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WP/94/117

INTERNATIONAL MONETARY FUND

Research Department

Financial Market Fragilities in Latin America: From Banking Crisis Resolution to Current Policy Challenges

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October 1994

Abstract

This paper has two objectives: first, by reviewing the recent experience of five Latin American countries with the restructuring of their financial sectors, it derives lessons regarding the most effective ways to resolve banking difficulties in developing countries. Second, the paper analyzes current policy challenges associated with the health of financial systems in Latin America, including: (a) designing policies to respond to the recent large inflows of capital that maintain long-run macroeconomic stability and healthy financial systems; and (b) evaluating the impact of capital markets competition on the soundness of banking systems.

JEL Classification Numbers:

E44, E58, G21, G28, G32

1/ This paper was written when Steven Weisbrod was a consultant at the Capital Markets and Financial Division of the Research Department. The paper has greatly benefitted from lengthy discussions with David Folkerts-Landau. The authors are also grateful to Guillermo Calvo, Peter Garber, Andres Gluski, Leonardo Leiderman, Carmen Reinhart, Brian Stuart, and Michael Spencer for very valuable comments and to Patricia Brenner, Martine Guerguil, Salvador Valdes and Andres Velazco for helping us to improve our understanding of the Chilean case. The high-quality research assistance provided by Kellett Hannah and Subramanian Sriram is gratefully acknowledged. Any errors, of course, remain the responsibility of the authors.

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Summary

This paper deals with key issues in Latin American financial markets. After examining a sample of countries dealing with severe banking difficulties, the paper analyzes remaining fragilities and current challenges faced by policymakers who have the complementary objectives of maintaining long-run macroeconomic stability and a healthy financial system.

The experiences of five Latin American countries--Argentina, Chile, Colombia, Mexico, and Peru--over the last decade are reviewed to derive lessons regarding the most effective ways to deal with banking difficulties in developing countries. It is shown that the strength of banks at the onset of the banking crises and the quality of central bank leadership were important determinants in how quickly public confidence was restored in each of the financial systems. Where the banking system was relatively strong, bank supervisors and bankers were able to implement credible programs to restore confidence in the banking system; the soundness of the rescue programs prevented the eruption of inflation, even though substantial increases in credit were involved. In sharp contrast, in those countries with relatively weak banking systems, banking regulators further aggravated the problem by attempting to take over the role of banks as direct lenders. In those cases, credit expansion was associated with episodes of high inflation.

Having just resolved the financial difficulties of the 1980s, however, Latin American policymakers faced new challenges to the stability of banking systems in the early 1990s. This paper analyzes two of the issues involved: (a) financial market risks associated with the recent large capital inflows; and (b) the potential threat to the profitability of banks in the form of increased competition from recently developed domestic capital markets.

Regarding financial market risks associated with the capital inflows, the paper concludes that the quality of the inflows invested outside the banking system--say, in the equity markets--is strongly related to the strength of the domestic banking system. It is also shown that the policy response to the inflows may have an important impact on the soundness of banks. Conclusions regarding both the desirability and the method of sterilization are linked to the strength of the central bank relative to that of the commercial banks. As for bank competition from domestic capital markets, the paper argues that such developments are still years away from seriously threatening bank soundness. Even in those countries where fixed income markets have developed, open market interest rates are still high relative to bank interest expenses, and the instruments are still held by only a few investors.

Finally, the paper deals with the key macroeconomic issue of the capacity of central banks to withstand speculative attacks on the exchange rate. It argues that the degree to which a Latin American central bank succeeds in this task is influenced by the strength of the banking sector. The paper also addresses the issue of the appropriate holdings of foreign exchange reserves by central banks and the role of dollarization.

I. Introduction

After almost a decade of macroeconomic and financial difficulties, since the last part of the 1980s and the beginning of the 1990s, many Latin American countries have undertaken major transformations of their economic structures. These efforts have included not only comprehensive stabilization programs aimed at correcting macroeconomic imbalances but also deep structural reforms designed to improve the efficiency of market mechanisms in the pricing and allocation of resources among the different sectors of these economies.

Among the reforms, the restructuring of financial markets is crucial. Latin America does not stand alone in having learned the lesson that difficulties in the financial sector may conflict seriously with policy objectives as governments have had to abandon their fiscal and monetary targets to rescue insolvent or troubled financial institutions. Several industrialized countries, including the United States and three Nordic countries, are among the recent cases where banking difficulties have had a severe impact on the fiscal stance. Within the Latin American region, the banking difficulties experienced in a number of countries following the eruption of the debt crisis imposed constraints on policymakers that, in some cases, lasted for almost an entire decade.

The aims of this paper are twofold: first, by reviewing the experiences of Latin American countries with the restructuring of their financial sectors since 1982, the paper derives lessons regarding the most effective ways to deal with banking difficulties in developing countries. A sample of five countries--Argentina, Chile, Colombia, Mexico, and Peru--is used for this purpose. Second, the paper analyzes current policy issues associated with the health of the financial system; these issues are: (a) the proper design of policies to respond to recent large inflows of capital having the complementary objectives of maintaining long-run macroeconomic stability and a healthy financial system; and (b) the effect on bank soundness of increased competition from recent developments in domestic capital markets.

Section II sets the stage by presenting a framework for analyzing banks' behavior. Lack of transparency in the legal and accounting infrastructures are recognized as major factors defining the special role of banks in developing countries: since investors can not rely on the legal infrastructure to aid in evaluating the creditworthiness of borrowers, they search for alternative methods of evaluation. One method is for lenders to force borrowers to remain liquid by restricting their borrowing opportunities to short-term funds and carefully monitoring their cash flow--that is, in these financial systems liquidity becomes a primary proof of solvency. In developing countries, banks are in a unique position to intermediate between borrowers and lenders because they are the only nongovernment issuers of short-term liabilities.

A sound banking system issues the appropriate loan contracts and establishes the appropriate monitoring procedures to maintain borrower liquidity. Conclusions regarding the behavior of banks in this environment are based on incentive-driven arguments: where policymakers put in place mechanisms to motivate banks to perform their role of maintaining borrower liquidity, bankers become well equipped not only to evaluate properly the risks they undertake, but also to develop workout programs with their borrowers if sudden adverse shocks weaken the quality of loans and, therefore, lead to banking difficulties. Thus, although a strong banking system does not mean that banking difficulties can be prevented altogether, it implies that problems are faced promptly and bankers have incentives to restore defaulted borrowers to performing status.

Section III uses the framework described above to examine the resolution of banking crises in the sample of five Latin American countries during the 1980s. The discussion shows that the strength of banks at the onset of the crisis and the quality of central bank leadership were important determinants in how quickly public confidence was restored to the financial systems in each of the sample countries. To reach conclusions, countries are grouped by the strength of their banking systems at the inception of the banking crisis. In those countries where the strength of the banking system was greater, bank supervisors and bankers were able to respond to the crisis with a credible program to restore confidence in the banking system; although the programs involved a substantial increase in credit, the soundness of the rescue programs prevented the eruption of inflation. In sharp contrast, in those countries with relatively weak banking systems, banking regulators further aggravated the problem by attempting to take over the role of banks as direct lenders--that is, supervisors removed authority from bankers, substituting the credit judgment of the central bank or the government directly. In those cases, credit expansion was associated with big inflations as the public realized that the credit extended would not be repaid in real terms. By the early 1990s, however, many of the mistakes of the 1980s were corrected and the sample countries entered the new decade in a better, or at least equal, position relative to that at the beginning of the 1980s.

The last two sections of the paper deal with the current challenges faced by policymakers in dealing with the performance of the banking sector. While Section IV discusses the impact of stabilization policies and structural developments in capital markets on the strength of the banking system, Section V turns the question around and analyzes the contribution of a sound banking system to deal with an adverse shock leading to a speculative attack on the exchange rate.

Section IV focuses on two potential risks to the strength of the banking system: a reversal of the capital inflows and the securitization of many financial instruments that heretofore appeared mostly on bank balance sheets. Regarding risks associated with the capital inflows, the section emphasizes the impact of sterilization policies on the soundness of banks. Conclusions regarding both the desirability and method of sterilization are

linked to the strength of the central bank relative to that of the banks. The message is straightforward: as the decision to sterilize or not implies a decision to concentrate resources in the central bank versus the commercial banks or other financial institutions, it follows that resources should be channeled to the institutions who can manage those funds better. In addition, this section concludes that the quality of inflows invested in the domestic equity markets is closely related to the strength of the banking systems: stock market volatility is lower in those countries with relatively strong banking systems.

The analysis also shows that the second risk to the strength of banks, namely, the recent development of capital markets, is still years away from becoming a serious threat to bank soundness. Even in those countries where fixed income markets--such as commercial paper or the corporate bond market--have developed, open market interest rates are still high relative to bank interest expenses and the instruments are still held by only a few investors. The discussion in this section also shows that a strong banking system is complementary to the development of healthy markets for equity issues rather than a competitor to these markets. The development of equity markets, however, may pose some dangers for policymakers worried about unstable capital inflows. In this connection, the analysis shows that these dangers can be minimized by strengthening the domestic banking sector.

Finally, Section V deals with a key macroeconomic issue: the capacity of central banks to withstand speculative attacks on the exchange rate. The emphasis in this section is on the role of banks' performance in facilitating the policy objective. The main argument in this section is that the degree to which a Latin American central bank may be able to withstand a speculative attack on its domestic currency is influenced by two aspects of the financial markets: the first one, which is a natural extension of the well-known literature on speculative attacks, refers to the extent of the commitment of the central bank to the stabilization of prices in the financial sector. The second one, and the one emphasized in the paper, is the strength of the banking sector. In this connection, the paper also deals with the role of dollarization. A conclusion from the analysis is that where the banking system is sound, dollarization may be an ally for governments pursuing exchange rate based stabilization programs. In an insolvent bank-dominated financial system, however, dollarization imposes an additional constraint to policymakers facing a speculative attack. In dealing with these topics, this section also addresses the issue of the appropriate holdings of foreign exchange reserves by central banks.

II. The Role of Banks in Developing Countries

Financial systems in developing countries are typically bank-dominated: bank deposits constitute the most important form of households' savings and bank loans are the most important source of external finance for firms. As will be shown below, by and large Latin American countries can be associated with this type of financial structure. This section focuses on the

particular features that distinguish banking systems in developing countries from those in industrial countries and on the special role that the banking sector plays as a source of economic growth in developing economies.

Banks--either in industrial or developing economies--can be distinguished from other financial institutions by a unique characteristic that will be termed here: "the franchise value of banks," i.e., the special power conferred by the banking charter to issue liabilities that are accepted as a means of payment. As will be discussed below, in developing countries, the state of the legal and accounting systems makes it difficult for institutions that are not connected to the payments system to issue short-term liabilities such as commercial paper. Hence, banks are the only nongovernment issuers of these liabilities. Since investors require borrowers' liquidity as a proof of their solvency, borrowers are restricted to the short-term market, which is dominated by banks. 1/

The first part of this section motivates the rest of the discussion by presenting a brief overview of the financial structure in Latin America. It shows that, in spite of progress in the growth of other financial institutions, banks remain at the core of financial activities in the area. The second part discusses the special features of banks in developing countries. The third part provides some specific indicators to measure the state of the franchise value of banks in developing countries. Finally, the last part discusses the role of the central bank in maintaining the franchise value of the banking system.

1. The financial structure in Latin America: an overview

Commercial banks played a central role in Latin America in the 1980s. As reported in Morris and others (1992), these institutions provided short-term financing, which--due to the severe economic difficulties faced by these countries during the decade--were the only kind of resources that financial institutions could mobilize.

During the late 1980s and early 1990s a number of factors, both endogenous (macroeconomic stabilization programs, financial liberalization and financial sector reforms) and exogenous (the decline in interest rates in the United States and other industrial countries that increased foreign investors' demand for Latin American securities) contributed to the rapid expansion of alternative sources of finance for firms--such as bonds and equity. However, as will be discussed below, bank loans remained the most important source of finance for the private sector.

The composition of credit to the private sector by commercial banks and other financial institutions (excluding the stock exchanges) in a number of Latin American countries indicates a clear bank dominance through the

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1/ For the discussion of the role of banks in transition economies, see Blommestein and Spencer (1994).

1980s and early 1990s; although the importance of banks varied across countries and across time (Table 1). In this regard, two clarifications of the data are needed.

First, due to the lack of consistent data across Latin American countries, development banks--institutions, typically government owned, established to extend credit to specific sectors of the economy--are included under "other financial institutions." 1/ Hence, in several countries, a large component of credit extended through "other financial institutions" is also bank credit. 2/ For example, as reported in Morris (1990), assets held by development banks in Bolivia, Guatemala, and Peru accounted for 21, 14, and 47 percent of total assets of financial institutions respectively by the end of 1987. The importance of development banks, however, declined significantly during the late 1980s and early 1990s reflecting the privatization programs in many Latin American countries. Mexico is a clear example of the privatization efforts; there, the share of commercial bank credit in total credit to the private sector increased from 76 percent in 1987 to 91 percent in 1992. The same trend is apparent in Bolivia, Brazil, Ecuador, and Peru. 3/ The reduction in government participation in the financial sector has, therefore, resulted in a significant increase in the importance of commercial banks in financing the activities of the private sector. Indeed, the share of credit from commercial banks in total credit to the private sector clearly exhibited an upward trend during the period 1980-92 in all but one of the countries shown in Table 1. The exception was Colombia where savings and loans institution maintained about one third of the total financial credit to the private sector throughout the period under consideration.

Second, the data in Table 1 does not include the informal financial market and the stock exchanges. As will become apparent in the discussion in Section III, the informal market became an important source of financial intermediation in many Latin American countries during the years of severe financial difficulties in the banking sectors of several Latin American countries; that pattern, however, reversed in the late 1980s and early 1990s in many countries as stabilization policies and policies directed at restructuring and recapitalizing banks resulted in a reintermediation of financial activities back into the formal institutions.

1/ The exception is Argentina, where the category "commercial banks" includes the Caja Nacional de Ahorro y Seguros, the Banco Hipotecario Nacional and the Banco Nacional de Desarrollo (BANADE). BANADE was closed in May 1993. As reported in Morris (1990) in Argentina assets of developing financial institutions accounted for about 20 percent of total assets of the financial sector by 1987.

2/ Typically, development banks are recipients of public funds and enjoy special privileges from the government.

3/ Although Venezuela showed a similar trend by 1992, the recent banking crisis has been followed by large injections of government funds into the commercial banks in early 1994.

Table 1. Composition of the Stock of Net Credit to the Private Sector by Commercial Banks and Other Financial Institutions in Selected Latin American Countries, 1980, 1987, and 1992 1/

(In percent)

	1980		1987		1992	
	Commercial Banks	Other Financial Institutions	Commercial Banks	Other Financial Institutions	Commercial Banks	Other Financial Institutions
Argentina 2/	85.42	14.58	97.99	2.01	98.75	1.25
Bolivia	73.90	26.09	76.37	23.63	93.98 3/	6.02 3/
Brazil 4/	...	...	48.88 5/	51.12 5/	62.35	37.65
Chile	...	...	95.44	4.57 6/	78.70	21.30 6/
Colombia 7/	46.39	53.61	42.12	57.88 8/	49.01	50.99 8/
Ecuador	52.32	47.68	57.98	42.02	66.86 3/	33.14 3/
Guatemala	79.15 9/	20.85	85.12 9/	14.88	85.71 9/10/	14.29 10/
Honduras	60.05	39.95 11/	74.79	25.21 11/	78.09	21.91 11/
Mexico	80.62	19.38	75.84	24.16	91.27	8.73
Peru	53.37	46.63 12/	51.01	48.99 12/	75.93	24.07 12/
Venezuela	55.25	44.75 13/	67.21	32.79 13/	85.26	14.74 13/

Sources: IMF staff estimates.

1/ Commercial banks include private and government-owned commercial banks. Other financial institutions include development banks and all other financial institutions whose activities are reported by the Central Banks. It, therefore, excludes the informal financial markets and the stock exchanges.

2/ Commercial banks include national and provincial banks also.

3/ June 1992 data.

4/ After 1985, commercial banks include the Bank of Brazil. The rest of the banking system includes National Development Bank (BNDES), state development banks, investment banks, Federal Savings Bank (CEF), state savings banks, savings and loan associations, housing credit companies, National Housing Bank (BNH), and National Bank of Cooperative Credit (BNCC).

5/ 1988 data.

6/ Includes nonbank financial intermediaries and pension funds.

7/ A new reporting system for financial system accounts was introduced at end-1990. Data for 1990 are therefore not strictly comparable with earlier data. Data for 1990 exclude PROEXPO.

8/ *Comprises development finance corporations, trade finance companies, savings and loan* companies, cooperative institutions, and development banks (BANCOLDEX, FINAGRO, FINDETER).

9/ Including development banks.

10/ August 1992 data.

11/ Includes National Bank for Agricultural Development (Banadesa), Municipal Bank (BMA), specialized savings institutions, National Investment Corporation (CONADI), and private nonbank financial intermediaries. The private nonbank financial intermediaries consist of the Honduran Federation of Savings and Loan Cooperatives (FACACH), insurance companies, and the Honduran Federation of Housing Cooperatives (FEHCOVIL).

12/ Includes National Bank and development banks only.

13/ Includes mortgage banks, agricultural development bank (BANDAGRO), savings and loans, and Workers Bank.

In contrast, the stock exchanges were not important sources of finance for the private sector as a whole during the early and mid-1980s when many Latin American stock markets even contracted as reflected by their market capitalization measured both in U.S. dollars and as a percentage of GDP (Table 2). 1/

Consistent with better economic prospects and, more recently, with a large inflow of foreign capital, market capitalization in several of these countries recovered in 1989-90 and expanded dramatically in 1991-93. 2/ In spite of the tremendous growth of equity prices and in the daily turnover of private sector shares, it is important to notice that equity finance in Latin America is still a source of corporate finance mostly confined to the largest corporations and has not yet become a significant competitor for bank finance for the corporate sector as whole.

The number of listed companies in several Latin American stock exchanges is shown in Table 3. Although the absolute number of listed companies has very limited usefulness since it does not account for difference in size among corporations or the size of the country itself, the important conclusion that can be derived from Table 3 is that, with the exception of Peru, the number of listed companies did not show any significant growth in spite of the sharp increase in market capitalization during the most recent period. This data, therefore, provides an indication that the large capitalization recently observed in several countries may be attributed to the performance of a limited number of stocks and not to a generalized improvement in the performance of corporations in Latin America. Moreover, by the end of 1993, market concentration--measured as the share of market capitalization held by the ten largest stocks--was above 50 percent in a number of Latin American countries including Argentina, Chile, Colombia, Peru and Venezuela; this compares with a much lower market concentration in several developing countries in Asia (including China, Indonesia, Korea, Malaysia and Thailand), which averaged about 30 percent by the end of 1993. 3/

To further analyze whether banks have remained the sole most important source of finance for the private sector, we explored the possibility of using national flow of funds data, which provide information on financial asset and liability structures across sectors. Data on corporate financial structure is essential to assess the relative importance of bank loans in the financing of the production process. Unfortunately, flow of funds data

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1/ Brazil is a noticeable exception of this trend. Market capitalization is defined as the market value of the equity of firms quoted on the stock exchanges.

2/ For a discussion of the issues related to the rapid increase in market capitalization in a number of developing countries, see Feldman and Kumar (1994).

3/ Data on market concentration taken from IFC (1993).

