

# Working Paper

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INTERNATIONAL MONETARY FUND

**IMF WORKING PAPER**

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**INTERNATIONAL MONETARY FUND**

**Policy Development and Review Department**

**High Real Interest Rates Under Financial Liberalization  
Is There a Problem?**

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January 1993

**Abstract**

Concerns were raised beginning in the 1980s about the possible detrimental effects of high positive real interest rates under financial liberalization. Using a sample of 28 countries that underwent financial liberalization since the 1970s, the paper examines the evidence about the emergence of high real interest rates and discusses the possible causes and likely effects. Some remedies--preferably preventive--are considered including macroeconomic stabilization, fiscal consolidation, improvements in prudential regulation and supervision of the financial sector, and introduction of an efficient management of indirect monetary policy instruments.

**JEL Classification Numbers:**

E43, E31, E44

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1/ The author would like to thank Jack Boorman, David Burton, Manuel Guitián, and Donald J. Mathieson for useful comments and Teng-Siew Boxall for help with data extraction and computation. Any remaining errors are the sole responsibility of the author.

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### Summary

In the mid-1980s, concerns arose about the possible detrimental effects of high real interest rates under financial liberalization. Using a sample of 28 countries that have undergone financial liberalization since the mid-1970s, this paper examines the incidence of high real interest rates and finds that they emerge rather frequently following liberalization. In contrast, virtually all countries experienced highly negative real interest rates before undertaking financial liberalization. Numerically high real interest rates are not necessarily out of equilibrium, however, and adverse consequences will not inevitably follow. High real interest rates can be efficient if they are the result of a large demand for funds associated with a high propensity to invest in sound projects that is engendered by favorable macroeconomic conditions and technological innovations.

However, high real interest can be undesirable in some cases, as a result of many diverse and complex causes. Among them are unabating inflationary expectations, exchange rate risk perceptions that accompany stabilization efforts that are not fully credible, attempts to stabilize an economy with stringent monetary policies but with inadequate fiscal consolidation, attempts by oligopolistic financial institutions to capture a larger market share of deposits, the financing by banks of distressed borrowers in an attempt to avoid provisioning and write-offs for loan losses, and the moral hazard resulting from explicit or implicit deposit insurance in the absence of appropriate prudential regulations and bank supervision.

The effects of high real interest rates are equally complex and diverse, and will vary according to their origins and to each country's circumstances. The paper finds much evidence for favorable effects of liberalization. However, unfavorable conditions may lead in some cases to lower investment and growth, corporate and financial sector distress, destabilizing capital inflows, and increases in budget deficits and government debt. Countries must understand the causes and effects of their high real rates before applying remedies, either preventive or curative. Countries that are still contemplating interest rate liberalization should take preventive measures to stabilize prices, achieve fiscal consolidation, improve indirect monetary policy instruments, and strengthen prudential regulation and supervision of the financial system before problems emerge.

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## I. Introduction

In the 1980s, concerns about the inefficiency effects of financial repression policies leading to negative real interest rates gave way to opposite concerns about the possible detrimental effects of high real interest rates under financial liberalization (Diaz-Alejandro, 1985; Galbis, 1987). These new concerns gave rise to a new "Washington consensus" about the proper objective of financial sector policies--to achieve positive real interest rates that are as close as possible to a zero real level (Williamson, 1990a, 1990b). The new paradigm rests on evidence that, under some conditions, financial liberalization could be associated with excessively high real interest rates that could choke an already indebted corporate sector, sending a wave of bankruptcies throughout this sector and, in turn, throughout the financial sector, leading thereby to an economic crisis. Behind this, there is the idea that developing countries could be more vulnerable than developed ones to financial instability under financial liberalization because of the narrowness of their financial markets, their lack of effective, market-based monetary policy instruments, their difficulties in exercising a proper degree of supervision over the financial system, and other structural impediments. It was pointed out, in particular, that some combinations of stabilization and reform policies could--especially under high and variable inflation and under the difficult structural conditions of the developing countries--lead to high real interest rates and to the consequences thereof.

With the advantage of hindsight, now that a very significant number of countries have undertaken financial liberalization, it would seem appropriate to reexamine the evidence of past experiences and to add some of those that have taken place more recently. The first set of issues that arises is whether, in fact, the perceived problem of high real interest rates is a widespread one, and whether it is only temporarily associated with the transition to financial liberalization or is also associated with post-liberalization systems. Another important set of issues is that of the likely effects of high real interest rates. Are high real interest rates necessarily detrimental? There is also the related issue of whether the problem, when it arises, is avoidable by changing the sequence of stabilization and liberalization measures, for instance, delaying the implementation of interest rate freedom until the structural impediments can be overcome and market-based policy instruments can be developed. There is, finally, the issue of what remedial measures can be undertaken to ameliorate the problem once it has manifested itself in the interplay of the market, short of undoing financial liberalization. An answer to these questions could help not only the authorities of countries that are currently struggling with problems resulting from financial liberalization but also those contemplating financial liberalization in the future.

Section II discusses the transition toward financial liberalization in a sample of 28 countries since the 1970s, and it examines the evidence about the emergence of high real rates of interest, or the lack thereof. The possible causes for the emergence of high real interest rates in many of the

sample countries during some periods are reviewed in Section III. An analytical distinction is made of cases of inflationary expectations, perception of exchange rate risk, the existence of a wrong mix of monetary and fiscal policies, and the oligopolistic behavior of the financial system and distress borrowing. Section IV discusses the possible effects from observed high real interest rates on reducing investment and the rate of economic growth, inducing corporate and financial sector distress, prompting destabilizing (excessive) capital inflows, and causing an explosion in the growth of domestic government debt. Some suggested remedies are considered in Section V, and a preference is expressed for adequate preventive measures over treatment, the latter becoming unfortunately necessary when it is too late. In general, these measures follow from the examination of the causes and effects of high interest rates in the previous sections. Finally, Section VI summarizes the main findings and conclusions.

## II. The Record

Many countries have made the transition to a system of market-based interest rates, including not only virtually all the developed countries but also an increasing number of developing ones. It would be impossible to cover the complete experience of the world; this paper, therefore, focuses on a selected sample of 28 countries (Table 1). The choice of countries has been governed by several factors, the primary one being the desire to cover mainly the experience of developing countries, on the assumption that these countries are more likely to suffer from disequilibrium problems. Only two developed countries, Spain and the United States, have been included by way of comparison with the developing ones. Another factor in the choice of countries has been the hope to capture the most relevant experience not only of those countries that have made the transition to full interest rate freedom, but also of others that have made significant progress toward liberalization through progressive interest rate deregulation or through a more flexible, albeit direct management of interest rates. Consideration has also been given to selecting countries on a wide geographical basis and on the basis of very different initial economic conditions.

Many countries, especially those that have moved only recently to liberalize interest rates, have been excluded from this paper for lack of enough relevant experience, or because of the difficulty of obtaining adequate information, or simply because their experience was not too different from that of countries that are included. 1/ However,

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1/ Without trying to be in any way exhaustive, the following additional countries can be mentioned as having significantly moved to interest rate liberalization: Barbados, Bulgaria, Chad, Czechoslovakia, Ecuador, El Salvador, Honduras, Iceland, Indonesia, Jordan, Morocco, Nicaragua, Tonga, and Zimbabwe.

Table 1. Interest Rate Liberalization in Selected Countries

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Argentina (June 1977)
Benin (October 1989) <u>1/</u>
Bolivia (August 1985)
Brazil (March 1975) <u>2/</u>
Cameroon (October 1990) <u>3/</u>
Chile (April 1975)
Colombia (January 1980) <u>4/</u>
Costa Rica (August 1986) <u>5/</u>
Côte d'Ivoire (October 1989) <u>6/</u>
Hungary (January 1991) <u>7/</u>
Jamaica (October 1985) <u>8/</u>
Korea (-----) <u>9/</u>
Malaysia (October 1978) <u>10/</u>
Mauritius (November 1981) <u>11/</u>
Mexico (March 1985) <u>12/</u>
Nepal (May 1986) <u>13/</u>
Nigeria (July 1987) <u>14/</u>
Philippines (December 1982) <u>15/</u>
Poland (January 1990)
Romania (April 1991) <u>16/</u>
Spain (March 1987)
Tanzania (July 1991) <u>17/</u>
Thailand (March 1990) <u>18/</u>
Turkey (July 1980; July 1987) <u>19/</u>
Uganda (July 1988) <u>20/</u>
United States (April 1986)
Uruguay (September 1979)
Venezuela (August 1981; February 1989) <u>21/</u>

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1/ The Central Bank of West African States (BCEAO) of the West African Monetary Union (WAMU), to which Benin belongs, abolished its preferential discount rate in October 1989. However, bank interest rates continued to be subject to regulation by the BCEAO (see also Côte d'Ivoire).

2/ The regulatory framework is one in which financial institutions can freely determine interest rates but it also allows for indexation of some financial instruments and for many subsidized loan interest rates. Changes to monetary correction formulae have often been used by the authorities as an instrument to affect the rates. In March 1975 interest rates on time deposits and bills of acceptance were freed.



3/ In October 1990, the Central Bank of Central African States (BEAC) of the Central African Monetary Union, to which Cameroon belongs, eliminated the BEAC's preferential lending rates, simplified the interest rate structure, and increased its power to determine interest rate policy with a view to inducing greater flexibility in interest rates.

4/ In January 1980, interest rates on term deposits were freed; lending rates were also freed, except for those on directed credit, and those of savings and loan associations, which have indexed rates. The Colombian Government has tried from time to time to control interest rates, usually without success. Interest rates are mostly freely determined--with occasional intervention by the Government--by a loose but effective lenders' cartel that operates through the banking association.

5/ Interest rates were freed in August 1986, but there remained a limit of 10 percentage points on the spread between lending rates and the rate paid on six-month deposits. This percentage was reduced to nine in 1987 and later eliminated, when a restriction was introduced to the effect that the minimum lending rate should be equal to the six-month deposit rate.

6/ Note 1 on Benin also applies here, as Côte d'Ivoire is another member of the WAMU.

7/ On January 1, 1989, interest rates on household deposits became more flexible; deposit interest rates on maturities of over three years were freed; other household deposit rates remained subject to two general ceilings: 12 percent for deposits of less than one year, and 20 percent for those between one and three years. For enterprises, interest rates on deposits were freed in January 1987, and those on loans in July 1987.

8/ Interest rates were free from Bank of Jamaica direction since the early 1970s, except for a minimum rate on savings deposits and a maximum rate on mortgage rates for housing. Interest rate policy became more active in October 1985, when Bank of Jamaica certificates of deposit were introduced to provide an additional instrument, besides Treasury bills, of open market operations and to influence market rates. The ceiling on mortgage rates was lifted in mid-1985. The floor on the savings deposit rate was abolished in October 1990.

9/ Although the Korean financial system underwent substantial changes during the 1980s, moving away from the highly regulated framework of the 1970s, interest rates were not effectively freed; two attempts to free the rates, one in the early 1980s and the other in December 1988, were halted. A program for full liberalization was announced in August 1991 to begin in December 1991 and to be implemented through 1996.

10/ Interest rates on deposits and loans of commercial banks were freed in October 1978. An interbank rate mechanism was introduced in late 1981, under which each individual bank announces its own base lending rate (BLR) in line with its costs of funds. Since November 1983, all lending rates of commercial banks became pegged to the BLR.

11/ Interest rates were freed in November 1981, with the only remaining regulatory requirement being the announcement of a minimum interest rate on savings deposits. (This interest rate floor was removed in 1988.) Considerable moral suasion is employed to keep loan rates within certain limits.

12/ In March 1985 interest rates payable on one- and three-month deposits increased by 7 to 8 percentage points, in connection with the beginning of

the placement of monetary regulation deposits by the Bank of Mexico. Concerned about the rise in interest rates and in the aftermath of the earthquakes, the authorities tried to lower the rates by some administrative measures, including the change in the auction system. The attempt to administer interest rates failed and was followed by increasing reliance upon the market mechanism in determining interest rates. The system of auctions of securities that was suspended since November 1985 was reinstated in July 1986.

13/ On May 29, 1986, the authorities introduced a reform of interest rates, which allowed banks freely to set deposit rates equal to or above minimum rates and freed all lending rates (except for a maximum lending rate of 15 percent for loans to priority sectors).

14/ On July 31, 1987, the Central Bank removed controls on interest rates, and raised the rediscount and treasury bill rates by 4 percentage points, to 15 percent and 14 percent, respectively. In November 1989, an auction-based system for the issue of Federal Government treasury bills and treasury certificates was introduced, but the rate continued to be influenced by a reservation price set by the Central Bank.

15/ Ceilings on all deposit rates were lifted in July 1981; those on medium- and long-term lending in October 1981. The ceiling on short-term lending rates was eliminated at the end of 1982.

16/ On April 1, 1990, the Government increased interest rates on loans to economic units to a uniform level of 5 percent which was above the highest previous level. Interest rates on all enterprise deposits were raised to a uniform 3 percent. On April 1, 1991, the National Bank of Poland freed all interest rates.

17/ The rigid system of fixed interest rates and fixed differentials that prevailed for decades was replaced by a single maximum lending rate of 31 percent on July 25, 1991.

18/ In March 1990, the remaining interest rate ceilings on time deposits (those with a maturity of one year and below) were abolished. At the same time, the maximum interest rate for loans was raised from 15 percent to 16.5 percent.

19/ As part of the 1980 stabilization program, interest rates on time deposits were substantially deregulated. Following this action, time deposit rates were determined through a "gentleman's agreement" among commercial banks. However, in December 1983, the authorities retook control over interest rates. In July 1987, as an initial step toward interest rate liberalization, interest rates on 12-month deposits were freed; this lasted until early 1988 when controls were re-established. Other attempts at deregulation were made subsequently.

20/ On July 1, 1988, the Government introduced an across-the-board increase of 10 percentage points in most interest rates as part of its new economic program for 1988/89.

21/ The Government freed interest rates in August 1981, but a new government re-established administrative control of interest rates in 1984. Another government increased and freed the rates in February 1989, but one month later the Supreme Court forced the Central Bank to set limits on interest rates; the limits were set at high (probably non-binding) levels.

occasional reference is made, as appropriate, to these additional countries, particularly to those that have been covered in previous studies. <sup>1/</sup>

# 1. Movement toward financial liberalization

In this paper, financial liberalization is not quite synonymous with market determination of interest rates; there is a difference between the two, which may be illustrated by the following examples. In some countries where interest rates are legally free to be determined by market participants, the rates may nevertheless be substantially sticky because of the existence of an inefficient market structure, or because of non-interest rate financial regulations or because of strong moral suasion. By contrast, in other countries interest rates may be comprehensively regulated, yet flexibly adjusted to approximate market conditions. Also, the existing interest rate regulations may be nonbinding, as in the case of legal interest rate ceilings that are well above any possible market-determined rates, or in the case of very low legal floors on interest rates.

More important, financial liberalization generally encompasses a range of policies that go well beyond the formal freedom of financial institutions to determine interest rates. These policies include arrangements to spur financial market competition, such as freedom of entry of new financial institutions, as well as orderly exit of failing institutions; the limitation of reserve liquidity and portfolio requirements to what is necessary for the proper conduct of monetary policy and prudential regulation and not, as it is frequently the case, to capture concessionary resources for the government; and the elimination of preferential credit by the central bank or official banks at concessionary interest rates. At the same time, financial liberalization needs to be accompanied by stronger prudential regulation and supervision of financial institution, increased market information, and better enforcement of consumer protection regulations; these policies are needed for an efficient and stable financial market within which interest rates may reflect market conditions. On the international side, financial liberalization is associated with the dismantling of capital controls to allow for market-determined financial transactions between residents and nonresidents. The removal of capital controls, and the opening up of the market to foreign financial institutions, can have a decisive influence on the behavior of domestic financial markets and, therefore, on the determination of domestic interest rates.

The sample of countries chosen for this paper permits analysis of the interactions between interest rate freedom and some of the broader features of financial liberalization. This is important because the sequence of

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<sup>1/</sup> See, for instance, Turtelboom, 1991, which deals with the experience of the Gambia, Ghana, Kenya, Malawi, and Nigeria (only the last is included in the present study).

interest rate measures in the overall financial liberalization program may significantly affect the success or failure of the program.

It is also important to see financial liberalization in the broader context of macroeconomic adjustment and structural reforms, because of the significance of other policies for the results of financial liberalization. The sequencing of financial liberalization within the overall program of stabilization and structural reforms in such other areas as prices, wages, and exchange and trade will significantly affect the prospect for success or failure.

The following discussion distinguishes the experience of countries which achieved full interest rate freedom from that of other countries that retained a degree of interest rate control within a liberal framework. Appendix I contains two statistical tables on the discount, deposit and lending rates for the sample of 28 countries. Appendix I, Table I shows the rates for the 1980s, whereas Table I.A shows the rates for the 1970s for those countries that liberalized their interest rates at some time during the decade or that favored a high interest rate policy by discretionary action (Korea), and for the United States. To facilitate the analysis, an asterisk is used for each country to mark the year in which interest rates were freed, as per the information in Table 1.

### Full liberalization

The following 14 countries in the sample may be regarded as having achieved full interest rate freedom: Argentina, Bolivia, Brazil, Chile, Hungary, Jamaica, Mauritius, Mexico, the Philippines, Poland, Romania, Spain, United States, and Uruguay. Of these, seven countries switched relatively quickly from a state of financial repression to full interest rate freedom: Argentina, Bolivia, Chile, Hungary, Poland, Romania, and Uruguay. The others either staged the liberalization through a long program or did not suffer from chronic repression before the liberalization was undertaken.

The early and dramatic liberalizations in the Southern Cone countries are the examples more frequently examined in the literature: Chile (1975), Argentina (1977) and Uruguay (1979). To date, they remain probably the most controversial. Similar liberalizations, undertaken in an atmosphere of urgency, were those of Bolivia (1985), Poland (1990), and Romania (1991). In all these cases, a severe state of inflation and financial repression prevailed before the measures were taken to lift administrative controls on interest rates.

In Chile, interest rate liberalization was accomplished in one year from May 1974, in the midst of a severe inflation and an attempt at stabilization. First, all previous deposit interest rate ceilings on nonindexed instruments with a maturity of less than one year were replaced by an overall ceiling of 200 percent for commercial banks, and up to 50 percent more for investment banks, thereby ending the quasi-monopolistic

position of the system of savings and loan associations (SINAP) in the attraction of funds by means of partially indexed rates. In November 1974, the interest rates on time deposits of all banks were freed, a measure that induced massive withdrawals from SINAP, which quickly became bankrupt. Despite this difficulty, the remaining 200 percent ceiling on the savings deposit rate was eliminated in April 1975, and this completed the liberalization of interest rates.

Argentina undertook an early experiment in partial interest rate liberalization in February 1971, which ended within a year when, under the prospect of rapid withdrawals from banks in favor of liberalized nonbank intermediaries, the Central Bank reimposed uniform ceilings on all financial intermediaries. In 1975, under a rapidly escalating inflation, the Central Bank of Argentina first increased all interest rate ceilings and then freed all rates, except for a 40 percent ceiling on banks' savings deposits (raised to 55 percent in September 1976). However, this remaining ceiling was still quite constraining, given the prevailing rate of inflation. In June 1977, the ceiling was finally removed, resulting in a substantial increase in short-term interest rates.

The liberalization in Uruguay started in April 1976, at the same time that an effort was made to reduce inflation. All peso-denominated deposit rates were freed, and all graduated loan interest rate ceilings were replaced by a uniform ceiling of 62 percent, signaling the intention of the authorities to move toward complete liberalization. This was achieved de facto one year later when the authorities further raised the loan interest rate ceiling to 90 percent, whereas inflation continued to decline. The ceiling on interest rates, which was increased again in 1988, was not formally removed, however, until September 1979.

The "big-bang" liberalization of interest rates in Bolivia in August 1985 was undertaken in connection with the introduction of a comprehensive program of stabilization and structural reform, which was designed to stop a severe hyperinflation and to return the economy to positive economic growth (Sachs, 1986). All interest rates were simultaneously set free in the financial markets for transactions in both Bolivian pesos and foreign currency (Juan J. Cariaga, in Williamson 1990b, p.48). Nominal interest rates on peso deposits dropped sharply from the levels prevailing during the hyperinflationary period, staying initially at negative real levels. This situation changed beginning in 1987 when inflation fell further and nominal interest rates remained relatively high, thereby resulting in relatively high real interest rates on peso-denominated deposits and loans. Dollar-denominated instruments in the domestic market also had interest rates well above U.S. and Eurodollar interest rates. (Calvo and Guidotti, 1991.)

Hungary achieved interest rate liberalization during its more recent spate of reforms for transition to a market economy. For enterprises, interest rates on deposits were freed in January 1987, and those on loans in July 1987. For households, interest rates on deposits with maturities of

over three years were freed in January 1989; other household deposit rates remained subject to two general ceilings: 12 percent for deposits of less than one year, and 20 percent for those between one and three years. In January 1990, interest rates on household sector deposits of more than six months were freed. Finally, on January 1, 1991 the remaining ceiling on the rates of household deposits of less than six months was eliminated (Boote and Somogyi, 1991).

At the beginning of 1990, Poland embarked on an ambitious program of stabilization and structural reform in connection with which the National Bank of Poland (NBP) began a policy of maintaining interest rates that were positive in real terms with reference to projected (core) inflation. The refinance rate, which became the benchmark for the structure of interest rates, was flexibly moved with projected inflation. Banks were permitted to set deposit and loan rates freely, but were influenced by strong moral suasion. When, beginning in February 1991, large spreads emerged between lending and deposit rates, the NBP began to "advise" the state banks to lower their spreads, but this policy was rescinded from November 1991.

Similarly, in Romania the authorities moved quickly to liberalize interest rates in connection with a program of stabilization and structural reform. In April 1990, the provisional government simplified the structure of interest rates and moderately increased their level. When this measure proved to be insufficient, and also partly for consistency with the new flexible exchange rate policy, the authorities freed all interest rates on deposits and lending in April 1991 (Demekas and Khan, 1991).

The transition to full interest rate freedom in the remaining countries was less dramatic and, in some cases, simply involved a formal recognition of the de facto situation that generally prevailed before the liberalization. The experience of Brazil is unique among these countries in that it involved a transition from widespread indexation to liberalization. Brazil was the Latin American champion of indexation policies from the time of their inception in 1965 until 1975, when interest rates on time deposits were freed (although indexation for many instruments remained freely negotiable). One of the reasons for abandoning mandatory indexation was the insufficient increase in interest rates under rapidly escalating inflation because of the lag in the indexation formula. Furthermore, liberalization was considered to be more consistent with a new monetary policy framework in which open market operations would play a larger role. The move to interest rate freedom was preceded by signals from the authorities about their desire to see interest rates rise by taking discretionary measures twice in 1974 to increase ceiling rates and to align the structure of rates to reflect market forces.

The two industrial countries included in this paper moved to full liberalization in a programmed fashion, which was particularly slow in the case of Spain. Liberalization of interest rates in Spain started in 1969, received a big impulse in 1974-77 for maturities of more than one year, and was completed in March 1987. Because Spain had occasional bouts of double-

digit inflation, ceiling rates at times effectively constrained interest rates to be negative in real terms. By contrast, in the United States, the timing of interest rate liberalization largely prevented interest rate ceilings from becoming effective constraints on the behavior of the financial system. Its formal liberalization of interest rates started on March 31, 1980 when the President signed into law the Depository Institutions Deregulation and Monetary Control Act, which, inter alia, provided for the elimination over a period of six years of all Regulation Q ceilings on interest payments on time and savings deposits. The period of lifting these regulations (1980-86) coincided with a substantial increase in nominal interest rates to double-digit levels, which was without precedence in the history of the country.

In Jamaica, interest rates were free since the early 1970s except for a minimum savings deposit rate (abolished in October 1990) and a ceiling on mortgage lending rates for building societies (removed in mid-1985). An important change in the conduct of interest rate policy occurred in October 1985, when the Bank of Jamaica introduced its own certificates of deposit, which, together with treasury bill operations, became a main instrument to influence market interest rates.

In Mauritius, interest rates were substantially liberalized in November 1981, with the only remaining regulation being the announcement of a minimum interest rate on savings deposits; this floor was abolished in 1988. Following liberalization the authorities employed considerable moral suasion to keep loan rates within certain limits, but with a view to maintaining generally positive loan and deposit rates in real terms. Another factor influencing the interest rate structure was the agreement among the member banks of the Mauritius Bankers Association to limit movements in the rates.

