnancy or buoyancy in terms of its tendency to discriminate among countries according to their past repayment record. Second, the financial market's tendency to focus on creditworthiness of particular countries may depend on whether defaults are isolated events or are widespread phenomena.

FOOTNOTES

<sup>1</sup>Contract enforcement problems are ignored in some studies which suggest that there should be a greater integration of world capital markets. For a survey of the empirical evidence on international capital mobility see Obstfeld (1986).

<sup>2</sup>See also Eaton (1989), Eaton Gersovitz and Stiglitz (1986), English and Cole (1987), Grossman and van Huyk (1988), Kletzer and Wright (1990), and Manuelli (1986).

<sup>3</sup>See also Gersovitz (1983) and Kahn (1984) in which default leads to loss of trade. Sachs and Cohen (1985) formalize punishment as a loss to GNP, which is discussed to be a consequence of both trade and future credit embargos.

<sup>4</sup>Bulow and Rogoff (1988) address this problem by separating the banks from the rest of the creditor community, where declaration of default is not harmful to the banks.

<sup>5</sup>For a recent study of secondary market price determination see Ozler and Huizinga (1990).

<sup>6</sup>For details of historical military invasion to enforce debt claims, "gun-boat technology" see Winkler (1933), Borchard and Wynne (1951) and Dammers (1984).

<sup>7</sup>Additional empirical support for reputational approach is in Ozler (1990). Evidence presented in that work suggest that credit terms in the 1970s were affected by contemporaneous repayment behaviour of the borrowers.

<sup>8</sup>In reality, whether a government will, in fact, take such future penalties into consideration will, of course, be affected by its expectations concerning staying in power in the future.

<sup>9</sup>Data on fees and commissions are not available. Previous studies such as Feder and Just (1977b) and Edwards (1984) also suffer from this inadequacy. It is noted, however, that these costs are low relative to spreads (see Edwards p. 728 and Cline pp. 82-83).

<sup>10</sup>To illustrate this assume that loans are for one period, and default means complete loss of both the principal and the interest rate. Let  $s = i - i^*$  where  $i^*$  is the LIBOR rate and  $i$  is the interest rate charged to a country. Then the equilibrium condition is  $(1-p)(1+i) = (1+i^*)$ , which yields equation (1) where  $\theta = (1+i^*)$ . This structure has been implemented by Edwards (1984). Introduction of more realistic assumptions yield a similar structure, for example see Feder and Just (1977).

<sup>11</sup>The logistic form is expressed as:

$$p = \frac{\exp\left(\alpha_0 + \sum_{j=1}^k \alpha_j x_j\right)}{1 + \exp\left(\alpha_0 + \sum_{j=1}^k \alpha_j x_j\right)}$$

<sup>12</sup>A cursory inspection of the data suggests that the cyclical pattern of spreads over time are related to some global and macroeconomic events such as the oil shocks and industrialized country growth rates. These two variables are also correlated with the number of banks that entered the Eurocurrency market. Hence a more sophisticated approach would require a model that employs such variables to explain the spread behaviour over time.

<sup>13</sup>Loan data for the 1973-81 period are obtained from various issues of the World Bank's Borrowing in International Capital Markets. The data for the prior period, however, have been obtained through an exhaustive search of the financial press as well as the central bank reports of the borrower countries. For more details on this data set see Ozler (1990).

<sup>14</sup>For reviews of this literature see McDonald (1982) and Eaton and Taylor (1986). The debt-service ratio, imports to GNP ratio, imports to reserves ratio, GNP growth, and investment to GNP ratios are among the variables that are found to have significant impact on spreads. The total debt, and debt service variables are obtained from the World Bank's World Debt Tables. The remaining variables are obtained from IMF's International Financial Statistics.

<sup>15</sup>Among the 27 countries that were sovereign, the countries that did not have standby agreements during the period are Egypt, Greece, New Zealand, Portugal, Taiwan and Thailand.

<sup>16</sup>Since Lindert and Morton (1987) use the spread data for the 1976-1980 we have also conducted our investigation by constringing our sample period to 1976-1980. All the findings continue to hold.

<sup>17</sup>These countries are Bolivia, Chile, Colombia and Peru. The cost of default for these countries respectively are: 92%, 69%, 37%, and 61%.

<sup>18</sup>Beta coefficients are equal to the least squares estimates multiplied by the ratio of the sample standard deviations of the independent and dependent variables. In other words, beta coefficients are in units of sample standard deviations. See Madalla (1977) pp.119.

<sup>19</sup> As an example consider the year 1975, the total outstanding and disbursed, public and publicly guaranteed medium and long term debt of Bolivia to its financial creditors was 211 U.S. \$ mill. The average spread Bolivia paid during 1968-1981 was 1.90 percentage points. The parameter estimate associated for defaults of the 1930s is near .11, suggesting that Bolivia would have paid 1.70 percentage points on average had it not incurred this penalty. The interest payments on the loans considered here was 10 U.S. \$ mill. (spreads are from the Eurocurrency syndicated loans described in the data section of this paper, and all the remaining data are from the World Bank Debt Tables (1988-89 edition). Hence the ratio of penalty to interest payment for Bolivia was .042. Similar calculations for Peru and Chile in 1975 yield .017 and .024 respectively.