Table 2. Market Capitalization in Selected Latin American Countries, 1980–93

(In percent of Gross Domestic Product)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Argentina	1.80	1.21	0.98	1.33	1.29	2.55	1.79	1.34	1.55	2.64	1.95	9.76	8.14	16.98
Brazil (Sao Paulo)	3.90	4.78	3.64	7.45	13.80	19.21	15.66	5.78	9.83	9.89	3.41	10.54	11.71	25.10
Chile	34.09	21.60	18.05	13.10	10.96	12.56	24.14	28.17	31.01	37.76	49.07	89.33	78.23	110.82
Colombia	5.71	4.96	4.65	3.00	2.77	1.29	2.35	3.45	2.92	2.87	3.52	9.44	11.58	16.39
Costa Rica	...	...	...	3.75	4.26	4.97	5.84	...	...	...	...	5.64	7.97	...
Mexico	6.70	4.06	1.01	2.03	1.26	2.08	3.40	5.98	8.05	11.02	13.56	34.75	42.98	57.67
Peru	...	5.46	2.76	2.84	2.00	4.43	9.52	2.54	...	2.59	2.08	2.40	5.84	11.19
Venezuela	3.80	3.11	3.02	3.50	...	1.82	3.06	4.65	3.33	3.35	17.20	21.00	12.44	10.38

Sources: International Finance Corporation, Emerging Stock Markets Factbook, various issues; and International Monetary Fund, World Economic Outlook.

Table 3. Number of Listed Domestic Companies in Selected Latin American Stock Exchanges, 1980–93

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Argentina	278	263	248	238	236	227	217	206	186	178	179	174	175	180
Brazil (Sao Paulo)	426	477	493	505	522	541	592	590	589	592	581	570	565	550
Chile	265	242	212	214	208	228	231	209	205	213	215	221	245	266
Colombia	...	...	193	196	180	102	99	96	86	82	80	83	80	80
Costa Rica	13	19	24	32	41	51	61	71	76	78	...	82	93	...
Mexico	259	229	206	163	160	157	155	190	203	203	199	209	195	190
Peru	103	133	144	150	157	159	177	197	236	256	294	298	287	...
Venezuela	...	...	98	...	116	108	108	110	60	60	66	66	66	93

Source: International Finance Corporation.

are practically nonexistent in most Latin American countries. Indeed, we were able to find time series data on flow of funds only for Chile (for the period 1978-91). 1/ However, given the recent developments in financial markets in Chile--rapid growth of pension funds, significant increase in the issuance of corporate bonds, rapid increase in market capitalization in the stock exchange--it is worthwhile to explore what this experience may show in terms of the importance of bank loans in the financing of private sector activities.

Table 4 (taken from Corbo and others (1992), shows the financing sources available (in stocks) for households and firms in Chile during the period 1978-91. As it is well-known, increases in equity prices may present a problem in measuring the relative sources of corporate funding because part of the increase in equity prices may be due to capital gains on projects undertaken and financed in previous years. For example, assume a firm undertakes a million peso project in year 1 that it finances half with equity and half with bank loans. In year 2, the market value of the project increases to 2 million pesos in real terms. The equity issued in year 1 will reflect the entire capital gain on the project, not just that earned on the equity portion because the bank loan does not capture capital gains. Thus, in year 1, using current market prices of equity, bank financing and equity financing are each 500,000 pesos. In year 2, equity financing increases to 1.5 million pesos and bank loan funding remains constant, even though the proportion of the project funded by each instrument has not changed. Corbo and others (1992) attempt to correct for this effect, and it is their adjusted figures that are used here. 2/

1/ Limited data for Mexico is also reported in Singh and Hamid (1992). The data show that during the period 1984-88, the top 50 manufacturing corporations listed in the stock exchange used equity as their most important external source of finance. However, this result is derived using financing flows rather than stocks and should, therefore, be taken with care as it may lead to serious misinterpretations of the Mexican financial structure. During the period 1984-88, restrictive monetary policies in Mexico had a significant impact on the availability of bank loans. Moreover, during that period, corporations in Mexico achieved almost no real growth. Thus, as the authors themselves concluded: "..in the peculiar circumstances of the Mexican economy in the mid-1980s, the Mexican corporations achieved relatively little growth; but of the growth that did occur, a large proportion of it was financed by equity" (p. 47). The point to be learned from this analysis is that in economies facing large variations in real economic activity and in the design of economic policies, conclusions regarding the corporate financial structure cannot be based on flows data which may be of a temporary nature. The particular advantage of using stock data is that, by its very nature, temporary fluctuations get diluted.

2/ Corbo and others (1992) indicate their methodology may understate equity funding but the understatement is less severe than the overstatement that would arise if current market prices were used.

Table 4. Chile: Private Sector Finance Structure, 1978–91 1/2/

(in ratios of total domestic financial liabilities outstanding) 3/

	Bank Loans 4/	Corporate Bonds	Equity 5/
1978	0.69	0.01	0.22
1979	0.73	0.01	0.23
1980	0.76	--	0.22
1981	0.80	--	0.17
1982	0.78	0.03	0.18
1983	0.79	0.03	0.18
1984	0.81	0.03	0.15
1985	0.86	0.03	0.11
1986	0.86	0.02	0.11
1987	0.84	0.03	0.12
1988	0.82	0.05	0.12
1989	0.81	0.07	0.11
1990	0.75	0.11	0.14
1991	0.70	0.13	0.17

Source: Corbo, et al., El Sistema Bancario Chileno: Desarrollos Recientes y sus Perspectivas, Instituto de Economia, Pontificia Universidad Catolica de Chile (1992), Table 2–3.

1/ Includes domestic sources of finance only.
2/ Includes government enterprises.
3/ Ratios do not need to add to one because there are other financial liabilities (such as liabilities from SINAP -- Sistema Nacional de Ahorro y Prestamos) not included here.
4/ Include banks and savings companies.
5/ Adjusted for capital gains on previous stock issues.

Bank loans remained the most important source of domestic finance for the Chilean private sector (households and firms) during the period under study, averaging 79 percent over the entire period. The share rose during the years immediately after the debt crisis, peaking at 86 percent in 1985-86. Financial reform measures taken since 1986, including the new banking law, which limited permissible activities by banks, and the increased competition from other financial institutions lowered the share of bank loans in total domestic financing. 1/ It is interesting to note that corporate bonds and not equity--which by the end of 1991 had not reached its predebt crisis share in domestic financing--were the main source of domestic competition for bank loans during the period considered. As will be further discussed below, the emergence and rapid growth of private pension funds has been a crucial factor behind the surge in medium-term corporate bonds.

In contrast to the expansion of medium-term bonds, the market for commercial paper in Chile remains small and illiquid. This pattern diverges from that observed in a number of industrial countries where corporations have been able to satisfy their demand for liquidity and their short-term financing needs directly in liquid, securities markets. 2/

Notwithstanding the decline in the ratio of bank loans in total financing in recent years, the ratio remained high at 70 percent by the end of 1991. This finding is important in the Latin American context. Among Latin American countries, banks in Chile probably face the largest degree of competition from other domestic financial institutions and that competition largely comes from private pension funds, which are only at an early stage of development in other countries (like Argentina and Peru) and are nonexistent in most others. Therefore, the predominance of bank loans as a source of private sector finance in Chile, reinforces the view that such feature is a Latin America phenomena.

How does the relative importance of banks in Latin America compare with that in industrial countries? Table 5 uses flow of funds data for Germany and the United States to show the ratio of bank loans to corporate domestic liabilities during the 1980s and 1990. These two countries were chosen because they are often cited as the two extremes in the range of financial market structures in the industrial world: Germany representing the "universal banking system" where banks face limited competition from other financial institutions and the United States representing the so-called "Anglo-Saxon" financial structure where securitized money and capital markets compete with wholesale banks as sources of funds for the corporate sector.

1/ The recent increased access by a number of firms to international capital markets may be viewed as an additional source of competition to bank loans. This issue is discussed in Section IV.

2/ See Goldstein and others (1992) for a discussion on the trend toward securitization observed in industrial countries.

Table 5. Corporate Finance Structure in Germany and the United States, 1980–90 1/

(In percent of total financial liabilities outstanding)

	Bank Loans	Bonds	Other Nonbank Securities 2/	Equity
Germany				
1980	60.7	1.5	24.5	13.3
1985	55.4	1.4	22.5	20.7
1990	55.9	1.9	22.7	19.5
United States				
1980	12.2	15.7	22.9	49.3
1985	11.8	16.1	23.5	48.6
1990	11.9	17.1	23.8	47.1

Sources: Deutsche Bundesbank, Zahlenubersichten und Methodische Erlauterungen Zur Gesamtwirtschaftlichen Finanzierung Srechnung der Deutschen Bundesbank; United States Board of Governors of the Federal Reserve System, Balance Sheets for the U.S. Economy 1960–91 (Washington, March 1992).

1/ Includes domestic sources of finance only.
2/ Includes commercial paper, loans from finance companies, and government loans.

Not surprisingly, a major result from this table is that the ratio of bank loans to domestic corporate liabilities in Germany was much higher than in the United States throughout the period under consideration. 1/ The average share of bank loans in Germany's corporate liability was about 57 percent in comparison to an average of about 12 percent in the United States. Indeed, in Germany, private securities markets remain fragmented and relatively illiquid 2/, and, at the short end of the market, there are very few domestic substitutes for bank loans. In contrast, commercial paper is among the preferred instrument for short-term financing by firms in the United States.

Although the Latin American experience reviewed above is indicative of the predominance of banks as a source of finance, the discussion also shows that the degree of importance of banks in domestic financial markets varies across countries. Indeed, some financial systems, such as the Argentinean, seem to be more bank-oriented than, say, the Chilean. Since financial markets are still in the process of being reformed, there is a significant probability that a wide range of financial structures may emerge from the transformation process. There is a lesson to learn here from the experience in the industrial countries, namely that, even in a highly integrated and global financial world, alternative financial structures can co-exist. There is no reason to believe that could not be the case in Latin America.

2. The unique features of banks in developing countries

Gerald Corrigan, former president of the Federal Reserve Bank of New York, argues that banks are special because the bank charter gives them the unique power to provide the means of payment in non cash transactions; this special power is called the "franchise value of banks". 3/ When a bank customer withdraws funds from his bank deposit or writes a draft against that account, his bank delivers an "outside" asset, or "good funds"--namely, reserves on deposit at the central bank, or cash--to the customer or to the bank of the payee named on the draft. 4/

In fact, when other liability issuers promise to deliver payment, they promise to deliver bank deposits. Consider, for example, money market mutual funds in the United States, which invest in money market assets, such as commercial paper and Treasury bills, and issue short-term claims on this portfolio to investors. When an investor wants to use his money market

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1/ For a more detailed comparison between the financial systems in Germany and the United States, see Goldstein and others (1992).

2/ As reported in Goldstein and others (1992) commercial paper programs in Germany started only in 1991. It is interesting to note, however, that notwithstanding the limitations of private securities markets in Germany, the government bond market is large and liquid.

3/ See, for example, Corrigan (1991).

4/ The unique role of banks as providers of "good funds" is analyzed in Garber and Weisbrod (1992).

mutual fund shares to purchase goods and services, the money market mutual fund must deliver funds from its bank deposit to the bank deposit of the payee designated by the investor.

Even though money market mutual funds must rely on banks to make payments for them, the markets for their assets have become so liquid that they can be sold for bank deposits immediately and at very low cost. Hence, the public is willing to hold money market mutual funds as perfect substitutes for bank deposits for some transactions.

In contrast, in developing countries, there are no issuers of perfect substitutes for bank deposits such as money market mutual funds because markets for nonbank liabilities such as commercial paper are illiquid. Commercial paper markets are illiquid because the accounting and legal frameworks are insufficiently developed to permit investors to evaluate corporate cash flow and their legal standing in the event of default for all but the most well-known firms--that is, investors cannot rely on the legal infrastructure to aid in evaluating the creditworthiness of most potential borrowers. Hence, the potential pool of issuers is not large enough to create a liquid market for nonbank short-term paper. Therefore, in developing countries, banks are not only the unique issuers of the means of payment, they are also the unique nongovernmental issuers of all liquid instruments.

In developing country markets, the only institutions that can credibly promise to deliver bank deposits are banks. Banks' claim to deliver the means of payments is more credible than claims of other liability issuers because banks maintain deposits at the central bank and have access to a central bank credit facility, usually referred to as discount window privileges.

While the public in developing economies is willing to accept bank deposits as liquid liabilities because banks hold deposits at the central bank, if banks borrowed excessively from the central bank to keep their deposits liquid, the economy would soon experience high levels of inflation, and the value of the bank franchise would be destroyed--that is, the special power conferred by the banking charter would be worthless because the value of the bank liabilities would have lost its real value. Therefore, if the central bank wants to preserve the franchise value of the banking system, it must avoid lending large amounts of funds to banks on a sustained basis. To this end, the central bank must ensure that banks have procedures in place to monitor the ability of their loan customers to deliver cash. In a market with undeveloped accounting standards, this implies restriction of borrowers to short-term loans and frequent calls for payment of principal, which effectively means that most investment projects will be short term. In addition, it requires banks to use the tools at hand--namely, the threat to seize a firm's bank deposits and freeze its ability to make payments--in order to enforce loan contracts. When a borrower gets into trouble, a bank must have established procedures to resolve problems quickly if they are to maintain their commitment to deliver cash against deposits.

In sum, a sound banking system is taken in this paper to mean one capable of preserving its franchise value--that is, the banks' commitment to deliver "good funds" against their deposit liabilities. In a developing country, this implies a banking system that effectively monitors the liquidity of their borrowers and that, in the face of difficulties, quickly establishes loan workout programs to restore defaulted borrowers to performing status.

3. Measuring the franchise value of the bank in developing economies

When investors evaluate the quality of banks in developing countries, they confront the same obstacles that they face in evaluating nonfinancial firms: accounting data are often undependable guides to quality. For example, usual indicators of bank soundness in developed countries, such as capital to asset ratios and loan loss provisions to nonperforming loans, are often uninformative because banks are not subject to standardized procedures for placing loans on nonaccrual status or deducting defaulted credits from capital and loan loss accounts. Hence, investors in developing countries must look for other means to assess the quality of bank balance sheets.

One apparent method by which banks could convince investors that they are sound and, therefore, able to deliver "good funds" would be to hold a large amount of cash assets--cash and deposits at the central bank (reserves)--relative to its deposit liabilities. In other words, a bank could convert itself into a vault. If, however, banks acted as vaults, they would have less incentive to press borrowers to remain liquid, and they would reduce the amount of credit supplied to borrowers for a given amount of deposits issued. In other words, the liquidity demands of investors would be met by holding cash assets in the central bank rather than by supplying credit to domestic borrowers in a form that forces borrowers to remain liquid--that is, the market discipline imposed by banks on borrowers would be adversely affected.

As the evidence presented in the next section demonstrates, when banks do not perform their task of disciplining borrowers, the credit risk in the financial system actually increases. Some other institution, usually government related, ends up supplying credit without imposing discipline on borrowers. When borrowers default, bank depositors are often forced to absorb the losses through outright confiscation or through inflation. Hence, one measure of the quality of the bank franchise is the ratio of cash assets

to deposit liabilities--a relatively high ratio represents a weak franchise. 1/ That is, the market discipline exerted by banks on borrowers--by requiring frequent delivery of good funds as a way to prove borrowers' creditworthiness--is reduced. In this connection, exceedingly high reserve requirements may thus jeopardize the franchise value of banks.

A second and related measure of franchise value is the loan to asset ratio. Banks that hold a high ratio of nonloan assets to assets--usually government bonds, development bonds, and central bank bonds--are not fulfilling their role of policing the liquidity of borrowers. As in the case of high reserve requirements, the issuers of bonds often use the proceeds to provide long-term credit to borrowers who are not able to use these funds efficiently. In addition, when banks hold a high portion of their assets in government-related bonds, bankers do not obtain the experience of helping private borrowers work their way out of credit problems. When credit crises occur, they tend to try to solve the problem by expanding credit without regard to establishing loan workout programs to ensure that the new credit is used to correct deficiencies in the borrower's business plan that led to credit problems in the first place. 2/

4. The central bank and the franchise value of the banking system

If a bank maintains low cash ratios and high loan and deposit ratios relative to assets, it must, as indicated above, ensure that its borrowing customers remain liquid. Even the best banks, however, cannot depend solely on their own loan customers for liquidity; they must have access to good funds through the banking system to satisfy temporary shortages of liquidity. This takes two forms: the interbank market for short-term funds and loans from the central bank. In many developing countries, the interbank market is uncompetitive; hence, practically speaking, the central bank must play a pivotal role in maintaining bank liquidity.

1/ Notice that in developed economies, low liquidity ratios are often taken as an indicator of problems in a bank; but this is because banks in developed countries operate at much lower cash ratios than those in developing economies. Caution is then necessary when using for developing countries the same kind of ratios used in assessing banks' performance in industrial countries. The ratio of cash assets to deposits has a completely different meaning when it reaches the high levels found in some developing countries.

2/ Once again, there is an important difference that needs to be taken into account when analyzing ratios in developing countries relative to those in industrial countries. In industrial economies a high loan to asset ratio can imply an unsound bank. Again, however, the extremely low ratios found in some developing countries cannot be interpreted the same way as the moderately low loan to asset ratios of sound banks in developed economies. The main reason is the quality of nonloan assets held by banks. In industrial countries, banks frequently hold bonds from AAA companies or other high quality assets.

This places a special responsibility in the hands of the central bank for it must take the same attitude toward the banks with which it has a lending relationship that the banks must maintain with their borrowing customers. That is, the central bank must ensure that the credit it extends to a bank for liquidity purposes is not used to provide credit to borrowers that are in default. This means that the central bank must play a major role in bank supervision or at least have access to the supervisory data collected by other agencies. 1/ In fact, a major benefit of having a banking system with low cash and high loan to asset ratios is that it forces the central bank to maintain a close supervisory relationship with its banks because it may be called upon to provide liquidity assistance.

Moreover, when banks maintain high cash ratios, the central bank ends up with a large balance sheet relative to deposits outstanding because the cash, either in the form of vault cash or reserves, is a liability of the central bank. The evidence presented in Section III for a number of Latin American countries suggests that at times when cash assets held by banks at the central bank were exceedingly large, the central bank took over much of the role of extending domestic credit from the banks. 2/ When the central bank operates as a bank that provides direct credit to the market, one of the most important checks on loan decisions is removed. As lender of last resort to banks, the central bank maintains an arm's length relationship with ultimate borrowers. Hence, it is in a position to criticize lending decisions of the banks. When the central bank lends directly to the market, it no longer has a supervisory role to play.

The experience of the central bank in acting as supervisor rather than direct lender is a crucial determinant of how a banking system survives a systemwide banking crisis, as occurred in many Latin American countries in the 1980s. In a major crisis, the central bank has an important role in reviving confidence in the system, and, to perform this role, it usually finds itself in a position in which it must lend funds to banks with severe credit problems. To prevent this credit expansion from being viewed as inflationary, the central bank must establish a lending program to banks that creates incentives for bankers to work with their borrowers to improve their businesses rather than to provide new funds for projects with no economic value. In other words, investors must be convinced that the credit created by the central bank will lead ultimately to real revenue gains.

The credit created will lead to real revenue gains if bank stockholders have incentives to return borrowers with nonperforming loans back to

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1/ Even in countries that supervise banks through other agencies, such as an independent deposit insurance system, a banking commission, or the Ministry of Finance, it is necessary for the central bank to have access to bank supervisors if it is to fulfill its role as lender of last resort.