In Mexico, despite the existence of interest rate ceilings, interest rates were traditionally influenced by market forces, especially by interest rates in the United States, given the relative freedom of capital movements of the Mexican economy. This policy worked well until 1973 when the combination of a two-digit rate of domestic inflation and a diminishing confidence in the value of the Mexican peso tended to create a problem of capital outflows. The authorities reacted by increasing the ceiling rates and by liberalizing the right of residents to accept U.S. dollar-denominated deposits, which accentuated the dollarization of the Mexican economy. Further steps were taken in the 1980s to ensure that market forces would play a larger role than in the past in the determination of interest rates. In December 1984, the Bank of Mexico began to conduct open market operations with government securities (treasury bills). In March 1985, in connection with the beginning of the placement of monetary regulation deposits by the Bank of Mexico, interest rates on deposits were increased substantially and became primarily market-determined. Following a failed attempt to readminister interest rates in late 1985, the Bank of Mexico reinforced the policy of interest rate freedom, and in July 1986 resumed the auctions of government securities that had been suspended since November 1985.

In the Philippines, ceilings on all deposit rates were lifted in July 1981; those on medium-and long-term lending in October 1981. The remaining ceiling on short-term lending rates was eliminated at the end of 1982.

### Flexible framework

The countries in this group varied widely in their approach to financial liberalization. In some cases, as in Korea, Turkey, and Venezuela, attempts formally to free the rates did not materialize, although in Korea the general direction of policy and the underlying regulatory framework favored flexible rates.

The three countries in the African French zone examined in this paper-- Benin, Cameroon and Côte d'Ivoire--all had a similar experience, which also essentially applied to the other members of their respective monetary unions. The Central Bank of West African States (BCEAO) of the West African Monetary Union (WAMU), to which Benin and Côte d'Ivoire belong, further liberalized interest rates in October 1989 by abolishing its preferential discount rate. However, bank interest rates continued to be subject to regulation by the BCEAO. In regulating the rates, the BCEAO took into account, in particular, the special relationship of the WAMU to France. Similarly, in October 1990, the Central Bank of Central African States (BEAC) of the Central African Monetary Union, to which Cameroon belongs, eliminated its preferential lending rates, simplified the banks' interest rate structure, and undertook to determine interest rate policy with a view to greater flexibility in the rates, especially taking into account the special relationship with France.

Nigeria activated interest rate policy in May 1986 by raising the existing ceiling on lending rates. The Central Bank prescribed new interest rates with effect from January 1, 1987, but it kept the maximum lending rate at 15 percent. On July 31, 1987, the Central Bank of Nigeria removed controls on interest rates and raised the rediscount and treasury bill rates by 4 percentage points, to 15 and 14 percent, respectively. In November 1989, an auction-based system for the issue of Federal Government treasury bills and treasury certificates was introduced, but the rates on these securities continued to be influenced by a reservation price set by the Central Bank.

Tanzania, and Uganda without formally freeing interest rates from central bank control, made significant moves to increase interest rate flexibility and allow interest rates to move to positive real levels. In Tanzania, in July 1991, the authorities replaced the rigid system of fixed interest rates and fixed differentials that had prevailed for decades by a single maximum lending rate of 31 percent. The government of Uganda introduced on July 1, 1988 an across-the-board increase of 10 percentage points in most interest rates as part of its new economic program for 1988/89.



Significant interest rate liberalization was undertaken by Colombia and Costa Rica in a framework of relatively good overall economic stability. In Colombia, in January 1980, interest rates on term deposits were freed; lending rates were also freed, except for those on directed credit, and those on savings and loan associations, which operated on the basis of indexed rates. The Colombian Government tried subsequently from time to time to dictate interest rates, usually without success. Interest rates were substantially influenced by a loose but effective lenders' cartel that operated through the bankers association. In Costa Rica, the policy of controlled but relatively flexible interest rates was replaced by interest rate freedom in August 1986; there remained only a limit of 10 percentage points on the spread between lending rates and the rate paid on six-month deposits (reduced to 9 percent in 1987 and later eliminated). A remaining restriction was introduced, however, to the effect that the minimum lending rate should be equal to the six-month deposit rate.

In different periods, Malaysia, Nepal and Thailand formally moved to market-based interest rates, but institutional factors reportedly continued to have an influence on the flexibility of the rates. In Malaysia interest rates on deposits and nonpriority loans of commercial banks were formally freed in October 1978, but remained significantly influenced by the behavior of a few large banks. An interbank rate mechanism was introduced in late 1981, under which each individual bank announced its own base lending rate (BLR) in line with its cost of funds. From November 1983, all lending rates of commercial banks were pegged to the BLR, which applied to the banks' prime customers. In Nepal, on May 29, 1986, the authorities allowed banks freely to set deposit rates at or above minimum rates, and freed lending rates (except for a maximum lending rate of 15 percent for loans to priority sectors). In Thailand, the authorities introduced significant financial market reforms designed to increase the flexibility of interest rates much before freeing the rates in March 1990. Since 1979 the repurchase market in government securities became the main channel for the Bank of Thailand's open market operations. In 1987 the Bank of Thailand initiated sales of its own bonds to mop up bank liquidity. An initial step in interest rate liberalization was taken in June 1989 when the interest rate ceiling on time deposits with a maturity of more than one year was lifted. In March 1990 interest rate ceilings on time deposits with a maturity of one year and below were abolished. At the same time, the maximum interest rate for loans was raised from 15 percent to 16.5 percent (and to 19 percent in November 1990).

Korea, Turkey, and Venezuela made attempts at interest rate liberalization without achieving the ultimate goal of formally freeing the rates. Korea offers an important example of successful flexible adjustment of interest rates by discretionary action rather than by the free interplay of market forces. The highly regulated Korean financial system of the 1970s evolved in the 1980s into one in which market forces played a somewhat greater role. There was a gradual change in interest rate policies in an environment of restrained financial policies and effective controls on cross-border capital transactions. Two attempts at interest rate

liberalization, one in the early 1980s and the other in December 1988, were halted in the face of developments that the authorities considered to be undesirable. Under a new program for full interest rate liberalization that was announced in August 1991, interest rate deregulation began in December 1991 and is to be completed by 1996.

In Turkey, as part of the 1980 stabilization program, interest rates on time deposits were deregulated. Following this action, time deposit rates were determined through a "gentlemen's agreement" among commercial banks, although at times rates rose above those sanctioned in the "agreement". In January 1983 the authorities intervened to modify the system by requiring that the nine largest banks would be bound by the agreed rates, whereas the others were allowed to pay a premium of up to 2.5 percent above the agreed rates. As time deposit rates rose to relatively high levels while lending rates lagged behind, in December 1983 the authorities began to fix the rates once again, this time with a view to adopting a more rational interest rate structure; lending rates remained free (except for preferential rates, which were raised significantly), but the Central Bank was empowered to review and to set deposit rates at least every three months, taking into account the rate of inflation and other relevant developments. In July 1987, interest rates on 12-month deposits were freed again. In early 1988, however, following substantial speculation against the Turkish lira in the foreign exchange market, the authorities reintroduced controls on one-year deposit rates and implemented substantial hikes in interest rates on time deposits. On October 14, 1988, following another foreign exchange crisis, the authorities partially liberalized deposit rates (although a ceiling of 85 percent was imposed shortly thereafter). In November 1988 banks were permitted to change deposit rates up to 1/2 percentage points every two days (prior submission to the Central Bank). In May 1989, the banks were allowed for the first time to offer long-term floating-rate deposits of two- to five-year maturity.

In Venezuela interest rates were traditionally subject to ceilings which at times of rising inflation became an effective impediment to the upward flexibility of the rates. In August 1981 the government largely freed interest rates, but controls were re-established in 1984. Once again, the government increased and freed the rates in February 1989, but one month later the Supreme Court declared the measure unconstitutional and forced the Central Bank to set limits on interest rates; the new limits were set at high (probably nonbinding) levels.

## 2. Incidence of high real interest rates

It is not possible in general to characterize interest rates as being low or high except in relation to the particular circumstances of the country under discussion. The main circumstances, but by no means the only ones, for judging the adequacy of interest rates are the rate of inflation and the relationship to foreign interest rates, given the rate of depreciation (or appreciation) of the domestic currency in relation to the foreign currency (or currencies) to which comparison is made. As a first

approximation, for the purposes of this paper, interest rates are defined as being high if they are positive by three or more percentage points in real terms. <sup>1/</sup> The contemporaneous consumer price index for each country is used as the indicator of inflation, and interest rates on lending and deposits, and interest rate spreads, are deflated using this indicator (for details see footnote 1 to Table 2). The resulting real interest rates and spreads are recorded in Tables 2 and 2A. Table 2 shows the available real rates for all 28 countries in the sample for the period since 1980 to the present, whereas Table 2A shows the rates for some countries during the 1970s. These tables are constructed from the rates in Appendix I.

The data show that, in general, the liberalization of interest rates allowed the rates to increase toward positive real levels, although not all countries reached this intended objective. In addition, Korea and Thailand, which did not formally free but managed the rates, maintained positive real rates during most of the years in the last two decades. <sup>2/</sup> As shown in Appendix II, real interest rates increased in 14 of the 16 countries for which reliable data are available before and after the liberalization. The exceptions were Turkey and Venezuela, which suffered reversals in the liberalization process.

The early and rapid liberalizations of the Southern Cone countries--Argentina, Chile, and Uruguay--and that of Brazil led to different outcomes with regard to real interest rates. In Chile and Brazil, interest rates rose to positive real levels from the beginning and stayed high in real terms for many years, whereas in Argentina and Uruguay negative real deposit rates continued to exist for several years after the liberalization. The spreads between lending and deposit rates appeared to have risen in all cases, with the result that real lending rates were positive--including in Argentina and Uruguay--and in some cases they became very high in real terms. These early experiences with financial liberalization in developing countries--especially after the subsequent financial crises in Argentina, Chile and Uruguay--gave rise to the fear that liberalization might lead to high real rates, financial sector instability, and economic difficulties.

In the United States, the phased removal of all ceilings on interest rates during the period 1980-86, coincided with an increase in the rates to high positive real levels--the highest since the Great Depression (World Bank, 1989, page 8). This occurred as nominal rates climbed to unprecedented double-digit figures, while the rate of inflation tended to fall from the peak of 13.5 percent reached in 1980. This behavior of

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<sup>1/</sup> This definition does not mean that a simple quantitative criterion can suffice to characterize a real rate as being excessively high or low. As suggested later in this paper, a number of circumstances determine the adequacy, or otherwise, of the observed real rates.

<sup>2/</sup> In Thailand interest rates were eventually freed in 1990, but Korea is still undergoing a process of liberalization which is planned to be completed by 1996.

Table 2. Real Interest Rates and Spreads, 1980-91  
(In percent per annum) 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Argentina</u>												
Real Lending Rate	...	...	...	...	33.3	63.2	9.2	48.1	19.7	24,958.9	...	...
Real Deposit Rate	-10.6	25.8	-14.4	-13.7	-31.6	-19.7	-15.2	12.1	20.3	10,758.3	-30.2	...
Real Spread	...	...	...	...	64.9	82.9	24.3	36.0	-0.5	14,200.6	...	...
<u>Benin 2/</u>												
Real Lending Rate										*		
Real Deposit Rate												
Real Spread												
<u>Bolivia</u>												
Real Lending Rate	-13.1	10.8	-37.9	-57.5	-84.0	...	5.5 3/	36.9	20.5	19.4	20.9	...
Real Deposit Rate	-19.9	-0.1	-44.1	-62.1	-84.9	...	-45.1 3/	16.2	10.1	7.5	5.6	...
Real Spread	6.8	10.9	6.3	4.6	0.9	...	50.6 3/	20.7	10.4	11.8	15.3	...
<u>Brazil</u>												
Real Lending Rate	...	...	...	...	...	...	...	...	...	...	...	...
Real Deposit Rate	17.6	1.2	29.5	5.1	23.8	21.0	-14.6	52.0	22.7	334.2	...	...
Real Spread	...	...	...	...	...	...	...	...	...	...	...	...
<u>Cameroon</u>												
Real Lending Rate	3.2	2.1	-0.2	-1.8	2.8	13.1	5.4	6.6	4.5	14.0	...	...
Real Deposit Rate	-1.9	-2.9	-5.1	-7.8	-3.5	6.2	-0.4	1.1	-1.3	7.5	...	...
Real Spread	5.0	5.0	4.9	6.0	6.3	6.9	5.7	5.5	5.8	6.5	...	...
<u>Chile</u>												
Real Lending Rate	8.9	27.0	49.1	12.2	15.4	7.7	5.7	10.8	5.7	16.1	18.1	5.6
Real Deposit Rate	1.7	17.7	34.5	0.5	6.5	1.0	-0.4	4.5	0.4	9.1	11.3	0.5
Real Spread	7.2	9.4	14.5	11.7	8.9	6.8	6.1	6.3	5.3	7.0	6.8	5.1

Table 2 (continued). Real Interest Rates and Spreads, 1980-91  
(In percent per annum) 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Colombia</u>												
	*											
Real Lending Rate	-6.0	-6.7	-4.5	-0.6	...	...	...	...	0.1	1.9		
Real Deposit Rate	...	3.0	4.0	6.9	10.8	4.1	...	...	0.1	1.5		
Real Spread	...	-9.7	-8.4	-7.5	...	...	...	...	-0.1	0.4		
<u>Costa Rica</u>												
							*					
Real Lending Rate	...	...	-34.3	-7.1	5.4	5.1	8.9	6.0	6.5	10.9	11.4	
Real Deposit Rate	...	...	-37.8	-9.9	2.3	1.3	4.3	-2.4	-4.7	-0.8	1.8	
Real Spread	...	...	3.5	2.8	3.1	3.8	4.6	8.4	11.2	11.6	9.6	
<u>Côte d'Ivoire</u>												
										*		
Real Lending Rate	-4.7	1.1	3.9	4.4	5.5	8.0	1.4	7.6	0.1	...	...	
Real Deposit Rate	-7.4	-2.4	0.4	1.5	2.8	5.3	-1.1	4.8	-1.7	...	...	
Real Spread	2.8	3.5	3.5	2.8	2.6	2.7	2.6	2.7	1.8	...	...	
<u>Hungary</u>												
												*
Real Lending Rate	-0.3	6.2	6.5	6.2	4.0	4.7	5.4	3.0	-2.8	0.1	-0.2	...
Real Deposit Rate	-5.8	-1.5	-1.9	-1.3	-3.4	-1.9	-1.2	-3.9	-6.3	-2.5	-4.1	...
Real Spread	5.5	7.7	8.4	7.5	7.4	6.5	6.7	6.9	3.4	2.6	3.9	...
<u>Jamaica</u>												
						*						
Real Lending Rate	-11.2	0.2	6.1	1.3	-9.4	-3.0	6.9	15.3	13.6	9.8	10.0	
Real Deposit Rate	-13.4	-1.1	2.9	1.3	-9.6	-3.5	3.4	10.1	8.9	4.1	3.3	
Real Spread	2.1	1.3	3.2	-0.1	0.3	0.5	3.5	5.2	4.7	5.7	6.7	
<u>Korea</u>												
Real Lending Rate	-8.3	-3.3	4.3	6.4	7.5	7.4	7.1	6.7	2.8	5.3	1.3	
Real Deposit Rate	-7.2	-4.2	0.8	4.4	6.7	7.4	7.1	6.7	2.7	4.1	1.3	
Real Spread	-1.2	1.0	3.5	1.9	8.0	--	--	--	0.1	1.2	--	
<u>Malaysia</u>												
Real Lending Rate	1.0	-1.1	2.8	7.1	7.2	11.2	10.0	7.3	5.2	4.1	4.4	
Real Deposit Rate	-0.4	--	3.7	4.2	5.4	8.4	6.4	2.1	...	1.7	3.2	
Real Spread	1.4	-1.1	-0.9	3.0	1.7	2.7	3.6	5.1	...	2.3	1.2	

Table 2 (continued). Real Interest Rates and Spreads, 1980-91  
(In percent per annum) 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Mauritius</u>												
		*										
Real Lending Rate	...	-2.0	1.8	9.0	5.5	6.7	12.5	13.5	5.3	3.1	4.0	
Real Deposit Rate	...	-4.6	-0.2	6.1	2.7	2.6	7.7	8.8	0.8	-1.4	-0.8	
Real Spread	...	2.6	2.0	2.9	2.8	4.1	4.8	4.7	4.5	4.5	4.8	
<u>Mexico</u>												
						*						
Real Lending Rate	1.4	6.8	-8.3	-19.2	-6.5	...	...	...	...	...	...	
Real Deposit Rate	-4.5	1.3	-9.6	-23.3	-10.4	1.1	-0.8	-14.9	-23.6	13.5	3.6	
Real Spread	5.9	5.5	1.4	4.1	3.8	...	...	...	...	...	...	
<u>Nepal</u>												
							*					
Real Lending Rate	-0.6	2.6	3.4	4.1	13.8	8.3	-2.8	3.8	5.5	5.7	5.7	
Real Deposit Rate	-9.3	-6.4	-6.6	-7.0	1.6	-3.3	-9.9	-2.0	-0.4	-0.3		
Real Spread	8.7	9.0	10.0	11.1	12.2	11.6	7.1	5.9	6.0	6.0		
<u>Nigeria</u>												
								*				
Real Lending Rate	-1.4	-9.9	1.7	-10.7	-21.0	1.9	...	2.4				
Real Deposit Rate	-4.3	-12.5	-0.1	-12.8	-22.4	1.6	3.3	1.6				
Real Spread	2.9	2.7	1.8	2.1	1.4	0.3	...	0.8				
<u>Philippines</u>												
			*									
Real Lending Rate	-3.6	2.0	7.2	8.4	-14.7	4.5	16.7	9.2	6.6	7.9	10.2	
Real Deposit Rate	-5.0	0.6	3.2	3.2	-19.4	-3.4	10.4	4.3	2.4	3.2	6.1	
Real Spread	1.5	1.4	4.0	5.1	4.7	7.9	6.2	5.0	4.2	4.7	4.1	
<u>Poland</u>												
										*		
Real Lending Rate	-1.3	-10.9	-45.7	-10.7	-5.2	-2.7	-4.8	-10.6	-27.2	-53.3	-70.6	...
Real Deposit Rate	-5.9	-14.2	-47.2	-13.2	-7.8	-7.9	-9.9	-15.3	-24.5	-65.5	-81.4	...
Real Spread	4.6	3.3	1.5	2.5	2.6	5.2	5.1	4.8	-2.7	12.3	10.7	...
<u>Romania 4/</u>												
										*		
Real Lending Rate												...
Real Deposit Rate												...
Real Spread												...

Table 2 (continued). Real Interest Rates and Spreads, 1980-91  
(In percent per annum) 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Spain</u>												
Real Lending Rate	1.1	0.6	0.5	2.5	4.8	4.4	3.1	10.5	7.3	8.5	8.7	
Real Deposit Rate	-2.2	-2.7	-1.9	0.1	0.9	1.6	0.2	3.5	4.1	2.6	3.7	
Real Spread	3.3	3.4	2.3	2.4	3.8	2.8	2.9	7.0	3.2	5.9	5.0	
<u>Tanzania</u>												
Real Lending Rate	-14.4	-10.9	-13.1	-11.1	-16.5	-16.3	-10.5	-1.9	-1.2	2.4	...	...
Real Deposit Rate	-20.2	-17.2	-19.4	-18.2	-23.2	-22.1	-18.1	-10.9	-10.5	-8.6	...	...
Real Spread	5.8	6.4	6.2	7.1	6.7	5.8	7.6	9.0	9.3	10.9	...	...
<u>Thailand</u>												
Real Lending Rate	-1.4	5.6	13.1	13.4	17.7	16.2	14.9	12.2	10.7	9.2	...	*
Real Deposit Rate	-6.4	-0.1	7.4	8.9	12.0	10.3	7.8	6.9	5.4	3.9	6.0	
Real Spread	5.0	5.8	5.7	4.5	5.7	5.9	7.1	5.4	5.3	5.2	...	
<u>Turkey</u>												
Real Lending Rate	*							*				
Real Lending Rate	-40.2	-0.7	4.0	3.1	2.7	5.9	13.4	8.0	...	...	...	
Real Deposit Rate	-48.6	-7.4	10.8	10.6	2.1	3.0	4.4	-2.8	-15.0	-6.0	-7.9	
Real Spread	8.4	6.7	-6.9	-7.5	0.6	2.9	8.9	10.8	...	...	...	
<u>Uganda</u>												
Real Lending Rate	...	-46.1	-23.3	-6.4	-14.6	-46.7	-50.4	-60.2	-52.4	-26.4		
Real Deposit Rate	...	-48.6	-27.0	-10.8	-18.7	-48.8	-51.6	-62.3	-55.6	-28.4		
Real Spread	...	2.5	3.7	4.4	4.2	2.2	1.2	2.1	3.2	2.0		
<u>United States</u>												
Real Lending Rate	1.6	7.8	8.2	7.4	7.4	6.2	6.4	4.3	5.1	5.8	4.4	4.1
Real Deposit Rate	-0.4	5.1	5.9	5.7	5.8	4.3	4.6	3.0	3.6	4.1	2.6	1.5
Real Spread	1.9	2.7	2.4	1.7	1.6	1.8	1.8	1.3	1.5	1.7	1.8	2.5
<u>Uruguay</u>												
Real Lending Rate	1.9	19.7	33.2	29.8	18.0	13.0	10.4	19.7	24.5	26.1	29.1	
Real Deposit Rate	-8.1	10.0	26.2	14.9	8.4	5.7	-8.3	-1.7	3.5	2.4	-6.9	
Real Spread	10.0	9.7	7.1	14.9	9.6	7.4	18.7	21.4	21.1	23.8	36.1	

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Source: Based on data from IMF, International Financial Statistics, except where otherwise indicated below. An asterisk over the data indicates the year of liberalization of interest rates.

2/ No price index is available.

3/ Data from 1986 onward taken from Boletín Estadístico, Central Bank of Bolivia (see Appendix I Table I).

4/ No interest rate data are available.



Table 2A. Real Interest Rates and Spreads, 1970-79

(In percent per annum) 1/

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>Argentina</u>										
								*		
Real Lending Rate	...	...	...	...	...	...	...	...	...	...
Real Deposit Rate	6.4	-9.1	-18.4	-20.4	4.1	-43.1	-56.8 2/	-11.1	-17.4	-16.2
Real Spread	...	...	...	...	...	...	...	...	...	...
<u>Brazil</u>										
						*				
Real Lending Rate	...	...	...	...	...	...	...	...	...	...
Real Deposit Rate	4.9	7.7	9.0	9.3	-1.1	...	...	...	...	...
Real Spread	...	...	...	...	...	...	...	...	...	...
<u>Chile</u>										
						*				
Real Lending Rate	...	...	...	...	...	...	...	37.1	32.	21.6
Real Deposit Rate	5.4	8.0	7.3	...	...	...	...	1.0	16.2	8.8
Real Spread	...	...	...	...	...	...	...	36.2	16.6	12.8
<u>Korea</u>										
Real Lending Rate	...	...	...	...	...	...	...	...	...	...
Real Deposit Rate	5.8	6.1	0.3	8.5	-7.5	-8.2	0.8	3.8	3.6	0.3
Real Spread	...	...	...	...	...	...	...	...	...	...
<u>Malaysia</u>										
									*	
Real Lending Rate	...	...	...	...	...	...	5.7	3.0	2.5	3.7
Real Deposit Rate	...	...	...	...	...	...	2.8	0.4	0.3	1.8
Real Spread	...	...	...	...	...	...	2.9	2.6	2.3	1.9
<u>Mexico</u>										
Real Lending Rate	...	...	...	...	...	...	...	...	...	...
Real Deposit Rate	5.5	4.4	3.8	-2.2	-9.8	-2.9	-3.5 2/	-14.3	0.6	1.5
Real Spread	...	...	...	...	...	...	...	...	6.0	5.7

Table 2A. (concluded). Real Interest Rates and Spreads, 1970-79

(In percent per annum)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>Spain</u>										
Real Lending Rate	...	...	...	...	...	...	...	...	-4.0	0.1
Real Deposit Rate	...	...	...	...	...	...	...	...	...	5.2
Real Spread	...	...	...	...	...	...	...	...	...	5.3
<u>United States</u>										
Real Lending Rate	1.9	1.4	1.9	1.7	-0.2	-1.2	1.0	0.3	1.3	1.3
Real Deposit Rate	...	...	...	...	...	...	-0.5	-0.9	0.5	--
Real Spread	...	...	...	...	...	...	1.5	1.2	0.8	1.3
<u>Uruguay</u>										
Real Lending Rate	...	...	...	...	...	...2/	7.6	11.6	*	0.8
Real Deposit Rate	-1.8	-2.9	-32.0	-36.6	-26.2	-18.5	-13.6	-4.3	-1.4	-9.7
Real Spread	...	...	...	...	...	...	21.1	15.9	19.8	10.5

Sources: IMF, International Financial Statistics; and Galbis, 1979, Table 5, p.357. An asterisk over the data indicates the year of liberalization of interest rates.

1/ See Table 2, footnote 1, for calculation of real rates of interest.