<sup>20</sup> Ozler(1989) demonstrates that the impact of non-payment difficulties on the market value of commercial banks differed when the expansion and crisis stages of the recent episode of bank lending are compared.



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TABLE 1  
Repayment Problems History

<u>Country</u>	<u>D<sub>20</sub></u>	<u>D<sub>19</sub></u>	<u>D<sub>30</sub></u>	<u>OR</u>	<u>B<sub>60</sub></u>
Argentina	1	1	0	1	0
Bolivia	1	0	1	0	1
Brazil	1	1	1	1	1
Chile	1	0	1	1	1
Colombia	1	0	1	0	1
Costa Rica	1	0	1	0	1
Ecuador	1	1	1	0	1
Egypt	1	0	0	0	0
El Salvador	1	1	1	0	1
Greece	1	0	1	0	1
Guatemala	1	1	1	0	0
Honduras	1	1	0	0	0
Liberia	1	0	0	1	0
Mexico	1	1	•	0	1
New Zealand	0	0	0	0	0
Nicaragua	1	1	0	0	0
Panama	•	•	1	0	0
Peru	1	0	1	1	1
Portugal	0	0	0	0	0
South Africa	0	0	0	0	0
Spain	1	0	0	0	0
Taiwan	1	1	1	0	0
Thailand	0	0	0	0	0
Turkey	1	1	•	1	0
Uruguay	1	0	1	0	1
Venezuela	1	0	0	0	0
Yugoslavia	0	0	1	0	1

(continued)

Table 1 (cont.)Notes:

$D_{19}$ : a dummy variable.  $D_{19} = 1$  indicates that a country has defaulted (or negotiated at concessionary terms) on its national privately held bond debt during 1900-1929.

$D_{20}$ : a dummy variable defined as  $D_{19}$  but for the 1820-1929 period.

$D_{30}$ : a dummy variable defined as  $D_{19}$  but for the 1930s.

OR: a dummy variable. OR = 1 indicates that a country has rescheduled its debt to official creditors through multilateral agreements during 1956-1968.

$B_{60}$ : a dummy variable where  $B_{60} = 1$  indicates that a country has defaulted or continued adjusted servicing of its bond debt during the 1958-1967 period.

".": Panama was not sovereign during the entire 1820-1929 period, and there were no private loans to Mexico and Turkey in the 1930s.

Sources:  $D_{19}$ ,  $D_{20}$  and  $D_{30}$  are from Lindert and Morton (1987)  
 OR is from Hardy (1982)  
 $B_{60}$  is from Foreign Bondholders Protective Council Annual Reports.

**TABLE 2**  
**Sample Characteristics**  
**Sample Characteristics (Means and Standard Errors of the Spreads)**

<u>Variable</u>	<u>0</u>	<u>1</u>	<u>Variable</u>	<u>0</u>	<u>1</u>
D <sub>19</sub>	1.13 (0.44)	1.28 (0.49)	OR	1.12 (0.44)	1.39 (0.50)
D <sub>20</sub>	1.12 (0.38)	1.21 (0.48)	B <sub>60</sub>	1.11 (0.45)	1.28 (0.48)
D <sub>30</sub>	1.08 (0.44)	1.33 (0.47)	AL <sub>60</sub>	1.09 (0.44)	1.27 (0.48)
D <sub>3019</sub>	1.06 (0.43)	1.28 (0.50)	LD <sub>3020</sub> *	1.25 (0.49)	1.22 (0.47)
D <sub>3020</sub>	1.03 (0.42)	1.22 (0.47)			

Notes:

Spreads are the spreads on commercial bank loans from the Eurocurrency credit markets during 1968-1981. Only U.S. \$ denominated loans with Libor base rate are included in the sample.

D<sub>19</sub>, D<sub>30</sub>, OR, and B<sub>60</sub> are defined in Table 1. The remaining dummy variables are:

D<sub>3019</sub>: is one if D<sub>19</sub> or D<sub>30</sub> is one, and zero otherwise.

D<sub>3020</sub>: is one if D<sub>20</sub> or D<sub>30</sub> is one, and zero otherwise.

AL<sub>60</sub>: is one if OR or B<sub>60</sub> is one and zero otherwise.

LD<sub>3020</sub>: is zero if a country has not defaulted anytime during 1820-1929 or during the 1930s; in addition it is zero for countries that were not sovereign during the period. It is one otherwise.