2/ The evidence indicates that, with the exception of Peru, banks only held a high ratio of cash to assets when they were subject to high reserve requirements.

solvency. If central bank credit is provided to banks at below market interest rates and banks view this as unlimited source of funds, they might use the low interest-rate credit to cover the unpaid interest payments on nonperforming loans--which might even restore the spread they enjoyed when they funded through the market. This policy, however, would do nothing to create future real revenue gains. In fact, it would only lead to continuous central bank losses. Instead, the central bank must tie its subsidized credit to a program that provides bankers with incentives to work with borrowers so that nonperformings or restructured loans return to performing status. Central banks have devised several strategies to deal with this problem, and several of these will be discussed and evaluated in Section III.

If a central bank lacks credibility in its lending policies, it may find it desirable to signal to the market that it is willing to subject itself to constraints that encourage prudence. One such constraint is to permit the banking system freely to offer loans and deposits denominated in a hard foreign currency, such as the U.S. dollar, a policy known as dollarization. Because the central bank cannot extend credit in the foreign currency without borrowing that currency in the international marketplace, it is more likely to lend funds less carelessly than it would in the domestic currency, which it can create. If banks can maintain high loan and low cash ratios in their foreign currency portfolios, they will have the proper incentives to monitor their borrowers. For example, dollarization of a banking system may not be detrimental to an economy if it is the only means by which loans can be extended in a disciplined manner.

The next section describes how the strength of the banking payments franchise and the quality of central bank leadership was an important determinant in how quickly public confidence was restored to the financial systems in each of five Latin American economies after the onset of the debt crisis in the early 1980s.

III. The Franchise Value of Banks and the Resolution of Banking Crises in Selected Latin American Countries

It is well documented that the challenges faced by policymakers in Latin America following the outburst of the debt crisis included not only the correction of their macroeconomic imbalances but also the restoration of their domestic banking systems. 1/ In fact, it is by now fully recognized that serious problems faced by the banking systems in a number of countries in the region placed additional constraints on the effectiveness and

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1/ For a review of the issues and experiences in a number of developing countries that faced banking crises in the early 1980s, see Sundararajan and Baliño (1991).

sustainability of the stabilization programs implemented in the years immediately after the initiation of the debt crisis. 1/

This section draws on the characterization of the role of banks in developing countries presented in Section II to analyze how the authorities and the banking sectors in a sample of five Latin American countries--Argentina, Chile, Colombia, Mexico, and Peru--responded to the financial difficulties during the early and mid-1980s. 2/ It is shown that the state of the franchise value of banks--as defined in Section II--at the inception of the debt crisis was a central element in determining whether the authorities in each of the countries followed a disciplined set of policies in managing the banking problems.

The main conclusions derived from this section are obtained by grouping the sample countries according to the strength of their banking franchise at the inception of the debt crisis and by making relative comparisons among those countries. In summary, the analysis will show that, because the banking systems in Chile and Colombia had relatively strong franchises, bank supervisors and bankers were able to respond to the crisis with a credible program to restore confidence in the banking system. Incentives were put into place for bankers and their shareholders to gain from salvaging value from bad credits. The programs in both these countries required a substantial increase in credit, but because the credit creation was associated with a program to restore stability, it was noninflationary.

In contrast, banking regulators in Argentina, Mexico, and Peru, in their attempts to solve the crisis, removed authority from bankers substituting the credit judgment of the central bank or the government directly. These policies also eventually led to credit expansion, which proved to be highly inflationary because investors did not believe the credit created would be repaid in real terms.

The rest of this section is organized as follows: First, it compares the state of the banking franchise across the five countries in the early 1980s. Second, it compares each country's bank franchise ranking with a ranking based on traditional macroeconomic ratios. Then it evaluates how policymakers in each country responded to the debt crisis and how the state of the banking franchises affected solutions. Finally, this section summarizes the state of the banking franchise after the lessons of the crises had been absorbed by regulators, bankers, and investors.

1/ This issue is discussed further in Baliño (1991).

2/ As the discussion below will show, the diversity of experiences across these countries is enough to guarantee an appropriate representation of the banking difficulties in Latin America.

1. Evaluating the strength of banks at the outbreak of the debt crisis

Following a period that started in the late 1970s characterized by large inflows of foreign capital, 1/ by the end of 1982, and continuing during 1983-84, all five countries under consideration experienced large outflows of capital. These outflows reflected deteriorated perceptions held by both residents and foreigners regarding the creditworthiness of borrowers in these economies. 2/ The turnaround of voluntary capital inflows experienced by each country since 1982 was accompanied by a negative overall balance of payments (Chart 1). The loss of international creditworthiness experienced by these economies called for a domestic policy response--each country either had to put into place policies that restored the confidence of the international financial community or had to generate sufficient cash flow on its trade account to compensate for the outflow of capital. 3/

The lack of confidence that borrowers could repay their loans had an adverse impact on the banking systems in these five countries--albeit in different proportions. In accordance with the discussion in Section II, the working hypothesis governing our interpretation of the data is that banking systems in which the loan to asset ratio is relatively high and the cash to deposit ratio is relatively low--that is banking systems where the franchise value is high--have the greatest experience in establishing credible loan workout programs in periods of systemic bank crises. In banking systems where the franchise is low, the tendency in a crisis is to provide new credit to borrowers in arrears on their payments, without establishing adequate controls, in the expectation that these borrowers will be able to salvage a bad business with the new funds. Such credit expansion has often led to greater credit problems in the near future.

At year end 1982, the banking systems of the five countries fell into two distinct groups. The first group, consisting of Argentina, Mexico, and Peru, had comparatively weak franchises and the second group, consisting of

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1/ For a discussion of the factors explaining the evolution of foreign capital flows before and during the debt crisis in several Latin American countries see Rojas-Suarez (1991). A comparison between the capital inflows problem in the 1970s and early 1990s is contained in Calvo, Leiderman, and Reinhart (1992).

2/ A detailed analysis of the capital flight problem experienced by Latin American countries during this period is contained in Rojas-Suarez (1991).

3/ Confidence of the international community in the financial performance of most Latin American countries was not restored during most of the 1980s. Indeed, the large capital flight that followed the outburst of the debt crisis as well as the deceleration of external loans was accompanied by a sharp increase in the resource balance--defined as net exports of goods and nonfactor services--during the period 1983-86; that is, for the Latin American countries, the net transfers of resources abroad was a direct cost associated with their severely reduced access to external credit. Further discussion of these issues is contained in Rojas-Suarez (1991).

Chile and Colombia, had comparatively strong franchise as measured by the ratios described above. The first group had high cash to deposit ratios ranging from 55 percent in Peru and 65 percent in Mexico to over 75 percent in Argentina. In contrast, in Chile and Colombia the ratio was about 21 percent. Although confirming the classification of countries described above, the differences in the loan to asset ratios between the two groups were not quite as extreme. In the first group of countries it was about 45 percent. In Chile, it was 63 percent and in Colombia about 59 percent (Table 6).

Incentives to monitor the liquidity of bank borrowers--as measured by the above ratios--determines the quality of bank supervision as well. In banking systems where borrower liquidity determines the liquidity of the banking system, the central bank must monitor bank lending decisions as it may often be called upon for liquidity assistance. To provide this assistance without undermining the franchise value of the banking system, it must be familiar with how its member banks make their lending decisions and how they monitor their borrowers.

A well-known example of how a the behavior of a lender of last resort can contribute to the undermining of a bank franchise is provided by the U.S. savings and loan crisis. U.S. savings and loans offer government insured deposits, mostly to consumers, similar to those offered by banks. In contrast to commercial banks, which hold a portfolio of short-term loans, savings and loans hold mostly long-term home mortgages, which, until the late 1980s were illiquid securities.

In the 1970s, the deposits offered by savings and loans were short term and subject to interest rate ceilings. When market interest rates rose substantially above the ceilings in an inflationary environment, consumers began to withdraw their deposits. Savings and loans could not sell their mortgage assets, which were fixed-interest rate securities, because the market was limited. Even if they had been able to sell, however, the losses sustained from the increase in interest rates would have wiped out the capital of many institutions.

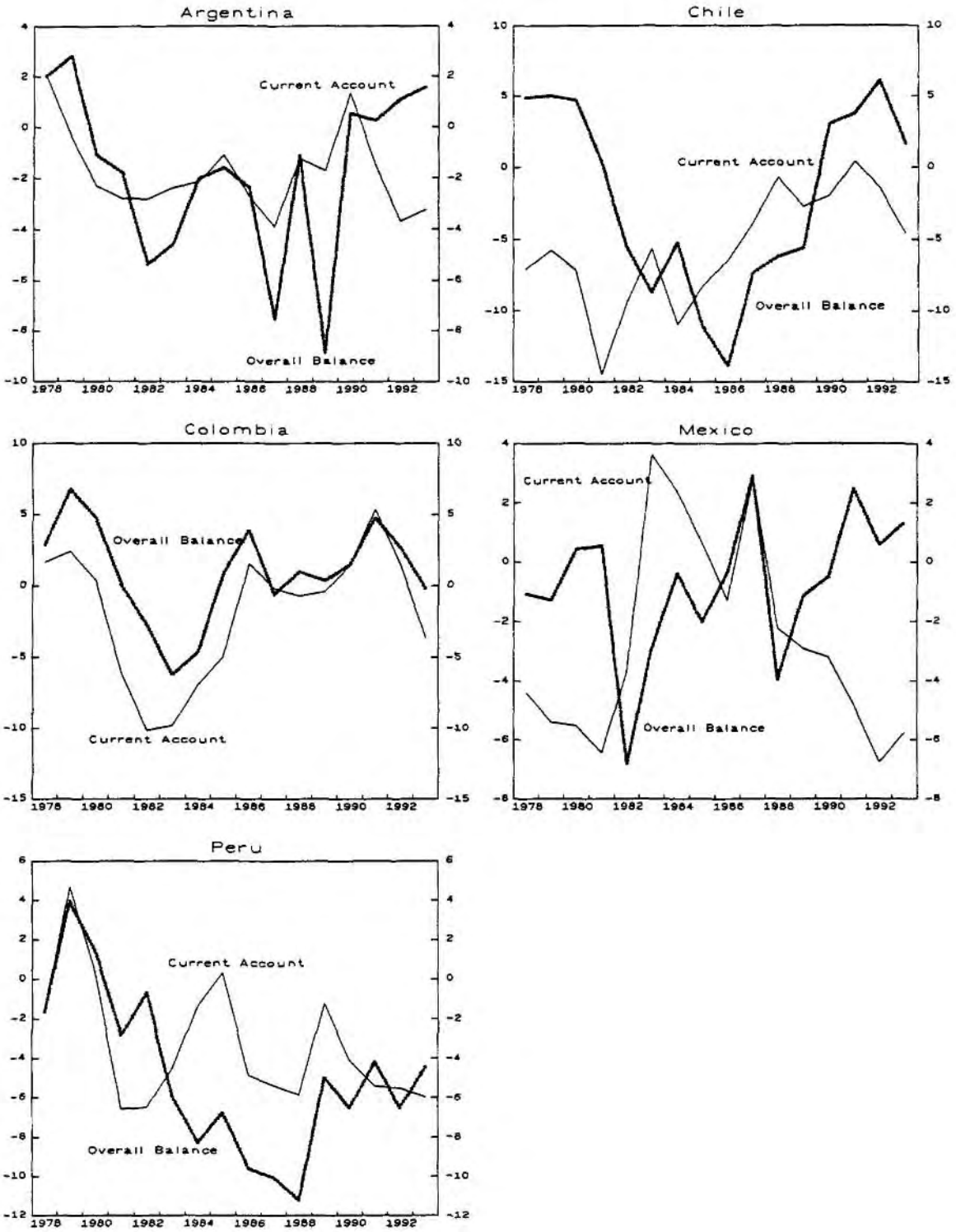
During this phase of the savings and loan crisis, policymakers tried to nurse failing savings and loans along with marginal extensions of credit through the Federal Home Loan Bank Board, a kind of central bank for savings and loans, and regulatory forbearance on accounting issues. Deposit interest rates were deregulated, which stopped the outflow of deposits but did not improve the profit situation as interest expenses exceeded interest income. The asset powers of savings and loans were also liberalized. For example, federally chartered savings and loans were permitted to make direct investments in real estate as well as hold mortgages. The result of giving the savings and loans the right to bid for insured deposits paying market interest rates and liberalized powers was increased risk taking, and, with the decline in the property market in the late 1980s, the savings and loan industry was in a very critical condition.

CHART No 1.

Balance of Payments: Current Account and Overall Balance

1978 - 1993

(in percent of GDP)



Source: IMF, World Economic Outlook.

Table 6. Indicators of Bank Franchise Value in Selected Latin American Countries, 1982

(In percent)

	Cash Assets to Deposits	Loans to Assets
Argentina	76.19	48.57
Chile	21.13	63.42
Colombia	20.96	58.66
Mexico	65.13	45.53
Peru	55.32	45.82 1/

Sources: Central Bank of Argentina; Superintendencia de Bancos e Instituciones Financieras, Información Financiera (Chile); Banco de la República (Colombia); Comisión Nacional Bancaria (Mexico); Superintendencia de Banca y Seguros (Perú); and IMF staff estimates.

1/ Data for Perú corresponds to 1981.

At the end of the 1980s, marginal aid policies were abandoned, and large sums of public money were committed. The commitment of public money came with a new policy that made shareholders a partner with a government agency to rescue the industry. The government agency, the Resolution Trust Company (RTC), took over the assets of failing savings and loans. It then sold the assets through a bidding process. Thus, prospective buyers bid on the assets based on their calculations about future movements in the market as well as their ability to manage defaulted loans back to profitability. The previous policy of providing distressed savings and loans access to lender of last resort funding on a continuous basis often committed regulators to lend money to institutions that had no capital. Thus, owners had no incentive to use the new money wisely as they had nothing at risk. In contrast, the new policy committed government money immediately and then turned the assets over to new owners who were required to supply new capital to the project. The new capital commitment was sufficient enough to give the new owners an incentive to manage the assets back to profitability. Thus, the new policy strengthened the franchise value by changing the incentives facing shareholders.

The discussion in Sections III.3 and III.4 will show that successful bailout programs of banking systems in Latin America paralleled the second phase of the U.S. savings and loans crisis, while unsuccessful bailouts paralleled events in the first stage. That is, bailout programs of banking systems in Latin America were only successful when the supply of central bank credit to distressed institutions was made conditional on a realistic appraisal of the loan portfolio. Under such programs only borrowers with a reasonable possibility of returning to solvency could be eligible for additional loans.

2. The overall macroeconomic environment and the franchise value of banking systems

Closely related to the ability of the central bank to promote discipline in financial markets is the state of the overall macroeconomic environment. It is, therefore, natural to question whether the ordering of the five countries according to the strength of their banking franchise matched the relative soundness of their macroeconomic systems in the period immediate before the debt crisis.

Based on the fiscal policy stance and the behavior of inflation, Chile had the strongest macroeconomic environment among the countries under consideration in the early 1980s (Table 7). Consistent with having the strongest fiscal stance, the average rate of inflation in Chile was the lowest among the countries in the sample. Colombia followed Chile in the ordering of countries. With this criteria in mind, Argentina had the weakest macroeconomic condition among the countries in the group: even two years before the eruption of the debt crisis, the average inflation rate was running above 100 percent. While the rate of inflation in Mexico did not accelerate until 1982--and was similar to that experienced in Colombia in the period 1980-81--the fiscal deficits (as ratios of GDP) in Mexico during

Table 7. Fiscal Balance and Inflation in Selected Latin American Countries, 1980-92 1/2/

	Argentina		Chile		Colombia		Mexico		Peru	
	Fiscal Balance 3/	Inflation	Fiscal Balance	Inflation	Fiscal Balance 4/	Inflation	Fiscal Balance 5/	Inflation	Fiscal Balance	Inflation
1980	-8.0	100.8	...	35.1	-2.4	26.5	-7.6	26.4	-6.4	59.1
1981	-16.7	104.5	0.8	19.7	-5.9	27.5	-14.6	27.9	-8.4	75.4
1982	-18.0	164.8	-3.4	9.9	-7.6	24.5	-17.8	58.9	-9.1	64.4
1983	-17.9	343.8	-3.0	27.3	-7.6	19.8	-8.5	101.8	-11.8	111.2
1984	-7.6	626.7	-4.3	19.9	-6.3	16.1	-6.4	65.5	-8.2	110.2
1985	-5.1	672.1	-2.6	30.7	-3.6	24.0	-8.7	57.7	-4.3	163.4
1986	-2.5	90.1	-1.9	19.5	-0.3	18.9	-14.8	86.2	-5.9	77.9
1987	-5.6	131.3	-0.4	19.9	-2.0	23.3	-15.0	131.8	-7.9	85.8
1988	-3.0	343.0	2.5	14.7	-1.8	28.1	-11.6	114.2	-9.2	667.0
1989	-7.3	3,079.8	5.3	17.0	-2.0	25.8	-5.2	20.0	-7.9	3,398.7
1990	-2.4	2,314.0	3.8	26.0	-0.7	29.1	-3.6	26.7	-5.4	7,481.7
1991	-1.3	171.7	2.3	21.8	-1.0	30.4	-0.4	22.7	-2.6	409.5
1992	0.5	24.9	3.2	15.4	-0.9	27.0	1.5	15.5	-0.3	73.5

Sources: Argentina (Central Bank of Argentina and Ministry of Economy); Chile (Central Bank of Chile); Colombia (Banco de la Republica); Mexico (Bank of Mexico); Peru (Central Reserve Bank of Peru); and International Monetary Fund, International Financial Statistics.

1/ Fiscal balance (overall surplus (+) or deficit (-) of the nonfinancial public sector) data are expressed in percent of Gross Domestic Product; inflation figures are shown in percentages.

2/ Inflation is calculated using the following formula: ((P[t]-P[t-1])/P[t-1])*100 where P is the consumer price index (CPI) (IFS line item 64). The CPI is calculated based on the average price prevailing in the economy during the year.

3/ Includes the Central Bank quasi-fiscal operations.

4/ Refers to the overall surplus (+) or deficit (-) of the consolidated public sector.

5/ From 1984 onward, the data represent the economic balance, that is, excluding financial intermediation.

the early 1980s resembled those in Argentina. Finally, Peru's fiscal deficit and inflation, although less severe than in Argentina deteriorated during the early 1980s. Indeed, by 1981, Peruvian inflation rate was closer to Argentina's inflation rate than to any of the other countries in the sample.

Thus, the ordering of countries in terms of their fiscal stances and inflation performances during the early 1980s matched closely the ordering obtained when evaluating the relative stance of the franchise value in these countries. Moreover, in Argentina, Mexico, and Peru, ex-post real interest rates on bank deposits were mostly negative in the early 1980s, reflecting interest rate ceilings by the authorities. 1/ (Chart 2) To a large extent, these controls--which weakened the franchise value of banks--were not present in Chile and Colombia and, as a result, ex-post real interest rates remained positive throughout the 1980s. 2/

It is, of course, not surprising to find out that the ordering of countries using the two alternative criteria matches. After all, a stable macroeconomic environment and a stable financial system are complementary.

3. How the systems responded to the immediate crisis: 1982-85

This subsection considers whether the banking systems in the countries classified as having the highest franchise value among the countries in the sample coped with banking crises in a more disciplined manner than those countries classified as having the lowest franchise value. At the beginning of the international debt crisis in 1982, the banking systems in Argentina and Mexico were already deeply mired in a credit crisis. In Chile and Colombia, the banking systems were about to face the consequences of lender concerns that borrowers could not make good on their debts. In Peru, the crisis was delayed until the middle of the decade, but when it arrived, it was a crisis of major proportions.

