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INTEREST RATES IN LATIN AMERICA

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I. Introduction

1. Access to credit and the high level of local currency interest rates and lending spreads have been cited as one of the most common obstacles to economic growth in Latin America. Financial repression, high inflation, excessive regulation, weak government budgets and country risk, are among the numerous factors being named as primary causes of this problem. The nature of the disequilibrium became evident after the "easy money" years of the late seventies erupted with the debt crisis. Many countries in the region found themselves in deep macroeconomic disequilibrium and without access to external credit in the face of practically demonetized economies. As a result, a large number of these countries have begun to implement major financial reforms aiming at increasing the degree of financial intermediation and at raising the efficiency of investment (as stated in *Latin America and the Caribbean: A Decade After the Debt Crisis*, LAC, IBRD, July 1993).
2. Since the initial efforts at reform were taken in the early 1980's, some of the countries in the region have undergone hyperinflation, others have successfully refinanced their external debts, while others have implemented deep structural reforms in their economies. The capital markets were one of the markets more affected by the deep changes of the 1980's. Such variability in policies and problems provides us with an ideal framework within which to study the major factors that have affected the behavior of interest rates in the region.
3. We shall here analyze the behavior of interest rates in several Latin American countries in the period following the debt crisis. The countries studied are Argentina, Bolivia, Chile, Colombia, Mexico, Peru and Uruguay. Four of these countries, Bolivia, Peru, Mexico and Argentina, have undergone deep structural changes since the debt crisis of the early 1980s. Chile, however, began a gradual adjustment process much earlier, in the 1970s. Finally, Colombia and Uruguay have not implemented any adjustment programs to eliminate their relatively high inflation trends.
4. The common pattern in all these countries is that the average cost of credit in local currency is very expensive by first world standards, so much so that it is difficult to find a period in which a graphical presentation of rates is useful because of the incredible levels reached by some rates.

5. The basic methodology to be followed is that of presenting an additive decomposition of lending rates into their main determinant factors. We identify a total of five determining factors of the lending rate: (i) External dollar rate plus devaluation, (ii) country risk, (iii) credibility, being measured as the difference between expected and actual devaluation, (iv) basic spread, formed by standard cost elements and reserve requirements, and (v) the customer qualification spread.

6. The paper will also discuss the effects of stabilization plans on the time path of interest rates and spreads over time. In this case we follow the methodology presented for Bolivia in the paper by Calvo and Guidotti (1992) and extend their results to include the stabilization of Argentina, Peru and Mexico.

7. The paper also addresses the issue of the effects of real currency appreciation on the level of real and dollar equivalent interest rates, as well as aspects related to risk qualification, the effects of dollarization on local currency credit being granted and the crucial link between monetization, financial deepening and the level of real rates.

8. Differences in inflation levels make any type of comparison of nominal interest rates useless. In order to make intercountry comparisons feasible we have converted all interest rates in local currency operations into ex-post dollar equivalent rates or into real rates. In the first case we subtract from the nominal interest rate the rate of devaluation while in the second we subtract the local inflation rate (the equivalent dollar rate could also be made into real by subtracting some common index of dollar inflation, but we do not feel such indicator would add much to our analysis to the extent that we already report the real rates on local currency loans). The rates used are monthly nominal rates in local currency (usually they represent average bank rates on loans or deposits, for which a maturity of 90 days is assumed) corrected by ex-post 90 days devaluation or inflation rate (reported as a the monthly equivalent). The monthly real or dollar equivalent rates are then annualized for presentation purposes.

9. Table 1 shows the equivalent dollar rates charged on credit denominated in local currency and, when available, the rates charged on dollar denominated loans. The average dollar equivalent lending rates range from 9.0% in Chile to 62.5% in Uruguay. For average dollar equivalent borrowing rates, shown in Table 2,, the minimum is -11.6% for Peru and the maximum 15.1% for Mexico. The simple arithmetic average of lending rates is 34.8 and for borrowing rates is 8.11%. The arithmetic average for lending spread of all countries studied was therefore 26.7%, a magnitude more than four times that of the US Prime rate. During the same period the US Prime rate had a value of 6% and the Treasury Bill rate was 3.4%.¹

10. Averages say little about the real story in each country. In the case of Peru, the lending rate of 52.8% seems low when compared with the 9675% maximum reached during the first months of the stabilization in 1990 and the practically -100% ex-post rate that prevailed as a consequence of the initial devaluation in August 1990.

11. Several of the countries studied have an active financial market which deals with credits and deposits denominated in dollars. Unfortunately, we only have data on the dollar operations in Chile, Bolivia, Uruguay and some in Argentina. As we shall see, the borrowing and lending rates on dollar operations are significantly lower than the dollar equivalent rates for the operations in local currency.

¹ Annual rates extrapolated from monthly rates should be cautiously interpreted. With a nominal deposit rate of 5% monthly and a revaluation of 10% during the month, the dollar rate is 15% for the month, or 435% annual. However, the option of investing at 435% annual dollar return was probably never open to investors: the revaluation only happened in one month and the 5% nominal rate was most likely paid only on 7 to 30 days deposits. In most high inflation countries the maturity for financial operations in domestic currency does not exceed 30 days. Similarly, with ex-post lending rates in excess of 1000% in dollars, firms only borrow for a few days to cover financial disequilibria and never to finance investment projects. Annual rates are therefore presented only as a way to indicate tendencies, not real investment opportunities.

Table 1

Annual Lending Rates in 1992: Dollar Equivalent Rates for Local Currency Operations and Rates for Dollar Loans		
Country	Dollar Equivalent Rate on Local Currency Loans	Dollar Rate on Dollar Denominated Loans
Argentina	36.4	12.6
Bolivia	33.7	19.2
Chile	9.0	8.5
Colombia	20.2	NA
Mexico	29.0	NA
Peru	52.8	NA
Uruguay	62.5	11.6
AVERAGE	34.8	12.97

12. Table 2 shows the average borrowing rates that prevailed in 1992 for the local currency (the dollar equivalent rate) and dollar operations when available. The rates for dollar deposits range from 11.4% in Bolivia to only 3.33% in Uruguay. However, the dollar equivalent rates on local currency deposits are much higher on average, exceeding 11% in five of the seven countries (the exceptions being Chile and Peru). Clearly, the interest rates for dollar denominated operations are much closer to international levels than those for operations denominated in local currency.

13. We have worked with interest data from the IFS and Central Bank Bulletins. The rates reported in those cases consist of time series of wide aggregates: the average bank lending rate and the average bank deposit rate (there is no information provided about the variance of the reported data). In general, deposit rates refer to short term deposits of 30 to 90 days maturity and there should be no large differences between the rates offered across banks. However, lending rates are likely to differ widely depending on the creditworthiness of the borrower, a fact not captured by the average rates.

Table 2

Annual Deposit rates in 1992: Dollar Equivalent Rates for Local Currency Operations and Rates for Dollar Deposits		
Country	Dollar Equivalent Rate on Local Currency Deposits	Dollar Rate on Dollar Denominated Deposits
Argentina	11.4	8.7
Bolivia	12.8	11.4
Chile	3.9	5.6
Colombia	11.0	NA
Mexico	15.1	NA
Peru	-11.6	NA
Uruguay	14.2	3.3
AVERAGE	8.11	7.25

14. We believe that a significant part of the high spread observed for local currency operations is due to a risk premium derived from the low credit rating for those operations as reported in the average rates. The available data suggest that prime customers borrow in dollars or in local currency at preferred rates which are much more in line with international rates.

15. Our analysis suggests several stylized facts about interest rates for the group of countries studied:

16. (1) Dollar equivalent rates for local currency operations rise significantly during stabilization experiences and afterwards only fall gradually. The countries with this experience now have rates that are significantly lower than during the initial months of the stabilization. The permanent level of the rates seems to be associated with the monetization process and in general they stay well above international levels. Chile is an exception as the rates in peso operations are quite similar to international levels. Since Chile is the only country having experienced a thorough structural adjustment process, the lack of complete structural adjustment in the economies may be the dominant factor explaining the high level of rates in the local currency markets.