2/ End of series in Galbis, 1979. The Galbis series and those of IFS are not necessarily consistent.

interest rates in the United States had a significant effect on the Eurodollar rates, which tended to be closely aligned with interest rates in the United States. 1/ It also affected the rates in industrial countries with liberal financial markets. 2/ This was not, however, the case in other industrial countries, like Spain, that still retained ceilings on interest rates, coupled with capital outflow restrictions. In Spain, it was not until all rates were freed in 1987--after a very prolonged liberalization process--that they turned positive in real terms.

In Cameroon, Côte d'Ivoire, and Benin, and surely also in the other members of their two respective African monetary unions, real interest rates fluctuated widely as nominal rates stayed basically unchanged while the rates of inflation gyrated. In Cameroon, the real rates on deposits exceeded 5 percent in both 1985 and 1989, but they were negative in many other years. A similar experience is reported by Turtelboom, 1991, in regard to The Gambia (with interest rate liberalization in 1986), Ghana (1987), Kenya (1991), Malawi (1988), and Nigeria (1987). In all these countries, following their respective liberalizations, a tendency was observed toward a rather sticky behavior of deposit interest rates, and toward an increase in the spread between deposit and lending rates (except, perhaps, in Nigeria).

The liberalization of interest rates in Malaysia (1978) and the Philippines (1982), with more sophisticated financial systems than those of the African countries, generally drove deposit interest rates to positive real levels. In Malaysia, positive rates had prevailed even before the liberalization was undertaken, because of its history of relatively low inflation. By contrast, in the Philippines, where inflation was higher and more variable, and where real interest rates had been effectively repressed to negative levels before the liberalization, the freeing of the rates did not produce an equally smooth transition. In 1984, two years after the liberalization, real interest rates still were highly negative, largely because of a climbing inflation rate.

Turkey offers an interesting example of how attempts at interest rate liberalization could be marred by difficulties in the underlying oligopolistic structure of the financial sector and the ineffectiveness of market-based instruments of monetary control (Denizer, 1989). When the authorities first liberalized the rates in 1980, against a background of substantial inflation, there was little movement in the rates--which were determined by a "gentlemen's agreement" among banks--until 1982. During 1982 and 1983, real deposit interest rates turned highly positive, but

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1/ The U.S. deposit interest rate included in the sample of this paper fluctuates closely with the LIBOR (London Interbank Offer Rate), being usually about 0.20 of 1 percent below the LIBOR.

2/ For a description of and charts on interest rates in industrial countries see any recent issues of Bank of International Settlements, Annual Report, and International Monetary Fund, World Economic Outlook.

lending rates lagged behind so that a negative spread between lending and deposit rates appears to have developed in the market, endangering the stability of the financial sector. 1/ The authorities retook control of interest rates by end-1983 in a concerted effort to stabilize financial markets, although with a view to maintaining positive real interest rates. Under official guidance, the interest rate spread once again became positive, and the administered rates began to trace inflationary tendencies rather accurately. However, following the second experiment in interest rate freedom in 1987, real deposit rates turned negative and stayed negative for several years; the spread seems to have remained positive and large.

Colombia and Mexico formally freed interest rates in the 1980s but with different results. Colombia started a policy of substantial interest rate freedom in 1980 from a situation of relatively low inflation and high ceiling interest rates that in most years had become nonbinding. Furthermore, its savings and loan association system had grown substantially under a policy of indexed rates that were competitive with those of banks and other financial institutions. Following liberalization, the real rates of interest on deposits always stayed at positive levels. 2/ By contrast, in Mexico, because of a combination of highly variable inflation and relatively inflexible interest rates--despite its presumed openness to the U.S. financial market--real deposit rates turned out to be negative in many years both before and after the official liberalization in 1985.

Following Bolivia's comprehensive stabilization and structural reform program in 1985-86, all interest rates both in pesos and in U.S. dollars moved to high real levels and stayed high thereafter (Calvo and Guidotti, 1991). During the preceding years interest rates had been, predictably, highly negative in real terms as the inflexibility in legal maximum rates contrasted with an accelerating rate of inflation culminating in the 1985 hyperinflation.

Costa Rica, Jamaica, and Mauritius were among the countries with a relatively small economy that moved to interest rate freedom in the 1980s. In Mauritius, the 1981 liberalization of interest rates succeeded in moving interest rates to positive real levels, within a relatively stable financial framework and moderate inflation. Similarly, the 1985 liberalization in Jamaica was successful in establishing positive real rates. In Costa Rica, by contrast, the 1986 liberalization of interest rates did not succeed in making the rates sufficiently flexible to match the rising rate of inflation and, as a result, interest rates in the following three years remained negative in real terms. In contrast to Mauritius and Jamaica, Costa Rica

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1/ Unfortunately, the available data on the lending interest rates may not be representative of developments throughout the 1980s and may exaggerate the observed distortions in the interest rate structure.

2/ Although the data indicate a negative spread, this seems to be due to the lack of representativeness of the lending rate, which probably refers to substantially subsidized credit.

had not developed an effective system of indirect monetary policy instruments consistent with a system of market-based interest rates. In addition, the Costa Rican financial sector continued to be largely dominated by its four publicly-owned commercial banks, with relatively little competition in the financial markets.

In Nepal, Tanzania, Uganda, and Venezuela, interest rates were negative in real terms during most of the period of the 1980s because of insufficient liberalization and institutional problems. In Nepal, the 1986 liberalization did not fully succeed in eliminating financial repression, although rates tended to be closer to inflation after the liberalization and the spreads came down. Similarly, the liberalizations in Uganda (1988) and Venezuela (1989) did not fully succeed in eliminating the negative real rates that had prevailed before liberalization. The case of Venezuela's financial repression is particularly difficult to explain in light of the substantial connections that are presumed to exist between the Venezuelan financial sector and the financial markets in the United States. The interest rate liberalization in Tanzania (1991) appears thus far to have resulted in an increase in deposit and lending rates to positive real levels.

The interest rate liberalizations in Hungary and Poland--completed in 1991 and 1990, respectively--quickly achieved positive real interest rates. 1/ 2/ By contrast, real rates in Romania continued to be negative, though less so than before the 1991 liberalization.

The rest of this paper retains for further analysis only those countries in the sample for which real interest rate data are available for at least one year after liberalization and which had a positive real deposit interest rate of 3 percent or higher in at least one year following interest rate liberalization. These criteria exclude 8 of the 28 countries as follows: Benin, Hungary, Nepal, Poland, Romania, Tanzania, Uganda, and Venezuela. The experience in some of these cases is too recent to judge the results. The remaining 20 countries, for which there is some evidence on the existence of high positive real interest rates, are examined further in the following sections.

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1/ The average negative real rates of interest for Poland in 1990 are explained by the initial jump in the consumer price index early in the year, which was not matched by the interest rates. However, following the initial price adjustment interest rates became positive.

2/ Czechoslovakia also achieved positive real interest rates after liberalization.

### III. Possible Causes

Under financial liberalization interest rates are determined by market forces that affect the supply and the demand for funds, and not by regulation. However, they may be influenced by the authorities through market intervention. In fact, to be consistent with the new policy of liberalization, the authorities will have to switch from direct to indirect monetary policy instruments, which can influence both the volume of credit and money and interest rates (Leite and Sundararajan, 1990; and Wong, 1991). Instead of credit ceilings on individual banks, control of credit and money will be exercised through the flexible operation of rediscounts and open market operations. Market interest rates will thus be influenced by the monetary authorities' own rediscount rate and by purchases and sales of government securities (mainly treasury bills); in some countries also by issuing the authorities' own stabilization bonds. The success or failure in the transition to interest rate liberalization will depend, inter alia, on the appropriate development of financial markets and indirect monetary policy instruments. For this reason, ideally the development of these instruments and markets should precede the liberalization of interest rates; otherwise financial liberalization could lead to serious difficulties and the need to reimpose interest rate controls. In all the sample countries that moved to interest rate freedom the authorities, although with greater or lesser success, made anticipatory or parallel efforts to develop market-based monetary policy instruments and to foster the markets and institutions necessary to make these instruments effective.

The success or failure of financial liberalization also may be significantly affected by the macroeconomic and financial conditions prevailing at the beginning of, and during, the liberalization (Villanueva and Mirakhor, 1990; Turtleboom, 1991). A stable macroeconomic environment, with positive economic growth, moderate or low inflation, a stable exchange rate and a sound balance of payments situation, will undoubtedly facilitate the transition to interest rate freedom. A competitive and sound financial sector, with adequate capitalization, good management and sound portfolios will also be essential, and this will be facilitated by a strong system of prudential regulation and bank supervision.

Because the initial macroeconomic conditions, the sequencing of liberalization measures, the degree of financial sector development, and the efficacy of bank supervision can vary from one country to another, the transition to interest rate liberalization can produce different results. Furthermore, the maintenance of appropriate market interest rates is a task that does not end with the liberalization, but that requires permanent vigilance on the part of the monetary and bank supervisory authorities and appropriate coordination of all macroeconomic policies.

There are many possible causes of high real interest rates in financial markets. The most frequently cited, because of their possible negative effects, are the persistence of high inflationary expectations following an attempt at price stabilization; the risk of rapid exchange rate depreciation

that will tend to reduce the external value of domestic money balances; the implementation of a wrong mix of macroeconomic policies and, in particular, of fiscal expansion with monetary restraint, perhaps supported also with capital inflow restrictions; the oligopolistic behavior of financial institutions in a concentrated financial market characterized by predatory competition; "distress borrowing" by nonfinancial enterprises resulting in an interest inelastic demand for funds, particularly for working capital, caused by a situation of high leverage combined with uncertain repayment prospects, especially in a generalized economic downturn; and moral hazard resulting from the existence of explicit or implicit deposit insurance without adequate bank supervision.

Another possible cause of high real interest rates (and one that is often overlooked because it does not result in negative effects that need corrective action by policymakers), is a very high genuine demand for investment funds not caused by distressed borrowing. This can result from such factors associated with rapid economic growth as the introduction of new technologies, new productive opportunities made possible by successful changes in the regulatory environment--including the opening up of the economy to the outside world--and reduced pressures on the real cost of labor to enterprise.

These possible causes of high real interest rates are not mutually exclusive, but can be generally reinforcing. A combination of various causes and circumstances would be more likely to lead to high real rates than any single factor. For instance, a country striving to stabilize prices from a high level of inflation during an economic boom by relying exclusively on monetary instruments, and in a situation of financial sector difficulties not countered by appropriate bank supervision, would be likely to experience high real interest rates.

Before going into the examination of the possible causes of high real interest rates in the sample countries, it would be useful to note that temporary and unpredictable shocks can also be a factor in the observed behavior of interest rates. For instance, because of the unpredictability of inflation, particularly in cases of external exogenous shocks, one would expect to observe a market pattern of high real interest rates in years of low inflation, and low (or even negative) real interest rates in years of high inflation, under the assumption that the part of inflation that is not anticipated cannot be offset by movements in interest rates. Real interest rates could therefore be moderately positive on average in the long run, but following a random or unpredictable pattern about the average. Only a sequence of years of high real interest rates would, in general, make a pattern that would require close analysis and examination to see if there was a problem.

#### 1. Inflationary expectations

In many countries, the need to free interest rates from traditional ceilings became particularly acute when inflationary pressures reached a

peak, either as a result of domestic policy failure or because of such external factors as the two oil shocks. In these circumstances, the authorities faced the double challenge of reducing inflation by implementing a stabilization program and of liberalizing interest rates to prevent the inefficiencies associated with financial repression. This challenge was not without risk for the behavior of interest rates in the newly liberalized environment. Following liberalization, the tendency would be for interest rates to rise to high nominal levels to offset inflation and--in the absence of complete credibility of the stabilization program--to stay at high levels or to come down only gradually and trailing with a lag the declining rate of inflation. To examine the relevance of this backward-looking inflationary expectations hypothesis in some cases, Tables 3 and 3A show the real deposit rates and the annual inflation rates for the 20 countries of the reduced sample.

Of the three Southern Cone countries, Chile offers a possible example of the effect of inflationary expectations on real rates of interest. Following the inflation peak of about 500 percent reached in 1974, the authorities succeeded in progressively bringing down the rate of inflation until it reached a trough of about 10 percent in 1982. During this whole period, real deposit interest rates stayed on average at a high level, consistent with the inflationary expectations hypothesis. There were other factors, of course, that possibly had an effect on maintaining high real interest rates, as will be indicated later. It was only after 1982 that real interest rates fell to more moderate levels, partly because of the increased management of the financial sector that followed the severe financial and economic crisis of that year. The real deposit rate returned to a double-digit figure, however, toward the end of the 1980s.

Neither Argentina nor Uruguay displayed a simple pattern in the relationship between inflation and real interest rates. In Argentina, real deposit rates did not become positive following the 1977 liberalization, despite the fall in inflation in that year from the peak of about 450 percent reached in 1976. It was not until 1981 that the real deposit rate became positive and only for one year, after two years of relatively lower inflation. Although high positive deposit rates were observed again in 1987-89, these rates were on average negative in the 1980s. <sup>1/</sup> However, real lending rates were substantially positive as a result of a substantial spread between lending and deposit rates. In Uruguay, real deposit interest rates remained somewhat negative until 1981, despite the *de facto* liberalization of interest rates in 1976 and the formal removal of interest rate ceilings in 1979. Unlike in Argentina, the real deposit rates were positive in most years thereafter, with real rates inversely mimicking the gyrations in the rate of inflation.

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<sup>1/</sup> This excludes the year 1989. The extraordinarily high real rates observed in 1989 were the result of especially high real rates during the second quarter of the year owing to rapid exchange rate depreciation.



Table 3. Inflation, Exchange Rate Depreciation, and Real Deposit Interest Rates, 1980-1991 <sup>1/</sup>

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Argentina</u>												
Real Deposit Rate	-10.6	25.8	-14.4	-13.7	-31.6	-19.7	-15.2	12.1	20.3	10,758.3	-30.2	
Inflation Rate	100.8	104.5	164.8	343.8	626.7	672.2	90.1	131.3	343.0	3,079.8	2,314.0	
Exchange Rate Depreciation	23.1	263.8	569.8	379.2	668.4	347.9	57.0	198.3	256.5	13,325.6	211.1	78.8
<u>Bolivia</u>												
Real Deposit Rate	-19.9	-0.1	-44.1	-62.1	-84.9	...	-45.1	16.2	10.1	7.5	5.6	...
Inflation Rate	47.2	28.6	133.3	269.1	1,281.4	11,749.6	276.3	14.6	16.0	15.0	17.3	...
Exchange Rate Depreciation	--	--	707.4	155.1	1,639.6	19,164.5	13.7	14.9	11.8	20.7	14.1	10.2
<u>Brazil</u>												
Real Deposit Rate	17.6	1.2	29.5	5.1	23.8	21.0	-14.6	52.0	22.6	334.2	...	...
Inflation Rate	82.8	105.6	97.8	142.1	197.0	226.9	145.2	229.7	682.3	1,87.0	2,37.8	...
Exchange Rate Depreciation	54.1	95.1	97.7	289.4	223.6	229.5	42.0	385.1	959.2	1,84.1	1,458.9	503.6
<u>Cameroon</u>												
Real Deposit Rate	-1.9	-2.9	-5.1	-7.8	-3.5	6.2	-0.4	1.1	-1.3	7.5	...	...
Inflation Rate	9.6	10.7	13.3	16.6	11.4	1.3	7.7	6.0	8.6	--	...	...
Exchange Rate Depreciation	12.3	27.3	17.0	24.1	14.9	-21.2	-14.6	-17.3	13.5	-4.5	-11.4	1.0
<u>Chile</u>												
Real Deposit Rate	1.7	17.6	34.5	0.5	6.5	1.0	-0.4	4.5	0.4	9.1	11.3	0.5
Inflation Rate	35.1	19.7	9.9	27.3	19.9	30.7	19.5	19.9	14.7	17.0	26.0	21.8
Exchange Rate Depreciation	--	--	88.3	19.2	46.5	43.4	11.4	16.3	3.8	20.3	13.4	11.1

Table 3 (continued). Inflation, Exchange Rate Depreciation, and Real Deposit Interest Rates, 1980-1991 1/

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Colombia</u>												
	*											
Real Deposit Rate	...	3.0	4.0	6.9	10.8	4.1	...	...	0.1	1.5	...	...
Inflation Rate	26.5	27.5	24.6	19.8	16.1	24.0	18.9	23.3	28.1	25.8	29.1	...
Exchange Rate Depreciation	15.7	16.0	19.0	26.3	28.3	51.2	27.2	20.4	27.4	29.2	31.1	24.4
<u>Costa Rica</u>												
							*					
Real Deposit Rate	...	...	-37.8	-9.9	2.3	1.3	4.3	-2.4	-4.7	-0.8	1.8	...
Inflation Rate	18.1	37.1	90.1	32.6	12.0	15.1	11.8	16.9	20.8	16.5	19.0	...
Exchange Rate Depreciation	--	321.1	11.5	7.8	10.0	12.5	9.6	17.6	14.8	6.1	22.8	30.8
<u>Côte d'Ivoire</u>												
										*		
Real Deposit Rate	-7.4	-2.4	0.4	1.5	2.8	5.3	-1.1	4.8	-1.7	...	...	...
Inflation Rate	14.7	8.8	7.3	5.9	4.3	1.9	7.3	0.4	7.0	...	...	...
Exchange Rate Depreciation	12.3	27.3	17.0	24.1	14.9	-21.2	-14.6	-17.3	13.5	-4.5	-11.4	1.0
<u>Jamaica</u>												
						*						
Real Deposit Rate	-13.4	-1.0	2.9	1.3	-9.6	-3.5	3.4	10.2	8.9	4.1	3.3	
Inflation Rate	27.3	12.7	6.6	11.6	27.8	25.7	15.1	6.7	8.3	14.3	22.0	
Exchange Rate Depreciation	--	--	--	84.0	50.4	11.2	--	0.4	-0.4	18.3	24.0	167.4
<u>Korea</u>												
Real Deposit Rate	-7.2	-4.2	0.8	4.4	6.7	7.4	7.1	6.7	2.6	4.1	1.3	
Inflation Rate	28.7	21.3	7.2	3.4	2.3	2.5	2.8	3.1	7.2	5.7	8.6	
Exchange Rate Depreciation	36.3	6.2	6.9	6.2	4.0	7.6	-3.2	-8.0	-13.7	-0.7	5.4	6.2
<u>Malaysia</u>												
Real Deposit Rate	-0.4	--	3.7	4.2	5.4	8.4	6.4	2.1	-1.9	1.7	3.2	
Inflation Rate	6.7	9.7	5.8	3.7	3.9	0.4	0.7	0.9	2.0	2.8	2.6	
Exchange Rate Depreciation	1.5	0.9	3.5	0.7	3.7	0.1	7.3	-4.2	8.9	-0.4	-0.1	0.8
<u>Mauritius</u>												
		*										
Real Deposit Rate	...	-4.6	-0.2	6.1	2.7	2.6	7.7	8.8	0.8	-1.4	-0.8	...
Inflation Rate	42.0	14.5	11.4	5.6	7.4	6.7	1.6	0.5	9.2	12.7	13.5	8.8
Exchange Rate Depreciation	3.3	31.8	5.1	17.2	22.6	-8.3	-8.2	-7.3	13.6	8.4	-4.5	3.3

Table 3 (continued). Inflation, Exchange Rate Depreciation, and Real Deposit Interest Rates, 1980-1991 1/

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Mexico</u>												
						*						
Real Deposit Rate	-4.5	1.3	-9.6	-23.3	-10.4	1.1	-0.8	-14.9	-23.6	13.5	3.6	
Inflation Rate	26.4	27.9	58.9	101.8	65.5	57.8	86.2	131.8	114.2	20.0	26.7	
Exchange Rate Depreciation	2.0	12.8	267.8	49.2	33.8	93.0	148.5	139.3	3.2	15.8	11.5	4.9
<u>Nigeria</u>												
								*				
Real Deposit Rate	-4.3	-12.5	-0.1	-12.8	-22.4	1.6	3.3	1.6	...	...	...	...
Inflation Rate	10.0	20.8	7.7	23.2	39.6	7.4	5.7	11.3	54.5	50.5	7.4	...
Exchange Rate Depreciation	-2.9	17.0	5.2	11.7	8.0	23.7	231.8	24.8	29.3	42.9	17.6	9.6
<u>Philippines</u>												
			*									
Real Deposit Rate	-5.0	0.6	3.2	3.2	-19.4	-3.4	10.4	4.3	2.4	3.2	6.1	...
Inflation Rate	18.2	13.1	10.2	10.0	50.3	23.1	0.8	3.8	8.8	10.6	12.7	17.7
Exchange Rate Depreciation	2.5	7.9	11.8	52.7	41.1	-3.7	7.9	1.3	2.6	5.2	24.8	-4.8
<u>Spain</u>												
								*				
Real Deposit Rate	-2.2	-2.7	-1.9	0.1	0.9	1.6	0.2	3.5	4.1	2.6	3.7	
Inflation Rate	15.6	14.5	14.4	12.2	11.3	8.8	8.8	5.3	4.8	6.8	6.7	
Exchange Rate Depreciation	19.8	23.0	28.9	24.8	10.7	-11.1	-14.1	-17.7	4.1	-3.3	-11.7	-0.2
<u>Thailand</u>												
											*	
Real Deposit Rate	-6.4	-0.1	7.4	8.9	12.0	10.3	7.8	6.9	5.4	3.9	6.0	...
Inflation Rate	19.7	12.7	5.3	3.7	0.9	2.4	1.8	2.5	3.9	5.4	5.9	...
Exchange Rate Depreciation	1.0	11.5	--	--	18.0	-1.8	-2.0	-4.1	0.7	1.8	-1.6	--
<u>Turkey</u>												
	*							*				
Real Deposit Rate	-48.6	-7.4	10.8	10.6	2.1	3.0	4.4	-2.8	-15.0	-6.0	-7.9	
Inflation Rate	110.2	36.6	30.8	31.4	48.4	45.0	34.6	38.9	75.4	63.3	60.3	
Exchange Rate Depreciation	155.0	48.2	39.8	51.4	57.3	29.7	31.4	34.7	77.8	27.5	26.6	73.4
<u>United States</u>												
							*					
Real Deposit Rate	-0.4	5.1	5.8	5.7	5.8	4.3	4.6	3.0	3.6	4.1	2.6	1.5
Inflation Rate	13.5	10.3	6.2	3.2	4.3	3.6	1.9	3.7	4.0	4.8	5.4	4.2
Exchange Rate Depreciation 2/	-3.2	-8.7	-5.2	-5.1	-6.4	12.1	11.4	16.0	-5.1	-2.3	8.3	0.6

Table 3 (continued). Inflation, Exchange Rate Depreciation, and Real Deposit Interest Rates, 1980-1991 1/

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Uruguay</u>												
Real Deposit Rate	-8.1	10.0	26.2	14.9	8.4	5.6	-8.3	-1.7	3.5	2.4	-6.9	
Inflation Rate	63.5	34.1	19.0	49.2	55.3	72.2	76.4	63.6	62.2	80.5	112.5	
Exchange Rate Depreciation	18.4	15.7	191.1	28.2	71.7	68.4	44.8	55.3	60.5	78.5	98.0	56.2

Sources: Based on data in IMF, International Financial Statistics. An asterisk over the data indicates the year of liberalization of interest rates.

1/ Real deposit interest rates from Table 2 above. Rate of inflation based on the consumer price index. Rate of exchange rate depreciation (+) or appreciation (-) derived from end-of-year exchange rate in local currency per U.S. dollar.

2/ On the basis of the U.S. dollar per SDR.

Table 3A. Inflation, Exchange Rate Depreciation, and Real Interest Rates, 1970-79 <sup>1/</sup>

(In percent per annum)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>Argentina</u>										
Real Deposit Rate	6.4	-9.1	-18.4	-20.4	4.1	-43.1	56.8 <sup>2/</sup>	* -11.1	-17.4	-16.2
Inflation Rate	13.6	34.7	58.5	61.3	23.5	182.9	444.0	176.0	175.5	159.5
Exchange Rate Depreciation (+)	14.3	25.0	--	--	--	1117.7	350.9	117.7	68.0	61.3
<u>Brazil</u>										
Real Deposit Rate	4.9	7.7	9.0	9.3	-1.1	...	... <sup>2/</sup>	...	...	...
Inflation Rate	22.4	20.1	16.6	12.7	27.6	29.0	42.0	43.7	38.7	52.7
Exchange Rate Depreciation (+)	13.6	14.0	8.8	--	21.0	21.3	35.2	30.9	29.8	103.3
<u>Chile</u>										
Real Deposit Rate	5.4	8.0	7.3	...	...	...	... <sup>2/</sup>	1.0	16.2	8.8
Inflation Rate	32.5	20.0	74.8	361.5	504.7	374.7	211.8	91.9	40.1	33.4
Exchange Rate Depreciation	22.6	29.2	58.2	1340.0	419.4	354.6	104.9	60.5	21.4	14.9
<u>Korea</u>										
Real Deposit Rate	5.8	6.1	0.3	8.5	-7.5	-8.2	0.8	3.8	3.6	0.3
Inflation Rate	16.1	13.4	11.7	3.2	24.3	25.3	15.3	10.2	14.5	18.3
Exchange Rate Depreciation	4.0	17.9	6.9	-0.4	21.8	--	--	--	--	--
<u>United States</u>										
Real Deposit Rate	...	...	...	...	...	...	-0.5	-0.9	0.5	--
Inflation Rate	5.9	4.3	3.3	6.2	11.0	9.1	5.7	6.5	7.7	11.3
Exchange Rate Depreciation <sup>3/</sup>	--	8.6	--	11.1	1.5	-4.4	-0.8	4.6	7.3	1.1
<u>Uruguay</u>										
Real Deposit Rate	-1.8	-2.9	-32.0	-36.6	-26.2	-18.5 <sup>2/</sup>	-13.6	-4.3	-1.4	* -9.7
Inflation Rate	16.3	24.0	76.5	97.0	77.2	81.4	50.6	58.2	44.6	66.8
Exchange Rate Depreciation	--	48.0	97.8	28.0	76.7	64.9	46.5	35.3	30.4	20.0

Sources: IMF, International Financial Statistics; and Galbis, 1979, Table 5, p. 357. An asterisk over the data indicates the year of liberalization of interest rates.