In Argentina, the banking system, which had been subject to interest rate ceilings, high reserve requirements, and prescribed lending policies, was rapidly deregulated in 1978. Without appropriate supervision of credit and with bankers lacking the experience to price risks properly, the banking

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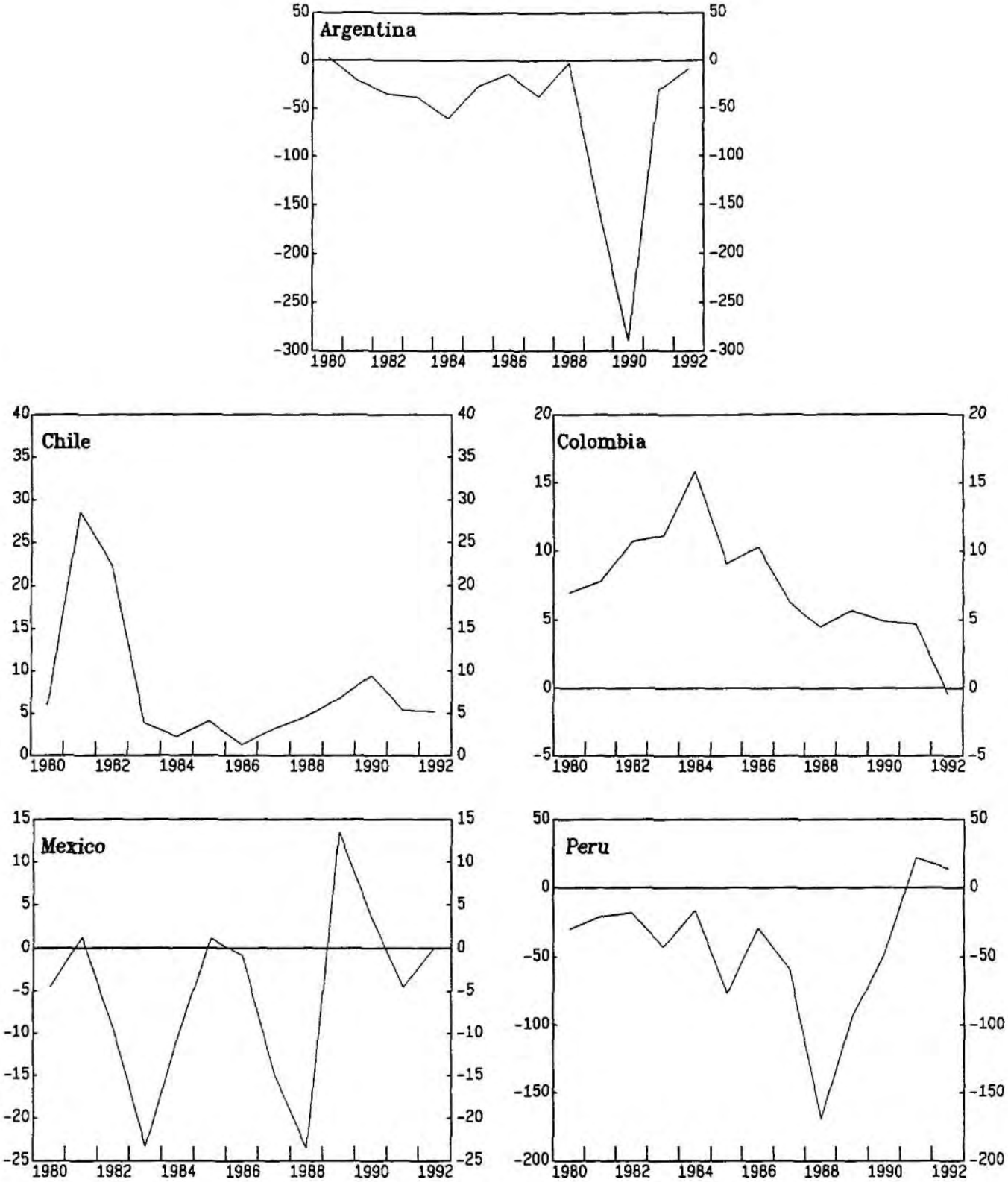
1/ Although interest rates were liberalized in Argentina in 1978, controls on bank deposits were reimposed in 1981. See the discussion in Section III.3.

2/ In Chile, during the late 1970s and early 1980s, ex-post real interest rates increased drastically and were accompanied by a significant widening of the spread between domestic interest rates (adjusted for exchange rate changes) and comparable foreign interest rates. The review of the Chilean experience suggests that these high domestic rates emerged when the domestic financial system was liberalized in conjunction with the opening of the capital account. (See Mathieson and Rojas-Suarez (1992)).

Chart 2. Real Interest Rates in Selected Countries, 1980-92

(Average per annum, in percent)



Sources: Argentina (Central Bank of Argentina and Ministry of Economy); Chile (Central Bank of Chile); Colombia (Banco de la Republica); Mexico (Bank of Mexico); Peru (Central Reserve Bank of Peru); and International Monetary Fund.

system expanded excessively, and, by the early 1980s, suffered from severe credit problems. The central bank responded to the crisis by reimposing stiff reserve requirements and interest rate ceilings on deposits. Real interest rates on deposits became negative (see Chart 2), and reserves in the central bank increased to over 70 percent of deposits in 1982, compared to 12 percent in 1981.

The central bank followed two basic policies: it subjected deposit interest rates to a ceiling that permitted banks to reduce interest rates to borrowers to a manageable level, and it increased reserve requirements that, in turn, provided the central bank with resources to lend to the most troubled institutions. In 1982, central bank credit to the financial system equalled over 21 percent of GDP (see Table A1).

The central bank response can be characterized as solving the crisis by placing as little strain on defaulting borrowers and the most troubled banks as possible. Banks with relatively clean loan portfolios were forced to aid in the bailout of troubled banks by holding high reserves so the central bank could obtain resources to lend. Depositors were forced to accept a depreciation of their deposits in real terms. Because responsibility was not placed on the shoulders of the parties responsible for the crisis, crisis resolution weakened the franchise value of the banking system.

In contrast to this view, the central bank reaction to reregulate suggests that the authorities believed that the banking crisis was caused by deregulation in the late 1970s--that is, by the reduction of reserve requirements and the resulting increase in bank loans. While it is probably true that the rapid deregulation of a banking system run by inexperienced bankers was an invitation to a banking crisis, the resolution of the crisis did nothing to educate bankers in how to deal with credit crises, which was the real problem facing the Argentine banking system. As such, reregulation was a step backwards that was to lead to much greater trouble later on than that caused by deregulation.

An additional problem confronting the Argentine banking system was the explosion of credit to the central government in the early 1980s, most of which was lent through the central bank and, again, financed by high reserve requirements on the banks. This had two debilitating effects on the banking system. First, it ensured that high reserve requirements would persist beyond the immediate banking crisis; and second, it placed the central bank in the role of direct lender to the government. As a direct lender and a supervisor, the central bank was placed in a conflict of interest situation that undermined sound bank supervision.

In Mexico, the banking crisis in 1982 occurred in an environment of sharply deteriorating economic conditions (see Table 7). In this case, the crisis could not be blamed on rapid credit expansion following a decline in reserve requirements, as the cash assets to deposit ratio was extremely high in Mexico before the onset of the crisis. Because the central bank,

however, had used the high reserve requirements to lend to the government, it had very few spare resources to lend to troubled banks (see Table A2).

The lack of spare resources might have led to a disciplined approach to solving the banking crisis. Instead, the central bank and the government engaged in a policy of reducing the real burden of borrower debt and forcing depositors to absorb some of these losses through a reduction in the real value of deposits. The latter was done through a combination of policies: forced conversion of foreign currency-denominated deposits at unfavorable exchange rates and negative real interest rates on peso denominated deposits. The real value of loans was reduced through the conversion of foreign currency loans to pesos at an exchange rate that overstated the value of the peso relative to the dollar. Thus, as in the case of Argentina, a party responsible for the crisis, the borrower, was given a subsidy, and the party with less responsibility, the depositor, was forced to take a loss.

In addition, the banks were nationalized, which, if properly managed, could have had a beneficial effect on franchise value because stockholders were forced to take losses. Such a policy, however, would have only been beneficial to the franchise if the new owners, whether the government or private entities, had purchased the banks after the assets had been properly evaluated. In addition, new owners should have been required to place substantial new equity into the system with a clear statement of policy that the equity would be lost if the new managers could not successfully manage the assets after reevaluation. That this was not done is suggested by the fact that the capital to asset ratio of Mexican banks remained very low until the late 1980s (see Chart 3).

The methods used by the Mexican banking authorities to "solve" the banking crisis required fewer uses of public funds than in the case of Argentina. These methods, however, were philosophically similar: they were designed to spread the losses in an acceptable manner rather than improve the franchise. Thus, the responses of the authorities in these two countries parallels that of the U.S. authorities in the first phase of the savings and loan crisis.

In contrast to Argentina and Mexico, Peru did not experience a major banking crisis in the early 1980s. 1/2/ Peru had an extremely high ratio of cash to deposits in 1982, and, in contrast to Argentina, did not

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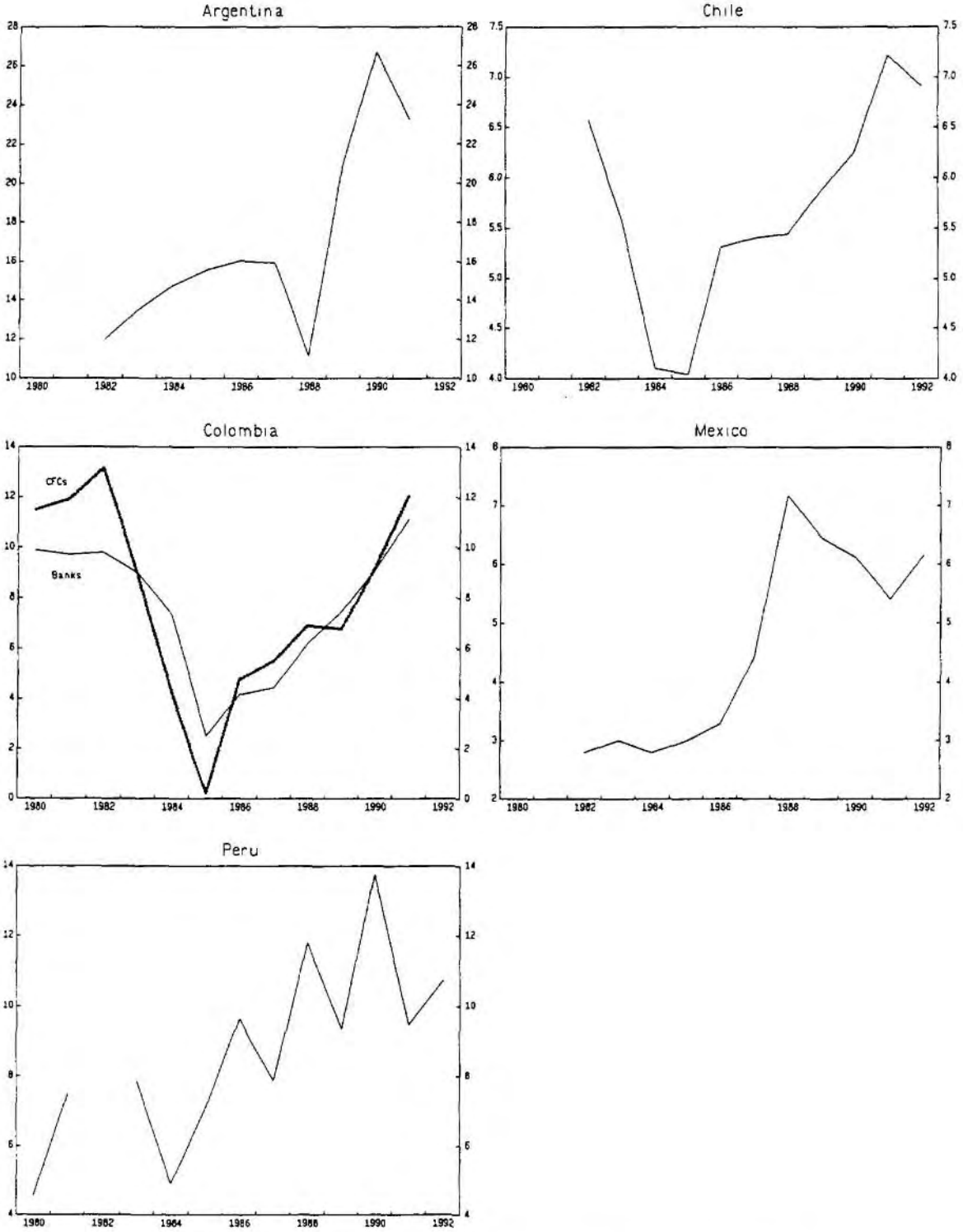
1/ The crisis was confined to the collapse of two banks in early 1983. This made remaining banks very cautious in extending new loans.

2/ The impact of bank failures and bank loan losses problems on bank balance sheet quality is difficult to discern from capital to asset ratios because the accounting data appear unreliable. Thus, the large fluctuations in the capital to asset ratios during the period 1980-90 shown in Chart 3 largely reflects accounting procedures rather than true changes in real capital.

CHART No. 3
Capital to Assets
(in percent)



Source: Argentina: Central Bank of Argentina
Chile: Informacion Financiera, Superintendincia de Bancos e Instituciones Financieras
Colombia: Banco de la Republica and IMF staff estimates
Mexico: Comision Nacional Bancaria
Peru: Superintendencia de Banca y Seguros

experiment with reserve requirement reductions in the 1970s. As a result, bank loans to the private sector were small relative to GDP (Table A3) and, in 1982, that ratio was the lowest among the five countries under consideration.

Not making bank loans might appear to be a very attractive way to prevent a banking crisis--after all, if bank lending is very limited only few loans can become nonperforming. Banks that were making only a few loans, however, lost their credit evaluation skills, and in the late 1980s, when the central bank expanded credit to finance compounding fiscal deficits, they were unable to respond in a disciplined manner. This generated a crisis of major proportions that will be discussed in Section III.4.

Although average reserve requirements remained extraordinarily high--over 50 percent of total deposits--in 1982 the banking authorities eliminated marginal reserve requirements on domestic currency deposits and simplified the interest ceilings imposed on domestic currency deposits. One of the primary motivations of the authorities in reducing reserve requirements was to expand domestic bank lending activity. A central bank policy of paying attractive interest rates on reserves, however, encouraged banks to continue to hold high ratios of cash to deposits, despite the reduction in reserve requirements. Moreover, banks were further encouraged to hold high reserves at the Central Bank because the uncertain macroeconomic environment increased the risk of lending.

The reforms, however, did not lead to a substantial increase in domestic currency deposits. In fact, as real interest rates on domestic currency deposits were substantially negative in the early 1980s (see Chart 2), foreign currency deposits increased from 46 percent of bank deposits in 1982 to 61 percent by 1984. Because these deposits had high reserve requirements, an increasing share of resources ended up in the hands of the central bank. The Central Bank lent some of these funds to the government-owned development banks, but, in 1984, mostly invested them in foreign reserve assets (see Table A3). The large amount of liquid assets in the banking system and the central bank certainly precluded a major banking crisis in the early 1980s, but a crisis loomed on the horizon as a government came to power that was willing to spend these resources. In fact, the unwillingness of the authorities to encourage banks to create domestic credit may have contributed to the support of a new government willing to spend resources domestically. The problem was that this spending was funnelled through a financial system without a franchise value, generating a crisis. This crisis is discussed in the next subsection.

Chile and Colombia also experienced banking crises in 1982, but, in contrast to Argentina and Mexico, the central bank authorities attempted to focus responsibility for problems on the shareholders of the most distressed banks rather than on the system as a whole.

In Chile, the rescue effort got off to a somewhat unpromising start. The Central Bank made extensive credit available to the banking system and to defaulted borrowers, without putting proper controls in place. Net domestic credit of the financial system increased from 54 percent of GDP in 1982 to over 73 percent of GDP in 1983 (Table A4). Much of this increase was due to Central Bank lending to financial intermediaries, which rose from less than 7 percent of GDP in 1982 to over 16 percent of GDP in 1983. In addition, the Central Bank purchased nonperforming loans outright from the banks. 1/

In rescheduling nonperforming foreign currency loans, the Central Bank offered borrowers favorable exchange rates, which created severe losses at the Central Bank. Borrowers presented pesos to the Central Bank to repay their loans, and the Central Bank exchanged these at a pesos for dollar rate below that prevailing in the uncontrolled market. In fact, the losses became so severe, that the government had to recapitalize the Central Bank.

Policies were soon put in place, however, that attempted to provide incentives for banks to work with defaulting borrowers to improve loan quality. In 1984, the Central Bank assumed both the nonperforming foreign currency assets and the corresponding foreign liabilities of the banks, causing Central Bank loans to financial intermediaries to decline relative to GDP (see Table A4). Under the initial agreement of 1984, the banks were forced to buy back the bad loan portfolio ("the subordinated debt") sold to the Central Bank over a ten-year period at the original face value of the loan plus accumulated unpaid interest, rather than at a value determined by how the loan was performing. The agreement to repurchase the "subordinated debt," however, involved a subsidized rate from the Central Bank to the banks. 2/

As an important component of the original agreement, the banks were placed in charge of administering the loan portfolio they had sold to the Central Bank, which meant that they had responsibility for collecting loan payments and encouraging borrowers to remain current on their payments. Banks had an incentive to perform this task well, since they were, under the original terms of their agreement with the Central Bank, to buy loans back at the original face value. With this policy the Central Bank attempted to

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1/ For a thorough description of the bailout procedures in Chile, see Morris and others (1992), and Velasco (1991).

2/ Because reserve requirements in Chile were so low, the Central Bank had very few funds with which to aid the banks. Most of its resources came from an expansion of borrowing from overseas, which increased from less than 2 percent of GDP in 1982 to over 27 percent of GDP by 1985. Much of this increase was due to the depreciation of the Chilean peso; however, in dollar terms, foreign borrowing by the financial system increased from almost $6 billion in 1982 to almost $10 billion in 1985. The additional funds were made available through rescheduling agreements with foreign lenders.

play the role of supervisor of banks rather than as manager of nonperforming loans to the private sector.

Not all banks could be rescued by the above mechanism, however. The portfolio condition of some banks had deteriorated so much that they had to be recapitalized before they could sell loans to the Central Bank. The government took the distressed banks over, writing down the value of stockholder equity by marking assets to market, as evidenced by the fact that equity to asset ratios fell severely in 1984 (see Chart 3) 1/2/ But, in contrast to Mexico, the Central Bank offered the distressed banks for sale to private sectors. 3/ Deals were structured so that the new owners contributed sufficient capital to give them an incentive to manage the assets prudently. With new ownership in place, the resolved banks were permitted to participate in the Central Bank's distressed loan program. The new stockholders together with the Central Bank became de facto preferred shareholders: dividends had to be paid to them first before dividends could accrue to the original stockholders. This policy had two beneficial effects: It demonstrated to an identified group of shareholders that if banks fail, equity holders loose money. It also put a new management in place with capital to loose, giving them the appropriate incentives to manage loan portfolios.

However, despite the merits of the initial rescue plan put into effect, a number of banks were unable to maintain their scheduled repayments to the Central Bank. Therefore, in 1989, the ten-year pay back period was extended indefinitely. Under the new agreement banks are required to repurchase the subordinated debt with their flow of profits (if any) minus the dividends paid out to preferred private stockholders until their debt obligations are fulfilled. 4/ For some banks, this has resulted in negative amortization of their debts to the Central Bank as they have not been able to even cover accrued interest. By end-1993, the banking system's obligation to the Central Bank is estimated to have reached about $4 billion or 10 percent of GDP.

1/ Marked to market means that assets are valued at current market prices rather than at book values.