17. (2) Country risk does not seem to be a significant factor in explaining the high dollar equivalent rates in local currency operations. During 1992, the average rate on dollar deposits in Argentina, Chile, Bolivia and Uruguay was 7.25%, just 3.85 points*above the Treasury bill rate. Those 3.85 points are insignificant when compared with the level of the dollar equivalent lending rate on peso operations of 35.4% during the same period. Other factors, such as credibility, customer's creditworthiness and market imperfections are more likely to be the explanation.
18. (3) In the cases where there is data available on operations carried on directly in terms of dollars, we find that the rates are significantly more in line with international levels than are those charged on the local currency operations. Both levels and spreads for dollar operations are reasonable and do not seem to be affected by the implementation of stabilization programs by as much as the local currency rates. Lack of exchange rate uncertainty and the likely fact that only prime customers deal in the dollar system may be the explanation for these facts.
19. (4) The financial qualifications of borrowers seem to be the principal determinant of observed lending spreads for local currency operations. This aspect is not captured by the aggregate data usually available. Data for Uruguay, reporting both normal and preferred lending rates for both peso and dollar operations suggest that financial qualification of the borrowers is the main explanatory factor for the observed spreads in lending rates. In general, credits in dollars are granted for fully collateralized mortgages and for all foreign trade related operations and to prime customers which also have access to international markets. Peso credits finance consumer credit and small and medium enterprises that may represent a higher credit risk and/or also higher information and transaction costs.
20. (5) The evidence from Argentina and Bolivia suggests that credibility in exchange rate policy, measured by the difference between expected and actual devaluation, is an important factor in explaining rates at the beginning of stabilization but eventually tappers off (see Table 8).

21. (6) In most countries in the region the real exchange rate experienced substantial variations during the 1980s and 1990s. In consequence, the CPI deflator moved differently than the exchange rate deflator. This implies that we shall observe a difference between the ex-post dollar equivalent rates (deflated by the exchange rate) and the real rates (deflated by local inflation). During the 1990s most of the countries experienced significant real appreciation of their currencies as a consequence of large capital inflows --see Calvo et.al.(1993) and Rodriguez(1993). We must therefore expect the real rates deflated by price to be lower than the dollar equivalent rates.

In general we observe that borrowers in the non-traded goods sector meet their financing needs with credit in local currency. Therefore, the relevant rate for them is the one deflated by local prices which is lower than the dollar equivalent rate. Similarly, activities in the traded sector finance themselves in the dollar credit market which also has a lower rate than the dollar equivalent rate. The ones supporting the high cost of the dollar equivalent rate are those producing in the traded sector and obtaining finance in local currency.

22. (7) Most Latin American countries are experiencing a process of dollarization of their economies. The local currency markets are stable or contracting while the dollar markets expand. A significant fraction of credit and deposits are also denominated in dollars and the costs are not related to the costs in the shrinking local currency markets. To be relevant, cost of credit should incorporate the costs of dollar credits weighted by the significance of total credit. Such an average for the countries reporting data in dollar credit markets (Argentina, Uruguay, Bolivia and Chile) shows a value of around 21% as compared to 36% for local currency credits. It is also the case that prime customers borrow in dollars at rates comparable to those of AAA grade customers in international markets.

23. In the rest of the paper we shall present evidence and further discuss the seven stylized facts presented above. We shall first present a basic accounting model for the decomposition of the factors determining the level of the lending rates.

II. The Basic Accounting Model

24. We construct dollar equivalent or real rates by deflating monthly nominal rates by the actual rate of devaluation or inflation. Assuming the average maturity for the interest rates is 90 days, the relevant devaluation or inflation should also be for 90 days. However, since we report the rates on a 30 days basis, we must compute the monthly equivalent of the 90 day devaluation or inflation as:

$$(1) \text{ DEV} = 100 * [(1 + \text{Exrate}(+3)/\text{Exrate})^{(1/3)} - 1]$$
$$\text{INF} = 100 * [(1 + \text{CPI}(+3)/\text{CPI})^{(1/3)} - 1]$$

25. The monthly dollar equivalent rate for local currency operations is computed as the difference between the monthly nominal rate (IA for lending and IP for borrowing) and the devaluation or inflation from (1):²

$$(2) \text{ IADOL} = \text{IA} - \text{DEV}$$
$$\text{IPDOL} = \text{IP} - \text{DEV}$$
$$\text{IAREAL} = \text{IA} - \text{INF}$$
$$\text{IPREAL} = \text{IP} - \text{INF}$$

26. For reporting purposes is more convenient to convert the monthly rates into annual rates. Notice, however, that in most countries the monthly rates are not available for longer term operations. For example, if the monthly dollar equivalent rate is 23%, nobody would be borrowing for a year at the equivalent annual rate of 1099%!.

27. In many countries there is an active market for dollar deposits and loans. In those cases we report the annualized values of the monthly rates. The rates used are IAD and IPD. We consider IPD as the marginal cost of

² The use of differences instead of direct capitalization may underestimate real changes when the nominal changes are large. This is certain to be the case with annual data. However, we have constructed the real rates from monthly data in order to minimize the magnitude of error due to the use of large numbers. The methodology of decomposition of rates into spreads is naturally additive so that we had to compromise with accepting some degree of inaccuracy in the computation of the real rates.

obtaining foreign funds in the country. The difference between IPD and the Treasury Bill rate is to be our measure of country risk:

$$(3) \text{ RISK} = \text{IPD} - \text{TBILL}$$

28. The peso borrowing rate, IP is assumed to equal the dollar deposit rate in the country, IPD plus the expected devaluation rate, DEV*:

$$(4) \text{ IP} = \text{IPD} + \text{DEV}^*$$

29. From (4) and (2) it follows that the dollar equivalent borrowing rate equals:

$$(5) \text{ IPDOL} = \text{IPD} + \text{DEV}^* - \text{DEV}$$

30. We define Credibility as the difference between expected and actual devaluation. This variable is supposed to capture the market's credibility in the current exchange rate policy. An expected devaluation larger than the actual would be an indicator of lack of credibility in the current stabilization policy (this concept has been already used in Calvo and Guidotti, 1992, analyzing interest rates in Bolivia).

$$(6) \text{ CRED} = \text{DEV}^* - \text{DEV} = \text{IPDOL} - \text{IPD}$$

31. Since we have time series on IPDOL, IPD and TBILL, expressions (3) and (6) allow us to construct time series of country risk and credibility. Those variables are also reported at annual levels by capitalization of the monthly levels.

32. We define the spread between the lending and borrowing rates as the lending spread (spread activo) in the local currency market operations:

$$(7) \text{ IADOL} = \text{IPDOL} + \text{SPACT}$$

33. The spread for borrowing operations in local currency is defined as the difference between the dollar equivalent borrowing rate and the Treasury Bill rate:

$$(8) \text{ IPDOL} = \text{TBILL} + \text{SPPAS}$$

34. Using the above expressions we obtain the following decomposition for the ex post dollar lending rate :

$$(9) \text{ IADOL} = \text{TBILL} + \text{CRED} + \text{RISK} + \text{SACT}$$

35. For the countries where there is no dollar system we do not have the rate IPD so that we cannot decompose the borrowing spread into the RISK and CRED components. In those cases we just report the variable SPPAS and the decomposition of the lending rate is given by the expression $\text{IADOL} = \text{SPACT} + \text{SPPAS} + \text{TBILL}$.

36. Defining the change in the real exchange rate as :

(10) $\text{DRER} = \text{DEV} - \text{INF}$, we can obtain a relation between the dollar equivalent rates and the real rates:

$$(11) \text{ IADOL} = \text{IAREAL} - \text{DRER}$$

37. Expression (11) implies that the ex post dollar rates will be higher than the real rates whenever there is a real appreciation of the local currency(e.g. when $\text{DRER} < 0$).

III. Decomposition of Interest Rates for 1992

38. In this section we apply the accounting methodology presented above to describe the major components that determined the dollar equivalent lending rates for local currency during 1992.