<sup>1/</sup> See footnote 1 in Table 3, for definition of the series.

<sup>2/</sup> End of series in Galbis, 1979.

<sup>3/</sup> On the basis of the US dollar per SDR.

The story of Brazil is one of persistently high real deposit interest rates, particularly after the liberalization of interest rates in 1975. Unlike in most other countries, nominal interest rates tended to overadjust to renewed inflationary pressures, with the result that real rates became exceedingly high in some years when inflation rose to very high levels (especially in 1989 when the (positive) real deposit rate reached over 330 percent under a severe inflation of about 1,300 percent). Forward indexation and forward-looking inflationary expectations played a part in the behavior of Brazilian interest rates.

It is interesting to contrast the experience of Brazil under financial liberalization with that of Korea and Thailand, where the authorities continued managing the rates during the 1980s, and Colombia, where incomplete liberalization was undertaken in 1980. Like in Brazil, the other countries maintained positive real deposit rates in the long run, but the average real rates were much lower in Colombia, Korea, and Thailand than in Brazil; in some years, when inflation turned up, the rates in Korea turned negative. The much better inflation performance of Colombia and Korea, and especially Thailand, may explain the greater success of the authorities in better adjusting, or managing the market adjustment of, interest rates to the rate of inflation.

In the United States, where, traditionally, inflation was moderate and where real deposit rates were slightly positive on average, the simultaneous stabilization of the unprecedented double-digit inflation of 1979-80 and the liberalization of interest rates, led to positive real interest rates in the range of 5 percent throughout the first half of the 1980s, and only slightly lower thereafter until the 1990s. Many studies focusing on explaining the behavior of interest rates during the early 1980s attribute at least part of this result to the persistence of inflationary expectations, despite the severe 1981-82 recession. Other industrial countries with liberalized financial sectors also followed a similar pattern, with the result that, during the 1980s, average interest rates of industrial countries and international interest rates were higher in both nominal and real terms than at any previous time during the post-war period. Spain, and other industrial countries that had not yet freed all the rates, and that maintained capital outflow controls, managed the domestic rates during this period with a view to avoiding the highly positive real rates prevailing in international markets. The removal of the remaining interest rate ceilings in Spain in 1987--at a time when the inflation rate had subsided to about 5 percent, only a slightly higher level than that of strong performers within the European Community--led to slightly higher, yet reasonable, positive real rates.

In Bolivia, following the change in policy regime in 1985, the rate of inflation moderated substantially but not enough to prevent negative real rates of interest in 1986, and then fell to only about 15 percent in 1987, staying around that level thereafter. Probably because of various risk perceptions, real interest rates on both peso-denominated and dollar-denominated deposits remained very high; dollar-denominated deposit rates in

Bolivian banks maintained a margin of over 5 percentage points over the corresponding rates in the United States (Calvo and Guidotti, 1991).

In Turkey, a country with a persistent inflation record, the 1980 liberalization of interest rates was accompanied by a relatively successful attempt to bring inflation down from a peak of 110 percent. The real interest rate on deposits rose from a highly negative level in 1980 to a relatively high positive level in 1982-83, partly as a result of persistent inflationary expectations. Following several years of intervention, the authorities again liberalized the rates in 1987; this time, however, the action coincided with an increase in the rate of inflation that more than offset the increase in nominal interest rates. As a result, real interest rates both on deposit and loans remained substantially negative after the liberalization.

Mexico's interest rate liberalization was undertaken in 1985 in the midst of serious macroeconomic disequilibria including a rising rate of inflation that increased from about 60 percent in that year to a peak of about 115 percent in 1988. As the increase in nominal interest rates was quite insufficient to match the escalating inflation, real rates turned sharply negative, a situation that was not reversed until a relatively successful attack on inflation in 1989 lowered the inflation rate to about 20 percent, well below the prevailing interest rates.

As in Mexico, the freeing of interest rates in Nigeria in 1987 coincided with a period of rapidly escalating inflation that more than offset the increase in nominal interest rates. The liberalization did not bring the desired result of maintaining positive real rates until inflation was brought under control in 1990.

The interest rate liberalizations in the remaining countries in the sample--Cameroon, Côte d'Ivoire, Costa Rica, Jamaica, Malaysia, Mauritius, and the Philippines--did not lead to abnormally high positive real interest rates largely because they started from a situation of relatively moderate and predictable inflation. In Cameroon and Côte d'Ivoire, and probably also in the other members of their respective monetary unions, real interest rates were moderately positive on average, and they became high only occasionally in years when inflation fell to low levels, given the rigidity in the nominal rates. In Costa Rica, Malaysia, Mauritius, and the Philippines, the maintenance of relatively low and stable inflation rates during and after the liberalization was an important factor in keeping real interest rates within moderately positive levels on average. By contrast, in Jamaica, where the liberalization undertaken in 1985 was accompanied by a successful reduction in the inflation rate, the real deposit interest rates rose to relatively high positive levels, a result that would be consistent with the hypothesis of backward-looking inflationary expectations.

## 2. Exchange rate risk

The public's perception of risk of exchange rate depreciation, associated with inflationary pressures or as an independent factor, has often been blamed for putting pressure on domestic interest rates to rise to excessively high levels. The exchange rate risk factor may have been particularly responsible for high real interest rates in countries where exchange rate policy was designed with a view to containing exchange rate depreciation in the face of substantial inflationary pressures, followed by large discrete depreciations. However, even more so than in the case of inflationary expectations, exchange rate risk is a factor that is difficult to pin down empirically in any analysis of the occurrence of high real interest rates. Tables 3 and 3A above provide data on the actual rate of depreciation as a proxy for exchange rate risk.

The highly inflationary countries of the Southern Cone again provide examples of the possible influence of exchange rate risk on the determination of interest rates. Following the liberalization of interest rates, the three countries adopted an exchange rate system based on a preannounced crawling peg, and tried to reduce the rate of crawl over time with a view to reducing the inflation rate. This policy, especially in Chile, had the effect of perpetuating an overvalued exchange rate, with the consequent effect on increasing the risk of future exchange rate depreciation. In Chile, after several years of reducing the rate of crawl, the authorities decided to peg the exchange rate to the U.S. dollar in July 1979 in the hope of stemming remaining inflationary pressures--presumed to be due to inflationary expectations--that subsisted despite the application of restrictive fiscal and monetary policies. Instead of reducing inflation, however, the premature fixing of the exchange rate further fueled expectations of a considerable depreciation of the exchange rate. In this situation, exchange rate risk reinforced inflationary expectations as a force in maintaining high real interest rates, which did not come down until after a substantial depreciation of the Chilean peso in 1982, amidst a severe economic and financial crisis. <sup>1/</sup> Although less dramatic than in Chile, the experiences of Argentina and Uruguay also reveal the potential effect of exchange rate risk on interest rates. In Argentina, in 1981-82 and especially in 1989, and in Uruguay in 1982, the authorities eventually had to allow for substantial exchange rate depreciation in the face of substantial speculation against the domestic currency, with the resulting relatively high real interest rates.

In Brazil, the data seem to point to a situation of substantial exchange rate risk in the early 1980s as a result of the previous policy of containment of exchange rate depreciation. The large depreciations

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<sup>1/</sup> This crisis was the combined result of macroeconomic disequilibria--the high real interest rates, the overvalued exchange rate, and the high real wages caused by backward-looking wage indexation--and structural deficiencies in the banking and corporate sector.



undertaken in 1979 and 1983 apparently proved insufficient to quench further expectations of depreciation and, as a result, interest rates moved to high real levels in 1980 and 1984-85, at the same time that the authorities were forced to accelerate the rate of depreciation. A similar but more pronounced episode took place in 1987-89 when interest rates climbed to very high real levels in the face of a large, but still insufficient, depreciation that probably fueled expectations of further exchange depreciation; a large depreciation was indeed undertaken in 1990-91.

In many countries including Mauritius, Mexico, the Philippines, and Turkey, the program of stabilization and structural reform, in connection with which the authorities freed the interest rates, was accompanied by a policy of an initial substantial discrete depreciation of the exchange rate that had the likely effect of quenching expectations of further exchange rate depreciation. In Mauritius, the relatively substantial depreciation of the exchange rate in 1981, when the interest rates were freed, may have quenched expectations of further exchange rate depreciation; in addition, the authorities repeatedly depreciated the local currency thereafter, as needed, with a view to keeping a competitive external sector. Although exchange rate depreciation obviously did not help price stabilization, this policy helped moderate any tendencies for the interest rates to rise to excessively high positive levels. Similarly, the Mexican authorities in 1985 and the Philippines' authorities in 1982-83--following their respective interest rates liberalizations--substantially depreciated the exchange rate, and these early moves reduced the risk of large exchange rate depreciation later. In Turkey, the 1980 liberalization of interest rates was accompanied by a substantial depreciation of the exchange rate that had the effect of reducing the risk of future immediate exchange rate depreciation. Perhaps because of this, real interest rates did not reach a positive level in 1981 despite the substantial decrease in inflation. No issue of exchange rate risk appears to have been posed, either, by the second interest rate liberalization in 1987, when interest rates in fact remained negative in real terms. In Colombia expectations of depreciation may have helped to bring about the initially high real deposit rates observed in 1981-84, but this situation was probably corrected following the sharp exchange rate depreciation undertaken in 1985.

Although in Korea, and in Thailand (until 1990), the authorities controlled interest rates, there could have been pressures to raise official interest rates in the presence of exchange rate risk and private incentives to capital outflows. In Korea, however, the authorities did not allow exchange rate pressures--which had built in the early 1980s as a result of having maintained the exchange rate pegged to the U.S. dollar since 1975--to have an effect on increasing real interest rates beyond reasonable limits. On the contrary, real rates were maintained at negative real levels for a period of two years in 1980-81 while the exchange rate was being depreciated and the economy recovered from a severe recession. In Thailand, the pegging of the exchange rate to the U.S. dollar in 1982-83 may have been a factor in raising real interest rates by both raising the exchange rate risk and lowering the rate of inflation.

The remaining countries did not display a discernible pattern of association between the exchange rate policies and the movements in real interest rates. In Bolivia, following the 1985 stabilization and reform program, the authorities maintained a flexible exchange rate policy that did not appear to have become a direct factor in the prevalence of high real interest rates; other explanations for this phenomenon, therefore, need to be searched for. Similarly, in Cameroon, Côte d'Ivoire, Costa Rica, Malaysia, Spain, and the United States, the exchange rate factor does not seem to have played a role in raising interest rates. In the United States, the period of high real interest rates of the early 1980s coincided with the appreciation of the U.S. dollar in world markets which, if anything, should have had a moderating influence on interest rates.

### 3. Wrong monetary/fiscal policy mix

When embarking on a program of stabilization and structural reform, countries must usually take measures to tighten monetary and fiscal policies. If interest rates are already free or are being freed simultaneously with the stabilization, the relative stance of monetary and fiscal policies could have an effect on the behavior of market interest rates. In particular, a situation of tight monetary control but with a lax fiscal policy, may put downward pressure on the prices of government securities with the consequent effect on increasing market interest rates, which can transcend to the entire range of financial markets. <sup>1/</sup> Tables 4 and 4A contain some indicators of the stance of monetary and fiscal policies in the 20 countries of the reduced sample.

It should be noted that, for the fiscal expansion effect to be fully manifested in financial markets, the country in question must have a relatively sophisticated market for government securities and must not be able to tap directly the resources of the financial sector by means of reserve, liquidity, or portfolio requirements imposed on financial institutions. In countries with undeveloped securities markets in which, despite the freeing of interest rates, the authorities finance large public sector deficits by forced recurrence to central bank and commercial bank financing, the consequent expansion of credit and money may be sufficient to reduce or eliminate the impact of the budget on real interest rates. This may be the major reason why in many countries in the sample that underwent relatively high fiscal expansion, such expansion was not translated, however, in high real interest rates. Mention may be made in particular of Argentina and Uruguay, which did not succeed in bringing their public finances under control in connection with their stabilization and reform

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<sup>1/</sup> Alternatively, the government may borrow from the banking system in competition with the private sector borrowers thereby directly raising the lending rates.

Table 4. Monetary and Fiscal Indicators, 1980-91 <sup>1/</sup>

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Argentina</u>												
Rate of growth of money	89.0	112.7	162.5	401.2	611.5	614.7	110.6	172.7	436.8	2,192.6	1,107.6	...
Growth of domestic credit	121.7	255.7	398.0	878.9	1,178.9	1,300.0 <sup>2/</sup>	75.0	428.8	700.0	9,543.8	3,575.9	...
Growth of public sector claims	21.9	87.3	130.9	395.9	478.9	600.0 <sup>3/</sup>	87.5	244.4	346.9	4,708.5	1,994.4	...
Government deficit (+)/GDP	3.6	8.2	7.2	12.7	5.1	7.4	2.6	3.8	2.7	...	...	...
<u>Bolivia</u>												
Rate of growth of money	39.0	27.2	230.4	172.8	1,428.9	7,075.0	184.7	92.9	28.6	22.2	52.8	...
Growth of domestic credit	45.7	34.3	431.6	288.8	1,673.3	3,280.0	66.6	116.6	41.7	62.4	58.2	...
Growth of public sector claims	33.0	16.1	259.2	214.6	1,151.1	-5,125.0 <sup>3/</sup>	-116.0	-11.5	4.8	6.7	3.0	...
Government deficit (+)/GDP	7.9	6.8	27.7	22.3	36.7	41.2	--	-0.1	0.1	1.2	...	...
<u>Brazil</u>												
Rate of growth of money	61.3	94.2	85.2	141.7	261.9	338.4	260.0	213.7	...	...	...	...
Growth of domestic credit	166.1	219.1	251.4	467.7	538.4	700.5	611.8	769.0	...	...	...	...
Growth of public sector claims	40.6	54.2	84.2	228.7	175.2	309.0	347.7	519.6	...	...	...	...
Government deficit (+)/GDP	2.4	2.4	2.5	4.1	4.9	11.2	13.3	12.1	15.3	16.1	...	...
<u>Cameroon</u>												
Rate of growth of money	21.3	28.6	19.2	26.7	20.2	17.4	-3.9	-18.5	2.8	10.4	-1.7	...
Growth of domestic credit	30.5	19.7	33.8	28.4	5.1	14.1	18.7	-7.0	-9.9	27.2	-2.2	...
Growth of public sector claims	-5.3	-25.7	4.5	1.5	5.6	4.3	6.2	-10.4	-11.2	46.8	-3.1	...
Government deficit (+)/GDP	-0.5	3.3	2.5	-1.3	...	...	...	...	...	...	...	...
<u>Chile</u>												
Rate of growth of money	61.9	28.8	34.9	21.5	22.4	47.3	25.3	35.0	27.1	31.2	23.6	...
Growth of domestic credit	94.6	61.0	122.4	56.2	118.3	139.6	61.2	55.8	30.6	25.0	37.9	...
Growth of public sector claims	-23.2	-5.0	19.0	28.8	53.6	102.1	32.7	19.8	1.0	3.1	16.5	...
Government deficit (+)/GDP	-5.4	-2.6	1.0	2.6	3.0	2.4	1.0	-0.5	0.2	...	...	...

Table 4 (continued). Monetary and Fiscal Indicators, 1980-91 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Colombia</u>												
	*											
Rate of growth of money	45.0	35.7	20.9	25.4	23.9	20.2	-10.0	13.0	21.1	...	...	...
Growth of domestic credit	39.9	29.2	31.9	35.8	47.0	27.2	...	...	44.3	...	...	...
Growth of public sector claims	29.1	41.7	13.9	15.0	31.1	35.3	...	...	18.2	...	...	...
Government deficit (+)/GDP	1.8	3.0	4.7	4.1	4.3	3.2	1.6	0.7	1.3	1.9	...	...
<u>Costa Rica</u>												
							*					
Rate of growth of money	15.9	87.2	27.0	37.0	17.1	15.6	21.3	16.3	40.2	16.4	27.5	
Growth of domestic credit	32.0	15.3	19.2	61.6	17.0	7.7	22.3	18.3	15.1	6.1	15.4	
Growth of public sector claims	23.6	9.6	4.2	40.2	9.1	0.2	14.3	6.2	7.7	1.5	8.1	
Government deficit (+)/GDP	7.4	2.9	0.9	2.0	0.7	1.2	4.5	2.9	--	2.1	3.1	
<u>Côte d'Ivoire</u>												
										*		
Rate of growth of money	2.8	9.9	3.3	4.8	19.4	13.7	2.6	-3.5	1.5	-8.1	-2.6	
Growth of domestic credit	27.4	33.6	12.4	32.7	2.3	-3.8	4.3	2.5	7.8	-8.7	-7.8	
Growth of public sector claims	11.5	19.8	2.2	20.8	4.1	-1.2	3.6	-6.2	8.6	-4.1	-3.9	
Government deficit (+)/GDP	10.9	...	...	...	3.0	...	...	...	...	...	...	
<u>Jamaica</u>												
						*						
Rate of growth of money	20.4	28.3	26.2	27.2	19.0	24.8	27.7	12.6	32.3	6.6	21.5	
Growth of domestic credit	8.6	67.0	36.8	50.7	20.5	-6.0	21.3	-11.8	2.6	6.1	-3.7	
Growth of public sector claims	-0.5	47.9	16.2	34.7	10.3	-8.9	11.1	-25.3	-19.2	-11.4	-16.2	
Government deficit (+)/GDP	20.7	16.5	15.3	13.5	13.8	17.9	9.7	...	...	...	...	
<u>Korea</u>												
Rate of growth of money	26.9	25.0	27.0	15.2	7.7	15.6	18.4	19.1	21.5	19.8	17.2	
Growth of domestic credit	51.7	43.8	37.2	23.3	19.2	27.3	22.9	24.8	17.2	31.1	34.6	
Growth of public sector claims	5.6	10.1	4.6	0.9	0.6	1.2	1.5	-2.7	-3.5	-2.7	-1.5	
Government deficit (+)/GDP	2.2	3.3	3.0	1.0	1.2	1.2	0.1	-0.4	-1.6	-0.2	-0.7	

Table 4 (continued). Monetary and Fiscal Indicators, 1980-91 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Malaysia</u>												
Rate of growth of money	26.2	17.9	16.3	9.4	11.4	6.7	11.0	3.8	6.7	15.2	10.6	
Growth of domestic credit	38.8	28.6	20.1	15.7	19.1	6.4	9.8	4.2	5.7	21.1	19.8	
Growth of public sector claims	12.5	11.7	7.1	-0.8	3.2	-6.4	2.7	4.2	-2.2	0.4	-1.0	
Government deficit (+)/GDP $\frac{1}{2}$	13.3	19.1	17.9	13.1	8.9	7.4	10.5	7.7	4.3	4.9	...	
<u>Mauritius</u>												
		*										
Rate of growth of money	23.2	4.0	23.4	10.1	14.2	31.5	29.1	29.8	28.7	15.4	21.2	
Growth of domestic credit	17.4	38.2	24.9	23.4	22.5	13.1	10.6	6.4	14.7	9.4	12.0	
Growth of public sector claims	12.3	28.4	19.9	16.6	11.2	-6.4	0.5	-8.7	0.7	-1.4	0.8	
Government deficit (+)/GDP	10.3	12.7	11.8	7.7	4.5	3.5	1.8	-0.2	-0.3	1.5	0.5	0.6
<u>Mexico</u>												
						*						
Rate of growth of money	36.6	49.1	58.0	61.9	68.5	43.3	78.4	147.2	-17.5	115.9	76.0	
Growth of domestic credit	42.3	53.8	106.3	76.9	67.8	82.7	142.8	165.8	87.8	121.1	74.6	
Growth of public sector claims	20.2	29.0	93.3	58.7	36.3	61.1	112.8	100.7	52.2	28.2	10.6	
Government deficit (+)/GDP	3.1	6.7	15.4	8.0	7.1	8.4	13.2	13.6	10.2	5.4	...	
<u>Nigeria</u>												
								*				
Rate of growth of money	46.1	5.9	9.6	14.0	11.6	9.0	2.0	22.4	32.9	10.7	35.4	
Growth of domestic credit	20.9	35.1	36.4	34.6	15.7	7.4	4.6	25.6	39.4	-17.2	42.8	
Growth of public sector claims	3.9	20.8	25.5	32.4	12.9	3.1	-9.2	20.5	27.7	-22.0	32.4	
Government deficit (+)/GDP	-18.1	-4.1	...	...	4.6	2.8	3.8	8.9	...	...	...	
<u>Philippines</u>												
			*									
Rate of growth of money	22.1	18.4	21.2	56.5	17.3	9.7	1.8	13.4	24.6	30.1	22.5	
Growth of domestic credit	38.9	41.7	43.9	60.2	6.0	-7.6	-18.1	-10.8	4.9	14.4	19.6	
Growth of public sector claims	9.6	13.0	23.4	22.2	12.3	1.5	-2.7	-22.2	-5.9	0.9	4.0	
Government deficit (+)/GDP	1.4	4.3	4.5	2.0	1.9	2.0	5.0	2.4	2.9	2.1	3.5	2.1

Table 4 (concluded). Monetary and Fiscal Indicators, 1980-91 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Spain</u>												
Rate of growth of money	16.8	15.8	14.0	-1.1	5.0	11.8	*	9.2	15.1	9.9	13.9	
Growth of domestic credit	21.4	24.1	25.3	6.5	16.2	20.3	17.1	17.2	18.6	15.8	16.1	
Growth of public sector claims	5.8	9.4	9.8	0.6	15.3	14.0	9.3	4.9	4.1	3.1	7.2	
Government deficit (+)/GDP	4.2	5.1	5.6	6.3	8.4	7	4.5	3.9	3.6	...	...	
<u>Thailand</u>												
Rate of growth of money	22.4	16.2	24.1	23.3	20.2	10.3	13.2	20.4	18.3	26.3	26.7	*
Growth of domestic credit	22.6	21.3	26.2	31.4	21.7	10.0	7.1	19.6	16.8	20.9	26.8	
Growth of public sector claims	11.9	6.9	11.0	6.6	7.9	1.2	3.6	2.7	-5.6	-5.2	-3.2	
Government deficit (+)/GDP	4.9	3.4	6.5	4.0	3.5	5.5	4.4	2.3	-0.7	-3.1	-4.8	
<u>Turkey</u>												
Rate of growth of money	74.4	88.2	51.1	29.7	58.7	55.3	43.8	45.6	55.0	72.0	51.4	
Growth of domestic credit	143.8	87.1	65.5	53.0	111.7	99.2	91.8	110.1	104.1	92.4	79.9	
Growth of public sector claims	92.2	26.7	32.8	19.7	85.4	61.3	53.8	69.6	70.6	42.7	25.9	
Government deficit (+)/GDP	3.7	1.8	...	4.2	10.0	7.4	3.2	4.0	3.8	4.5	4.2	
<u>United States</u>												
Rate of growth of money	7.1	4.7	8.7	16.3	9.1	9.6	9.0	4.0	6.1	3.9	2.9	
Growth of domestic credit	10.3	8.8	7.6	16.2	15.4	13.3	12.5	10.0	10.5	4.0	-1.2	
Growth of public sector claims	2.6	0.4	2.2	4.6	0.9	3.0	--	0.3	-1.3	-1.5	-1.0	
Government deficit (+)/GDP	2.8	2.6	4.0	5.9	4.7	5.3	5.0	3.3	3.2	2.7	4.0	4.9
<u>Uruguay</u>												
Rate of growth of money	73.2	48.9	33.6	13.0	62.3	95.5	84.0	46.9	95.0	103.1	116.1	
Growth of domestic credit	74.8	43.1	132.0	59.5	121.8	132.0	90.2	65.7	110.7	96.1	102.7	
Growth of public sector claims	2.4	5.0	51.2	46.2	71.1	40.6	31.7	25.1	37.7	39.4	44.3	
Government deficit (+)/GDP	-0.3	1.5	9.1	4.1	5.6	2.4	0.6	0.8	1.6	3.2		

Sources: IMF, International Financial Statistics. An asterisk over the data indicates the year of liberalization of interest rates.