2/ In contrast, in Argentina capital to asset ratios actually increased during the banking crisis indicating that shareholders either gained from the rescue package or the value of nonperforming loans were not marked at market values.

3/ The Central Bank had to provide monetary enhancements to these deals (tax exemptions were also granted). This is similar, however, to the experiences of bank regulators in a number of industrial countries when dealing with resolution of banking crises.

4/ These are the new shareholders, the so-called "capitalistas populares") who brought shares when banks were recapitalized in the mid-1980s.

During the 1970s and early 1980s economic conditions in Colombia remained heavily dependent on coffee exports. To a large extent, the banking crisis of the early 1980s was triggered by the sudden end of the "coffee boom" of the late 1970s and the related deterioration of the fiscal position. As the "coffee boom" ended, Colombia experienced capital flight as economic agents adjusted their portfolios to the adverse external shock. This resulted in only a mild banking crisis because much of the foreign borrowing was concentrated directly on the balance sheet of the government rather than on the balance sheets of financial institutions. The government was able to cover the flight by borrowing foreign reserves from the Central Bank, as net central bank credit to public authorities increased from 4.2 percent of GDP in 1982 to over 9 percent of GDP in 1984, causing a decline in central bank foreign reserves to 3.4 percent of GDP (see Table A5).

Because of the accumulation of foreign exchange reserves during the "coffee boom", the Colombian Central Bank had a larger amount of funds available to aid troubled banks in the early 1980s than was available in Chile. In 1982, net international reserves of the Central Bank in Colombia equalled more than 10 percent of GDP, compared to about 5.5 percent at the Chilean Central Bank (see Tables A4 and A5). The impact of the capital flight on the banking system is evident from the increased central bank lending to banks which increased from -3.3 percent of GDP in 1982 to -1 percent of GDP in 1984. 1/ A few small banks failed, and bank capital to asset ratios dropped severely, indicating that shareholders were forced to sustain losses from nonperforming credits. The full severity of the crisis was not felt until the mid-1980s, and its resolution will be discussed in the next subsection. Nonetheless, in contrast to Argentina, Mexico, and Peru, real interest rates remained positive in the early 1980s, indicating that losses were focused on the stockholders of failed institutions.

4. Crisis resolution: post 1985

By the middle of the decade, Chilean banks were recovering whereas in 1985 and 1986 Colombian banks were to experience a more severe crisis than in the early 1980s. Nevertheless, the second Colombian banking crisis was quickly resolved. By the end of the decade capital to asset ratios at the banks in both countries had recovered to their pre-crisis level, and the central banks' role as lender to the banking system was declining.

In contrast, the banks in Argentina and Peru faced severe competition from the central bank as direct lender and from government-related development banks. In Mexico, by the middle of the decade, banks were lending most of their funds to the government and government-related enterprises. In all three of these cases, the banks were not able to

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1/ The negative asset position indicates that the banks were net creditors of the central bank.

exercise their monitoring function over borrower liquidity, and the central bank could not function as an arm's length regulator. This lack of independence of central banks from expansionary fiscal policies were to lead to high inflation by the end of the decade.

a. Chile and Colombia

In Chile, by 1989, medium- and long-term foreign liabilities of the Central Bank had declined from a high of almost 28 percent of GDP in 1985 to 10.5 percent of GDP, and Central Bank net domestic credit had fallen from a high of 32 percent of GDP to 3.5 percent. Net international reserves were growing strongly relative to GDP (see Table A4).

After 1985 bank capital ratios also recovered--rising from 4 percent of assets to about 6 percent of assets by 1989, implying that bank earnings were growing (see Chart 3). Further indication that the franchise value of banks was improving was the increase in the loan to asset ratio which had fallen when the Central bank removed bank loans from the banks balance sheets. In assessing the effectiveness of the Chilean solution to the banking crisis of the early 1980s, it is necessary to take into account both the costs and benefits of the procedures chosen. On the negative side, since the interest rate on banks' debt has remained below that paid on central bank paper, the central bank has experienced sustained losses throughout the mid-1980s and early 1990s. On the positive side, however, the management of the problem was done in an orderly way and did not result in a sustained deterioration of the fiscal stance or a rapid and sustained acceleration of inflation. 1/ In addition, only depositors in the failed institutions were forced to absorb some of the losses of those institutions. This is in clear contrast to the Argentine and Mexican cases where depositors of both good and bad banks were forced to absorb losses through policies encouraging negative real interest rates. In Chile, real interest rates remained positive, and there was a relatively clear policy that only those connected with a failed institution would bear the burden of the failure (see Chart 2).

Indeed, to a large extent, the management of the banking crisis in Chile resembles that in several industrial countries. Even in the cases when a banking crisis came to an end relatively quickly, such as that in Sweden in the early 1990s, the resolution of the financial difficulties involved large costs to the taxpayers. 2/ This was certainly the experience in the United States with the resolution of the savings and loans crisis, where the accumulated loss suffered by U.S. taxpayers has to date, amounted to about 3 percent of GDP. Although there are alternatives methods

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1/ It needs to be recognized, however, that the sustained losses of the central bank have acted as a constraint to reduce the Chilean inflation rate to industrial country levels.

2/ In Sweden, by the end of 1992, capital injections and government guarantees to support troubled banks amounted to 6.4 percent of GDP.

to estimate the cost of the banking crisis resolutions in Chile, a simple calculation suggests that such a cost is comparable to that experienced by some industrial countries. For example, the cost of resolution relative to GDP can be approximated by first estimating the present value of the cash flow available to service banks' subordinated debt obligations to the central bank. This figure can be used as a proxy for the amount of debt that banks can cover. The difference between the outstanding subordinated debt and the amount the banks can cover approximates the uncollectible debt. In 1992, banks with debt outstanding to the central bank had net income before dividends and payments to the central bank of about 110 billion pesos, which, discounted at the cost of banks liabilities, equalled about 800 billion pesos. 1/ Since total subordinated debt outstanding was about 1.5 trillion pesos, this simple approximation suggests that, using 1992 data, about 45 percent of the subordinated debt is uncollectible. This represented about 5 percent of 1992 GDP. 2/ Although this figure suggests that the cost of the Chilean banking crisis relative to GDP is higher than the cost to GDP to the U.S. savings and loan crisis, this figure is, however, lower than the cost incurred in solving the banking crisis in Sweden. While the cost of banking crisis resolution in Chile is a substantial burden, it must be noted that relative to the original magnitude of the banking crisis, during which central bank net domestic credit swelled to 30 percent of GDP, the debt hangover is moderate. Thus, despite the costs currently borne by the central bank, the resolution of the banking crisis in Chile minimized economic dislocations relative to those suffered by other countries in the sample considered in this paper. In addition, as a result of the experiences during the crisis, the Chilean bank supervisory framework is now among the best in Latin America.

In Colombia, in 1985, the Central Bank began reducing net domestic credit and accumulating net international reserves. In the same year, its net credit position toward banks declined, indicating that it had reduced lending to the banks. This did not, however, signal the resolution of the banking crisis, as it did in Chile; in fact, nonperforming loans at commercial banks equalled 500 percent of capital and 268 percent of capital at all financial institutions in 1985. 3/ Capital to asset ratios at commercial banks and finance companies fell sharply (see Chart 3). Rather,

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1/ The assumed discount factor equals 13.5 percent, which is the average nominal cost of liabilities of the national banks in 1992.

2/ Actual payments to the central bank were 78 billion pesos in 1992 because only a proportion of banks' net income was required to be used as payments to the central bank. However, in calculating the amount of debt that is potentially serviceable, it is appropriate to consider the entire cash flow available for debt service. Using the lower figure would imply that the unserviceable debt equals about 6 percent of GDP.

3/ The Colombian banking system is made up of commercial banks, savings banks (CAVs), development finance companies (CFs), and trade finance companies (CFCs).

the reduction in central bank lending to banks signalled a new method for dealing with distressed banks.

The Colombian authorities established a deposit insurance fund (FOGAFIN) that was assigned the task of lending to banks with distressed loan portfolios and resolving banks that had failed. The insurance system received its funding largely from the government and from extraordinary revenues made available by a sharp rise in coffee prices in the mid-1980s. The insurance fund ended up purchasing the largest banks in the banking system. It originally had problems selling those banks, however, because it could not find buyers that met criteria established by legislation to prevent industrial/financial conglomerates from developing. 1/ The purpose of this legislation was to prevent concentration of credit to single borrowers and to ensure arm's length credit decisions. Many of the bank failures in the 1980s were blamed on such abuses.

In early 1994, the insurance fund successfully sold the largest bank--Banco de Colombia--to an industrial conglomerate. This, of course, raises the question of abuses that the legislation itself attempted to curb. Strong supervision (such as firewalls and limits on credit exposure to single borrowers), however, can alleviate many of these potential problems. If the Colombian authorities successfully complete the sale of the remaining resolved major bank--the Banco Cafetero--and effectively strengthen the supervisory process to avoid abuses, the Colombian rescue efforts will have reinforced the franchise value of the banking system. 2/

b. Argentina, Mexico, and Peru

The banking systems in the three relatively weak franchise countries all experienced an expansion of credit to government-related institutions relative to credit provided to the private sector through private financial institutions in the mid to late 1980s. While the details of how this credit was directed to the public sector differed by country, the outcome was the same in all cases. The projects financed with the monetary creation did not generate a corresponding expansion in economic activity. As a result, severe inflation followed and holders of assets denominated in domestic currency experienced a loss in their real wealth. In all three cases, the checks and balances of a well-functioning banking system broke down. The central bank failed to act as a bank supervisor because it had a conflict of interest as a direct lender, and the banks lent funds to government institutions that were too powerful to be monitored by normal bank credit policies.

1/ The sale of the Banco de Bogota was criticized as providing a large subsidy to purchasers.

2/ The Banco Central Hipotecario (BCH) was sold to the Social Security Institute (ISS). The State will retain the ownership of the Banco Popular.

In Argentina, starting in 1986, Central Bank credit to the central government expanded faster than commercial bank credit to the private sector (see Chart 4). The credit expansion was caused primarily by a crisis in confidence that the Government could not repay the Central Bank, which forced up interest rates requiring further borrowing to service the debt. At the same time, central bank funding to the banks also expanded more rapidly than commercial bank credit to the private sector. In 1989, net domestic assets of the financial system relative to GDP exploded, increasing from less than 40 percent of GDP in 1988 to over 50 percent of GDP.

The credit explosion resulted in hyperinflation and a deterioration in the exchange rate (Chart 5). The rapid depreciation of the currency reflected investors' perceptions that the credit created by the central bank, both directly and through the banks, could not be paid off in real terms.

Extreme negative real interest rates on domestic currency deposits accompanied hyperinflation (see Chart 2). In addition, the Central Bank effectively confiscated domestic currency time deposits by forcing depositors to exchange their deposits for dollar bonds worth about half the market exchange rate value of the original deposits. The reduction in interest expenses on bank liabilities permitted banks to renegotiate credit terms to lenders and provided funds to pay off loans from the Central Bank. As indicated in Chart 3, the Central Bank's policy caused the capital to asset ratios of banks to increase. This occurred because, by confiscating deposits, the Central Bank effectively wrote down the value of liabilities to solve banks' credit problems. Under well functioning accounting systems, the improvement in capital to asset ratios signals an increase in the market value of assets relative to liabilities. Because this was not the case in Argentina, investors could not use the capital to asset ratio as a reliable guide to bank soundness.

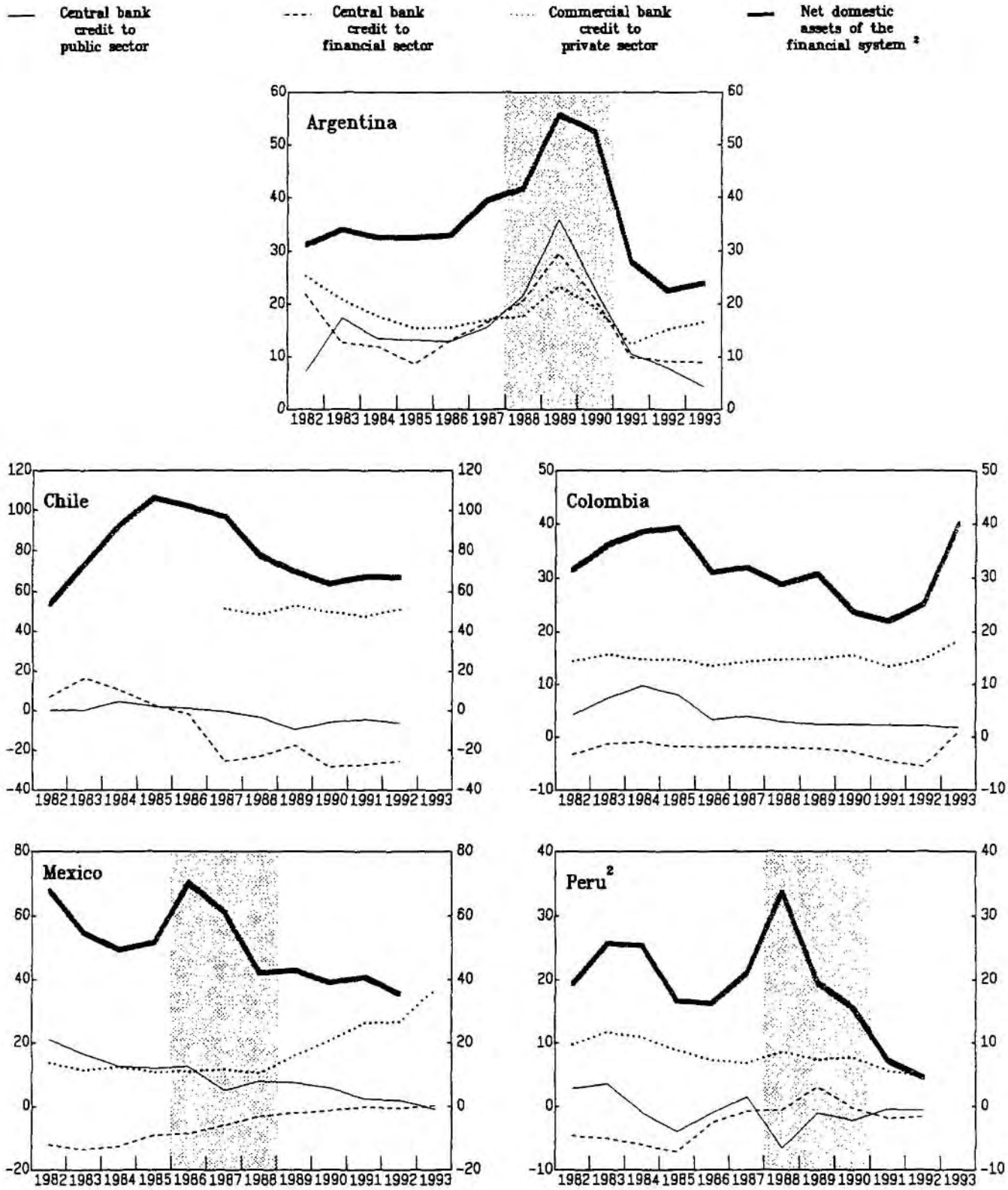
The Argentine experience indicates that the financial system lost all ability to enforce discipline on borrowers in the mid-1980s. This was a direct result of the loss in an arm's length relationship between the Central Bank and the ultimate borrowers in the economy that resulted from the inability to deal with the banking crisis in the early 1980s in a manner that would restore the credibility of the banks.

In Mexico, as in the case of Argentina, by the mid-1980s, the Government took an increasing share of total credit. In contrast to Argentina, however, the increased flow of credit to the government occurred on the balance sheets of the nationalized commercial banks (see Table A2). By 1986, over 60 percent of net domestic bank credit flowed to the government, compared to 35 percent in 1982.

Net domestic credit of the financial system expanded rapidly beginning in 1986, when it increased to over 70 percent of GDP from 52 percent the previous year (see Chart 4). As in the case of Argentina, much of the increase in credit of the financial system relative to GDP in the period

Chart 4. Selected Financial Indicators, 1982-93[1]

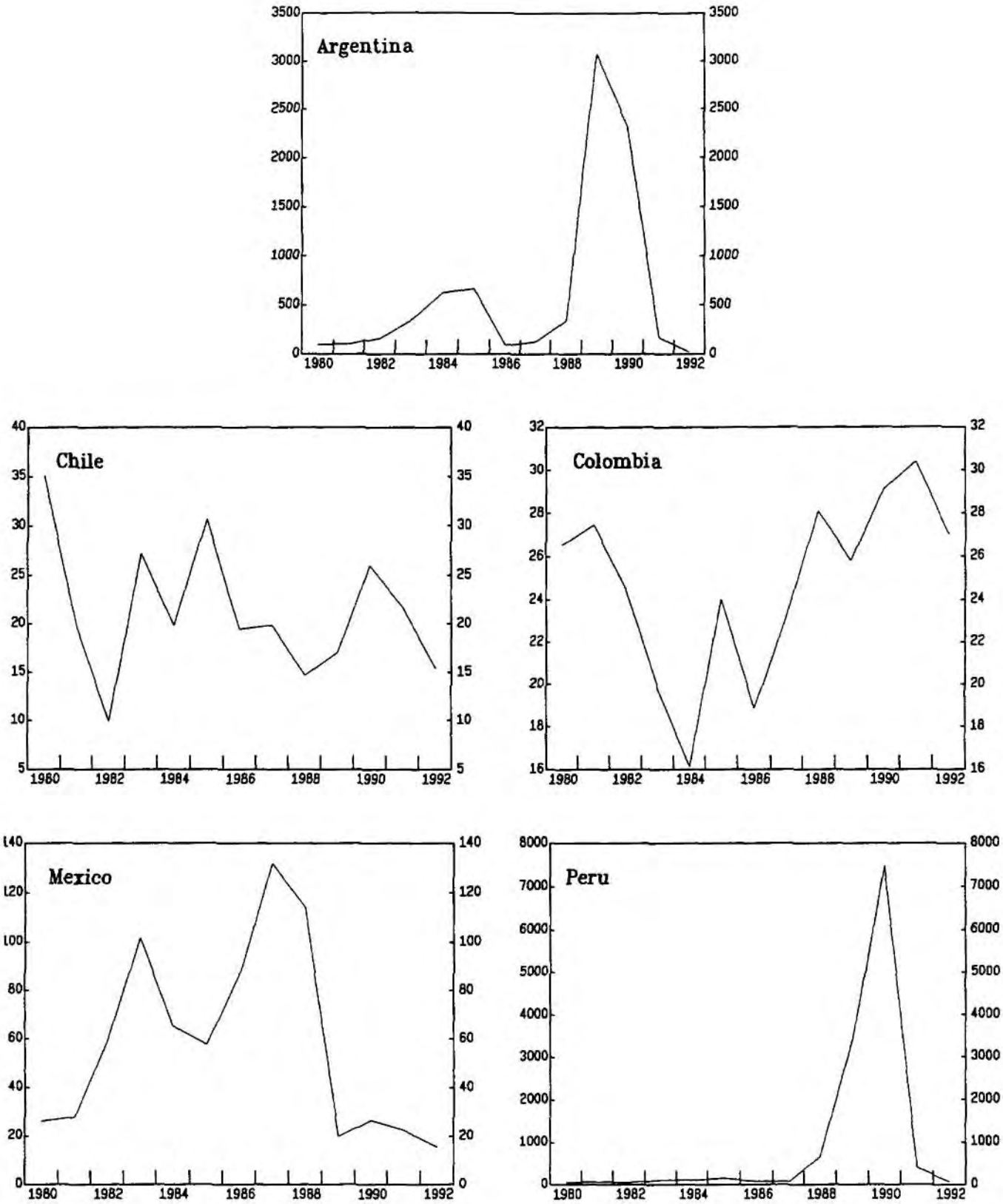
(In percent of GDP)



[1] The shadowed segment correspond to the high inflation periods in Argentina, Mexico, and Peru.
[2] Net domestic assets of the consolidated banking system for Peru.