39. For the countries reporting borrowing rates in the dollar market we can decompose the borrowing spread between the two components of Risk and Credibility. For the other countries we can only report the lending and borrowing spreads. In the cases of Argentina and Uruguay, we also have available preferential lending rates. In these two cases we can also decompose the lending spread into the basic spread (sbas) and the additional spread due to the reduced qualification of the average borrower vs. the preferred borrower (squal):

$$40. \quad \text{SQUAL} = \text{Average lending rate (IADOL)} - \text{Rate for Prime Customers}$$
$$\text{SBAS} = \text{Rate for Prime Customers} - \text{Average Borrowing Rate (IPDOL)}$$

41. The basic formula used in the decomposition of the active dollar equivalent rate for credits denominated in local currency is:

$$(7) \text{ IADOL} = (\text{SBAS} + \text{SQUAL}) + (\text{RISK} + \text{CRED}) + \text{TBILL}$$

$$\text{or (8) IADOL} = (\text{SPACT}) + (\text{SPPAS}) + \text{TBILL}$$

42. The data in Table 3 show that the lending spread is the major determinant of the high level of lending rates in the region. The average dollar equivalent lending rate was 33.3% in 1992, out of which 25.3% are accounted for by the spread between the lending and borrowing rates. The borrowing spread, the difference between the local dollar equivalent deposit rate and the Treasury Bill rate, only accounts for 4.6%.

43. For the two countries reporting the required data, we see that the qualification of borrowers is a fundamental determinant of the lending spread. In Uruguay preferred customers pay only 15.5% over the cost of deposits whereas the "Normal" customers pay an additional 32.8%. It follows that preferred customers pay a dollar equivalent rate of 29.6%, while "Normal" customers pay 62.4%. In the next section we shall qualify the relevance of these high rates by the fact that much of the credit granted in Uruguay is denominated in dollars and is granted at much lower rates. In Argentina the lending spread for prime customers is almost nil. This may reflect the fact that banks provide funding for prime customers from sources cheaper than the time deposits, such as non-interest bearing demand deposits and savings deposits. In general, banks arrange service packages for prime customers in which credit in local currency represents a small fraction of the total cost and therefore they may charge a smaller rate in order to keep them. It is also the case in Argentina that prime customers have access to dollar credit that is much cheaper than credit in local currency.

Table 3

Decomposition of Dollar Equivalent Lending Rates in 1992						
Country	Dollar Equiv. Lending Rate	Lending Spread (SA)		Borrowing Spread (SP)		TBILL
		SQUAL	SABAS	CREDIB.	RISK	
Argentina (1993.III)	25.8	15.0	0.24	2.93	4.61	3.02
Bolivia	33.7	20.9		1.4	8.0	3.4
Chile	9.0	5.1		-1.7	2.2	3.4
Colombia	20.2	9.2		7.6		3.4
Mexico	29.0	13.9		11.7		3.4
Peru	52.9	64.5		-15.0		3.4
Uruguay	62.4	32.8	15.5	10.8	-0.06	3.4
AVERAGE	33.3	25.3		4.6		3.4

44. Country risk appears as a significant component in Bolivia where it reached 8% annual. In spite of the deep macroeconomic adjustment experienced since 1985, Bolivia still remains a very underdeveloped country and this is reflected in the country risk premium. In Argentina, the country risk reached 4.6% but it has been falling steadily since mid 1993. The measurement of country risk in Uruguay is practically zero: This may be the reflection of the fact that Uruguay acts as an offshore market for Argentines and Brazilians. Basically, the Uruguayan banks capture dollar deposits from offshore customers and invest them in Treasury Bills. This explains why the Uruguayan dollar deposit rate is slightly below the Treasury Bill rate.

45. The credibility factor is significant only in Uruguay where the dollar equivalent rate on peso deposits exceeded the rate on dollar denominated deposits by 10.8 annual points. Uncertainty about the exchange rate policy in the context of high inflation must contribute here to generate a premium on peso deposit rates in excess of the actual devaluation. In Argentina, credibility was 2.93%, indicating that the market still does not fully believe in the Convertibility Law which in April 1991 permanently fixed the exchange rate. We shall see later, however, that credibility in the exchange rate has been improving steadily since the implementation of the fixed exchange rate in 1991.

46. Peru experienced sharp devaluations during 1992 allowing for an ex-post negative dollar equivalent rate on local deposits. The negative borrowing spread of -15% in this case represents unanticipated devaluation rather than low country risk.

47. In Chile, the acceleration of devaluation generated ex-post dollar deposit rates lower than the rates on dollar deposits so that the credibility measure was negative by a factor of -1.7%.

48. Colombia is a difficult country to explain. The economy is highly regulated and there is high inflation. However, interest rates are much closer to world standards than those of a similar country such as Uruguay. There has been a long standing tradition of intervention in financial markets and it may be the case that the rates reported do not really reflect the opportunity cost of credit there. The borrowing spread of 7.6% is in line with that of other countries in the region (Bolivia has 9.4%, Mexico 11.7% and Argentina 7.5%) but the lending spread of 9.2% is abnormally low. To the extent that directed credit may still be in use, the rate reported in IFS may be the one for preferential customers which would explain the low spread. An in-depth study on the microeconomics of the determination of the lending spread in Colombia is presented in Guasch (1994).

IV. Currency Appreciation and Real and Dollar Rates

49. Table 4 reports the arithmetic average for 1992 of the real lending rates and dollar equivalent lending rates.

Table 4

Real and Dollar Equivalent Lending Rates in 1992		
Country	Real ex-post peso Rate	Dollar Eq. Rate
Argentina	21.6	36.4
Bolivia	32.4	33.7
Colombia	10.6	20.2
Chile	9.6	9.0
Mexico	17.6	29.0
Peru	77.0	52.8
Uruguay	39.7	62.5
Arithmetic Average Excluding Peru	21.9	31.8

50. With the exception of Peru, which underwent an important real devaluation in 1992, the dollar equivalent rates in most other countries are significantly larger than the real rates (in Bolivia and Chile they are about the same). The average for the five countries excluding Peru is 21.9% for the real rate and 31.8% for the ex-post dollar equivalent rate. We conclude that due to the substantial real appreciation experienced in 1992, the dollar equivalent rates exceed the real rates by 10 percentage points. Still, the reported average for the real rates of 21.9% seems to be quite high for international standards. We now turn to other possible interpretations for this fact.

V. Average Rates versus Rates for Prime Customers: The Problem of Risk Qualification

51. In comparing interest rates with those of the first world it is common to select the US Prime Rate as the standard for international rates. However, the Prime Rate is the rate for preferred customers in large banks. Consumer credit, credit cards and mortgages to pay much higher rates, even in the U.S.. We do not have available data on the average lending rate charged in the US for the average customers. However, there is evidence that the rate charged on average exceeds significantly the Prime Rate. In 1992, the Prime Rate was 6.25% but the rate on Corporate AAA Bonds was 8.14%, while mortgages paid 8.24%. Clearly, the average of the Latin American creditors is well below a qualification of AAA and should pay higher rates independently of whether they are located in Bolivia or in the US. Consumer unsecured loans in the US in January 1993 were charging 12% for small amounts. We feel that a rate between the 12% on unsecured loans and the 8.24% on mortgages is a much better yardstick for comparing average rates in Latin America. A simple average of both rates would yield 10% as the international dollar rate for comparison.

52. Using the 10% base line to compare average borrowing and 6.24% for prime customers, the rates of local currency operations measured in dollars are still higher, but are much more acceptable when measured in real terms. In the case of Chile, the dollar equivalent or the real rates are in the 9% range, even below our accepted 10% international yardstick.

53. We know that in several countries there is a dollar credit market that operates with much smaller margins than the market in local currency. Smaller inflation tax, smaller reserve requirements and the fact that customers here are more likely to be prime customers related to the traded sector are possible explanations for the lower rates in the dollar market.