1/ Percent growth of M2, that is money plus quasi-money, from the monetary survey, which comprises the central monetary authority and deposit money banks. Percent growth of domestic credit in relation to M2 in the initial period, from the monetary survey. Percent growth of financial sector claims on public sector in relation to M2 in the initial period, from the monetary survey. Claims on public sector are calculated as the difference between total domestic credit and claims on the private sector. Deficit (+) or surplus (-) of the government in relation to gross domestic product (GDP), in percent.

2/ Domestic credit calculated as the sum of claims on central government (net) and claims on private sector. This excludes claims on other financial institutions, for which data since 1985 are unavailable.

3/ Refers to claims on central government, rather than the entire public sector, beginning in 1985.

4/ The deficits in Malaysia are largely exaggerated because the data excludes the Employees' Provident Fund, a pension fund with large surpluses of the order of 7 percent of GDP in some years. A series including this fund is not available.

Table 4A. Monetary and Fiscal Indicators, 1970-79 1/

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>Argentina</u>										
								*		
Rate of Growth of Money	12.1	17.5	76.7	83.0	54.6	140.0	341.7	225.2	183.3	197.1
Growth of Domestic Credit	14.5	55.1	40.0	128.3	70.1	200.7	326.9	241.6	197.2	217.6
Growth of Public Sector Claims	2.3	8.3	-16.7	75.5	25.8	80.0	73.3	45.2	45.5	27.5
Government Deficit(+)/GDP	...	...	4.8	5.7	6.1	10.5	7.1	2.8	3.2	2.6
<u>Brazil</u>										
						*				
Rate of Growth of Money	28.3	34.9	18.2	44.6	33.0	44.8	38.1	45.2	45.7	72.6
Growth of Domestic Credit	32.8	46.7	634.6	-424.6	77.7	96.8	116.6	121.2	46.0	163.5
Growth of Public Sector Claims	2.4	-15.9	589.1	-484.6	-2.1	0.8	19.3	24.8	-22.6	43.7
Government Deficit(+)/GDP	0.5	0.8	0.3	-0.4	-0.9	0.5	0.2	0.8	1.7	0.6
<u>Chile</u>										
						*				
Rate of Growth of Money	57.9	102.0	144.6	334.0	297.3	306.7	415.2	99.4	93.7	66.5
Growth of Domestic Credit	57.8	150.8	202.5	848.5	1019.5	1295.9	683.8	258.5	140.0	113.0
Growth of Public Sector Claims	35.7	126.1	166.5	775.7	862.2	1101.0	344.2	120.7	-16.5	-5.7
Government Deficit(+)/GDP	...	...	13.0	7.3	5.4	-0.1	-1.4	1.1	0.1	-4.8
<u>Korea</u>										
Rate of Growth of Money	27.4	20.8	33.8	36.4	24.0	28.2	33.5	39.7	35.0	24.6
Growth of Domestic Credit	30.0	30.9	33.2	32.6	55.1	41.9	30.3	29.3	49.3	41.7
Growth of Public Sector Claims	-0.3	-0.5	9.1	2.5	6.5	13.7	1.7	2.1	4.0	1.0
Government Deficit(+)/GDP	0.8	0.3	3.9	0.5	2.2	2.0	1.4	1.7	1.2	1.7
<u>United States</u>										
Rate of Growth of Money	6.5	13.3	12.9	6.5	5.4	12.7	13.7	10.6	7.7	6.2
Growth of Domestic Credit	10.2	17.9	17.1	16.0	11.8	9.3	13.1	15.4	14.4	14.0
Growth of Public Sector Claims	3.7	4.1	1.3	0.5	0.5	4.6	3.1	1.3	0.4	1.1
Government Deficit(+)/GDP	...	...	1.6	1.2	0.3	3.4	4.2	2.6	2.6	1.4

Table 4A (concluded). Monetary and Fiscal Indicators, 1970-79 <sup>1/</sup>

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>Uruguay</u>										
Rate of Growth of Money	20.1	52.1	60.5	70.7	70.7	77.7	99.1	81.7	91.5	85.5 <sup>*</sup>
Growth of Domestic Credit	26.6	95.4	107.9	65.7	123.2	121.6	89.2	78.0	74.2	95.1
Growth of Public Sector Claims	2.3	64.4	42.3	14.7	44.0	39.7	21.4	10.1	10.8	3.1
Government Deficit(+)/GDP	...	...	2.5	1.2	3.8	4.4	2.1	1.3	0.9	--

Sources: IMF, International Financial Statistics. An asterisk over the data indicates the year of liberalization of interest rates.

<sup>1/</sup> Percent growth of M2, that is, money plus quasi-money, from the monetary survey, which comprises the central monetary authority and deposit money banks. Percent growth of domestic credit in relation to M2 in the initial period, from the monetary survey. Percent growth of financial sector claims on public sector in relation to M2 in the initial period, from the monetary survey. Claims on public sector are calculated as the difference between total domestic credit and claims on the private sector. Deficit (+) or surplus (-) of the government in relation to GDP.



programs of the 1980s, but which, on the contrary, continued to release their high budgetary pressures through continued expansion of credit and money rather than through the increase in interest rates.

Like in Argentina and Uruguay, relatively large public sector deficits could not be stopped in Brazil following its 1975 liberalization of interest rates. In contrast to these other countries, however, Brazil regularly financed a relatively large proportion of the budget deficit by issuing public sector bonds at market-determined interest rates. The large supply of bonds necessitated by the fiscal difficulties was partly responsible for the high interest rates observed in the market for government securities, which substantially influenced the rates paid by financial institutions on deposits.

In sharp contrast with the previous countries, Chile successfully pursued a tight fiscal policy from the early stages of its stabilization and reform program in the mid-1970s, and it developed a public sector surplus beginning in 1975, the year of interest rate liberalization. Because of this and until 1982, virtually all the expansion of domestic credit went to the private sector, while the government repurchased its own previously accumulated domestic and external debt. Therefore, in Chile, fiscal expansion definitely was not a factor in the rise and perpetuation of high real interest rates on deposits and loans of financial institutions that occurred until the financial crisis of 1982.

Another case where fiscal expansion was not a factor in the prevalence of high real interest rates was that of Bolivia after the 1985 stabilization and reform program. In fact, the success of the stabilization effort rested largely on the restoration of budgetary discipline, which had been totally lacking during the late stages of the preceding hyperinflation.

The United States in the 1980s provides an example of how a relatively loose fiscal policy combined with severe monetary restraint may contribute to maintaining relatively high real interest rates throughout the entire financial structure (World Bank, 1989, p.8). As inflation abated under the influence of monetary tightening, a loose fiscal policy not only became a direct factor in maintaining high interest rates, but probably acted also indirectly through perpetuating inflationary expectations.

No other relatively clear-cut cases of fiscal impact, or lack thereof, on real interest rates can be found in the sample of countries of this paper. In Korea and Thailand, of course, no impact could occur without the explicit tolerance of the authorities, who not only controlled interest rates but also had the power to arrange for government financing, if needed, through the financial system, rather than through public offers of government securities. In addition, their central banks could influence the interest rate structure and the allocation of credit directly through their discount windows.

In such countries as Colombia, Costa Rica, Mauritius, Mexico, Nigeria, and the Philippines, the pressure to finance occasionally large government deficits was largely dissipated by recurrence to official financing arrangements with the financial sector; fiscal expansion was followed more or less automatically by monetary expansion, which thereby moderated the possible impact on interest rates. In other countries, like Jamaica, Malaysia, and Spain there may have been some impact of government deficits on interest rates as they progressively abandoned direct monetary policy instruments in favor of indirect, market-based instruments and introduced measures to strengthen their markets for government (and other) securities. It should also be noted that in Cameroon and Côte d'Ivoire, as well as in other countries of their respective African monetary unions, budgetary pressures, if unchecked, would have to be manifested in high interest rates on governments bonds or in credit rationing, because of the unions' rule of limiting central bank financing of budget deficits to 20 percent of revenues in the previous year.

#### 4. Financial sector malfunctioning

The institutional structure of the financial system may in some cases have significant implications for the behavior of interest rates under liberalization. As it is well known, in many countries there is only a small number of banks and other financial institutions and, in addition, a few banks have a large proportion of the assets and liabilities of the entire financial system. A measure of bank concentration that takes into account both the number of institutions and their relative size is provided by the Herfindahl-Hirschman (H) index; this concentration index--which varies between zero (no concentration) and one (full concentration, with only one bank)--implies that the larger is the number of banks and the more equal they are in size, the lower is the degree of concentration. A few studies, including Short, 1977, have used the H index for a number of countries during some years to show international differences in bank concentration and in the pattern over time of bank concentration in some individual countries. <sup>1/</sup> Unfortunately, however, it would be impossible to construct an index of banking concentration for the sample of countries in this paper; such undertaking would require an enormous body of data which could only be collected in most cases from the internal records of central banks and bank supervisory agencies. In addition to banks, one would have to take into account nonbank financial intermediaries in many developing countries, as well as those and also the securities markets in industrial countries.

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<sup>1/</sup> Short (1977, page 9) showed that the H index, which ranges between zero and one, varied significantly across a sample of 15 countries, and that it changed over time in individual countries. His study covered some of the countries included in the sample of this paper as follows: Malaysia (1973: 0.1036), Mexico (1970: 0.1682), Nigeria (1974: 0.2071), the Philippines (1974: 0.1039), and Thailand (1975: 0.1215).

More importantly, the concentration ratios in banking business, no matter how they are defined, do not automatically imply oligopolistic behavior on the part of the financial system. Although in principle a high concentration index suggests the possibility of oligopolistic behavior, there are other factors that can influence the behavior of financial institutions in a concentrated market including the regulatory and supervisory framework, the degree of competition offered by foreign financial institutions and the possibility of entry of these institutions into the domestic financial system, the general business climate, the organization of financial institutions into a bankers' association or lack thereof, and the ownership and interlocking relationships between financial institutions and nonfinancial enterprises (Galbis, 1986).

Because of the unavailability of concentration indices and the uncertain, qualitative relationships between concentration and performance, this paper cannot go into the details of competition across the sample of countries. As a result, the only possible alternative is to illustrate some of the main issues and to distill the experience of some countries from available country studies.

Oligopolistic behavior, if unchecked by the authorities, can, under some circumstances, result in two opposite but equally undesirable outcomes: collusion, on the one hand, and pricing warfare, on the other. Under collusion, financial institutions agree to maintain the status quo, with a structure of low deposit interest rates (in relation to inflation) but large spreads between loan and deposit rates. This outcome is the more likely in countries with a powerful bankers' association, coupled with a weak bank supervisory authority. Argentina's interest rate behavior following the 1977 liberalization of interest rates appears to fit this pattern: real deposit rates continued to be negative after the liberalization, whereas real lending rates were highly positive, as a result of a very large spread. A similar behavior with relatively low deposit rates and large spreads was observed in several African countries that freed interest rates in the 1980s: The Gambia, Ghana, Malawi, and Nigeria (Turtleboom, 1991, p. 27). Other cases have also been noted; for instance, in El Salvador in the period 1967-76 the structure of interest rates remained virtually unchanged at very low levels despite the absence of interest rate regulations, and notwithstanding significant changes in the rate of inflation and other relevant macroeconomic variables (Galbis, 1979, page 348).

The possibility of pricing warfare among oligopolistic financial institutions cannot be discounted if the market is subject to intense competition and if the bank supervisory authorities do not act in time to arrest predatory behavior, especially by large institutions. Pricing warfare could lead to high real deposit interest rates as financial institutions struggle to keep ahead of competing institutions in attracting deposits; it could also lead, in some cases, to the abnormality of negative spreads between lending and deposit rates. As indicated earlier, this abnormal situation appears to have occurred in Turkey under financial liberalization in 1982-84, before the authorities retook control over

interest rates to restore order in the financial sector. A similar disturbance in Canada in 1972 was resolved when the Bank of Canada called a meeting of chartered banks to work out the Winnipeg Agreement of June 12, 1972 by which reasonable rates and spreads were restored (Galbis, 1986, page 126).

The behavior of the Chilean financial sector in the period from the interest rate liberalization of 1975 to the serious financial crisis of 1982 has attracted much attention (Andrés Velasco, in Sundararajan and Baliño, 1991). In addition to inflationary expectations and exchange rate risk, as discussed above, the analysis of the Chilean case has shown that--in the absence of adequate bank supervision--"distress borrowing" from banks by nonfinancial enterprises could become a factor in perpetuating high real interest rates. As nonfinancial enterprises began to show signs of possible default when faced with the repayment of large amounts of funds that they had borrowed at high real interest rates, banks felt pressured to provide them with additional resources (in effect, capitalizing unpaid interest receipts) in the hope of avoiding the resulting bank losses. This behavior of Chilean banks was reinforced by another characteristic of the Chilean financial system: the strong ownership links between the banks and the nonfinancial enterprises that they served, as well as their interlocking directorates. Most banks were largely under the control of virtually unregulated bank holding companies, the interest of which was to direct the credit of their banks to their related nonfinancial enterprises ("cartera relacionada"), especially those that showed signs of distress, thereby leaving little resources to satisfy the credit requirements of sound but nonrelated bank customers (Galbis, 1986, page 130). There is no doubt that the "cartera relacionada" syndrome, in conjunction with the need for distress borrowing, played a role in maintaining high real interest rates and in the rapid deterioration of the financial sector, without which its eventual dramatic collapse in 1982 could not have happened (Velasco, in Sundararajan and Baliño, 1991, page 168).

The problem of distress borrowing as a cause of high real interest rates has surfaced in other countries, especially during periods of economic recession. In the Philippines, in the period of financial crisis of 1981-87 the bank holding company structure prevalent in the system allowed banks that belonged to holding companies to engage in excessive risk-taking with newly created and inexperienced nonfinancial subsidiaries, and the resulting poor quality of the banks' own portfolios contributed to high real interest rates (Jean-Claude Nascimento, in Sundararajan and Baliño, 1991, p. 227).

In a financial system lacking adequate prudential regulation and supervision, the availability of explicit or implicit deposit insurance can result in a moral hazard problem that can exacerbate the above market difficulties. Under these circumstances, banks have little to lose by making risky loans at high real interest rates, because they are the beneficiaries of an unfair bet against the government (McKinnon, 1988, p. 407). If high real lending rates eventually result in an accumulation of bad loans, banks will be bailed out. This moral hazard problem, in fact,

operates automatically because of the generally accepted philosophy that one of the authorities' functions is not to allow a collapse of the financial sector to be translated into an economic depression. The case of Chile once again can serve to illustrate this issue. Not only there was no explicit deposit insurance in the years before the 1982 collapse of the financial sector but the authorities had repeatedly made explicit their policy of no bailouts. Nevertheless, when the crisis finally occurred, the official posture had to be changed. Undoubtedly, this moral hazard problem--which is present in any system that fails to apply an appropriate degree of prudential regulation and supervision--was an additional factor in the financial sector crises that occurred in Argentina, Chile, the Philippines, and Uruguay, among others. Because of the inevitability of this ultimate government responsibility, the nature of modern financial sector crises has changed dramatically from that of the pre-war period. Instead of being based on a sudden collapse of the financial system induced by rapid deposit withdrawals because of a lack of confidence in the system, modern financial crises follow a pattern of protracted unsound--and unchecked--banking practices affecting the quality of the loan portfolios. All the recent financial sector crises followed this alternative pattern (see the cases reported in Sundararajan and Baliño, 1991).

#### IV. Likely Effects

The effects that high real interest rates may have on the borrowers, the financial sector, and the behavior of such economic aggregates as savings and investment, and ultimately on the rate of economic growth, are likely to depend on the causes that led to high real rates and on various economic circumstances during the period of high rates. In general, as was indicated in the previous section, not one but several causes may have prompted the increase in interest rates to a high positive level. The specific consequences in any given case will depend, therefore, on the particular combination of causes and circumstances attending each episode of high real interest rates, including whether the economy is in a boom or a recession, and whether such other factors as the terms of trade, the exchange rate and wages are favorable or not. Some combinations of the causes and economic circumstances may prove to be more or less troublesome than others. Only a detailed analysis of all these various factors in each specific case will be able to reveal in the end the role played by high real interest rates.

The following discussion of the possible effects of high real interest rates on reducing investment and economic growth, on creating distress in the corporate and financial sectors, encouraging destabilizing capital inflows, and producing an explosion of government debt, is only indicative. The association between high real interest rates and those presumed effects is largely country-specific and does not lend itself to easy generalizations.

## 1. Reduction of investment and growth

The effect of high real interest rates on the rate of investment is usually presumed to be negative, on the assumption that very high real interest rates may be above any conceivable rate of return on capital, thereby discouraging investment financed with borrowed funds. This would not be true, of course, if the only cause of the increase in interest rates to a high positive real level was a very high demand for investment funds associated with an economic boom based on high rates of return on capital. In this case, high real interest rates would be equilibrium rates determined by favorable investment prospects and not by such adverse forces as the financing of unproductive public sector expenditures, distress borrowing by unsound enterprises, inflationary expectations, or perceptions of exchange rate risk. In addition, if there is a correct selection of investment projects according to the real rate of interest, growth may be expected to accelerate--even if there is a decline in the rate of investment--because of the increase in productivity.

Because of these diverse possibilities, it could not be expected that high real interest rates would have a one-to-one mechanical relationship to investment and growth. Judgment and background knowledge of the factors underlying high real interest rates and the relevant economic circumstances is necessary to be able to identify any discernible patterns. Tables 5 and 5A provide data on the rate of economic growth (the percent increase in real GDP, or GNP) and the investment rate (the percent ratio of gross fixed domestic investment to GDP, or GNP).

Before going into the details of individual cases, however, it is useful to consider whether there is a general pattern of association between real interest rates, investment and growth across the countries in the sample of this paper. For this purpose, long-term averages are calculated for real deposit rates, rates of growth and rates of investment for the periods before and after the liberalization of interest rates (see Appendix II). One of the basic conclusions that emerges is that the increase in real interest rates that generally followed the liberalization of interest rates was generally positively associated with an increase in the rate of economic growth. <sup>1/</sup> By contrast, there was a decline of investment in most countries, which could be the result of either high real interest rates or the general tendency for investment rates to decline throughout the world since the 1970s. When combined, these patterns suggest that there was an increase in productivity after the liberalization of interest rates that more than offset the decline in the investment rates.

For the detailed examination of the behavior of individual countries, it will be useful to begin by comparing the experience of some Latin American countries that underwent early financial liberalization in the

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<sup>1/</sup> For a similar conclusion, see International Monetary Fund, 1983, Appendix III.

Table 5. Rate of Economic Growth, and Investment Ratio, 1980-91 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Argentina</u>												
Real GDP growth	1.5	-6.7	-5.0	2.9	2.5	-4.4	5.6	2.5	-2.5	-4.5	0.4	
Gross investment ratio	22.2	18.8	15.9	17.3	15.4	13.4	13.1	13.9	13.0	9.4	...	
<u>Bolivia</u>												
Real GDP growth	0.6	0.9	-4.4	-4.5	-0.6	-1.0	-2.5	2.6	3.0	2.8	2.6	4.1
Gross investment ratio	14.6	13.3	12.5	11.5	10.8	11.7	10.8	11.3	11.5	11.5	10.9	
<u>Brazil</u>												
Real GDP growth	9.1	-4.4	0.6	-3.4	5.3	8.0	7.6	3.6	-0.1	3.3	-4.1	
Gross investment ratio	22.5	21.0	21.4	18.2	16.9	17.0	19.1	22.3	22.8	24.9	21.7	
<u>Cameroon</u>												
Real GDP growth	4.2	17.1	7.6	6.9	7.5	8.1	...	...	...	...	...	*
Gross investment ratio	20.0	24.6	23.3	25.0	25.3	24.5	...	...	...	...	...	
<u>Chile</u>												
Real GDP growth	7.8	5.5	-14.1	-0.7	6.4	2.5	5.6	5.7	7.4	10.0	2.2	
Gross investment ratio	16.6	18.6	14.6	12.0	12.4	14.2	14.6	16.0	16.3	18.4	19.5	
<u>Colombia</u>												
Real GDP growth	4.1	2.3	1.0	1.6	3.4	3.1	5.8	5.4	3.7	3.6	4.2	
Gross investment ratio	16.8	17.7	17.5	17.2	17.0	17.5	17.7	17.4	18.9	19.1	17.8	
<u>Costa Rica</u>												
Real GDP growth	0.8	-2.3	-7.3	2.9	8.0	0.7	5.5	4.8	3.4	5.7	3.4	
Gross investment ratio	23.9	24.1	20.3	18.0	20.1	19.3	18.7	19.8	18.9	20.4	22.0	
<u>Côte d'Ivoire</u>												
Real GDP growth	7.7	3.5	...	...	...	...	...	...	...	...	...	
Gross investment ratio	24.4	24.4	21.7	17.7	13.0	11.8	11.9	...	...	...	...	

Table 5 (continued). Rate of Economic Growth, and Investment Ratio, 1980-91 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Jamaica</u>												
Real GDP growth	-5.7	2.6	1.2	2.3	-0.9	*						
Gross investment ratio	14.5	18.0	19.9	20.5	21.2	-4.6	1.7	6.2	1.5	4.6	...	...
<u>Korea</u>												
Real GDP growth	-2.2	6.7	7.3	11.8	9.4	6.9	12.4	12.0	11.5	6.2	9.0	
Gross investment ratio	32.1	28.0	28.4	29.3	28.9	28.3	27.8	28.7	29.2	31.7	36.6	
<u>Malaysia</u>												
Real GDP growth	7.4	6.9	5.9	6.3	7.8	-1.0	1.1	5.4	9.1	8.6	9.8	
Gross investment ratio	31.1	36.0	36.4	36.1	31.9	29.8	26.4	23.0	24.1	38.5	32.7	
<u>Mauritius</u>												
Real GDP growth	-10.1	*										
Gross investment ratio	23.3	5.9	5.5	0.4	4.8	6.9	9.7	10.2	6.8	4.4	7.2	4.3
		21.9	17.9	18.0	18.1	18.7	19.8	21.6	28.7	26.6	31.5	29.1
<u>Mexico</u>												
Real GDP growth	8.3	8.0	-0.6	-5.3	3.7	*						
Gross investment ratio	24.2	25.7	22.3	17.3	18.4	2.7	-3.7	...	...	...	...	...
						19.9	19.4	18.9	...	...	...	...
<u>Nigeria</u>												
Real GDP growth	5.3	-8.4	-0.3	-5.4	-5.1	9.4	3.1	-0.5	9.9	5.3	...	
Gross investment ratio	21.6	26.3	21.0	15.6	10.3	8.3	10.0	9.8	8.5	8.1	...	
<u>Philippines</u>												
Real GDP growth	5.2	3.2	*									
Gross investment ratio	27.2	27.8	3.6	1.9	-7.6	-7.4	3.4	4.8	6.3	5.9	2.1	
			27.5	29.9	24.5	17.5	16.8	17.0	17.8	20.9	21.0	
<u>Spain</u>												
Real GDP growth	1.5	-0.3	1.2	1.8	1.8	2.3	3.3	*				
Gross investment ratio	22.2	21.8	21.3	20.6	18.8	19.2	19.5	5.6	5.2	4.8	3.7	
								20.8	22.5	24.0	24.4	



Table 5A. Rate of Economic Growth, and Investment Ratio, 1970-79 <sup>1/</sup>

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>Argentina</u>										
Real GDP growth	2.6	3.4	1.9	3.2	6.3	-0.7	-0.3	*	6.2	-3.3
Gross investment ratio	22.2	23.1	19.1	17.1	18.4	25.9	26.9	27.2	24.4	22.7
<u>Brazil</u>										
Real GDP growth	2.6	12.2	10.9	13.5	9.8	*	5.6	9.7	2.9	5.0
Gross investment ratio	24.0	24.9	25.2	25.9	19.8	24.4	22.5	21.4	22.2	23.0
<u>Chile</u>										
Real GDP growth	1.4	9.0	-1.2	-5.6	1.0	*	-12.9	3.5	9.9	8.2
Gross investment ratio	...	15.4	13.0	13.0	17.0	17.7	13.3	13.3	14.7	14.9
<u>Korea</u>										
Real GDP growth	8.8	9.2	6.0	14.4	7.9	6.5	13.2	10.9	9.7	7.6
Gross investment ratio	23.0	21.5	19.9	23.2	25.1	24.9	24.0	28.2	32.5	33.7
<u>United States</u>										
Real GDP growth	-0.3	2.8	5.0	5.2	-0.5	-1.3	4.9	4.7	5.3	2.5
Gross investment ratio	17.5	18.0	19.1	19.5	18.9	17.7	18.0	19.5	20.8	21.5
<u>Uruguay</u>										
Real GDP growth	4.8	-1.0	-1.6	0.4	3.1	5.9	4.0	1.2	5.3	*
Gross investment ratio	11.4	11.5	9.8	9.0	10.2	13.3	15.4	15.2	16.0	16.2

Sources: IMF, International Financial Statistics. An asterisk over the data indicates the year of liberalization of interest rates.