Sources: Argentina (Central Bank of Argentina and Ministry of Economy); Chile (Central Bank of Chile); Colombia (Banco de la Republica); Mexico (Bank of Mexico); Peru (Central Reserve Bank of Peru); and International Monetary Fund.

Chart 5. Inflation in Selected Latin American Countries, 1980-92
(In percent)



Source: International Monetary Fund, *International Financial Statistics.*

1986-87 was accompanied by a deterioration in the exchange rate and high inflation rates, which peaked in 1987 and 1988 (see Chart 5). Real interest rates on bank deposits became negative in 1987, reducing the government's real burden in paying off its bank loans, which declined substantially relative to GDP in 1988 (see Table A2).

In Peru, net domestic credit of commercial banks relative to GDP remained low in the early part of the decade because of very high reserve requirements. This policy, however, was abandoned in the mid-1980s when the Central Bank expanded credit sharply--partly financed with bank reserves held at the Central Bank. In 1986, net credit of the Central Bank expanded from -4.7 percent of GDP in 1985 to 1.4 percent of GDP in 1986 and a large amount of foreign exchange reserves was lost. The Central Bank continued to expand credit in 1987 and 1988, primarily financed by arrears on foreign debt and increased liabilities to the private sector (Table A3). In 1988, Central Bank credit equalled over 40 percent of net domestic credit, compared to less than 10 percent in 1986. Most of the credit went to the public sector, especially the agricultural banks.

The impact of the credit expansion followed a familiar pattern. In 1988, inflation turned into hyperinflation, and real interest rates on domestic currency bank deposits became extremely negative (see Chart 2). In addition, there was large disintermediation in domestic currency deposits. 1/

In contrast to Argentina and Mexico, Peru experienced only one major crisis because the high reserves at commercial banks precluded an earlier one. When the crisis erupted, however, it was the sole result of central bank mismanagement. The high reserves system placed considerable resources in the hands of the Central Bank, which lent them without regard to sound lending practices. Thus, the Peruvian financial crisis is a classical case

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1/ Although a large number of transactions were performed using the U.S. dollar, bank deposits denominated in foreign currency--which had been allowed since December 1977--decreased significantly during the period August 1985-December 1990 when fully convertible foreign currency deposits were prohibited. In particular, foreign currency deposits could be converted into intis (the domestic currency at the time) only at the official exchange rate (measured as the number of intis per U.S. dollar), which fell sharply below the rate in a parallel (black) market. Large disintermediation from the banking system followed and, rather than declining, U.S. dollar transactions intensified through the development of informal real and financial markets. Indeed, two forms of holding U.S. dollars were clearly identified by Peruvian residents: U.S. currency notes which could be obtained in the well-established domestic black market for U.S. dollars and deposits in foreign banks reflecting capital flight. Fully convertible foreign currency deposits were re-established at the beginning of 1991.

of a central bank abandoning its traditional role of examiner of bank credit decisions for a role of undisciplined primary lender.

5. The state of the banking systems at the end of the crisis

By the early 1990s, the banking crises in the countries under consideration had largely come to an end. How does the strength of the banking franchise in each of the five countries at the beginning of the 1990s compare with their strength in the early 1980s? The early 1990s is an important point in time to evaluate the strength of the franchise for two reasons: first, the lessons from the crisis have been absorbed by both bankers and regulators; and second, the banking systems are facing new challenges to their lending skills in the form of renewed capital inflows from overseas.

In addition to evaluating the franchise value of banks based on the two ratios considered at the beginning of this section, the discussion that follows examines the franchise value from the perspective of financial investor--that is, the public willingness to keep their financial funds in the domestic banking sector, as measured by the deposit to GDP ratio. 1/

The behavior of the franchise ratios--cash to deposits and loans to assets--during the crisis period and the early 1990s is displayed in Charts 6 and 7, respectively. On an overall basis, the ratios indicate an improvement of the franchise value of the banking systems at the beginning of the 1990s relative to the early 1980s. During the crisis period, however, the ratios fluctuated significantly in most countries as they were affected by the policies used to resolve the banking difficulties.

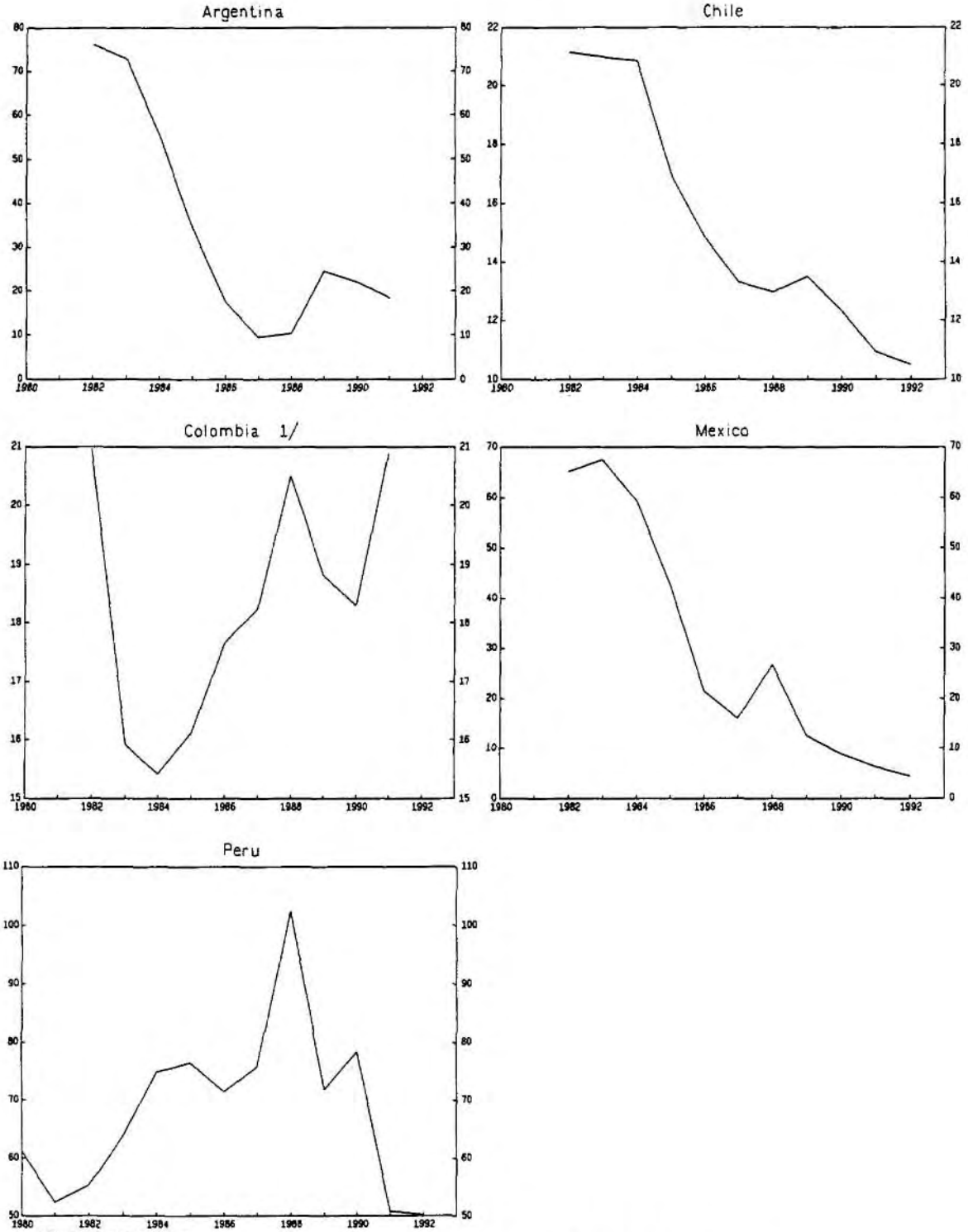
In Argentina, Chile, and Mexico, the cash to deposit ratio declined significantly during most of the 1980s and into the early 1990s (Chart 6). In Mexico, the decline in cash assets resulted from a major decline in required reserve to deposit ratios, ultimately to zero in the early 1990s. In Argentina, the decline in cash assets to deposits also resulted from a decrease in reserve requirements, which, in 1982, were 100 percent on new deposits.

In Colombia, cash assets fell relative to deposits in the mid-1980s as banks divested cash assets to cover nonperforming loans. Although by 1991 this ratio had returned to its 1982 level, reductions in reserve requirements in early 1993 suggest that the ratio may have declined again. In Peru, cash assets increased relative to deposits throughout the 1980s.

1/ As discussed on Section II, ratios of nonperforming loans to total loans do not provide a good indicator of bank soundness in developing countries because banks could be rolling-over problem loans. In this connection, recent restructurings of the banking system that force banks to recognize problem loans as such in the accounting procedures may lead to the misleading conclusion that bank difficulties have increased.

CHART No 6.
Cash Assets to Deposits

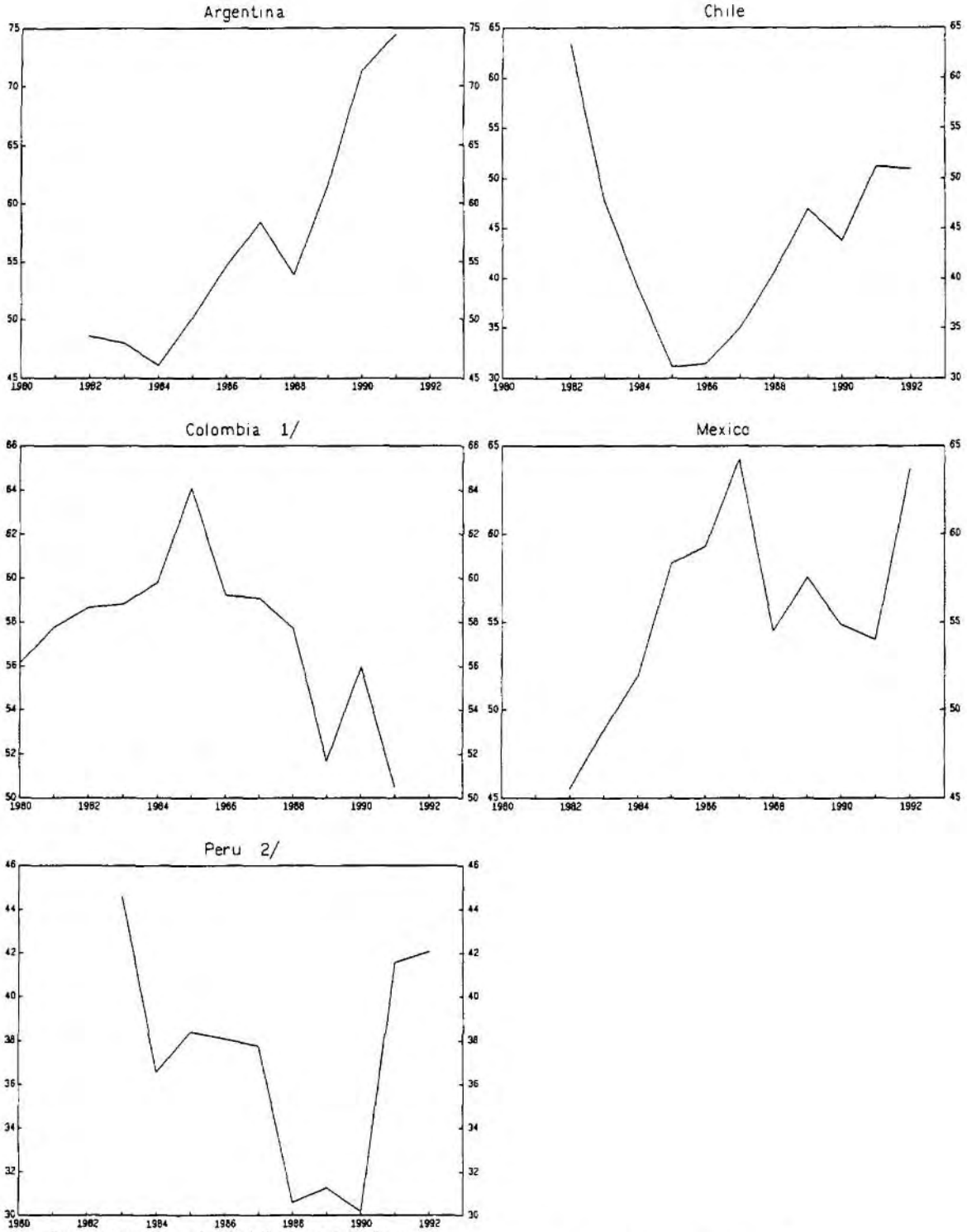
(in percent)



Source: Argentina:
Chile: Informacion Financiera, Superintendincia de Bancos e Instituciones Financieras
Colombia: Banco de la Republica, Revista del Banco de la Republica
Mexico: Comision Nacional Bancaria
Peru: Superintendencia de Banco y Seguros

1/ Estimated for the entire banking system (including commercial banks, finance corporations and savings and loans corporations).

CHART No 7.
Loans to Assets
(in percent)



Source: Argentina: Central Bank of Argentina
Chile: Informacion Financiera, Superintendincia de Bancos e Instituciones Financieras
Colombia: Banco de la Republica and IMF staff estimates
Mexico: Comision Nacional Bancaria
Peru: Superintendencia de Banca y Seguros

1/ Commercial banks only.
2/ Data for total assets held by commercial banks are not available for 1982.

The large increase in 1988 occurred because banks held excess reserves on which they earned interest. By the early 1990s, Peru had reduced reserve requirements on both domestic and foreign currency deposits, but they remained substantially higher than those of any other sample country. Moreover, by early 1994 a portion of reserve requirements on foreign currency deposits still earned interest.

The loan to asset ratios in Argentina and Mexico improved substantially during the 1980s (Chart 7). Mexico experienced an interruption in the improvement in this ratio in the late 1980s due to heavy bank investment in government securities, which was the result of a government program that allocated a significant component of banks' assets.

In Chile, the loan to asset ratio declined during the period 1982-86 following the central Bank program to rescue banks, which, as discussed above, involved replacing nonperforming loans with central bank liabilities and removing troubled loans and liabilities from bank balance sheets. After 1986, as faith was restored in the banking system, the loan to asset ratio again began to improve. It remained below its 1982 level, however. In Peru, as in Chile, the loan to asset ratio did not materially improve between 1982 and 1992, and it remained the lowest of any of the five countries. It fell substantially in the mid-to-late 1980s as the cash to deposit ratio increased. By the early 1990s, the loan to asset ratio had deteriorated moderately in Colombia relative to its position in 1982. The temporary increase in the loan to asset ratio in the mid-1980s reflected the decline in cash to deposit ratio during that period.

In the three weak franchise countries as measured by the ratios in 1982, there was considerable financial disintermediation during the crisis. In Argentina, the deposit to GDP ratio fell from about 19 percent in the early 1980s to less than 10 percent during the early 1990s. The pattern in Peru was similar. The ratio fell from about 15 percent in the early 1980s to 10 percent in 1992. In Mexico, the deposit to GDP ratio fell to less than 10 percent in 1988 from almost 30 percent in the early 1980s (Chart 8). 1/

Because of the extreme disintermediation in the weak franchise countries, means of transacting had to be found outside the usual deposit channels. In Argentina and Peru, informal payments markets developed. Trade credit between firms increased dramatically. In contrast, Mexico developed the liquidity of the short-term government bills market (CETES). Banks purchased these bills from securities firms under repurchase

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1/ The sharp decline in the deposits to GDP ratio in Mexico in 1988 (Chart 8) is somewhat overstated because of a bank liability, called banker's acceptances, which had many of the characteristics of a bank deposit, but was not classified as such. In 1988, banker's acceptances, unlike bank deposits were not subject to interest rate ceilings and, in that year, the rules guiding their issuance were liberalized.

agreements, making them very liquid instruments that could substitute for bank deposits.

The deposit to GDP ratio in Mexico recovered in the early 1990s, exceeding its 1982 level by 1991, which is consistent with the finding that the franchise ratios improved. In the early 1990s, banks were privatized and supervision has recently been strengthened. Banks experienced some credit problems after privatization, which they have dealt with by increasing provisions for nonperforming loans and slowing lending growth. In addition, between 1991 and 1992 the capital to assets ratio strengthened after a fall during the early years of privatization (Chart 3). Investors are apparently satisfied that the banking system is fairly well managed. Based on this confidence, Mexico, alone among the weak franchise systems in 1982, joined the relatively strong franchise group by the early 1990s.

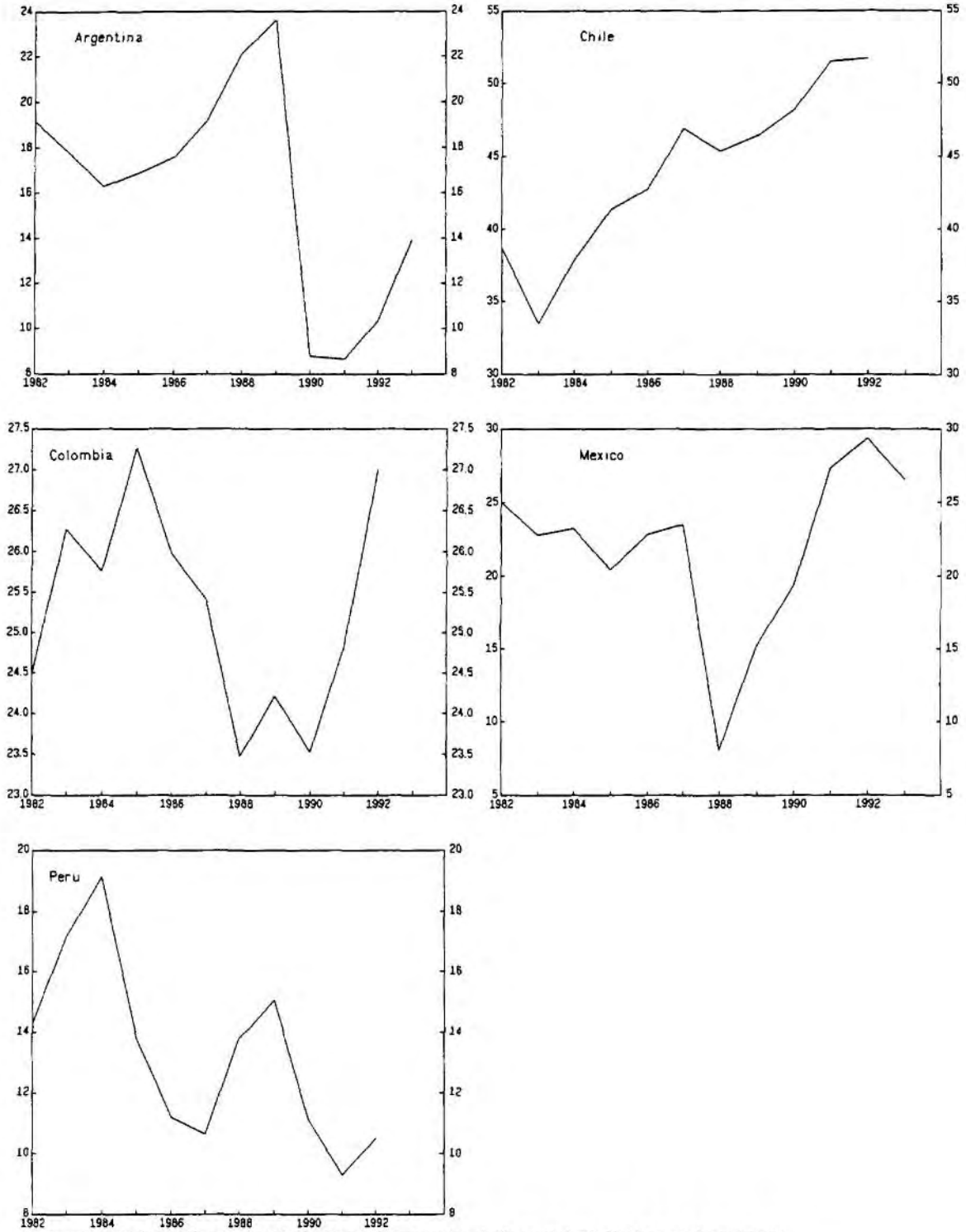
In contrast, by 1992, investors in Argentina had not yet recovered confidence on the banking system, despite the improvement in the ratios. This may have several causes: the banking crisis in Argentina was much deeper than in Mexico, and unlike in Mexico, bank ownership is in the same hands as during the crisis. A large segment of the banking system is still in provincial hands, and these banks have, in the past, made loans based more on politics than sound banking principles. In addition, many private banks are owned by industrial groups which, because of conflicts of interest, have led to bad credit decisions in several Latin American countries. The Argentinean authorities are attempting to reduce this, and other problems, through strengthened supervision. However, although the framework to support a strong banking system is being put in place, investors will likely remain cautious until they see it tested.