54. We have data on four countries reporting lending rates for dollar operations. Those countries also have an active system of dollar bank deposits offering competitive rates that have attracted a large fraction of the reported capital inflows experienced in the 1990s. The data for those countries, Argentina, Bolivia, Chile and Uruguay, are shown in Table 5. The third column reports the average lending rates for dollar denominated operations (the average rate in Uruguay is "Normal," and much larger than the "preferential" rate). As expected, the dollar lending rates are much lower than the reported dollar equivalent rates in the local currency, or the real rates on local currency loans. In Argentina, the average dollar lending rate is one third of the average dollar equivalent rate in pesos. In Uruguay the dollar lending rate is one fifth of the dollar equivalent lending rate in pesos, while in Bolivia the dollar rate is near one half.

Table 5

Lending Rates for Average and Prime Customers in Local Currency and Dollars						
Country	Average rates for 1992			Rates for Prime Customers		
	Dollar Equiv.	Real Rate	Dollar Rate	Dollar Equiv.	Real Rate	Dollar Rate
Argentina	36.4	21.6	12.6	10.8	1.1	8.2
Bolivia	33.7	32.4	19.2	NA	NA	NA
Chile	9.0	9.6	8.5	NA	NA	NA
Uruguay	62.5	39.7	11.6	29.6	11.1	8.0
AVERAGE	35.5	25.7	12.9	NA	NA	NA

55. The average in 1992 for all four reported dollar lending rates is 12.9%. This number is much closer to the 10% yardstick than the average of 35.5% found for the dollar equivalent rates for lending in local currency. It should be mentioned that in the cases of Argentina, Uruguay and Bolivia, dollar denominated credit significantly exceeds the credit granted in local currency. Therefore, the dollar rates may be more relevant for determining the cost of credit than the rates on local currency operations. In Chile there are also indexed credit operations that carry a real rate somewhat lower than the rate charged on dollar denominated credits.

56. Last, but not least, two countries report both average rates and rates for prime customers, both on peso and in dollar operations. These countries are Argentina and Uruguay. These rates are shown in the last three columns of Table 5. The data for Argentina corresponds to the operations made in April 1993 while those of Uruguay are for 1992 averages. Prime customers in Argentina pay 8.2% on their 30 day dollar borrowing and in Uruguay they pay only 8%. Both numbers are fully comparable with the rate paid by AAA instruments in the US. On peso loans, the real rates are also much lower for preferred customers. The real rate on peso loans in Argentina is recorded at only 10.8%, versus 36.4% for the average of peso borrowers.

57. In Uruguay, the real rate for preferred customers is -a still high- 39.7%, but much lower than the 62.5% for normal operations. It should be remembered that in Uruguay most credit operations are carried out in dollars in which case the average rate is 11.6% for the average customer and just 8% for the prime customers.

VI. Dollarization and the Irrelevance of Local Currency Rates

58. If most credit operations in a country are granted in foreign currency or on indexed terms, then the dollar equivalent rates for operations in local currency at nominal rates are irrelevant. To the extent that credit is granted in dollars, the dollar rates are the relevant ones. Peso credit may still exist to finance unsecured consumer loans or for enterprises to cover daily financial imbalances (overdraft). This is exactly the situation in at least four of the seven countries being considered: Argentina, Bolivia, Chile and Uruguay.

59. Table 6 reports the market shares in the four countries for credit granted in local currency and in dollars. The last column shows a weighted average cost of credit including local currency and dollar operations. Each rate is weighed by the share of the corresponding credit denomination in the total.

60. In Argentina, credit in pesos is slightly less than the credit granted in dollars. In the other three countries the peso system represents about one fourth of the total credit granted. Clearly, the high rates on local currency credit must be weighed by the fact that such credit has been to a great extent displaced by credit in dollars. Even though we do not have data available, we understand that a similar situation is present also in Peru. The phenomenon of currency substitution in Latin America is widespread and growing, as reported in Guidotti and Rodriguez(1992). The high risks associated with dealing with unstable domestic currency have generated an irreversible dollarization process in those countries that makes the local currency markets all but irrelevant.

Table 6

Shares of Credit by Currency Denomination and Average Dollar Equivalent rate (Average values for 1992)			
Country	Share of Nominal Peso Credit (dollar eq.rate)	Share of Dollar and Indexed Credit (dollar rate)	Average Dollar Equivalent Lending Rate
Argentina	43.0% (36.4)	57.0% (12.6)	22.8%
Bolivia	21.0% (33.7)	79.0%(19.2)	22.2%
Chile**	24.5% (9.0)	75.5% (8.5)	8.6%
Uruguay	26.0% (46.05*)	74.0% (11.6)	20.5%

Note: Credit shares are from the following dates: Argentina: 1993.01, Bolivia:share of deposits by currency on 1990.6, Chile: 1990.1, Uruguay: 1988.12.

* Average of the Normal and the Preferential rates on credit operations in Uruguay.

** In Chile the Dollar Credit concept includes Indexed loans that carry a rate even lower than that on dollar loans.

61. It is interesting to note that the average credit cost shown in Table 6 is around 21% for Argentina, Bolivia and Uruguay. In Chile this cost is similar to international levels. The estimate of 21% for dollar cost of credit from all sources found in Table 5 seems to be more realistic, as a regional average, than the 34.8% shown in Table 1.

VII. The Effects of Monetization on Real Interest Rates

62. Leaving aside the issues relating to the growing dollarization process experienced in the region, it is likely that the degree of financial deepening in the local currency market is one of the most fundamental determinant of the level of real lending rates. A highly monetized economy is likely to have a more developed and competitive financial market, probably suffers from less inflation and information is more easily acquired and transferable. All of those factors call for a lower lending spread on an operation made in such a market. Edwards(1985) showed the existence of a short run effect of real liquidity on interest rates in Colombia, while here we advance the possibility that real liquidity--monetization-- may be a permanent determinant of rates through its effects on the borrowing and lending spreads.

63. We have chosen the ratio of M1 to GDP as the indicator of monetization relevant for capturing the effect described in the paragraph above. It has been suggested that we use a wider indicator, such as M3 to GDP. However, we prefer to use M1 because M3 sometimes takes artificial values due to the process of intermediation of public debt, such as it was the case in Argentina in 1988 or Brazil nowadays. In these cases banks capture deposits in order to acquire public debt. This policy inflates M3 but does not represent a genuine increase in monetization or in the size of the credit market for the private sector.

64. Figure 1 and Table 7 show the relation between real lending rates and a monetization index for selected countries at two points in time (the ratio of M1 to GDP). In general we tried to include data from the closest year and also from one or two years after a stabilization attempt (when monetization was low and rates high: Argentina 1991, Bolivia 1987, Peru 1992 and Mexico 1988). In Colombia and Chile we arbitrarily chose 1992 and 1985/86. The only other available data for Peru was from 1991. Although this data confirms the expected result, we excluded it from the graph because the numbers are so high that they distort the dimensions making all other data indistinguishable.

65. Clearly, the Figure shows a negative relation between real interest rates and monetization. This relation stands both for cross country comparisons as well as for the two data points reported for each of the seven countries (making stronger the case against a spurious correlation): in all cases, an increase in M1/GDP in a country is associated with a fall in the real interest rate. An OLS regression for all the data (without Peru91) yields an R^2 of 0.64 and a highly significant coefficient of 5.94 (a one percentage point increase in monetization reduces real rates by almost 6%).

66. Chile and Argentina appear as outliers in the Figure. This may be due to the deep structural adjustment experienced by Chile that allows it to have both low real rates and M1/GDP (they probably use more credit cards rather than paper bills). In Argentina, the establishment of a Currency Board in 1991, with an exchange rate fixed by law, is paying off. Rates have fallen faster than actual remonetization, partly because of increased credibility and the virtual elimination of inflation. However, it should be mentioned that dollarization continues as dollar deposits rise faster than real peso deposits.