<sup>1/</sup> Percent rate of growth of gross domestic product (GDP) except when gross national product (GNP) is indicated. Investment ratio defined as percent of gross investment in relation to GDP, except where GNP is indicated.

1970s--Argentina, Brazil, Chile, and Uruguay--with that of Asian countries which had high real interest rates but which did not in all cases free their interest rates: Korea, Malaysia, the Philippines, and Thailand. As it is well known, in the 1980s Asian countries generally outperformed Latin American countries in terms of economic growth, an observation that has attracted a significant amount of research dealing with the possible causes of this disparate performance. This paper will focus on the possible role of interest rates, although, of course, other economic forces were simultaneously in operation.

On the Latin American side, the 1977 financial liberalization in Argentina coincided with an all time peak in the investment rate of about 27 percent, which declined progressively to about 9 percent by 1989. Argentina displayed a characteristic pattern of sluggish and fluctuating economic growth. The combination of a falling rate of investment with a long-term unchanged growth performance suggests, however, that there may have been an improvement in the efficiency of utilization of resources. The liberalization of the financial sector led to a combination of insufficiently high deposit rates, which continued to be an impediment to the growth of deposits, and high real lending rates which may have discouraged investment. In Uruguay, the 1977-79 liberalization was followed by an initial increase in the investment rate to about 16 percent and by an improvement in the rate of growth (1978-80) with much sounder but still negative real interest rates. This was followed by a period of high real interest rates with negative economic growth rates (1982-84), and then by moderately positive interest rates with fluctuating economic growth and a decline in the investment rate throughout the rest of the decade to about 9 percent. The story of Brazil after the 1975 financial liberalization is one of a relatively high and sustained investment rate of about 20 percent--despite the prevalence of high real interest rates--but a long-term decline in the fluctuating rate of economic growth, largely the result of many factors besides the high real interest rates.

In Chile, following the initial sharp decline in output in 1975 that accompanied the stabilization and structural reform measures, both the investment rate and economic growth increased to relatively high levels--despite high real interest rates--until the severe economic and financial crisis of 1982-83. Following this crisis which was resolved by a significant restructuring of the financial sector and by improved macroeconomic management, there was another long period of economic growth, with a rising investment rate that reached close to 20 percent by the end of the 1980s.

The Asian countries--particularly Korea, Malaysia, and Thailand--showed a superior performance than the Latin American countries in both investment and growth. In Korea and Thailand this superior performance was achieved under a regime of direct interest rate management, which was guided by the principle of achieving positive, sometimes high, real interest rates. However, in Korea the authorities did not hesitate to lower interest rates temporarily to moderately negative real levels during the economic downturn

of 1980, in a situation in which the corporate sector was suffering from financial distress owing to its high leverage, combined with adverse exogenous shocks. Malaysia achieved high investment and rapid economic growth under a policy of financial liberalization that resulted in relatively high real interest rates. In the Philippines, by contrast, both the investment rate and the rate of growth were lower than in the other Asian countries. The Philippines suffered a significant economic depression in 1984-85, which although primarily originated in real factors, was aggravated by the crisis of the financial sector.

Among the Latin American countries that undertook financial liberalization in the 1980s, Bolivia deserves special attention. The stabilization and structural reform program of 1985 resulted in a moderate further decline in output in 1985-86, but this was followed by sustained, although modest, economic growth. This turnaround in the Bolivian growth performance was achieved despite high real interest rates after the liberalization and despite a low investment rate which hovered around 11 percent, a combination that suggests that a significant improvement in productivity took place during this period.

In Colombia, Costa Rica, Jamaica, and Mexico, the liberalization of interest rates did not appear to have had any negative effect on investment and growth despite occasional but temporary increases in interest rates to high positive levels. These four countries had a medium investment rate of about 20 percent on average. In Jamaica, the upward trend in the investment rate in the second half of the 1980s was accompanied by a smaller improvement in the rate of growth, suggesting the possibility of a delayed effect of investment on economic growth.

The story of the African countries is varied. In Mauritius, generally high positive real interest rates under financial liberalization did not prevent a rising investment rate, which reached about 30 percent by the end of the 1980s, nor the achievement of a significant rate of growth. In the countries analyzed by Turtleboom, 1991--The Gambia, Ghana, Kenya, Malawi, and Nigeria--interest rate liberalization, which was part of a broader package of stabilization and structural reform, coincided with a period of rising investment rate and economic growth, although real deposit rates continued to be negative and lending rates increased in some cases to high real levels. It is too early and data are yet insufficient to judge the results of the interest rate reforms in Cameroon (1990) and Côte d'Ivoire (1989).

In the United States, the period of high real interest rates in the 1980s was characterized by a moderate fall in the investment rate associated with lower public and private sector savings. However, following the economic downturn of 1980-82, economic growth picked up and the expansion, albeit moderate, lasted longer than any other in the postwar period--to the end of the decade. In Spain, the rate of economic growth increased after the 1987 liberalization, which resulted in rising interest rates to moderately high positive real levels; the pick up in growth was accompanied

by an increase in the investment rate to about 24 percent. In Turkey, neither investment nor growth appear to have been affected by the two interest rate liberalizations in 1980 and 1987.

## 2. Corporate and financial sector distress

The prevalence of high real lending rates (associated with high real deposit rates or spreads, or both) may be a factor--under some circumstances discussed above--in discouraging investment and, therefore, in creating an obstacle to future growth. There is the possible beneficial effect, however, that if lending for investment is allocated on the basis of high real returns on capital to enterprises which may be able to repay the loans, the efficiency of investment may be increased.

A different scenario arises under high real lending rates when the system of allocation of credit does not function efficiently to favor high-return investments. This is, for instance, the case of distress borrowing by enterprises that are already in financial difficulties. Lending to distressed enterprises may be made in the hope that they may be able to reverse the situation under more favorable business conditions, such as those associated with an economic recovery. It may also be the result of unsound lending practices associated with insider loans and lending to essentially interrelated interests. In either case, investment by distressed enterprises or by new but unsound enterprises with low rates of return may proceed despite high real interest rates. The results of unsound and inefficient lending practices will be reflected in subsequent periods in which enterprises will tend to default--the more so the more leveraged they have become and the larger is the difference between the real interest rate on their borrowed funds and their rate of return.

The effects of high real interest rates in creating or aggravating a corporate and financial sector crisis will depend on the phase of the business cycle, but even more importantly on the general trends of such other prices that affect the financial condition of enterprises as the real exchange rate and the real cost of labor. A high real interest rate may not have a devastating effect on the condition of enterprises under favorable macroeconomic conditions and prices, especially if the corporate sector starts from a low-leverage situation. By contrast, it could have serious effects under unfavorable prices and a downturn in aggregate demand.

In a situation of generalized corporate distress, there will inevitably be a repercussion on the quality of the loan portfolios of financial institutions, thereby adversely affecting the soundness of these institutions. In general, lax bank supervision standards, inadequate information about the quality of the borrowers, and lack of appropriate adjustment of macroeconomic policies will facilitate the emergence and perpetuation of a crisis.

A number of countries suffered more or less severe corporate and financial sector crises under financial liberalization, although not necessarily in association with high real interest rates. The best known examples are those analyzed in Sundararajan and Baliño, 1991. Among these cases, Chile once again has attracted a great deal of attention because of the possible link between high real interest rates and the eventual crisis of the financial sector (1981-83) induced by bad loans to an increasingly distressed corporate sector. As already noted, this link was reinforced by banks extending unsound loans to essentially interrelated enterprises (Velasco, in Sundararajan and Baliño, 1991). Therefore, an artificial demand for credit, arising from rollover bank lending to troubled enterprises, was both one of the causes and one of the consequences of high real interest rates. The crisis would not have been as severe, however, if the problem of high real interest rates had not been compounded by an overvalued exchange rate and a rate of increase in real wage costs well above the increase in productivity--three factors that lowered corporate profits--as well as by simultaneous exogenous external shocks and adverse conditions in the financial sector. A similar but less clear-cut connection between high real interest rates and financial crisis appeared to exist in the other countries of the Southern Cone following liberalization: Argentina in 1980-82 and Uruguay in 1982-85. In Argentina, high lending rates helped to precipitate and aggravate the crisis by making debt servicing more difficult (Baliño, in Sundararajan and Baliño, 1991, page 66). In Uruguay, declining financial costs when real lending rates were still negative led to overindebtedness, which generated a large debt-service burden for Uruguayan enterprises when real rates went up to high real levels in the years preceding the financial crisis. (Juan Pérez-Campanero and Alfredo M. Leone, in Sundararajan and Baliño, 1991, page 309.) As in Chile, however, many factors besides high real interest rates were responsible for the crisis.

It is interesting to note that no financial sector crisis occurred in Brazil following the liberalization of interest rates in 1975, despite the fact that Brazil's real interest rates became among the highest in the world, particularly in the second half of the 1980s. Unlike the other countries, Brazil had already enjoyed a policy of highly flexible interest rates before the liberalization, because of the prevalence of indexation of financial contracts, and this had made enterprises more aware of the real costs of financing investment with bank credit. The wider scope of securities markets in Brazil also may have helped enterprises to adjust more flexibly to changing market conditions. At the same time, greater flexibility and pragmatism in exchange rate policies, and lesser wage cost pressures, helped to ease the conditions of enterprises. A similar pragmatism in the macroeconomic policymaking framework may have laid the foundation for the relative success of Colombia, as well as other Latin American countries, in avoiding financial crises despite relatively high real interest rates under financial liberalization.

The financial crises in Malaysia (1985-86), the Philippines (1983-86), and Thailand (1984-86) followed a somewhat different pattern than those in the Latin American countries of the Southern Cone. In Malaysia, in fact, the crisis was only partial and took place 8 years after the deregulation of interest rates and during a period of recession; the crisis affected mainly deposit-taking cooperatives, and it was resolved by strengthening a wide range of prudential regulations throughout the financial system. This crisis, therefore, does not seem to have been associated with the prevalence of high real interest rates, although, for precautionary reasons, from October 1985 to February 1987 the authorities reintroduced interest rate restrictions on deposits of less than 12 months' maturity (Sundararajan and Baliño, 1991, page 13).

The financial crisis in the Philippines appeared to have been linked to improper sequencing of financial liberalization in a period of macroeconomic and political shocks that led to unsound lending practices, fraud, and mismanagement by numerous banks; the bank holding company structure of the system allowed banks to take excessive risks in lending to subsidiaries in distress and, as a result, the poor quality of banks' portfolios contributed to higher interest rates and exacerbated the effects of tight monetary policies (Jean-Claude Nascimento, in Sundararajan and Baliño, 1991, page 227).

In Thailand, where interest rates continued to be regulated until 1990, the financial crisis, which affected mainly but not exclusively the finance companies, had its origins in weak managerial practices and in an inadequate legal, regulatory, and supervisory framework for financial institutions; the financial sector was suffering from excessive concentration of ownership and, in several cases, from loan exposure to interrelated entities. In addition, interest rate regulations on bank loans and deposits were not applied to finance companies, with the result that these largely unregulated companies grew rapidly and without adequate control and supervision. The financial crisis closely followed the economic downturn of 1983-85. The high real interest rates that prevailed throughout the 1980s do not appear to have been a main cause of the crisis. (Barry Johnston, in Sundararajan and Baliño, 1991, page 274).

Under fairly common circumstances, another possible adverse effect of high real interest rates on the financial sector during the period of transition to financial liberalization, may result from fixed lending rates on long-term contracts undertaken before the liberalization. A typical case is that of long-term mortgage loans at fixed interest rates. If no compensation is given to mortgage lenders they could find themselves in an impossible financial situation and, in this way, a financial crisis could occur even apart from the problem of bad loans. The problem posed by long-term fixed-interest-rate loans has been observed in many countries to a greater or lesser extent, depending on the size of the markets with fixed interest rates. In the United States, this phenomenon was at the origin of the crisis of the savings and loan association system beginning in the early 1980s--a crisis that remains to be fully resolved. As deposit interest

rates began to rise to unprecedented levels across the entire financial system including the savings and loan associations, and as these associations had a concentrated portfolio in fixed-interest-rate mortgage loans, their average interest rate spreads, as well as their present values (net worth), became negative, requiring either the liquidation of these financial institutions or their restructuring with adequate compensation for their losses. Government support was required in any case because of the insured status of the deposits of these institutions. The authorization given to savings and loan associations to expand operations into areas unfamiliar to them, like consumer and real estate lending, also made matters worse. As no timely remedial measures were taken, however, and as there was a lack of appropriate supervision, the situation deteriorated further and is eventually requiring a massive infusion of funds to prevent this crisis from disrupting other financial markets.

Two other cases exemplify a similar problem: Chile and Colombia. In Chile, the freeing of interest rates in 1975 rapidly caused the collapse of the system of savings and loan associations (SINAP). The SINAP quickly went from a situation of privileged deposit-taking, because of its unique partial indexing of deposit rates, to a situation of insolvency caused by the rapid transfer of funds to the banks and financiers which, after the freeing of the rates, had much higher deposit rates than the SINAP. The government had to take over the SINAP and to repay depositors during a protracted period until the SINAP was closed. In Colombia, a similar but much less dramatic episode took place in 1972-74 when the authorities allowed the savings and loan associations to operate with indexed deposits and loans (UPAC accounts), while still controlling the interest rates of banks. The increase in the UPAC deposit rates with the rising rate of inflation to a level well above that of the banks caused a rapid transfer of funds until the authorities took measures to re-equilibrate the system.

### 3. Destabilizing capital inflows

The increase in interest rates toward a positive real level that usually follows liberalization will likely affect the movement of international capital flows. It has been suggested that a sudden liberalization of interest rates, if accompanied by removal of controls on capital flows, could produce a surge of capital inflows that could make it difficult for the monetary authorities to retain control over monetary aggregates. The likely result could be a situation of renewed inflationary expectations with further increases in interest rates. This result could be significantly affected, however, by the previous history of capital flows, by whether capital controls had been effective or not before the liberalization, and by current inflationary expectations and perceptions of exchange rate risk. If, for instance, the country had lived for a long time under domestic financial repression but had not been careful in implementing controls on capital flight, the liberalization of interest rates could attract back flight capital, thereby reinforcing the tendency toward capital inflows. Table 6 provides data--for the reduced sample countries with high positive interest rates, excluding the United States--on the uncovered

interest rate differential between domestic and foreign deposit interest rates (the latter represented by the U.S. deposit interest rate), the rate of exchange rate depreciation (+) or appreciation (-) of the national currency in relation to the U.S. dollar, and the rate of capital inflows (+) or outflows (-) in relation to imports. <sup>1/</sup> In principle, one would expect a positive association between capital inflows and the interest rate factor, defined as the uncovered interest rate differential adjusted for exchange rate depreciation, as a proxy for exchange rate risk.

In general, the evidence is favorable to the hypothesis that the increase in domestic interest rates after liberalization would tend to induce capital inflows, as the interest rate factor improves. However, there is strong evidence of extremely large, probably destabilizing capital inflows only in the cases of Chile (1980-81), Jamaica (1984-85), and Uruguay (1979-80).

In Chile, the removal of capital inflow controls in 1979--at a time when domestic interest rates were well above international interest rates and the exchange rate was pegged to the U.S. dollar--resulted in substantial capital inflows. Contrary to expectations, these inflows did not tend to lower domestic interest rates, but fueled further inflationary expectations associated with the increase in domestic monetary aggregates. As inflation remained in the double-digit range while the exchange rate was fixed, the inflows aggravated the current account deficit in the balance of payments. Eventually, in the midst of a full-blown economic and financial crisis, the authorities depreciated the exchange rate and brought down interest rates to a more moderate level. The resulting overindebtedness of the private sector, together with the new exchange and interest rate policies, dramatically reversed capital flows in 1983-87. A renewed, moderate inflow did not occur until the interest rate factor became once again positive.

In Jamaica, capital inflows of a significant magnitude in 1984-85 were associated with the situation that resulted from a significant exchange rate depreciation in 1984 and the interest rate liberalization in 1985, despite the fact that the interest rate factor, although much improved, remained in the negative range until 1985. These capital inflows did not prevent, however, the significant stabilization of monetary aggregates and prices that was achieved under the program of adjustment and structural reform.

In Uruguay, a period of significant capital inflows, which complicated the conduct of monetary policy, followed the liberalization of interest rates and capital movements of the late 1970s; these inflows were reversed, however, in 1982-83 in the midst of a severe economic crisis and a significantly negative interest rate factor.

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<sup>1/</sup> Capital flows are defined here as the sum of portfolio investment, other capital, and net errors and omissions in the balance of payments.



Table 6. International Interest Rate Differentials, and Capital Flows, 1980-91 <sup>1/</sup>

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Argentina</u>												
Uncovered interest rate diff.	66.3	141.3	114.3	274.0	386.5	512.3	54.7	152.4	425.0	345,162.9	1,577.8	
Exchange rate depreciation (+)	23.1	263.8	569.8	379.2	668.4	347.9	57.0	198.3	256.5	13,325.6	211.1	78.8
Capital flows/imports	11.7	1.5	-53.3	-69.7	-6.3	-16.9	3.3	-2.2	-18.0	-240.3	-97.6	
<u>Bolivia</u>												
Uncovered interest rate diff.	4.9	12.5	18.0	30.8	98.0	*	99.9	26.3	20.0	14.6	15.7	
Exchange rate depreciation (+)	--	--	707.4	155.1	1,639.6	19,164.5	13.7	14.9	11.8	20.7	14.1	10.2
Capital flows/imports	-81.6	-11.7	-44.1	-53.4	10.1	-11.2	13.4	-0.5	5.7	-15.1	16.6	
<u>Brazil</u>												
Uncovered interest rate diff.	101.9	92.1	143.8	145.5	257.3	287.4	103.0	394.2	851.7	5,913.3		
Exchange rate depreciation (+)	54.0	95.1	97.7	289.4	223.6	229.5	42.0	385.1	959.2	1,384.1	1,458.9	497.1
Capital flows/imports	32.9	45.2	23.7	-29.1	-51.4	-76.6	-61.9	-80.9	-87.9	-77.1		
<u>Cameroon</u>												
Uncovered interest rate diff.	-5.6	-8.4	-4.9	-1.6	-2.9	-0.6	0.8	0.3	-0.5	-1.2	*	
Exchange rate depreciation (+)	12.3	27.3	17.0	24.1	14.9	-21.2	-14.6	-17.3	13.5	-4.5	-11.4	1.0
Capital flows/imports	23.8	20.9	22.0	26.1	7.0	27.7	28.5	29.5	14.7			
<u>Chile</u>												
Uncovered interest rate diff.	24.4	24.9	35.6	18.9	17.3	23.9	12.5	18.4	7.4	18.6	32.1	16.5
Exchange rate depreciation (+)	--	--	88.3	19.2	46.5	43.4	11.4	16.3	3.8	20.3	13.4	11.1
Capital flows/imports	55.7	68.1	15.4	-116.0	-0.1	-45.5	-55.7	-30.3	18.7	14.4	36.5	
<u>Colombia</u>												
Uncovered interest rate diff.	*	15.4	17.2	18.9	18.4	21.1	...	...	20.6	18.6		
Exchange rate depreciation (+)	15.7	16.0	19.0	26.3	28.3	51.2	27.2	20.4	27.4	29.2	31.07	24.4
Capital flows/imports	25.1	35.4	34.9	14.4	11.3	25.8	8.0	-6.3	5.6	0.2	-4.4	
<u>Costa Rica</u>												
Uncovered interest rate diff.	...	...	5.9	10.4	4.1	8.5	10.2	7.2	7.5	6.5	13.0	
Exchange rate depreciation (+)	--	321.1	11.5	7.8	10.0	12.5	9.6	17.6	14.8	6.1	22.8	30.8
Capital flows/imports	9.2	-2.3	-12.6	-11.3	-22.9	-15.5	-25.2	-31.0	-13.2	-4.4	-5.5	

Table 6 (continued). International Interest Rate Differentials, and Capital Flows, 1980-91 1/

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Côte d'Ivoire</u>												
Uncovered interest rate diff.	-6.9	-9.7	-4.6	-1.6	-3.1	-0.8	-0.4	-1.6	-2.5	*	-1.2	
Exchange rate depreciation (+)	12.3	27.3	17.0	24.1	14.9	-21.2	-14.6	-17.3	13.5	-4.5	-11.4	1.0
Capital flows/imports	40.9	37.5	37.0	11.9	-28.5	-19.1	-9.1	-2.7	-19.4	-10.0	-19.4	
<u>Jamaica</u>												
Uncovered interest rate diff.	-2.8	-4.4	-2.8	4.0	5.2	13.3	12.5	10.6	10.2	10.0	17.8	
Exchange rate depreciation (+)	--	--	--	84.0	50.4	11.2	--	0.4	-0.4	18.3	24.0	167.4
Capital flows/imports	5.0	4.6	24.9	1.4	45.8	25.2	-2.5	35.9	4.5	2.8	16.5	
<u>Korea</u>												
Uncovered interest rate diff.	6.4	0.3	-4.4	-1.1	-1.2	2.0	3.5	3.1	2.3	0.9	1.8	
Exchange rate depreciation (+)	36.3	6.2	6.9	6.2	4.0	7.6	-3.2	-8.0	-13.7	-0.7	5.4	6.2
Capital flows/imports	26.1	17.5	11.6	5.7	6.8	3.3	-16.4	-21.2	-11.5	-4.2	1.6	
<u>Malaysia</u>												
Uncovered interest rate diff.	-6.8	-6.2	-2.6	-1.1	-0.8	0.8	0.7	-3.9	-7.7	-4.5	-2.3	
Exchange rate depreciation (+)	1.5	0.9	3.5	0.7	3.7	0.1	7.3	-4.2	8.9	-0.4	-0.1	0.8
Capital flows/imports	-1.7	6.5	15.3	16.8	10.1	9.3	10.6	-16.3	-19.3	-1.1	2.7	
<u>Mauritius</u>												
Uncovered interest rate diff.	...	-6.7	-1.2	3.0	-0.1	1.4	3.0	2.5	2.3	2.0	4.4	
Exchange rate depreciation (+)	3.3	31.8	5.1	17.2	22.6	-8.3	-8.2	-7.3	13.6	8.4	-4.5	3.3
Capital flows/imports	17.4	4.8	-4.8	-2.2	2.7	4.3	3.4	15.3	19.3	17.8	21.2	
<u>Mexico</u>												
Uncovered interest rate diff.	7.6	13.7	31.3	45.6	38.0	51.4	78.2	90.4	55.9	27.2	23.1	
Exchange rate depreciation (+)	2.0	12.8	267.8	49.2	33.8	93.0	148.5	139.3	3.2	15.8	11.5	4.9
Capital flows/imports	49.8	60.6	-48.4	-119.0	-46.7	-40.3	0.5	-13.5	-49.5	4.7	16.5	
<u>Nigeria</u>												
Uncovered interest rate diff.	-7.8	-10.2	-4.8	-1.7	-2.1	1.1	2.7	6.2				
Exchange rate depreciation (+)	-2.9	17.0	5.2	11.7	8.0	23.7	231.8	24.8	29.3	42.9	17.6	9.6
Capital flows/imports	-0.1	4.7	8.3	8.9	-14.5	-57.0	-41.0	-122.8	-120.3	-152.7	-97.5	

Table 6 (concluded). International Interest Rate Differentials, and Capital Flows, 1980-91 <sup>1/</sup>

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Philippines</u>												
Uncovered interest rate diff.	-0.8	-2.2	1.4	4.5	10.8	10.9	4.7	1.3	3.6	5.0	11.4	
Exchange rate depreciation (+)	2.5	7.9	11.8	52.7	41.1	-3.7	7.9	1.3	2.6	5.2	24.8	-4.8
Capital flows/imports	37.7	17.1	32.2	-11.1	13.8	16.7	1.0	1.2	1.4	11.5	17.4	
<u>Spain</u>												
Uncovered interest rate diff.	-0.0	-4.5	-0.1	3.2	1.9	2.5	2.5	2.1	1.3	0.5	2.5	
Exchange rate depreciation (+)	19.8	23.0	28.9	24.8	10.7	-11.1	-14.1	-17.7	4.1	-3.3	-11.7	-0.2
Capital flows/imports	9.9	9.1	-0.4	4.0	4.7	-24.6	-14.1	19.6	11.1	12.8	15.4	
<u>Thailand</u>												
Uncovered interest rate diff.	-1.1	-3.4	0.7	3.9	2.6	5.0	3.2	2.6	1.8	0.4	4.1	
Exchange rate depreciation (+)	1.0	11.5	--	--	18.0	-1.8	-2.0	-4.1	0.7	1.8	-1.6	-0.1
Capital flows/imports	20.1	26.0	7.7	24.1	24.2	17.6	2.4	9.4	17.8	25.5	27.3	
<u>Turkey</u>												
Uncovered interest rate diff.	-5.1	10.6	32.7	36.3	41.1	41.2	34.1	28.1	41.4	44.4	39.4	
Exchange rate depreciation (+)	155.0	48.2	39.8	51.4	57.3	29.7	31.4	34.7	77.8	27.5	26.6	73.4
Capital flows/imports	27.5	17.0	1.8	14.0	3.9	1.2	17.6	9.4	-5.8	6.8	12.6	
<u>Uruguay</u>												
Uncovered interest rate diff.	37.2	31.5	37.8	62.3	58.0	73.9	55.2	54.0	60.1	75.6	89.7	
Exchange rate depreciation (+)	18.4	15.7	191.1	28.2	71.7	68.4	44.8	55.3	60.5	78.5	98.0	56.2
Capital flows/imports	32.2	28.1	-16.2	-1.6	5.7	28.8	25.8	13.1	-8.1	-5.9	3.3	
Memorandum item 2/	13.1	15.9	12.4	9.1	10.4	8.1	6.5	6.9	7.7	9.1	8.2	5.9

Sources: IMF, International Financial Statistics. An asterisk over the data indicates the year of liberalization of interest rates.