IV. Current Challenges to the Franchise Value of Banks: Capital Inflows and the Development of Domestic Capital Markets

Having just resolved their financial difficulties left over from the 1980s, the banking systems in a number of Latin American countries are facing a new challenge to their lending abilities in the form of large capital inflows experienced from 1990. 1/ Indeed, balance of payments data for a number of Latin American countries indicate that after remaining negative during most of the 1980s, the capital account balance turned to an increasingly positive trend during the 1990s (Table 8). Net international reserves also experienced a sharp increase in most of the countries receiving capital inflows.

1/ In contrast to most Latin American countries, Venezuela is currently experiencing a severe banking crisis. The Venezuelan case, however, is not analyzed in this paper.

Chart 8. Total Deposits, 1982-93
(in percent of GDP)



Sources: International Monetary Fund, International Financial Statistics; various issues
International Monetary, World Economic Outlook
Argentina: Central Bank of Argentina
Chile: Informacion Financiera, Superintendincia de Bancos e Instituciones Financieras
Colombia: Banco de la Republica and IMF staff estimates
Mexico: Comision Nacional Bancaria; Peru: Superintendencia de Banca y Seguros

Table 8. Balance of Payments Data for Selected Latin American Countries, 1980-93 1/

(In billions of U.S. dollars)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Argentina														
Current account	-4.77	-4.72	-2.36	-2.46	-2.50	-0.95	-2.86	-4.24	-1.57	-1.30	1.90	-2.80	-8.36	-8.29
Capital account	2.50	1.73	-2.16	-2.29	0.15	-0.44	0.35	-3.98	0.16	-5.49	-1.15	3.28	10.86	21.61
Change in reserves	2.27	2.60	0.48	0.87	-0.11	-1.63	1.09	1.41	-1.74	1.70	-2.89	-2.73	-3.83	-7.35
Bolivia														
Current account	-0.03	-0.50	-0.16	-0.16	-0.14	-0.30	-0.32	-0.41	-0.37	-0.25	-0.22	-0.31	-0.53	-0.47
Capital account	-0.49	0.06	-0.20	-0.23	0.02	0.00	0.05	-0.03	0.34	0.03	0.19	0.21	0.39	0.30
Change in reserves	0.07	-0.01	-0.05	0.01	-0.11	-0.03	-0.24	0.08	0.03	0.09	-0.09	-0.07	-0.05	-0.10
Brazil														
Current account	-12.81	-11.74	-16.31	-6.84	0.04	-0.24	-5.65	-1.44	4.19	1.03	-3.23	-1.41	6.28	-0.80
Capital account	9.33	12.50	9.31	-1.89	2.43	-9.29	-8.53	-10.78	-2.50	-3.52	-5.35	-2.62	7.90	10.07
Change in reserves	3.24	-0.84	5.22	0.06	-6.43	0.73	3.35	-1.61	-7.54	-2.51	-0.44	-0.27	-17.35	-11.09
Chile														
Current account	-1.97	-4.73	-2.30	-1.12	-2.11	-1.33	-1.14	-0.81	-0.17	-0.77	-0.60	0.14	-0.58	-2.04
Capital account	3.27	4.87	0.95	-0.61	1.11	-0.44	-1.33	-0.71	-1.32	-0.80	1.51	1.15	3.08	2.76
Change in reserves	-1.27	-0.10	1.19	-0.11	-0.24	-0.10	0.41	-0.17	-0.60	-0.38	-2.25	-1.06	-2.30	-0.47
Colombia														
Current account	0.10	-1.72	-2.89	-2.83	-2.09	-1.60	0.54	-0.07	-0.27	-0.15	0.58	2.31	0.73	-1.92
Capital account	1.24	1.74	2.11	1.04	0.68	1.86	0.83	-0.14	0.66	0.30	0.02	-0.26	0.59	1.80
Change in reserves	-1.28	0.03	0.78	1.69	1.46	-0.45	-1.15	0.21	-0.39	-0.15	-0.60	-2.05	-1.33	0.13
Costa Rica														
Current account	-0.66	-0.42	-0.24	-0.28	-0.16	-0.13	-0.07	-0.23	-0.16	-0.38	-0.45	-0.07	-0.38	-0.33
Capital account	0.18	-0.06	-0.07	0.33	0.04	0.27	-0.01	0.11	-0.18	0.02	-0.21	0.40	0.49	0.24
Change in reserves	-0.08	0.08	-0.10	-0.07	-0.14	-0.05	-0.02	0.07	-0.04	0.02	0.33	-0.38	-0.10	-0.03
Ecuador														
Current account	-0.64	-1.00	-1.18	-0.13	-0.26	0.11	-0.54	-1.13	-0.59	-0.62	-0.30	-0.59	-0.14	-0.84
Capital account	0.86	0.70	0.51	-1.90	-1.01	-1.16	-0.89	-0.52	-1.09	-0.44	-0.55	-0.41	-0.93	0.04
Change in reserves	-0.30	0.41	0.33	-0.55	0.03	-0.13	0.12	0.15	0.02	-0.14	-0.27	-0.08	0.07	-0.22
Guatemala														
Current account	-0.18	-0.57	-0.40	-0.28	-0.39	-0.24	-0.05	-0.47	-0.40	-0.34	-0.25	-0.33	-0.49	-0.45
Capital account	-0.15	0.22	0.09	0.25	0.17	0.17	0.13	0.44	0.27	0.18	0.10	0.89	0.62	0.62
Change in reserves	0.25	0.20	0.03	-0.03	-0.02	-0.00	-0.11	0.04	0.13	0.09	0.01	-0.56	-0.01	-0.16
Honduras														
Current account	-0.32	-0.30	-0.22	-0.22	-0.27	-0.18	-0.10	-0.24	-0.13	-0.22	-0.11	-0.20	-0.23	-0.22
Capital account	0.25	0.18	0.06	0.17	0.22	0.12	0.09	0.13	0.03	-0.05	0.09	0.07	0.16	0.20
Change in reserves	0.06	0.11	0.12	-0.03	0.01	0.00	-0.00	-0.05	-0.01	0.03	-0.03	-0.06	-0.04	-0.05
Mexico														
Current account	-10.75	-16.06	-6.31	5.40	4.19	1.13	-1.67	3.97	-3.84	-5.96	-7.79	-13.73	-22.57	-21.12
Capital account	11.61	17.41	-5.33	-9.71	-4.86	-4.84	1.21	0.14	-2.93	3.56	6.58	20.92	24.50	26.03
Change in reserves	-0.69	-1.28	3.10	-3.10	-3.39	2.44	-0.62	-5.97	6.86	-0.65	-3.27	-7.35	-1.36	-3.73
Peru														
Current account	0.06	-1.65	-1.61	-0.87	-0.27	0.05	-1.18	-1.76	-1.51	-0.40	-1.45	-2.20	-2.49	-2.63
Capital account	0.22	0.94	1.44	-0.27	-1.37	-1.21	-1.16	-1.53	-1.38	-1.19	-0.85	0.49	-0.45	0.68
Change in reserves	-0.65	0.43	-0.27	-0.01	-0.24	-0.27	0.45	0.97	0.38	-0.37	-0.28	-0.46	-0.30	-0.26
Uruguay														
Current account	-0.71	-0.47	-0.45	-0.19	-0.14	-0.11	0.07	-0.13	0.03	0.12	0.19	0.11	-0.14	-0.12
Capital account	0.88	0.47	-0.35	-0.30	-0.02	-0.14	-0.12	-0.21	-0.37	-0.34	-0.11	-0.34	0.37	0.18
Change in reserves	-0.07	-0.03	0.34	-0.08	0.08	-0.05	-0.32	-0.05	0.01	0.01	-0.07	0.18	-0.23	-0.04
Venezuela														
Current account	2.45	2.11	-3.23	3.42	4.82	3.62	-1.58	-1.39	-5.81	2.16	7.44	1.48	-3.37	-2.13
Capital account	1.02	-1.63	-5.44	-6.23	-5.13	-2.65	-3.14	0.77	1.31	-1.34	-4.95	0.85	2.15	1.23
Change in reserves	-3.47	-0.48	8.24	-0.47	0.00	-1.80	3.81	0.84	3.95	-1.81	-4.47	-3.46	1.40	1.17

Source: International Monetary Fund, World Economic Outlook data base.

1/ For change in reserves, minus indicates increase in reserves.

Policymakers, mindful of the experience of the 1980s, are concerned that at least part of the inflow may be transitory and might be followed by capital flight. 1/ Two of the policymakers' major concerns are associated with the expansion of domestic credit that follows unsterilized large capital inflows. The first is that the inflows may lead to an unsustainable appreciation in the real exchange rate. The second is that the expanded bank loans may not be sound enough to stand a reversal of the inflows; a financial crisis may then follow a reversal of the capital inflows. 2/ While this section focuses on the latter concern, issues related to the sustainability of the exchange rate regime are dealt with in Section V.

To ameliorate the impact of a reversal of the capital inflows if it should occur, the authorities in several countries have resorted to a policy of sterilization, which is an attempt to control the domestic credit expansion effects of capital inflow. The degree to which a country sterilizes can be measured by the ratio of foreign reserves to the supply of money. This measure captures the intent of sterilization, which is to control the growth of credit by controlling the growth of the supply of

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1/ A well-documented debate relates to the factors behind such inflows. On the one hand, it has been argued that the capital inflows responded, at least to a significant extent, to the decline in interest rates in the United States, which in turn is associated with the trough of the economic cycle in that country; to a large extent, therefore, the capital inflows would be transitory (see Calvo, Leiderman and Reinhart (1993a); from a portfolio theory point of view, this hypothesis would imply that given the decline in the expected rate of return on alternative assets, investors would find it attractive to allocate a fraction of their wealth into the high-return-high-risk Latin American assets. On the other hand, it has been argued that capital inflows have responded mostly to the improved economic environment in many Latin American countries following the reform efforts undertaken in those countries. In other words, this hypothesis suggests that foreign investors have been attracted by the decline in the overall risk of investing in the area (see, for example, Corbo and Hernandez (1993)). Although no agreement has yet been reached, recent developments seem to indicate that both views, rather than being substitutes hypothesis, are complementary. For example, volatility in Mexico's stock market increase significantly in mid-November 1993 when doubts about the passing of NAFTA in the U.S. Congress reached their peak. Also, following a small (25 basis points) upward adjustment of interest rates by the U.S. Fed on February 4, 1994, stock prices declined and the Mexican peso dropped significantly. While the first event supports the second view as it relates the behavior of capital inflows to the long-term policy stance in Mexico, the second event supports the first view.

2/ For a discussion of the issues associated with the recent capital inflows see, Calvo, Leiderman, and Reinhart (1993).

money as foreign currency assets are purchased by the central bank. 1/ An historical series on foreign reserves assets to a narrow definition of money supply--currency plus transaction deposits--covering the period of capital inflows is presented in Chart 9 for the sample countries. 2/ The chart points to Chile as the most aggressive sterilizer, followed by Colombia and Peru. Mexico shows a very erratic pattern of sterilization, and Argentina, by showing a downward trend in the ratio, can be characterized as the least active sterilizer.

The evidence for the sample countries analyzed in this paper suggests that the experience with sterilization during the recent period of capital inflows has been mixed. For example, in 1992, Chile, which was an active sterilizer, had the highest ratio of deposits to GDP among the five countries in the sample (see Chart 8). In contrast, Argentina, the least active sterilizer, had among the lowest ratio of deposits to GDP. Since Chile has one of the strongest banking franchises in the group, this suggests that the quality of the banking franchise is a more important determinant of the ratio of deposits to GDP than the sterilization policy chosen by the central bank.

Consistent with the mixed evidence, there is no consensus among policymakers and analysts on whether and under what circumstances sterilization is a useful tool to manage capital inflows. While supporters of sterilization stress the risks associated with an expansion of domestic credit, critics of sterilization emphasize the costs and limitations

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1/ If the central bank controls growth by imposing high reserve requirements on deposits, the growth of the narrow money supply relative to foreign currency assets on the balance sheet of the central bank is controlled directly. If the central bank issues liabilities to the nonbank public, i.e., sterilizes through open market operations, it controls the growth of the money supply indirectly since it does not create bank reserve deposits around which banks can increase their issuance of transaction accounts.

2/ An indicator of sterilization is constructed by using foreign reserve assets to M1 rather than to the monetary base because the latter ratio would be affected by how the sterilization policy is carried out. If sterilization is carried out through imposition of high reserve requirements, which are part of the monetary base, the ratio would be biased downward compared to a situation in which the policy were carried out through the issuance of central bank liabilities directly to the public, which are not part of the monetary base. The choice of an indicator of sterilization using M1 or any other monetary aggregate in the denominator, however, seems arbitrary.

associated with that policy. 1/ Moreover, the debate expands beyond the desirability of sterilization to the benefits and costs associated with different methods of sterilization.

Sterilization is carried out through the balance sheet of the central bank. In the classical case of unsterilized intervention, the central bank buys the foreign currency inflow, for example, U.S. dollars, by issuing its own liability to the party selling the dollar. 2/ If this liability is issued to a domestic commercial bank in the form of a reserve deposit in the central bank, the commercial bank would use this deposit to expand domestic credit until the required or desired ratio of domestic credit to reserve deposits in the central bank is restored. The central bank can conduct sterilization either by increasing reserve requirements on commercial bank liabilities or by issuing liabilities to nonbanks, which do not have the authority or the public confidence to use the central bank liability as a vehicle to expand domestic credit.

What role does the state of the franchise value of the banking system play in the policy decision to sterilize or not and in the choice of alternative sterilization methods? Clearly, if the financial system has strong mechanisms in place to control the quality of credit, some of the dangers of credit expansion would seem to be reduced. First, sound banks would have incentives to evaluate properly the risks associated with extending loans, and second--and perhaps even more importantly--central banks would stand ready to deal with financial difficulties by using emergency loan assistance as an incentive for banks to establish credible loan workout programs. 3/4/

1/ For example, as stressed by Calvo (1991), sterilization conducted through open market operations may lead to central bank losses as the central bank liabilities used for sterilization purposes usually pay higher rates of interest than the central bank returns from holding foreign exchange assets. Moreover, as sterilization through open market operations tends to raise domestic interest rates, the inflows of capital may increase further.

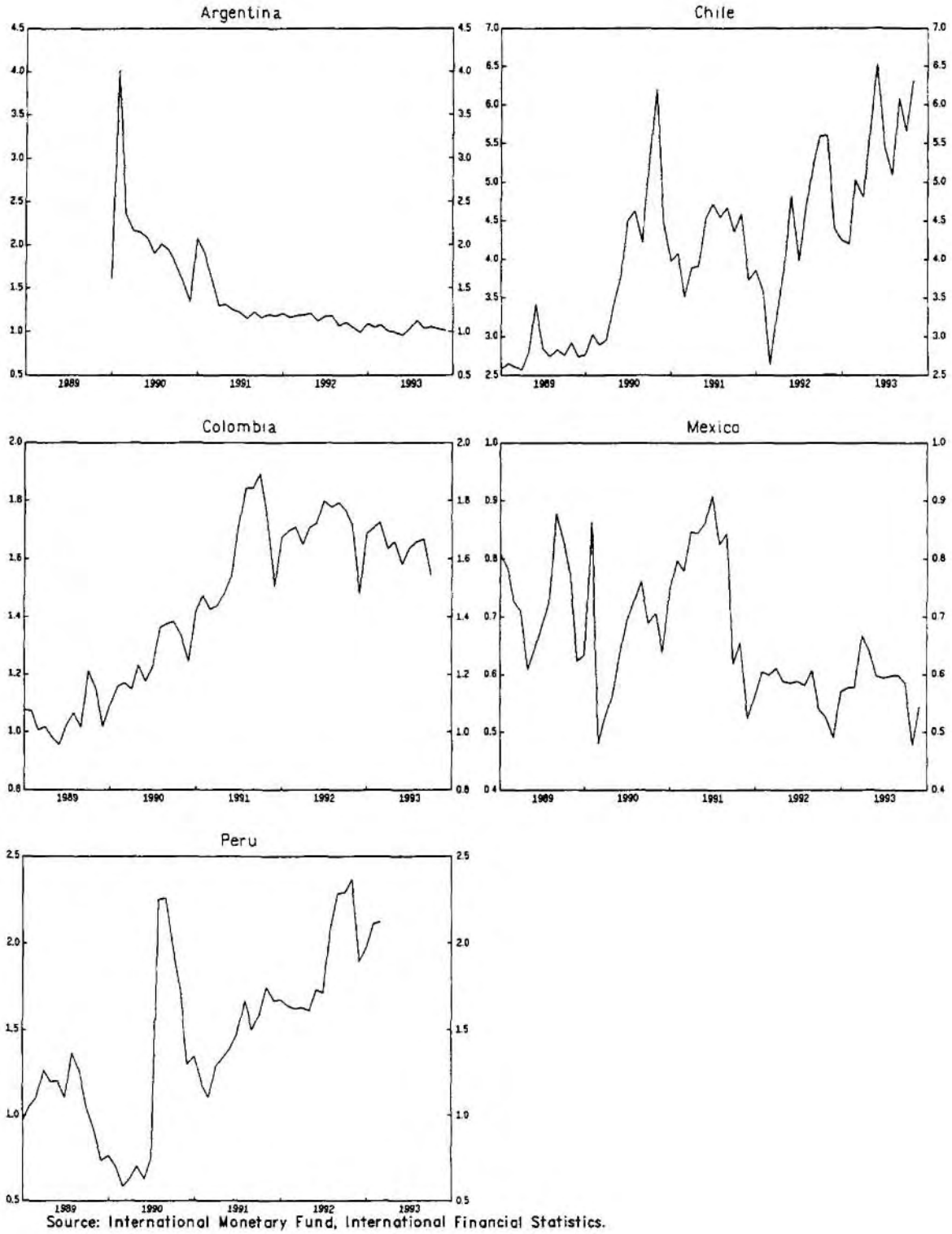
2/ If the economy is dollarized, a significant component of the foreign currency inflow may remain outside the central bank as the increase in the demand for domestic currency may be less than the inflow.