Real Interest Rates and Monetization

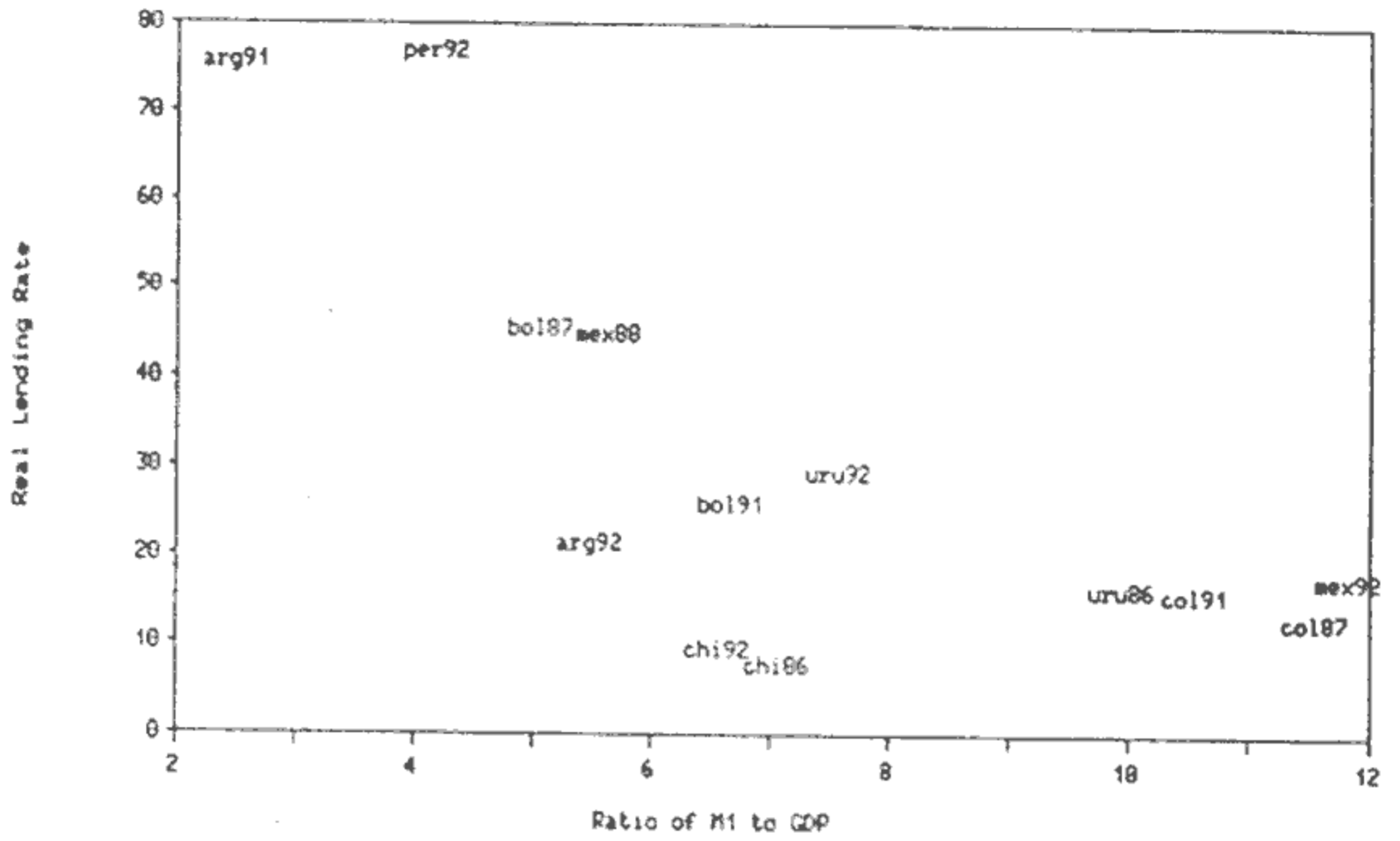


Figure 1

Table 7

Relation Between Monetization and Real Interest Rates		
	M1/GDP	Real Lending Rate
arg92	5.5	21.6
bol91	6.7	26.1
chi92	6.6	9.6
col91	10.6	15.9
mex92	11.8	17.6
uru92	7.6	29.6
arg91	2.5	76
chi86	7.1	7.95
col87	11.5	12.8
mex88	5.6	45
per92	4.2	77
uru86	9.9	16.4
bol87	5.1	45.5
per91	4.8	336
Regression Results:		
Real Rate = 74.1 - 5.94*(M1/GDP)		
(-3.6)		
R2= 0.64		

VIII. Interest Rates and Stabilization Programs

67. Four of the countries analyzed have undergone significant stabilization programs in recent years: Argentina in April 1991, Bolivia in November 1985, Mexico in December 1987 and Peru in August 1990. For the first two countries our data allows for a monthly decomposition of the lending dollar equivalent rate into its determinants. For Mexico and Peru we can only report the borrowing and lending spreads. In all the cases the factors borrowing and lending spreads follow a common pattern: they all raise significantly at the beginning of the stabilization and fall gradually afterwards. Figure 2 shows the time path of lending and borrowing rates for the four countries after the stabilization. The enormous magnitudes reached by the rates in some cases make it useless to place all variables in a common graph.

Table 8.1: Interest Rates and Stabilization: Argentina after 1991.05

Decomposition of Dollar Equivalent Lending Rates					
Argentina	Dollar Equiv. Lending Rate	Lending Spread (SPACT)	Borrowing Spread (SPPAS)		TBILL
			CREDIB.	RISK	
1st.Six Mo.	57.2	37.9	9.8	4.1	5.4
2nd.Six Mo.	44.7	30.3	6.0	4.3	4.0
3rd.Six Mo.	34.9	24.0	2.2	5.4	3.3
4rd.Six Mo.	32.3	20.8	2.2	6.3	3.0
5th.Six Mo.	26.3	15.6	2.4	5.3	3.0

Table 8.2: Interest Rates and Stabilization: Bolivia after 1985.11

Decomposition of Dollar Equivalent Lending Rates					
Bolivia	Dollar Equiv. Lending Rate	Lending Spread (SPACT)	Borrowing Spread (SPPAS)		TBILL
			CREDIB.	RISK	
1st.Six Mo.	535.9	384.4	138.8	5.8	6.8
2nd.Six Mo.	124.9	74.3	35.0	10.0	5.6
3rd.Six Mo.	60.2	38.2	6.0	10.7	5.4
4rd.Six Mo.	38.2	21.5	-0.0	10.8	5.9
5th.Six Mo.	21.0	9.6	-6.0	11.6	5.8

Table 8.3: Interest Rates and Stabilization: Mexico after 1987.12

Decomposition of Dollar Equivalent Lending Rates				
Mexico	Dollar Equiv. LENDING RATE	Lending Spread (SPACT)	Borrowing Spread (SPPAS)	TBILL
1st.Six Mo.	111.4	16.7	88.7	2.0
2nd.Six Mo.	56.4	21.3	28.0	7.1
3rd.Six Mo.	40.8	21.7	10.7	8.5
4rd.Six Mo.	33.5	16.5	9.2	7.8
5th.Six Mo.	36.4	13.0	15.7	7.7

Table 8.4: Interest Rates and Stabilization: Peru after 1990.08

Decomposition of Dollar Equivalent Lending Rates				
Peru	Dollar Equiv. Lending Rate	Lending Spread (SPACT)	Borrowing Spread (SPPAS)	TBILL
1st.Six Mo.	2231.3	1416.0	908.3	7.0
2nd.Six Mo.	514.4	422.3	86.4	5.7
3rd.Six Mo.	215.1	163.7	46.8	4.6
4rd.Six Mo.	27.1	56.8	-33.3	3.6
5th.Six Mo.	56.8	56.9	-3.2	3.0

68. Table 8 shows the time paths of the components of the lending rates at 6 months intervals after the stabilization. The common element is that lending equivalent dollar rates fall gradually after the very high levels reached at the beginning of the stabilization. In Argentina and Bolivia, the lending rates were still falling 30 months after the beginning of the stabilization. In Peru and Mexico the lending rates stopped falling after 24 months.

69. We observe that borrowing spreads tend to fall faster than lending spreads. Figure 3 shows the behavior of those spreads for the four countries. This is particularly clear in the case of Argentina in 1991, where the implementation of a Currency Board in an already semi-dollarized economy allowed for a sharp drop in deposit rates. Lending rates only dropped gradually as the newly achieved stability allowed for the recreation of a credit market in local currency that had all but been destroyed by the previous hyperinflation.