<sup>1/</sup> Uncovered interest rate differential measured as the difference between the local deposit interest rate and the U.S. deposit interest rate. Exchange rate depreciation (+) or appreciation (-) of the local currency with respect to the U.S. dollar. Capital inflows (+) or outflows (-) as a percent of imports f.o.b. Capital flows defined as the sum of portfolio investment, other capital, and net errors and omissions in the balance of payments.

<sup>2/</sup> U.S. deposit interest rate.

Bolivia (1986), Mauritius (1984), the Philippines (1984), and Spain (1987) provide good examples of how the improvement of the interest rate factor that accompanied or followed liberalization turned around the capital balance from persistent outflows into moderate inflows. In Mauritius the 1981 interest rate liberalization did not stem capital outflows in 1982-83 because it did not immediately fully correct the negative interest rate factor. This situation was reversed, however, beginning in 1984, despite the fact that the interest rate factor was not always positive. In Spain the authorities became concerned about excessive capital inflows and attempted to moderate these inflows through the application of some controls on foreign borrowing. By contrast, Korea switched around 1985 from being a net importer of funds to being a net exporter, despite the fact that its interest rate factor continued to be largely positive.

Examples of fairly sustained but moderate capital inflows are provided by Cameroon, Colombia, Malaysia, Thailand, and Turkey in the 1980s. In Cameroon and Colombia, capital inflows coexisted with a small negative interest rate factor in some years; in Colombia the authorities, besides promoting positive interest rates, had a policy of capital outflow controls which appeared to be effective. Malaysia had moderate capital inflows in 1981-86, despite a small negative interest rate factor and virtually no restrictions on capital flows. The inflows turned into outflows, however, in 1987-89, when the interest rate factor became more negative mainly as a result of low domestic interest rates, which were, however, consistent with a low rate of domestic inflation. In Thailand, the authorities encouraged steady inflows of capital by managing interest rates with a view to keeping a positive, albeit moderate interest rate factor under low inflation. Similarly, in Turkey, capital inflows occurred in all years, except 1988, when the interest rate factor became negative.

The remaining six countries--Argentina, Brazil, Costa Rica, Côte d'Ivoire, Mexico, and Nigeria--suffered more or less persistent capital outflows throughout the 1980s. In Argentina, large capital outflows occurred in 1982-85 in association with a negative interest rate factor owing to substantial exchange rate depreciation; and again in 1987-90, this time despite a positive interest rate factor. Brazil suffered persistent outflows in 1983-89 despite the fact that, in many years, the interest rate factor was positive. In Costa Rica, Côte d'Ivoire, Mexico, and Nigeria, capital outflows occurred both before and after interest rates were liberalized. In Mexico, the 1985 interest rate liberalization did not fully correct the negative interest rate factor; this situation was, however, reversed in 1989-90, when both the interest rate factor and capital flows turned positive. In Nigeria, sharp capital outflows occurred after the interest rate liberalization as the interest rate factor remained negative and there were perceptions of exchange rate risk associated with the intensification of official exchange restrictions designed to moderate exchange rate depreciation.

#### 4. Explosion of government debt

In a market-based interest rate system, the emergence of high real interest rates will generally tend to affect negatively public sector finances, as the cost of public sector debt rises with the rise in market interest rates, making it more difficult to close the budget gap. The extent to which this effect will occur will depend on the initial size of the public debt at the time that interest rates rise to high positive levels and on the extent of the rise in interest rates. With a large initial stock of debt and a high real interest rate, the budget gap may widen over time as the stock of public debt and the debt service costs rise at a faster rate than the rate of inflation. This could result in an explosion of government debt, which could severely undermine the credibility of stabilization efforts. <sup>1/</sup> In turn, the pressure from fiscal expansion could further aggravate the tendency for interest rates to rise as the public associates higher debt levels with the probability of higher future inflation (Guidotti and Kumar, 1991).

In some developing countries, however, public debt financing arrangements may continue to be based on nonmarket mechanisms inherited from the period prior to interest rate liberalization. It used to be common for governments to finance their deficits through forced borrowing from the central bank and from the banking system at concessionary interest rates. This form of borrowing will generally be inconsistent with the new market-based system, although it could be a factor in easing the transition to the new system, if there are good prospects for rapidly closing the budget gap. Forced borrowing by the government, if sustained, however, will have the effect of making more difficult for the monetary authorities to control credit and monetary aggregates, with the consequent adverse effects on inflation and inflationary expectations. Such borrowing will crowd out private borrowing and will tend to raise private borrowing rates or to lower deposit interest rates or both, becoming a long-term impediment to the efficient functioning of financial markets.

In countries that move to interest rate freedom from a prior situation of substantial financial repression, the real value of the stock of government debt may have been largely eroded by the previous inflation with low interest rates. This will be a favorable factor in easing the transition, as it will prevent debt service costs from becoming an obstacle to the needed adjustment of public sector finances and the stabilization effort. Some of these possibilities can be illustrated with the sample of countries of this paper. Available data on government debt in relation to GDP are provided in Table 7. However, these data must be taken with more than the usual degree of cautiousness. In addition, their interpretation is

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<sup>1/</sup> For the government to avoid further deficits and an escalation of the public debt it will have to run substantial primary surpluses capable of offsetting the interest rate payments on the debt.

Table 7. Government Debt in Relation to GDP, 1980-91

(In percent)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Argentina	6.0	16.4	29.2	41.0	37.1	...	33.9	53.8	21.0	...	...	...
Brazil	11.3	13.0	9.8	9.2	8.1	14.8	17.1	...	...	...	...	...
Colombia	8.5*	8.0	8.0	...	...	...	...	...	...	...	...	...
Costa Rica	31.5	38.3	26.5	27.3	25.3	23.0	26.2*	27.0	29.7	29.5	30.5	...
Jamaica	84.6	97.1	103.7	...	83.2	77.1*	61.4	...	...	...	...	...
Korea	14.0	15.5	17.2	16.8	16.0	15.8	14.5	13.3	10.6	9.9	8.8	...
Malaysia <u>1/</u>	44.0	54.0	66.9	73.9	72.8	82.4	103.4	103.5	98.0	88.6	...	...
Mauritius	50.2	56.9*	68.2	67.9	68.2	67.2	55.2	46.4	42.4	43.9	...	...
Mexico	...	...	47.6	43.4	37.6	45.8*	77.3	...	...	...	...	...
Nigeria	...	...	...	...	45.2	41.7	42.5	32.0*	...	...	...	...
Philippines	16.9	18.9	22.7*	22.9	30.4	32.9	39.4	55.4	53.0	49.9	51.4	...
Spain	20.2	22.5	26.0	29.6	34.8	38.9	37.5	40.3*	...	...	...	...
Thailand	20.6	20.9	24.0	26.6	28.0	33.7	36.6	34.9	30.0	24.4	19.6*	...
Turkey <u>2/</u>	22.4*	32.0	...	...	27.6	25.8	27.5	...*	...	...	...	...
United States <u>2/</u>	27.2	31.4	34.5	36.4	39.6	42.5	43.0*	42.8	42.8	46.2	50.3	...
Uruguay	8.9	8.3	27.5	33.2	40.5	40.9	28.3	27.5	30.5	33.6	...	...

Source: IMF, International Financial Statistics. An asterik indicates the year of liberalization of interest rates. Except for Korea, which is in the process of liberalizing interest rates, countries without asterik liberalized their interest rates in the 1970s.

1/ The debt for Malaysia appears inflated because government debt is largely held as an asset by the Employees' Provident Fund which has run large surpluses. See footnote 4 to Table 4.

2/ Government Debt in Relation to GNP.

rendered difficult in the absence of a decomposition of the factors contributing to changes in the stock of debt.

Argentina and Uruguay faced relatively small debt burdens at the beginning of their stabilization and reform programs in the 1970s. However, the rise in interest rates resulting from interest rate deregulation was a factor in the substantial increase in the stock of debt and the debt burden throughout the mid-1980s. Another factor was the inability of the authorities to generate a primary government surplus that could offset the interest payments. The expansion in government debt and the resulting large government deficits were significant factors in the failure of stabilization.

In Mauritius and Mexico, where the size of the debt was already large before interest rate liberalization, the increase in interest rates had a direct effect on increasing the government deficit and the government debt. By contrast, in Jamaica, the stock of government debt, which was very large at the time of interest rate liberalization, was reduced through strict budgetary discipline.

In the United States, the high real interest rates prevailing in the 1980s were a factor in perpetuating the relatively large public sector deficits that had initially emerged from a lax fiscal policy during the early years of the decade. The amount of government debt accumulated at a rate that was unparalleled in the history of the country, reaching about 50 percent of GNP in 1990. In addition, as it is well known, high real interest rates in the United States became a factor in the development of the external debt crisis of many developing countries including Argentina, Brazil, Mexico, and Venezuela.

The experience of Bolivia and Chile following interest rate liberalization contrasts sharply with that of the above countries. <sup>1/</sup> Chile's public sector debt had been greatly eroded by the rapid increase in inflation and the low interest rates prevailing in the years before the 1975 interest rate liberalization. Although interest rates rose to high positive real levels following the liberalization, this did not become a problem for fiscal consolidation, which was pursued strongly through cutting expenditures and raising new revenues. A public sector surplus was, in fact, achieved beginning in 1975, which permitted retiring most of the public sector debt. In Bolivia, the domestic public sector debt was virtually eliminated by the hyperinflation before the 1975 stabilization and reform. Therefore, the high real interest rates prevailing after the reform did not significantly raise the public sector debt burden. This, together with the significant effort made to raise revenue to cover a relatively low level of expenditure, stabilized public finances and provided credibility to the overall stabilization effort.

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<sup>1/</sup> Data are not available for these countries from the IFS.

## V. Suggested Remedies

As discussed in Sections III and IV, high real interest rates under financial liberalization can arise from a variety of causes or, more likely, from a combination thereof, and they can produce a number of different consequences. In each case, therefore, it will be necessary to investigate the causes contributing to high real interest rates, and their consequences, with a view to determining whether there is a problem and, if so, how best to deal with it. In what follows it is assumed that there is a potential or actual problem of high real interest rates that can adversely affect the performance of the economy. As noted in Section IV, however, in principle it is possible to observe a situation of high real interest rates that is, nevertheless, consistent with a high marginal return to capital and which would not therefore require corrective measures.

In general, when moving to interest rate liberalization, it will be preferable to take preventive rather than remedial measures to avoid high real interest rates. Such preventive measures could encompass taking steps to reduce inflationary expectations, developing a realistic exchange rate policy, reducing or eliminating fiscal deficits, and improving prudential regulation and supervision over the financial sector. Nevertheless, for a variety of reasons, a country that is in the process of liberalization, or that is already operating within a liberalized regime, may find itself in the midst of a situation of high real interest rates and it may therefore have to take remedial action to deal with the problem. In this case, the precise identification of the causes of the problem and the use of the correct instruments to deal with them will be the most efficient way to prevent high real interest rates. If adequate treatment is not immediately possible, however, and if it is urgent to deal with the problem, the authorities may have no choice but temporarily to activate their last-resort mechanisms (preferably moral suasion and voluntary restraints) to restore orderly market conditions, while buying time to implement a more permanent, market-oriented program for the resolution of the problem.

### 1. Preventive measures

A country that is contemplating a move to interest rate freedom will have to take a number of factors into account for a successful transition. The initial macroeconomic and structural conditions of the economy will influence the likelihood that high interest rates may occur following interest rate liberalization. Another factor will be the sequence by which interest rates are freed within the overall stabilization and liberalization effort. In general, a successful transition to interest rate freedom will be facilitated by a prior significant macroeconomic stabilization effort and by prior structural measures to ensure appropriate prudential regulation and supervision of the financial sector (Villanueva and Mirakhor, 1990).

Among the prior stabilization measures, the following may be crucial depending on the state of the economy. In a highly inflationary situation, it will be necessary to tighten both fiscal and monetary policies, with



special emphasis on fiscal containment, in order to reduce the rate of inflation in a manner that maintains the credibility of the adjustment effort and its sustainability. It will also be necessary to reduce perceptions of exchange rate risk by undertaking an initial depreciation of the exchange rate to a level that could be credibly maintained and, if necessary, by flexibly managing or floating the exchange rate in accordance with market conditions. 1/

The measures needed to ensure the efficient performance of a financial sector undergoing liberalization will include the following: reducing the risks and costs of financial intermediation; increasing competition in the financial markets by an appropriate policy of licensing new financial institutions, including foreign ones, as needed; reducing barriers among financial institutions by appropriately deregulating banking business; reducing reserve, liquidity, and portfolio requirements on financial institutions to what is strictly needed to ensure the prudential management of financial resources; and dramatically improving bank supervision to combat destabilizing behavior of financial institutions including excessive competition to attract deposits, to improve management practices, to increase market information to banks' clients, and to avoid fraudulent practices.

## 2. Dealing with the problem

The measures needed to deal with the problem of high real interest rates are not in principle different from those needed to prevent it, but appropriate action will require a solid informational base (unfortunately often not available) that can precisely signal the causes of the problem and the areas of probable damage. In general, dealing with the problem will be more difficult than preventing it. The emergence of the problem may in fact reveal areas of special weakness either in the macroeconomic policy framework or in the financial system. It will be essential not to deal with the problem with measures that are not tailored to overcome the specific causes of it. In some cases, the causes of the problem may offer stubborn resistance to treatment and may require the use of exceptional measures.

It is important to recall that a real interest rate may be judged to be high or not only in relation to the specific economic environment and that there is no magic rule to define when a real interest rate is numerically too high. The marginal rate of return to capital in a monetary economy is not exclusively defined by the existing technical relationships in production, but also by such other economic factors as the level and rate of change of wages and the exchange rate. For instance, existing enterprises

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1/ However, in some stabilization programs the authorities may wish to fix the exchange rate, once depreciated, at least temporarily as a nominal anchor to combat inflation. This would require to emphasize especially demand management policies to prevent a real appreciation of the exchange rate.

may be able to survive real interest rates that are relatively high in numerical terms if their leverage ratio is relatively low and if they are not confronted with significant wage pressures. Again, the probability of new capital formation taking place will depend, inter alia, on the expected future returns to capital, which may depend on such factors as the introduction of new products and technological innovations, or the opening up of the economy to external opportunities.

Apart from the specific policies needed to deal with the undesirable causes of high real interest rates (fiscal drag, inflationary expectations, exchange rate risk, and noncompetitive and unsound banking practices), the appropriate behavior of interest rates in a liberalized environment will require adequate management and coordination of indirect monetary policy instruments that are consistent with market-based interest rates. Thus, although the authorities will not be able to control nominal or real interest rates directly in a liberalized environment, they may be able to influence and guide the financial markets to determine appropriate interest rates through their management of rediscount policies, open market operations, and moral suasion.

In countries with insufficiently developed financial markets and instruments, and in which the regulatory and supervisory functions are not yet at par, it may be necessary under some serious situations to back up the instruments of indirect market management with direct but temporary interventions to correct market problems leading to an undesirable level or structure of interest rates. For instance, in the case of certain anomalies such as the occurrence of high real deposit interest rates with negative interest rate spreads, which signal market deficiencies, direct intervention may be necessary if other instruments including moral suasion have run their course without success.

## VI. Conclusions

The first question that arises when one is confronted with a situation of high real interest rates under financial liberalization is whether this automatically means that there is a problem. The answer is clearly negative. Numerically high real interest rates, say, real deposit rates above 3 percent and real lending rates several percentages higher, do not necessarily imply that they are out of equilibrium or that adverse consequences will inevitably follow. High real interest rates could be the result of a large demand for funds or a small supply. A large demand could be associated with such positive economic factors as a high propensity to invest, based on a sound evaluation of prospective returns on investment projects, resulting from generally favorable macroeconomic conditions and from technological innovations. In this case high real interest rates could be associated with an investment boom and rapid economic growth. By contrast, a number of negative factors could cause undesirably high real interest rates either by increasing the demand for funds or by reducing the supply. In this case, however, high real interest rates should be viewed as

a symptom, rather than the cause of the problem. A detailed examination of each case in the particular circumstances of the country concerned will be necessary to determine whether there is a problem or not and, if there is a problem, how to deal with it by eliminating its causes.

Based on a sample of 28 countries that underwent financial liberalization from the mid-1970s, this paper first examined the incidence of high real interest rates and found that they occur frequently. This situation contrasts rather sharply with the wide prevalence of highly negative real interest rates, especially among developing countries, before financial liberalization took place. There has been a profound change in policies and attitudes toward real interest rates in many countries.

The undesirable causes of high real interest rates can be classified between those of a macroeconomic nature and those related to the structure and functioning of the financial sector. The most often cited macroeconomic causes, for which some evidence was found in some countries, are unabating inflationary expectations and perceptions of exchange rate risk that accompany stabilization efforts that are not fully credible, and the attempt to stabilize the economy by relying on a stringent monetary policy without adequate fiscal consolidation. These factors may be exacerbated by the inability of the monetary authorities to influence market interest rates because of a lack of appropriate development of market-based policy instruments and of the financial markets to which they are grafted. Among the structural factors causing high real interest rates are the attempt of oligopolistic institutions to capture a larger share of the market by attracting more deposits, the financing of distressed borrowers (especially of borrowers that have interrelated interests with bank owners and managers) in an attempt to avoid provisioning and writeoffs for loan losses, and the moral hazard resulting from the explicit or implicit insurance of deposits in the absence of appropriate prudential regulation and bank supervision.

Because high real interest rates can originate from such multiple and complex causes, there will also be a multiplicity of effects, which will in general depend on the particular set of causes and circumstances of the country concerned. For instance, high real interest rates may be associated with a high or low investment rate, depending on whether they originate from a high, rational demand for investment funds or from such adverse factors as government deficit financing or distress borrowing. Thus, depending on the causes and attending circumstances, high real interest rates can result in serious difficulties for nonfinancial enterprises (particularly if such other unfavorable factors as an overvalued exchange rate and high real wages occur simultaneously) and in bad loans and a financial sector crisis. High real interest rates will inevitably increase the financing needs of the government and, if the existing volume of government debt is already high, will make it more difficult to close the government deficit.

In general, it will be necessary to understand the causes and the consequences of high real interest rates in the particular setting of each country before any remedies are applied, if and when necessary. In

countries that are yet at the stage of contemplating interest rate liberalization, it will be important to anticipate possible difficulties and to take preventive measures, rather than wait to treat the problem when it occurs. Among the actions that should be considered before embarking on full interest rate liberalization are those needed to stabilize the economy and those that provide for appropriate prudential regulation and supervision of the financial system. 1/

Caution is always necessary when considering direct or indirect market intervention to treat a perceived problem of high real interest rates. In addition to examining the probable causes and consequences of high real interest rates, it will be necessary to ascertain whether one is confronting a transitory or a more permanent phenomenon; temporarily high real interest rates, like temporarily low real interest rates, may result from random errors, and may not need corrective measures. Indeed, in an imperfect world with limited forecasting capabilities, there can be no perfect system for the determination of interest rates because, by its very nature, this involves a forecast of future economic developments for the period for which interest rates apply. Errors in forecasting the inflation rate and other relevant variables can and will be made by the authorities, as well as participants in the market. The idea therefore should not be to explicitly or implicitly index the rates but to identify and reduce any systematic errors and to counteract those ultimate causes of high real interest rates that can lead to undesirable effects.

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1/ Deregulation (liberalization), which essentially means replacing the role of the government or its influence in the financial sector by market forces, must be accompanied by a strengthening of prudential regulation and supervision, in effect an increase in the role of the government from a different perspective embodying the concept of good governance.

Table I. Interest Rates, 1980-91

APPENDIX I

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Argentina</u>												
Discount rate	...	...	...	...	...	...	...	...	...	...	...	...
Deposit rate	79.40	157.19	126.61	283.05	396.85	520.34	61.23	159.30	432.75	345,172.00	1,585.96	...
Lending rate					868.75	1,160.48	107.51	242.60	430.38	796,725.00	...	...
<u>Benin</u>												
Discount rate	10.50	10.50	12.50	10.50	10.50	10.50	8.50	8.50	9.50	11.00	11.00	
Deposit rate	6.19	6.25	7.75	7.50	7.25	7.25	6.08	5.25	5.25	6.42	7.00	
Lending rate	9.38	10.00	11.50	10.50	10.00	10.00	8.83					
<u>Bolivia</u>												
Discount rate	19.90	26.00	37.00	61.00	149.00	*						
Deposit rate	18.00	28.42	30.33	39.83	108.33	...	106.45 1/	33.18	27.74	23.67	23.83	
Lending rate	28.00	42.50	45.00	56.83	120.67	...	297.05 1/	56.86	39.79	37.27	41.81	
<u>Brazil</u>												
Discount rate	38.00	49.00	172.42	197.15	266.85	385.35	89.47	401.42	2,281.95	38,341.05	1,082.84	
Deposit rate	115.00	108.00	156.10	154.56	267.63	295.42	109.47	401.03	859.43	5,922.36		
Lending rate												
<u>Cameroon</u>												
Discount rate	8.50	8.50	8.50	8.50	8.50	9.00	8.00	8.00	9.50	9.50	*	
Deposit rate	7.50	7.50	7.50	7.50	7.50	7.50	7.35	7.15	7.21	7.50		
Lending rate	13.00	13.00	13.00	14.50	14.50	14.50	13.50	13.00	13.46	14.00		
<u>Chile</u>												
Discount rate	...	...	...	...	...	...	...	...	...	...	...	...
Deposit rate	37.46	40.79	47.91	27.95	27.63	31.97	18.99	25.22	15.10	27.72	40.27	22.33
Lending rate	47.14	52.02	63.87	42.82	38.33	40.81	26.27	32.80	21.17	35.92	48.83	28.55
<u>Colombia</u>												
Discount rate	*											
Deposit rate	30.00	30.00	27.00	27.00	27.00	27.00	...	30.00	30.00	30.00		
Lending rate	...	31.30	29.50	28.00	28.72	29.10	...	...	28.28	27.70		
	19.00	19.00	19.00	19.00	...	...	...	...	28.22	28.21		

Table I (continued) Interest Rates, 1980-91

APPENDIX I

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Costa Rica</u>												
							*					
Discount rate	20.50	23.50	30.00	30.00	28.00	28.00	27.50	31.38	31.50	31.61	41.25	
Deposit rate	...	...	18.29	19.50	14.50	16.50	16.67	14.06	15.18	15.62	21.16	
Lending rate	...	...	25.00	23.25	18.00	20.92	21.80	23.82	28.69	29.17	32.56	
<u>Côte d'Ivoire</u>												
										*		
Discount rate	10.50	10.50	12.50	10.50	10.50	10.50	8.50	8.50	9.50	11.00	11.00	
Deposit rate	6.19	6.25	7.75	7.50	7.25	7.25	6.08	5.25	5.25	6.42	7.00	
Lending rate	9.38	10.00	11.50	10.50	10.00	10.00	8.83	8.00	7.13	8.75		
<u>Hungary</u>												
												*
Discount rate	...	...	...	...	...	10.50	9.50	10.00	10.50	14.00	20.00	
Deposit rate	3.00	3.00	5.00	5.00	5.00	5.00	4.00	4.00	9.00	14.00	23.00	
Lending rate	9.00	11.00	14.00	13.00	13.00	12.00	11.00	11.50	13.00	17.00	28.00	
<u>Jamaica</u>												
						*						
Discount rate	11.00	11.00	11.00	11.00	16.00	21.00	21.00	21.00	21.00	21.00	21.00	
Deposit rate	10.29	11.56	9.61	13.06	15.58	21.31	19.02	17.50	17.92	19.04	26.00	
Lending rate	13.00	13.00	13.00	13.00	15.92	21.92	23.00	23.00	23.00	25.56	34.15	
<u>Korea</u>												
Discount rate	16.00	11.00	5.00	5.00	5.00	5.00	7.00	7.00	8.00	7.00	7.00	
Deposit rate	19.50	16.20	8.00	8.00	9.17	10.00	10.00	10.00	10.00	10.00	10.00	
Lending rate	18.00	17.38	11.79	10.00	10.00	10.00	10.00	10.00	10.13	11.25	10.00	
<u>Malaysia</u>												
Discount rate	4.46	4.50	5.12	5.20	5.06	4.13	3.89	3.20	3.32	4.44	6.79	
Deposit rate	6.23	9.67	9.75	8.02	9.54	8.81	7.17	3.00	...	4.60	5.90	
Lending rate	7.75	8.50	8.79	11.08	11.35	11.54	10.80	8.19	7.25	7.00	7.17	
<u>Mauritius</u>												
		*										
Discount rate	10.50	12.00	12.00	11.00	11.00	11.00	11.00	10.00	10.00	12.00	12.00	
Deposit rate	...	9.25	11.15	12.06	10.29	9.46	9.50	9.38	10.00	11.06	12.56	
Lending rate	...	12.19	13.38	15.08	13.25	13.83	14.33	14.13	14.96	16.13	18.00	