TABLE 3  
Impact of Sovereignty and Defaults

Constant	0.981 (11.505)	0.317 (2.890)
Syndicate	-0.006 (-0.258)	-0.016 (-0.561)
Public	-0.131 (-7.808)	-0.133 (-6.841)
Total Debt/GNP	0.915 (11.745)	0.641 (5.204)
Reserves/GNP	-0.048 (-3.053)	-0.164 (-5.670)
Debt Service/Exports	0.004 (1.034)	0.003 (0.851)
IMF Standby	0.050 (1.977)	0.194 (4.673)
Maturity	0.091 (24.721)	0.086 (18.757)
Investment/GNP	-1.150 (-8.535)	-.395 (-2.083)
Real GNP Growth	0.040 (-1.034)	-0.350 (-2.702)
Imports/GNP	-0.019 (-0.644)	-0.164 (-0.120)
Inflation	0.141 (1.629)	0.474 (3.714)
Devaluation	-0.008 (-0.300)	-0.018 (-0.760)
Sovereign	-0.126 (-3.806)	-
D <sub>3</sub> <sup>0</sup>	-	0.109 (4.059)
AdjR <sup>2</sup>	.40	.48
Nobs	2178	1332

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Notes:

Estimated equation is (2), and the numbers in parentheses are 't' values.

TABLE 4  
Impact of Sovereignty and Defaults

Constant	-2.087 (-12.801)	-2.231 (-11.932)
Reserves/GNP	-1.823 (-6.064)	-2.438 (-5.227)
Export Ratio <sup>*</sup>	-0.111 (-0.762)	-0.385 (-2.275)
Agriculture/GDP	-0.006 (-2.090)	0.002 (0.060)
Real GDP/Capita	-0.001 (-3.431)	-0.001 (-3.162)
Total Debt/GNP	0.191 (1.220)	0.098 (0.525)
IMF Standby	0.099 (1.790)	0.192 (2.604)
Sovereign	-0.161 (-2.390)	- -
D <sub>3</sub> <sup>0</sup>	-	0.101 (2.112)
AdjR <sup>2</sup>	.53	.68
Nobs	292	131

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Notes:

Estimated equation is (?) and the numbers in parenthesis are 't' values.

The data are annual.



TABLE 5  
Impact of Alternative Repayment Problems Variables

<u>Variable</u>	<u>Parameter</u> <u>(t-value)</u>	<u>Variable</u>	<u>Parameter</u> <u>(t-value)</u>
D <sub>19</sub>	0.009 (0.264)	OR <sub>60</sub>	0.161 (5.396)
D <sub>20</sub>	-0.026 (-0.631)	B <sub>60</sub>	0.095 (3.446)
D <sub>30</sub>	0.109 (4.059)	AL <sub>60</sub>	0.080 (2.788)
D <sub>3019</sub>	0.092 (3.037)	OR <sub>60</sub> <sup>*</sup>	0.150 (5.000)
D <sub>3020</sub>	0.082 (1.584)	D <sub>3019</sub> <sup>*</sup>	0.070 (2.275)

Notes:

Results are based on estimation of equation (2). Each specification here differs only in the definition of the repayment dummy variable employed for variable D.

\* indicates that each definition of the dummy variable has been included simultaneously in the equation.

The estimation results for the set of other variables employed in equation (2) are presented in Table 3.

TABLE 6  
The Impact of the Cost of former Defaults

Constant	-2.601 (-4.729)
Syndicate	-0.032 (-0.355)
Public	-0.093 (-1.550)
Total Debt/GNP	0.563 (2.005)
Reserves/GNP	-0.051 (-0.463)
Debt Service/exports	-0.021 (0.067)
Maturity	0.112 (11.201)
Investment/GNP	-6.051 (-2.372)
GNP Growth	-1.272 (-2.312)
Imports/GNP	-2.533 (-3.725)
Inflation	1.422 (2.410)
Devaluation	-0.011 (-0.366)
Cost	0.447 (3.912)

Nobs = 158

 $R^2 = 0.64$ Notes:

Estimated equation is (2). where D is replaced by a measure of cost of default. The numbers in the parentheses are 't' values

TABLE 7  
Impact of Defaults

Constant	-2.353 (-11.873)	-2.321 (-10.305)
Reserves/GNP	-2.409 (-5.070)	-2.268 (-4.071)
Exports Ratio	-0.413 (-2.350)	-0.514 (-1.495)
Agriculture/GDP	0.003 (0.081)	0.008 (0.150)
Real GDP/Capita	-0.001 (-3.027)	-0.001 (-3.203)
Total Debt/GNP	0.131 (0.690)	0.159 (0.660)
IMF Standby	0.214 (2.788)	0.259 (1.362)
Political Challenge	0.001 (0.605)	-
Attempts	0.010 (0.222)	-
Violent Challenge	0.001 (0.421)	-
Repressions	0.001 (0.495)	-
Instability	-	-0.167 (-0.147)
D <sub>3</sub> <sup>0</sup>	0.108 (2.171)	0.100 (2.007)
Adj R <sup>2</sup>	0.68	0.68
Nobs	131	122

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Notes:

Estimated equation is (2). The numbers in parentheses are 't' values.

The data are annual for the 'political' variables.

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