70. In Bolivia the borrowing spread took one year to fall to the new sustainable level, while the lending spread reached the bottom level only after 24 months. Here again, the ongoing dollarization must have put pressure on the peso rates to keep in line with international returns. Lending rates took longer to adapt because of the reduced size of that market and the fact that the increased dollarization reduced the competitive pressures on the peso credit market for the customers with less than first grade credit ratings.

71. The exception seems to be Mexico where the lending spread was quite stable, and not affected much by the stabilization (the borrowing spread, on the other hand, did fall significantly during the first six months.) The stability of the lending spread suggests the existence of a highly regulated financial system that did not dare initially to pass the higher borrowing costs on the customers (a similar situation may still be going on in Colombia after the liberalization of 1991).

72. The credibility variable behaved as expected in all cases but Peru. The difference between expected and actual devaluation fell gradually during the first months of the stabilization. It did fall much faster in Argentina, where the exchange rate was fixed permanently by a Law of Congress. Country Risk behaved less normally, as it was also affected by expectation regarding the renegotiation of the high levels of external debt these countries had.

Figure 2
Borrowing and Lending Ex-Post Dollar Interest Rates After Stabilizations

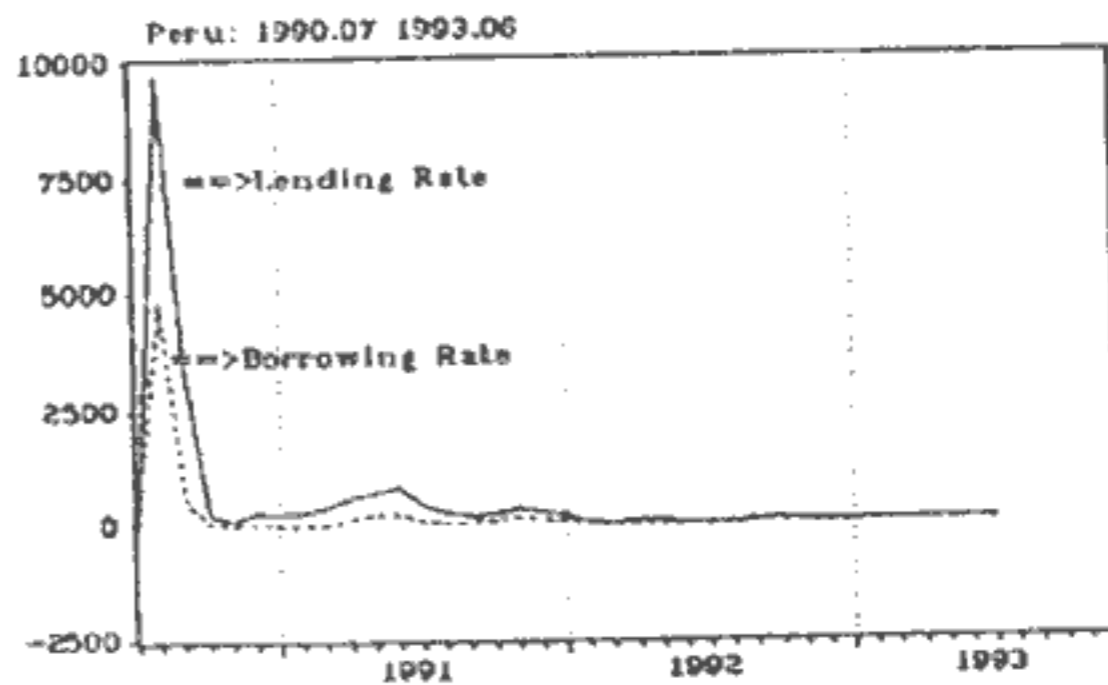
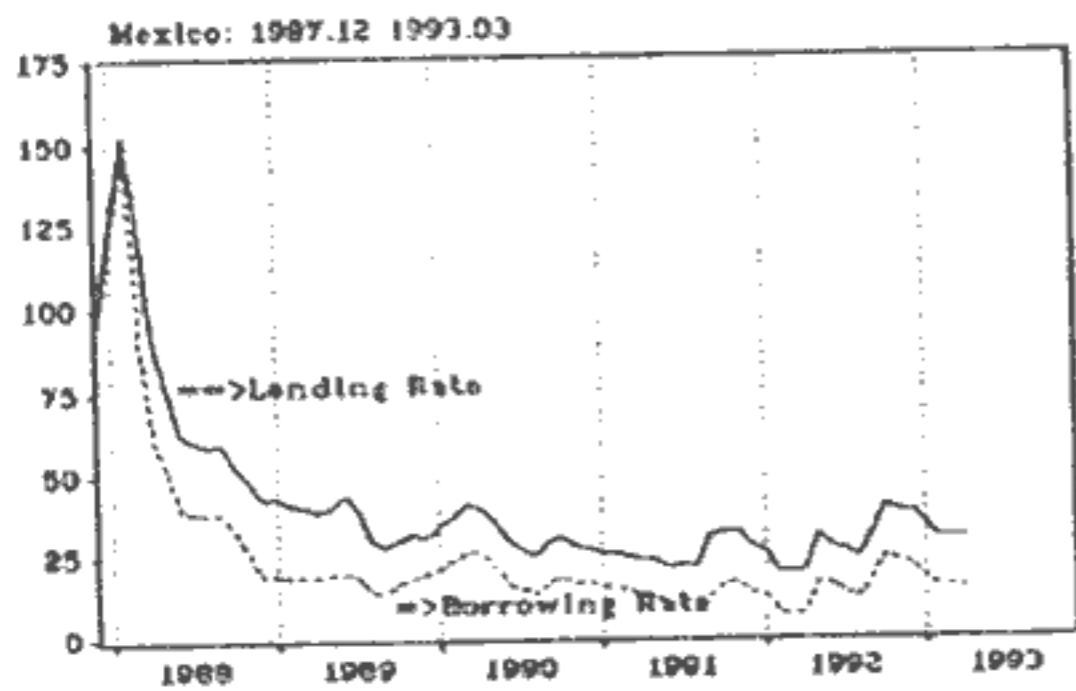
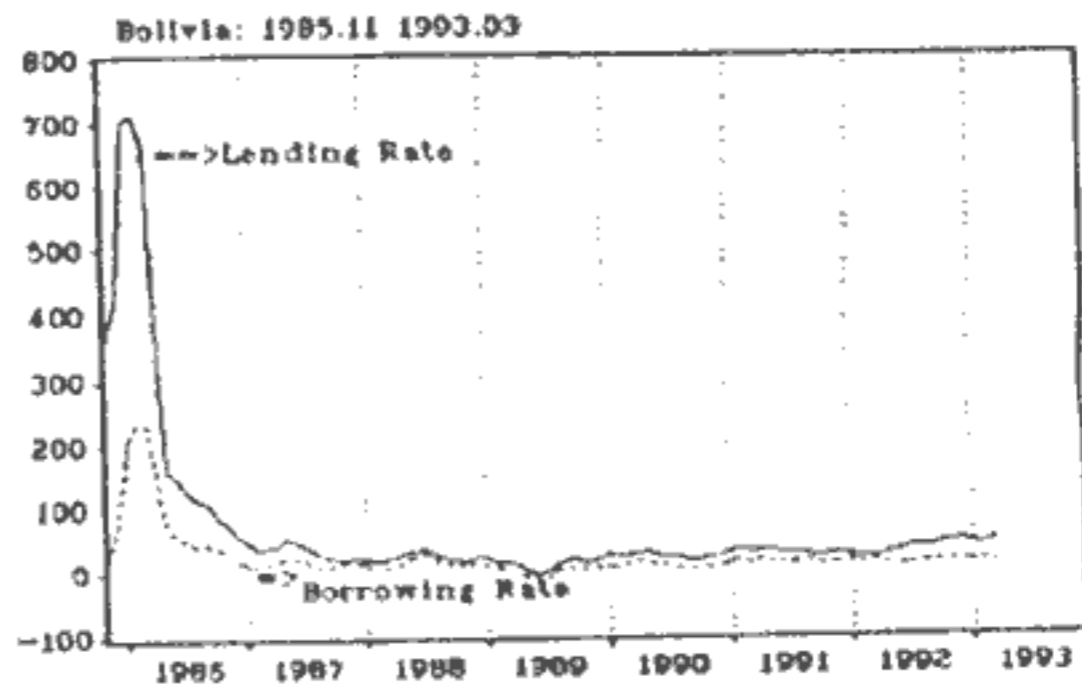
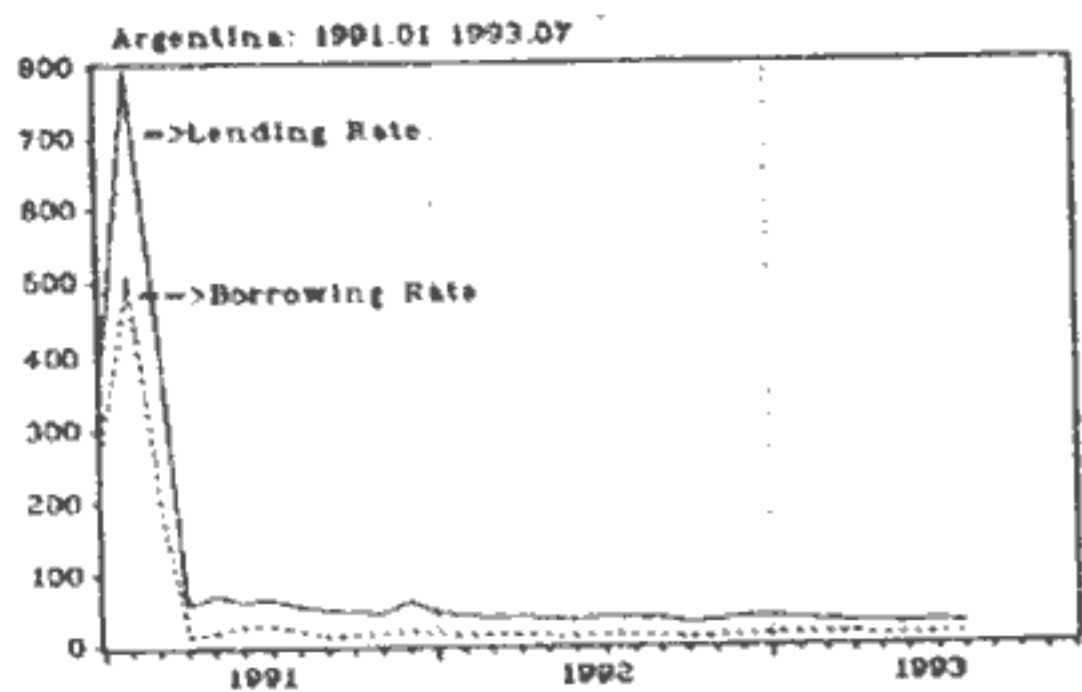
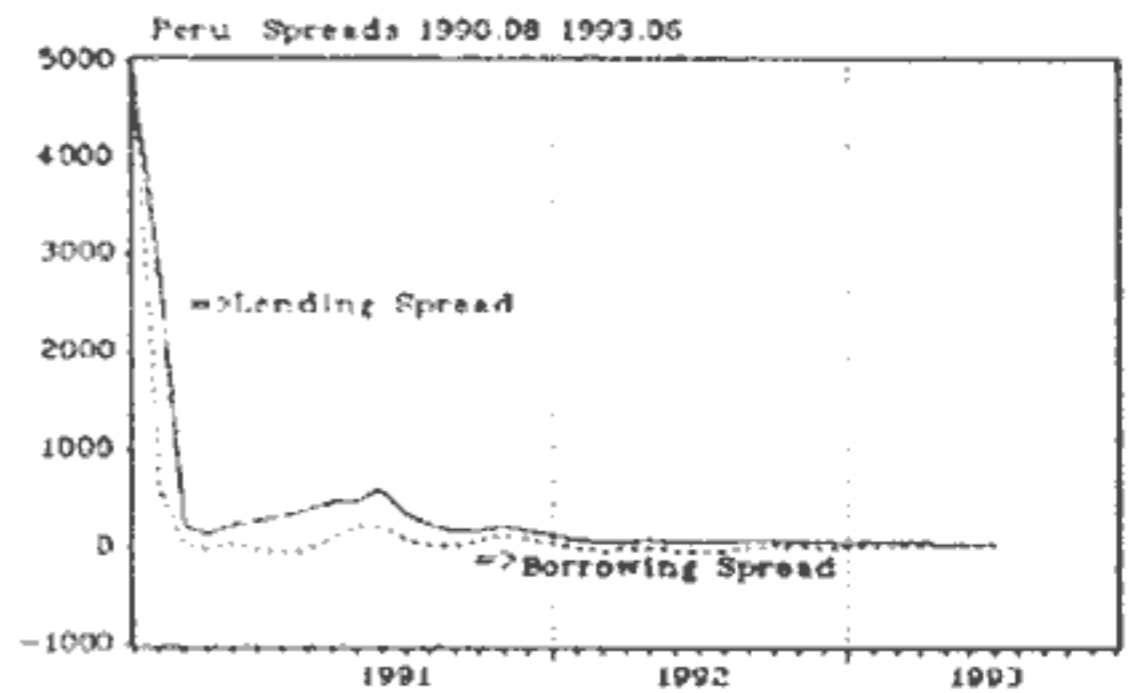
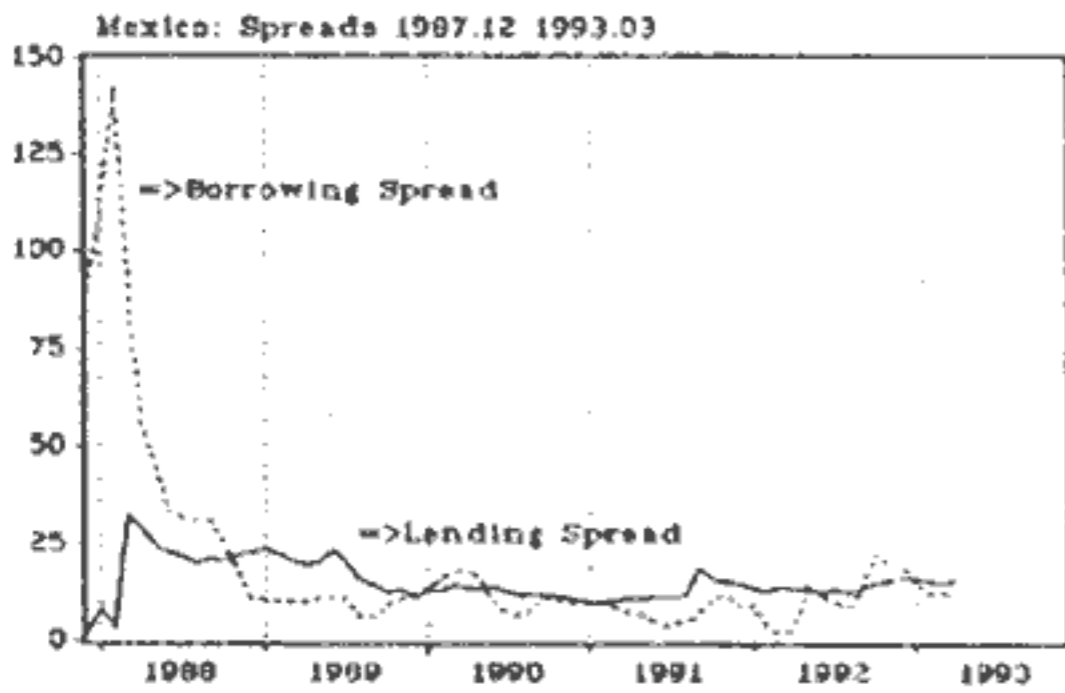
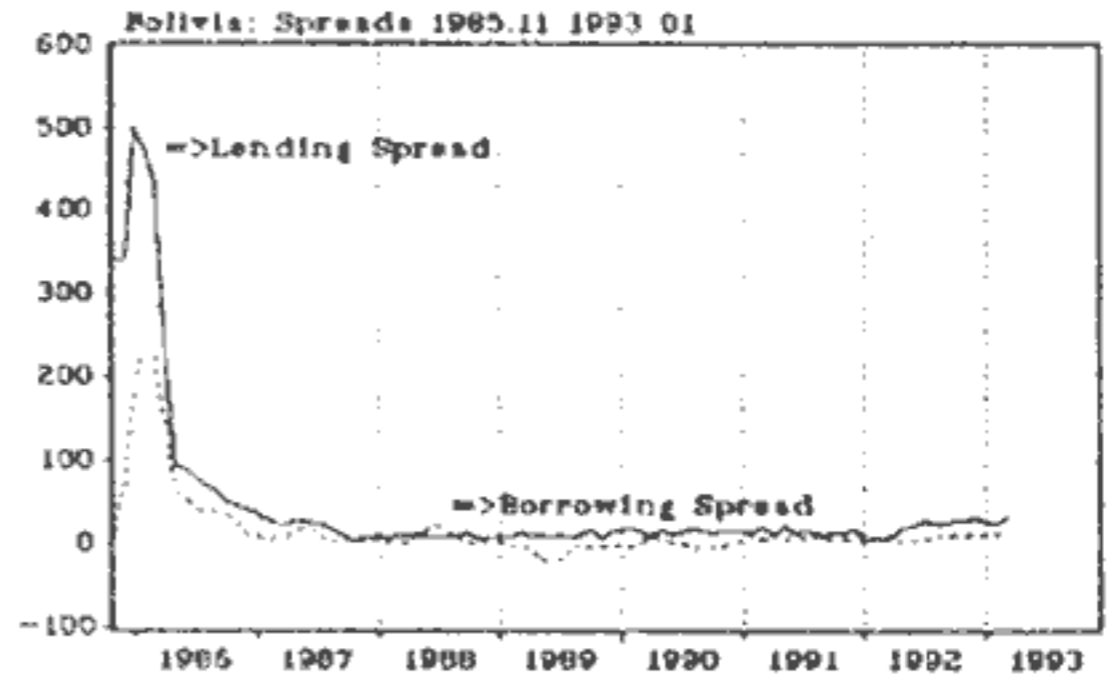
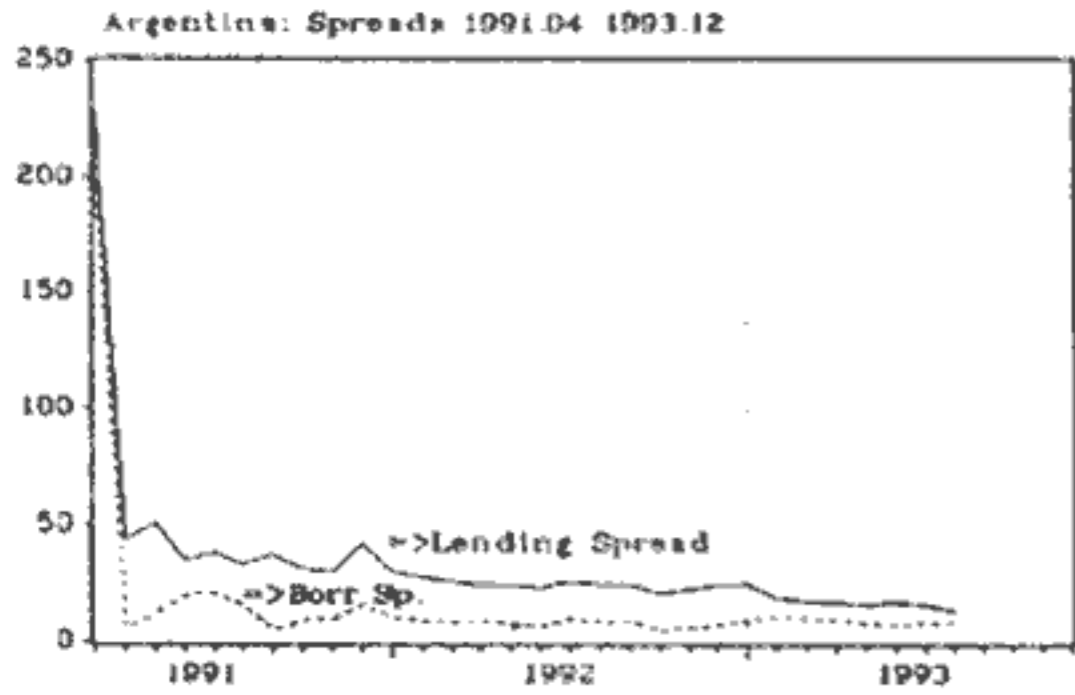