Table I (continued). Interest Rates, 1980-91

APPENDIX I

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Mexico</u>												
						*						
Discount rate	...	...	...	...	...	...	...	...	...	...	...	...
Deposit rate	20.63	29.57	43.61	54.70	48.36	59.48	84.68	97.24	63.65	36.25	31.24	
Lending rate	28.10	36.60	45.77	63.03	54.72	56.07 2/	80.88	94.64	67.64	44.61	37.07	
<u>Nepal</u>												
							*					
Discount rate	12.00	12.00	15.00	15.00	15.00	15.00	11.00	11.00	11.00	11.00	11.00	
Deposit rate	4.00	4.00	4.29	4.50	4.50	4.50	7.17	8.50	8.50	8.50		
Lending rate	14.00	14.00	15.50	17.00	17.00	17.00	15.67	15.00	15.00	15.00	14.42	
<u>Nigeria</u>												
								*				
Discount rate	6.00	6.00	8.00	8.00	10.00	10.00	10.00					
Deposit rate	5.27	5.72	7.60	7.41	8.25	9.12	9.23	13.09				
Lending rate	8.43	8.92	9.54	9.98	10.24	9.43	...	13.96				
<u>Philippines</u>												
			*									
Discount rate	4.54	6.69	6.30	8.05	12.11	11.50	9.63	9.08	8.94	9.64	10.60	
Deposit rate	12.25	13.72	13.74	13.58	21.17	18.91	11.25	8.20	11.32	14.13	19.54	
Lending rate	14.00	15.34	18.12	19.24	28.20	28.61	17.53	13.34	15.92	19.27	24.12	
<u>Poland</u>												
												*
Discount rate	...	...	...	3.00	4.00	4.00	4.00	4.00	6.00	140.00	55.00	
Deposit rate 3/	3.00	4.00	6.00	6.00	6.00	6.00	6.00	6.00	21.00	21.00	27.80	
Lending rate	8.00	8.00	9.00	9.00	9.00	12.00	12.00	12.00	16.67	64.00	101.42	
<u>Romania</u>												
												*
Discount rate												
Deposit rate												
Lending rate												
<u>Spain</u>												
								*				
Discount rate	10.90	10.51	18.40	21.40	12.50	10.50	11.84	13.50	12.40	14.52	14.71	
Deposit rate	13.05	11.41	12.26	12.31	12.30	10.53	9.05	8.96	9.06	9.55	10.65	
Lending rate	16.85	15.26	14.97	15.00	16.57	13.52	12.19	16.36	12.43	15.84	16.01	

Table I (continued). Interest Rates, 1980-91

APPENDIX I

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<u>Tanzania</u>												
												*
Discount rate	4.77	4.00	4.00	4.00	4.00	4.25	6.50	11.31	12.67	15.17		
Deposit rate	4.00	4.00	4.00	4.00	4.00	4.50	8.50	15.75	17.46	17.00		
Lending rate	11.50	12.00	12.00	13.00	13.00	12.29	18.50	27.50	29.63	31.00		
<u>Thailand</u>												
											*	
Discount rate	13.50	14.50	12.50	13.00	12.00	11.00	8.00	8.00	8.00	8.00	12.00	11.00
Deposit rate	12.00	12.50	13.00	13.00	13.00	13.00	9.75	9.50	9.50	9.50	12.25	
Lending rate	18.00	19.00	19.00	17.63	18.75	19.00	17.00	15.00	15.00	15.00		
<u>Turkey</u>												
	*							*				
Discount rate	26.00	31.50	31.50	48.50	52.00	52.00	48.00	45.00	54.00	54.00	45.00	
Deposit rate	8.00	26.50	45.00	45.33	51.42	49.25	40.58	35.00	49.08	53.45	47.60	
Lending rate <u>4/</u>	25.67	35.58	36.00	35.50	52.33	53.50	52.63	50.00	60.62 <u>4/</u>	40.66	51.91	
<u>Uganda</u>												
									*			
Discount rate	8.00	10.00	11.00	15.50	24.00	24.00	36.00	31.00	45.00	55.00	50.00	
Deposit rate	6.80	7.22	9.00	10.67	16.00	19.00	30.00	27.50	26.00	36.17	35.00	
Lending rate	10.80	12.50	14.50	16.17	21.92	24.00	33.33	34.67	35.00	40.00	38.67	
<u>United States</u>												
							*					
Discount rate	13.00	12.00	8.50	8.50	8.00	7.50	5.50	6.00	6.50	7.00	6.50	3.50
Deposit rate	13.07	15.91	12.35	9.08	10.36	8.05	6.52	6.86	7.73	9.09	8.16	5.84
Lending rate	15.27	18.87	14.86	10.79	12.04	9.93	8.35	8.21	9.31	10.92	10.01	8.46
<u>Uruguay</u>												
Discount rate	...	72.10	83.70	112.70	133.20	145.10	138.40	143.40	154.50	219.60	251.60	
Deposit rate	50.30	47.40	50.13	71.40	68.39	81.90	61.70	60.83	67.82	84.70	97.83	
Lending rate	66.62	60.40	58.54	93.64	83.23	94.58	94.73	95.80	101.98	127.58	174.45	



Table I (concluded). Interest Rates, 1980-91

APPENDIX I

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
					<u>Venezuela</u>							
		*								*		
Discount rate	13.00	14.00	13.00	11.00	11.00	8.00	8.00	8.00	8.00	45.00	43.00	
Deposit rate	...	...	...	...	12.29	10.52	8.93	8.94	8.95	29.23	27.78	
Lending rate	...	...	...	...	9.57	9.33	8.49	8.47	8.50	22.57	28.23	

Sources: IMF, International Financial Statistics, except as indicated below. An asterisk over the data indicates the year of liberalization of interest rates.

1/ Data from 1986 onward are taken from Boletín Estadístico, Central Bank of Bolivia.

2/ Alternative series beginning in 1985: average cost of funds.

3/ Demand deposit rate. An alternative series exists for the short-term deposit rate beginning in 1989 (100.00), 1990 (25.00).

4/ Lending rate up to 1987 is only one of the rates in the system. From 1988, the interbank money market rate is used as a better approximation to general market conditions.

Table IA. Interest Rates, 1970-79

APPENDIX I

(In percent per annum)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>Argentina</u>										
								*		
Discount rate	...	...	...	...	...	...	...	...	...	...
Deposit rate	...	...	...	...	...	...	...	145.44	127.59	117.60
Lending rate	...	...	...	...	...	...	...	...	...	...
<u>Brazil</u>										
						*				
Discount rate	20.00	20.00	20.00	18.00	18.00	18.00	28.00	30.00	33.00	35.00
Deposit rate	...	...	...	...	...	...	...	...	...	...
Lending rate	...	...	...	...	...	...	...	...	...	...
<u>Chile</u>										
						*				
Discount rate	...	...	...	...	...	...	...	...	...	...
Deposit rate	...	...	...	...	...	...	...	93.77	62.83	45.06
Lending rate	...	...	...	...	...	...	...	163.15	86.13	62.11
<u>Korea</u>										
Discount rate	19.00	16.00	11.00	11.00	11.00	14.00	14.00	14.00	15.00	15.00
Deposit rate	22.80	20.40	12.00	12.00	15.00	15.00	16.20	14.40	18.60	18.60
Lending rate	...	...	...	...	...	...	...	...	...	...
<u>Malaysia</u>										
									*	
Discount rate	5.12	4.25	3.75	3.78	4.89	4.97	4.38	3.56	4.21	3.47
Deposit rate	...	...	...	...	...	...	5.50	5.21	5.13	5.50
Lending rate	...	...	...	...	...	...	8.50	7.92	7.50	7.50
<u>Mexico</u>										
Discount rate	...	...	...	...	...	...	...	...	...	...
Deposit rate	...	...	...	...	...	...	...	10.63	11.17	13.22
Lending rate	...	...	...	...	...	...	...	...	18.20	19.90
<u>Spain</u>										
Discount rate	6.50	5.00	5.00	6.00	7.00	7.00	7.00	8.03	9.02	7.98
Deposit rate	...	...	...	...	...	...	...	...	...	9.61
Lending rate	...	...	...	...	...	...	...	...	14.96	15.77

Table IA (concluded). Interest Rates, 1970-79

APPENDIX I

(In percent per annum)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>United States</u>										
Discount rate	5.50	4.50	4.50	7.50	7.75	6.00	5.25	6.00	9.50	12.00
Deposit rate	...	...	...	...	...	...	5.26	5.58	8.20	11.22
Lending rate	7.91	5.72	5.25	8.02	10.80	7.86	6.84	6.82	9.06	12.67
<u>Uruguay</u>										
Discount rate	...	...	...	...	...	...	...	...	*	...
Deposit rate	...	...	...	...	...	...	30.20	51.40	42.60	50.60
Lending rate	...	...	...	...	...	...	62.00	76.60	71.20	68.10

Source: IMF, International Financial Statistics. An asterisk over the data indicates the year of liberalization of interest rates.

Real Interest Rates, Economic Growth, and Investment

This appendix examines the long-run relationships between real interest rates, the rate of economic growth and the investment rate by comparing the periods before and after the liberalization of interest rates. Table II.1 shows the available data constructed from Tables 2, 2A, 5, and 5A in the text of this paper, augmented as needed with similar data not reported in these tables. Table II.2 summarizes the results of Table II.1 for countries for which adequate data are available. The following observations may be made:

1. Real interest rates increased in 14 out of 16 countries for which interest rate data are available before and after the liberalization. The exceptions were Turkey and Venezuela. In Turkey, the increase in inflation and the pressure of the bankers' association to maintain low rates after the 1987 liberalization may have been responsible for the failure of the rates to rise and to achieve positive real levels. In Venezuela the post-liberalization data refer to only one year (1990) and there is the additional problem that the liberalization was technically reversed by the Supreme Court's decision that forced the Central Bank to reimpose interest rate ceilings.

2. The growth rate of real GDP increased in 12 out of 17 countries for which data are available before and after the interest rate liberalization. The exceptions were Argentina, Brazil, Malaysia, the Philippines, and Uruguay. Argentina, Brazil, the Philippines, and Uruguay suffered from considerable domestic instability and external debt problems. In addition, the very high real interest rates in Brazil also could have been a negative factor. In Malaysia, the negative association between the rate of economic growth and the real rate of interest looks spurious; this was a country with moderately positive real interest rates both before and after the liberalization and with consistently high rates of real GDP growth. The earlier, very high rates of economic growth were probably not sustainable on a long-term basis. In Mauritius and Nigeria the rate of economic growth increased after the interest rate liberalization and it seems certain that real interest rates increased from before to after the liberalization, although precise interest rate data are not available to confirm this point.

3. Consistent with points 1 and 2, there is a positive relationship between higher real interest rates and faster growth in 10 out of 18 countries (see also Chart II.1). This leaves 8 out of 18 countries for which the association between real interest rates and economic growth was negative: Argentina, Brazil, Malaysia, Mexico, the Philippines, Turkey, Uruguay, and Venezuela. (However, the rate of economic growth increased in Turkey and Venezuela despite the decline in interest rates after liberalization.) In all of these countries there were special features that could have distorted the expected positive relationship, as described above. In addition to the 18 countries in Table II.2, Korea and Thailand, which consistently maintained positive real interest rates within a regime of

discretionary policy, enjoyed very high rates of real GDP growth. Colombia also did fairly well after liberalization, when real interest rates were consistently positive. Summing up, there appears to be a positive association in most cases between higher real interest rates and higher rates of economic growth (except in highly unstable countries with severe debt burdens which negatively affected growth.) This result generally conforms to analytical expectations and to earlier findings. (See International Monetary Fund, 1983, Appendix III).

4. Out of the 17 countries for which data are reported in Table II.2, 13 suffered a reduction in the rate of investment after the liberalization of interest rates. It is unclear whether the decrease in the investment rate in many of these countries was related to the liberalization of interest rates or to the general decline in investment throughout most of the world since the 1970s. In any case, in most of these cases the rate of growth had tended to increase, as noted above, despite the decrease in investment, implying an improvement in productivity. The exceptions again were the most unstable countries--Argentina, Brazil, Mexico, the Philippines, and Uruguay--which suffered a decline in both investment and growth.

Table II.1. Real Deposit Rate, Real Rate of Growth,  
and Rate of Investment

(In percent per annum)

Country	Ave. of Years Before Liberalization	Year of Liberalization of Interest Rates	Ave. of Years After Liberalization
Argentina			
Real deposit rate	-19.6	-11.1	819.0 [-18.2] <u>1/</u>
Growth rate	2.3	6.2	-0.3
Investment rate	21.8	27.2	16.6
Benin			
Real deposit rate	...	...	...
Growth rate	3.6	...	...
Investment rate	17.0	...	...
Bolivia			
Real deposit rate	-42.2	...	-1.1 [ 9.9] <u>2/</u>
Growth rate	-1.6	-1.0	2.1
Investment rate	12.5	11.7	11.2
Brazil			
Real deposit rate	6.1	...	49.3 [17.6] <u>3/</u>
Growth rate	9.8	5.6	3.3
Investment rate	24.0	24.4	21.1
Cameroon			
Real deposit rate	-0.8	...	...
Growth rate	8.6	...	...
Investment rate	23.8	...	...
Chile			
Real deposit rate	6.9 [--] <u>4/</u>	...	7.5
Growth rate	0.9	-12.9	4.5
Investment rate	14.6	17.7	15.3
Colombia			
Real deposit rate	...	...	4.3
Growth rate	...	4.1	3.4
Investment rate	16.1	16.8	17.8
Costa Rica			
Real deposit rate	-11.0 [-2.1] <u>5/</u>	4.3	-1.5
Growth rate	0.5	5.5	4.3
Investment rate	21.0	18.7	20.3
Côte d'Ivoire			
Real deposit rate	0.2	...	...
Growth rate	5.6	...	...
Investment rate	17.8	...	...

Table II.1 (continued). Real Deposit Rate, Real Rate of Growth,  
and Rate of Investment

(In percent per annum)

Country	Before Liberalization	Year of Liberalization of Interest Rates	After Liberalization
Hungary			
Real deposit rate	-3.1	...	...
Growth rate	1.6	...	...
Investment rate	23.4	...	...
Jamaica			
Real deposit rate	-4.0	-3.5	6.0
Growth rate	-0.1	-4.6	3.5
Investment rate	18.8	23.0	23.9
Korea			
Real deposit rate	2.1 <u>6/</u>	...	...
Growth rate	8.8	...	...
Investment rate	27.8	...	...
Malaysia			
Real deposit rate	1.6	0.3	3.3
Growth rate	8.0	6.7	6.4
Investment rate	22.4	24.8	31.0
Mauritius			
Real deposit rate	...	-4.6	2.9
Growth rate	4.8	5.9	6.0
Investment rate	24.4	21.9	23.0
Mexico			
Real deposit rate	-9.3	1.1	-4.4
Growth rate	2.8	2.7	... <u>7/</u>
Investment rate	21.6	19.9	19.2
Nepal			
Real deposit rate	-5.2	-9.9	-0.9
Growth rate	3.8	4.3	4.7
Investment rate	17.9	18.7	18.2
Nigeria			
Real deposit rate	-6.7	1.6	...
Growth rate	-0.2	-0.5	7.6 <u>8/</u>
Investment rate	16.2	9.8	8.3
Philippines			
Real deposit rate	-2.2	3.2	0.9
Growth rate	4.2	3.6	1.2
Investment rate	21.6	27.5	20.7

Table II.1 (concluded). Real Deposit Rate, Real Rate of Growth,  
and Rate of Investment

(In percent per annum)

Country	Before Liberalization	Year of Liberalization of Interest Rates	After Liberalization
Poland			
Real deposit rate	-26.6	...	...
Growth rate	...	...	...
Investment rate	20.7	...	...
Romania			
Real deposit rate	...	...	...
Growth rate	1.6	...	...
Investment rate	...	...	...
Spain			
Real deposit rate	0.2	3.5	3.5
Growth rate	1.7	5.6	4.6
Investment rate	20.5	20.8	23.6
Tanzania			
Real deposit rate	-16.8	...	...
Growth rate	1.2	...	...
Investment rate	19.9	...	...
Thailand			
Real deposit rate	5.6	6.0	...
Growth rate	7.3	10.0	...
Investment rate	24.9	35.6	...
Turkey			
Real deposit rate	-3.5	-2.8 <sup>9/</sup>	-9.6
Growth rate	4.3	7.4	4.9
Investment rate	19.5	25.5	23.5
Uganda			
Real deposit rate	-38.3	-55.6	-28.4 <sup>10/</sup>
Growth rate	1.7	7.2	6.6 <sup>11/</sup>
Investment rate	...	...	...
United States			
Real deposit rate	2.6	4.6 <sup>12/</sup>	3.0
Growth rate	2.1	2.9	2.8
Investment rate	19.7	19.5	18.0
Uruguay			
Real deposit rate	-17.0	-1.4	3.0
Growth rate	2.5	6.2	1.0
Investment rate	12.4	16.2	11.8
Venezuela			
Real deposit rate	-6.8	-29.9	-9.3 <sup>13/</sup>
Growth rate	1.1	-7.8	5.7 <sup>13/</sup>
Investment rate	24.2	17.2	16.2



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Sources: Real deposit rate based on Tables 2 and 2.A, and rate of growth of real GDP and rate of investment based on Tables 5 and 5.A, with similar data added for the 8 countries excluded from these tables. For the period after liberalization the figures are averages of annual rates for all available years. For the period before liberalization, figures are averages of annual figures from 1980 onward, or from 1970 onward as needed to cover a long period. Length of period also depends on availability of data.

1/ The figure in brackets is computed by deleting the year 1989 in which real interest rates were extraordinarily high.

2/ The figure in brackets excludes the year 1986 in which real interest rates were very low.

3/ The figure in brackets excludes the year 1989 in which real interest rates were extraordinarily high.

4/ The figure without brackets for Chile is based on the available data for 1970-73 and it does not take into account the period 1973-74 for which data are unavailable but for which rates were highly negative in real terms. It may be assumed from casual observations that on average real rates were about zero or negative before the liberalization.

5/ The figure in brackets excludes the year 1982 in which real interest rates were extraordinarily negative.

6/ The data for the period before liberalization comprises the years from 1970 to 1990. Korea did not free the rates but managed them throughout these years with a view to maintaining high real rates.

7/ Data are available only for the year 1986 and are not representative of the post-liberalization period 1986-1991.

8/ Data are the average for 1988-89. No further data are available.

9/ Takes 1987, rather than 1980, as the year of interest rate liberalization.

10/ Data available only for 1989.

11/ Based on 1989 year alone.

12/ Takes 1986 as the year of the full liberalization, but real rates had already increased before that year.

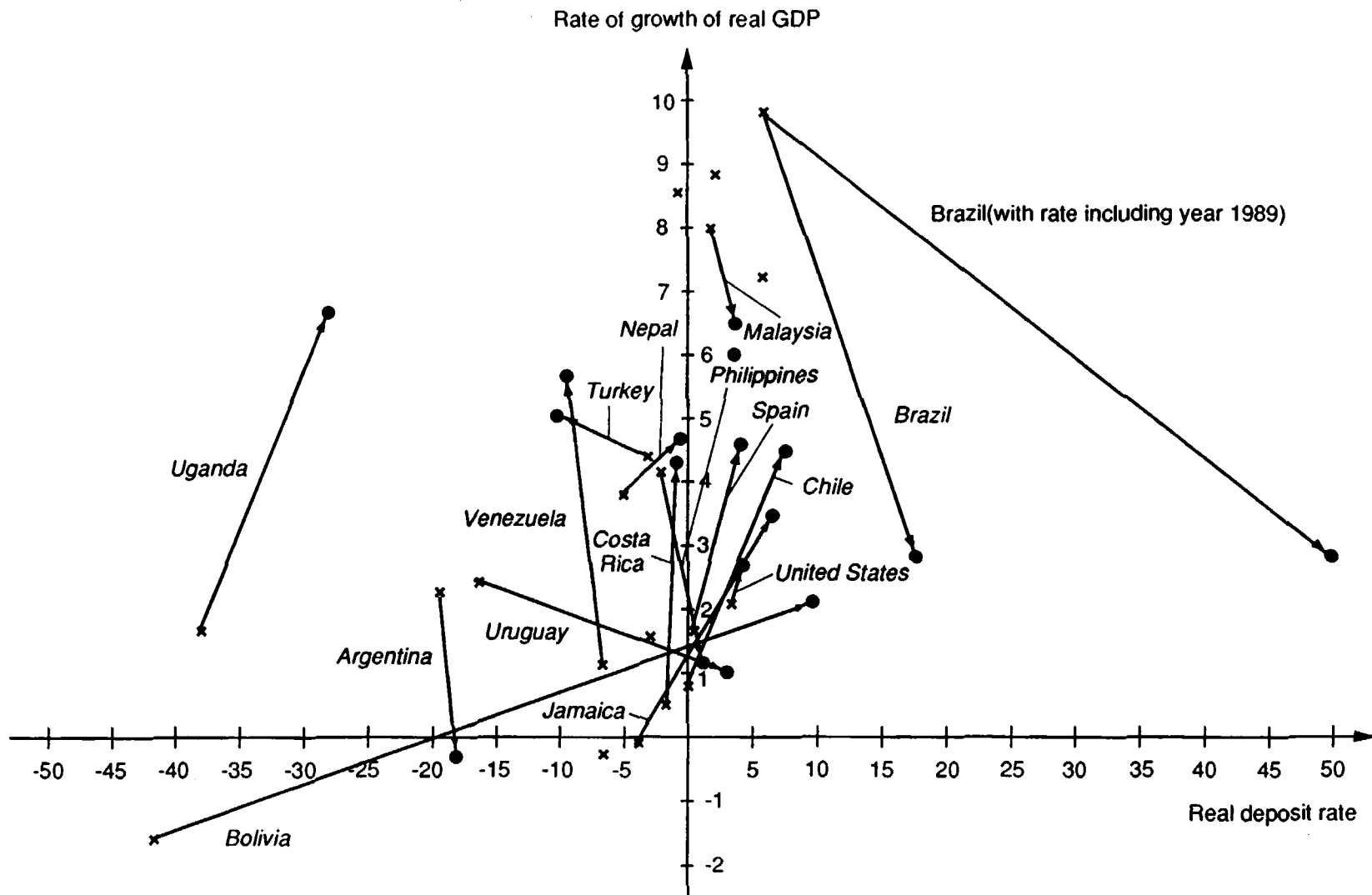
13/ Based on the year 1990 alone. Takes 1989 as the year of interest rate liberalization.

Table II.2. Changes in Real Interest Rate, Growth of Real GDP, and Rate of Investment from Before Liberalization to After Liberalization

Country	Interest Rate	Real GDP Growth	Investment
1. Argentina	Increase	Decrease	Decrease
2. Bolivia	Increase	Increase	Decrease
3. Brazil	Increase	Decrease	Decrease
4. Chile	Increase	Increase	Increase
5. Costa Rica	Increase	Increase	Decrease
6. Jamaica	Increase	Increase	Increase
7. Malaysia	Increase	Decrease	Increase
8. Mauritius	...	Increase	Decrease
9. Mexico	Increase	...	Decrease
10. Nepal	Increase	Increase	Increase
11. Nigeria	...	Increase	Decrease
12. Philippines	Increase	Decrease	Decrease
13. Spain	Increase	Increase	Increase
14. Turkey	Decrease	Increase	Increase
15. Uganda	Increase	Increase	...
16. United States	Increase	Increase	Decrease
17. Uruguay	Increase	Decrease	Decrease
18. Venezuela	Decrease	Increase	Decrease

Source: Table II.1.

Chart II.1



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