Figure 3
Borrowing and Lending Spreads After Stabilization
(Dollar Equivalent rates)



IX. Conclusions

73. Credit markets are highly segmented in Latin America. Local currency operations are gradually being displaced by dollar denominated operations, for both deposits and loans. Traditional customers for dollar denominated loans seem to have better credit ratings than those who borrow in local currency. In 1992, the average rate for dollar denominated loans was only 12.9% (for Argentina, Bolivia, Chile and Uruguay) while the equivalent dollar rate for peso borrowers was three times higher at 35.5%. For prime customers in the dollar system the lending rates are as low as 8% in Argentina and Uruguay. Such rates are equivalent for those paid by AAA costumers in the USA and do not support the hypothesis that credit is relatively scarcer in Latin America. There is, however, a lack of qualified customers, and very weak local currencies add to the intermediation cost as evidenced by the spread between the local currency and the dollar lending rates.

74. Local currency rates are not a significant indicator for interest rates in many Latin American countries. Increasing dollarization implies that dollar denominated operations, at much lower rates, are displacing local currency operations. In four countries with data available, we estimate that credit denominated in dollars accounts for between 79% and 57% of the total credit granted. Further evidence on the ongoing dollarization process in Latinamerica can be obtained from Guidotti and Rodriguez (1992), Savastano (1992). For those four countries shown in Table 6, a weighted average cost of borrowing from local currency and dollar markets shows a level of 20.5% for average customers (prime customers pay international rates). Since the international comparable level would be in the order of 10%, we conclude that rates are still high in Latin America for less qualified customers, although by much less than what a simple consideration of the rates in local currency would imply.

75. Lending spreads are a more significant component of local currency rates than borrowing spreads. This is to be expected since lending spreads incorporate the low credit rating of local currency borrowers. Lending spreads rise significantly during stabilization on the account of tight money and the lack of credibility in exchange rate policy, but fall soon afterwards because of the competitive pressures of capital inflows and the dollar market. Lending spreads also rise in stabilization but take longer to fall back to normal levels. Lack of full fledged competition in the local currency credit markets may be the explanation for this behavior of lending spreads.

76. The effect of stabilization on interest rates is all but short lived. For the four cases analyzed, we find that lending spreads take between 24 and 30 months to reach stable lower levels. Borrowing spreads fall faster but it still takes between 12 and 18 months for them to reach their bottom levels.

77. We find the level of monetization to be directly linked to the real interest rates in local currency markets. Countries with a high M1/GDP ratio have univocally lower real interest rates and also we find that when countries increase the M1/GDP ratio, their real interest rates do fall (Figure 1).

78. Credibility in exchange rate policy--measured by the difference between the dollar equivalent rate in local currency and the local dollar deposit rate-- is a significant factor determining the borrowing spread during stabilization. In the case of Bolivia the credibility cost during the first six months of the stabilization in 1985/86 reached an annual rate of 139%. During the second six month period this cost fell to 35% and was zero only after 24 months. In Bolivia, a floating rate was instrumented with a significant amount of intervention by the Central Bank. The uncertainty about the exchange rate rule may have helped to keep a high credibility element.

79. In Argentina in 1991, stabilization was helped by the instrumentation of an exchange rate fixed by Law and the creation of a Currency Board. The credibility cost in the first six months was only 9.8% and has been falling gradually since then, reaching a level of 2.4% after 30 months. We believe that the strong commitment for the exchange rate policy must be a significant factor in explaining the lower credibility cost that prevailed during the Argentine stabilization.

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