3/ If the franchise value of the banking system is strong, even the adverse impact on banks of a sudden reversal of the real exchange appreciation would be minimized. Sound banks would take into account the probability of such occurrence when extending credit to economic agents whose real net income is largely dependent on revenues from the nontradable sector of the economy. Therefore, either credit to the riskier sectors would be limited or the risk would be properly reflected in an accumulation of capital.

4/ Indeed, the discussion in Section III made it evident that the methods used by central banks in some Latin American countries had a major role in the extent and duration of the crisis.

CHART No. 9.

Ratio of International Reserves to Narrow Money Supply



Source: International Monetary Fund, International Financial Statistics.

Turning to the choice of the sterilization method, the discussions in Sections II and III highlight the tradeoff in carrying out a sterilization policy through the imposition of high reserve requirements on bank deposits: while high reserve requirements are effective in preventing the expansion of domestic credit, they reduce the opportunity for bankers to learn how to build a strong banking franchise by preventing them from making loans. Based on their experiences in the 1980s, policymakers have come to recognize the dangers of forcing the banks to bear the burden of a sterilization policy through high reserve requirements. A question is whether these costs of a sterilization program can be avoided--that is, can the central bank find a way to sterilize without inhibiting the development of the franchise value of the banking system?

The first part of this section considers alternative policy options to sterilize. The second part discusses how the state of the banking franchise might affect authorities' policy choice of whether and how to sterilize. The third part considers some recent empirical evidence on the relationship between the quality of the bank franchise and the quality of capital flows through the equity market. Finally, the last part turns to another challenge that banking systems in some Latin American countries are currently facing: the securitization of financial instruments. Specifically, this part analyzes how the recent developments in domestic capital markets and the increased access to world capital markets affect the franchise value of Latin American banking systems.

1. Sterilization and the franchise value of the banking system

In carrying out a sterilization policy using reserve requirements on bank deposits, the central bank constrains the expansion of bank credit following a capital inflow by directing banks to hold a high portion of the funds collected through the issuance of deposits in the form of reserves held as vault cash or deposits at the central bank rather than as loans. If the reserve ratios against deposits specified by the central bank are a binding requirement, this ratio must be greater than that which banks would voluntarily hold at the interest rate the central bank offers on reserve deposits banks hold with the central bank. 1/

If banks are subject to a binding reserve requirement, the spread between the interest earned on loans and the interest paid on deposits will be greater than in the absence of the requirement. This will act as a tax on bank intermediation, reducing both the quantity of deposits and the quantity of loans relative to the situation in which the banks are not subject to reserve requirements. Thus, the policy will directly affect the quantity of credit. Since it is the purpose of a sterilization policy to

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1/ Banks hold reserves for settling transactions among individual banks. The demand for reserves depends on the overall liquidity of an economy's money markets and the lending policies of the central bank. See Garber and Weisbrod (1992), Chapter 13.

reduce domestic credit, this aspect of a high reserve requirement is beneficial to the overall policy objective. 1/ As indicated in Section III, however, reserve requirements induce both central bankers and bankers to accept lax credit standards.

Is there a way that the central bank can achieve the perceived benefits of credit reduction while preventing a deterioration in the franchise value of the banks through a binding reserve requirement policy? For example, are the deleterious effects of the above policy reduced if the central bank were to sterilize through a voluntary rather than a required reserve program? If the banks are to hold reserves voluntarily, they must be compensated through interest payment on reserve balances held with the central bank. 2/ The reserve tax would no longer be a tax because, by definition, reserves pay whatever it takes for banks to voluntarily hold them. Thus, the central bank would have to pay an interest rate on bank reserve deposits that would result in the same amount of domestic credit that is created under the reserve requirement policy. Since, by assumption, the amount of domestic credit is the same as before, the interest rate on loans is the same as under the reserve requirement policy. Depositors, however, obtain a higher yield because the banks now earn interest on reserve deposits at the central bank. 3/ Hence, the tax cost of the sterilization policy is shifted from depositors to the central bank.

Central banks also have the option to duplicate the above policy results by issuing central bank liabilities paying market rates of return that are not held in the banking system, as is the case in Chile and Colombia. Instead of imposing reserve "requirements" on banks that pay market rates of return, the central bank could issue an equivalent amount of liabilities to nonbanks to equal the amount of liabilities it had originally held in the form of reserve deposits of banks.

The central bank liabilities issued to nonbanks would compete with bank deposits for investor funds--as some investors would shift from bank deposits to the liabilities of the central bank. This would increase bank funding costs and loan rates, and would reduce bank credit. 4/ Hence, the central bank can choose a quantity of liabilities issued to the nonbank

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1/ Moreover, as reserve requirements tend to lower the interest rate paid on deposits, they would constraint additional inflows of capital.

2/ They would, however, be willing to hold some reserves without being compensated with interest payments because they are necessary for payments clearing purposes.

3/ In contrast to a reserve requirement policy, a policy of paying interest rate on bank reserves may create incentives for further capital inflows as it raises the yield on bank deposits.

4/ As in the case of a policy that pays interest rates on reserves, sterilization through open market operations may also attract further inflows of capital.

public that reduces bank credit to the same level as achieved through either a policy of imposing reserve requirements or paying interest on reserves.

When the central bank chooses a policy that relies on investors' voluntarily holding its liabilities, the interest rate it must pay depends on how investors--whether banks or the general public--evaluate the risk of lending to the central bank. If the central bank holds foreign reserve assets, such as U.S. dollar Treasury bills or bank deposits earning an almost risk-free interest rate, it would run losses if investors believed that liabilities issued by the domestic central bank are riskier than liabilities issued by the U.S. Government or U.S. chartered banks. 1/

The central bank could cover these losses in several ways. First, it might attempt to roll the losses over by issuing additional liabilities. This policy would be unsustainable, however, if the central bank continues paying market interest rates on its liabilities, this would only lead to higher and higher liability costs. Alternatively, the central bank might have access to subsidized funding from the government budget, but this would only transfer losses from the central bank to the fiscal authority. If this source of funding is closed, the central bank would have to fund its losses on bank reserve deposits through its seigniorage earnings on currency issue, which does not pay interest. If this is its only source of revenue, the losses the central bank can absorb are limited by its willingness to tolerate inflation.

If the central bank must minimize its losses and control inflation, its options are limited: it would have to limit its role of direct lending to domestic borrowers to demonstrate to the market that it is serious about controlling inflation and it would have to strengthen its supervisory procedures to control bank risks before a banking crisis occurs. It follows, therefore, that only central banks with strong franchises should risk paying interest rate on liabilities.

2. The strength of the franchise and the impact of sterilization policy

The strength of the banking franchise affects the costs and benefits of a sterilization policy in more ways than just the direct costs to the central bank, however. This subsection considers the costs and benefits of sterilization under four different scenarios--where both the central bank and the banks have a strong franchise, where the central bank is strong but the banks are weak, where the banks are strong but the central bank is weak, and where both the central bank and the banks have a weak franchise value.

1/ Central bank losses in Chile and Colombia--two active sterilizers--reached 2.2 and 0.8 percent of GDP in 1991, respectively. By 1992, these ratios had declined to 1.1 and 0.5 percent of GDP, respectively. Notice, however, that these losses cannot be fully attributed to sterilization practices.

If both the banks and the central bank have strong franchises, bank credit decisions are basically sound, and the central bank is well-equipped to restore confidence in banks if a systemic crisis should occur. If the central bank should choose to engage in some sterilization to build up a war chest relative to domestic credit to use in the event of a systemic crisis, it can do so at relatively low cost. There would, however, seem to be little need to engage in sterilization to limit domestic credit growth resulting from capital inflows as bankers will not take undue risks. If the capital inflow exceeds the availability of safe domestic loans, domestic savers will be induced to reduce their supply of domestic savings. For example, if bankers believe that there is an excess supply of capital that cannot be invested at an expected return commensurate with the risk, they have two alternatives: they can invest the excess funds in foreign assets, or they can reduce the interest rate paid on deposits, which reduces loanable funds in the domestic market. In either case, the domestic supply of savings declines, and the expected return on loans increases for a given level of risk.

If the central bank has a strong franchise, but the banks are weak, the central bank must be concerned about over expansion of bank credit. If it chooses a policy of sterilization, it can do so at relatively low cost because investors perceive that central bank credit decisions both in normal times and in a systemic crisis will be sound. The central bank must, however, design policies that build the franchise value of banks. To this end, it is probably preferable for the central bank to sterilize by issuing liabilities directly to the public to give investors a safe haven from risky banks rather than imposing high reserve requirements, which, by the experience of the 1980s, does not encourage bankers to improve the franchise value.

If the banks are strong and the central bank is weak, resources should be kept out of the hands of the central bank. Bank credit expansion is a lesser risk than the accumulation of foreign reserve assets on the central bank's balance sheet that can be later used to expand central bank domestic credit. Even without sterilization, however, a capital inflow has the potential to increase the balance sheet of the central bank, as long as the resulting foreign currency inflow is purchased by the central bank. 1/ In this case, dollarization--by which residents are freely permitted to hold dollar denominated deposits--may help to safeguard the franchise value of banks. If low reserve requirements on foreign currency deposits are imposed, a significant proportion of the capital inflow will not end up on the balance sheet of the central bank.

If the franchise value of both the banks and the central bank are weak, policy options are very few. It is certainly wise to control the expansion of bank credit, but it is unwise to put resources under the control of the

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1/ The reader is reminded that unsterilized intervention results in an expansion of the central bank's balance sheet.

central bank. Whether policymakers in this situation choose sterilization or not, the most important policy objective is to begin building the franchise. The place to begin is probably with central bank policies on supervision and lending, as this is most directly on the control of policymakers.

3. The capital inflow challenge and the franchise value of banks: some empirical evidence

Capital can flow into an economy through means other than directly through the banking system. 1/ For example, in many Latin American countries, equity markets have attracted the interest of foreign and domestic investors in the early 1990s. The fact that investors have alternatives to banks is also a source of concern for policymakers in countries receiving large inflows of capital. After all, even if regulators know that banks are making sound credit decisions, they may not have knowledge about how firms are using funds that they have raised in the stock market. 2/ If an adverse shock were to occur, the authorities may face pressures to protect the real value of share prices. These concerns have sometimes added to arguments advanced by those supporting sterilization policies. This subsection examines the relationship between the quality of the bank franchise and the quality of capital flows through the equity market to determine whether the banking franchise affects how funds raised in the equity market are invested.

In Section II, it was argued that the banking franchise plays a very important role in Latin American economies because banks monitor and control borrower liquidity. In the highly uncertain economic environment of a developing economy, a good bank ensures that its borrowing customers invest their funds in projects with immediate cash flow benefits. Banks have tools at their disposal, such as the ability to demand immediate payment of principal rather than roll over a loan, that gives them power to force borrowers to abandon unprofitable activities. To use these tools, banks analyzes short-term cash flow data and the day-to-day activities of the firm. In sharp contrast to bank loans, equity contracts encourage firms to invest in projects that do not have immediate cash flow benefits because they permit corporations to raise funds at a low cost relative to current earnings. Equity contracts do not require the repayment of principal; nor do they require the borrower to promise the investor a fixed stream of interest or dividend payments.

1/ When a foreign investor purchases equity, he must exchange a hard currency deposit for a local deposit to pay for his purchase. As a result, the local bank obtains hard currency funds that can result in an expansion in the local banking system.

2/ The role of credit extended through the equity markets on an speculative attack on the exchange rate is discussed in Section V.

In Section III, evidence was presented that in economies where central bank policies encouraged banks to perform their role of monitoring firms' cash flow, i.e., in those countries with relatively strong franchise value of banks, the adjustment to large capital outflows associated with the debt crisis, while difficult, did not lead to the extreme levels of inflation that occurred where the banking franchise was weakest. In weak franchise markets, inflation was used as a device to spread the cost of credit problems throughout the economy because central banks and banks had no means to resolve credit problems by working with troubled borrowers to resolve their cash flow problems. Because equity contracts do not encourage investors to monitor cash flow, investments made through these contracts create many of the same risks as loans made by banks with weak franchises: lenders have no means of resolving cash flow problems in the event of renewed capital flight.

This potential weakness of the equity contract creates a monitoring role for short-term lenders. Although corporations can raise funds through equity contracts, even in markets like the United States, they rarely have the freedom to depend completely on equity contracts to fund their investment projects. Other lenders, whether bondholders, commercial paper holders, or banks, issue contracts that require borrowers to pay principal and interest on a timely basis. In Latin America, these other lenders are primarily banks. Thus, it is important to investigate whether, in those markets where the banking franchise is relatively strong, banks play an important role in maintaining the liquidity of firms even when they issue equity contracts.

If banks monitor and manage corporate liquidity, firms will not be able to disregard the demand for current cash flow, even though they rely heavily on equity markets. Banks will insist that borrowers meet stringent payment schedules, or they will resort to bankruptcy procedures. In contrast, where the franchise is weak, loan covenants will not be enforced, and firms' investment decisions will be determined largely by the demands of equity investors for capital gains rather than current cash flow. 1/ As a result, in an economic downturn, firms that must satisfy the demands of strong franchise banks will be in a position to cut costs to absorb the shock of reduced revenues whereas firms monitored by weak franchise banks will not. For example, in strong bank franchise markets, a larger portion of firms' costs will be variable than in weak franchise markets. Hence, corporate profit streams should be more volatile in weak franchise markets, which should lead to greater volatility in stock prices.

1/ For evidence on this point from several East Asian economies, see Steven R. Weisbrod and Howard Lee, "The Role of Financial Intermediaries during Asset Deflations: Case Studies of Japan, Korea, and Taiwan," in Portfolio Investment in Developing Countries, World Bank Discussion Papers No. 228.

Price earnings ratios should also, on average, be higher in weak franchise markets because expected future earnings should be high relative to current earnings. Of course, stock market variability should also make price earnings ratios more variable in weak franchise markets than in strong ones.

Evidence on stock market volatility, covering the period of capital inflows, is presented in Charts 10 through 12, measuring volatility in terms of local market indexes and two IFC (International Finance Corporation) indexes in local currency, and in U.S. dollars. 1/ All of these measures indicate that on average variability has been highest--albeit declining--in Argentina, Colombia, and Peru (for which only one variability measure is available for only the last two years), and lowest in Chile and Mexico. This pattern fits investor perception of the franchise ranking of the banking systems in the early 1990s, as measured by the deposit to GDP ratios (see Section III.5). Investors in Chile and Mexico perceive these banking franchises to be stronger than those in Argentina and Peru.

Data on price earnings ratios in the two relatively weak franchise systems are not available over the entire period, so inferences from this evidence cannot be as conclusive as the volatility evidence. Nevertheless, as indicated in Chart 13 Argentine price earnings ratios have been, on average, substantially higher than those of Chile and Mexico. Colombian price earnings ratios have also been, on average, above those of the two countries where the perception is that the franchise is strong. Price earnings ratios for Peru are only available for the third and fourth quarters of 1993, and are not presented on a chart. However, for the third quarter of 1993, the Peruvian price earning ratio was 34.95, compared to 39.27 for Argentina, 18.05 for Colombia, 16.89 for Chile, and 14.11 for Mexico. In the fourth quarter, the price earning ratio was 39.19 for Peru, 24.47 for Argentina, 24.90 for Colombia, 20.04 for Chile, and 19.70 for Mexico. Thus, the meager evidence available for Peru suggests that price earnings ratios are also higher in that market than in the strong franchise markets.

Thus, it appears that the quality of the bank franchise affects how funds are invested outside the banking system--where the franchise is strong, firms invest in projects that place more priority on current cash flow than where the franchise is weak. To the extent that an environment in which firm cash flow--and hence economic value--is uncertain, speculators may be attracted to that market. A strong banking franchise may, therefore, reduce speculative capital inflows that enter outside the banking system.

1/ The two IFC indexes include the largest and most-actively traded stock in each market covering about 60 percent of total market capitalization.

4. The capital markets threat to the banking franchise value

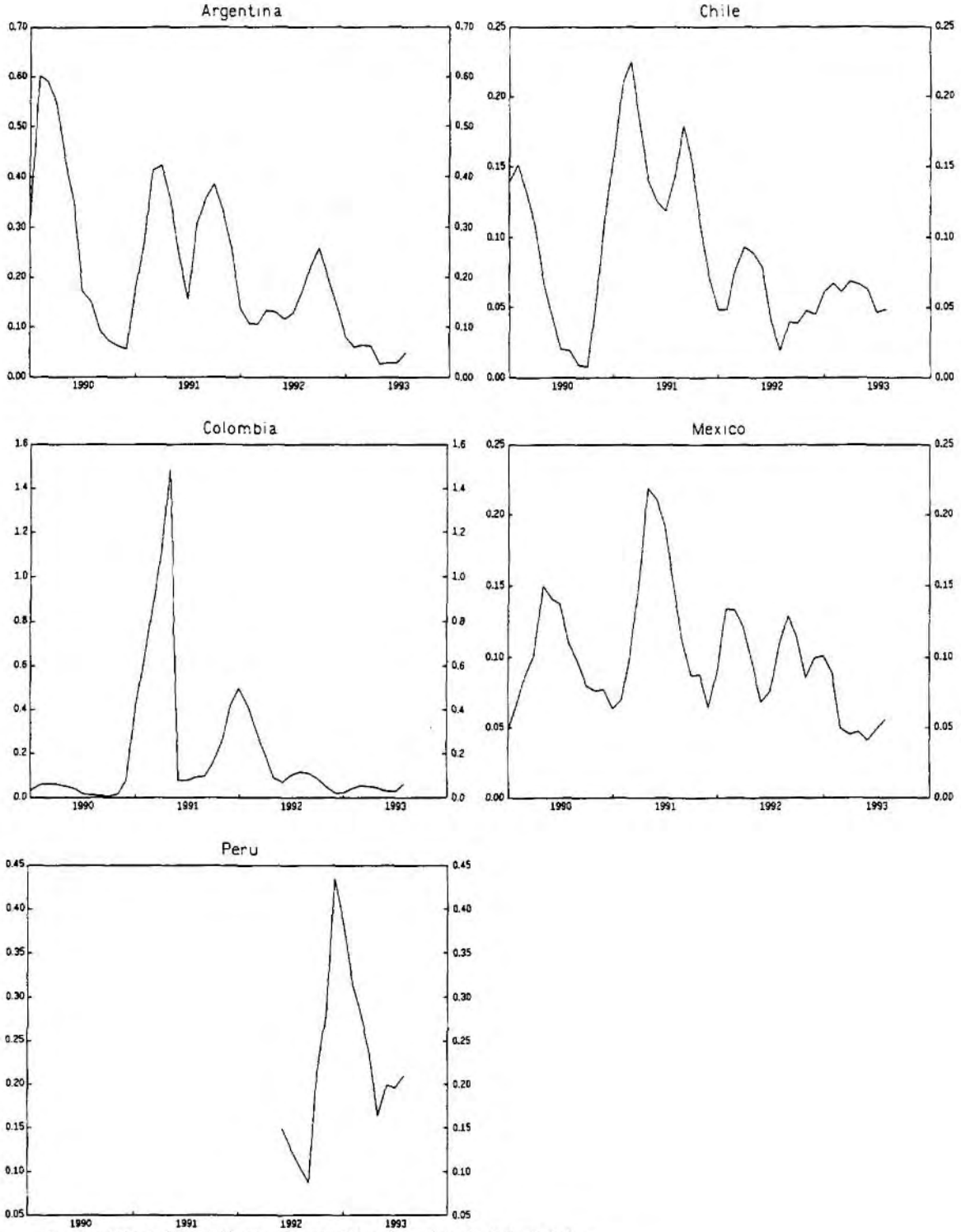
In addition to the policy dilemma imposed by the capital inflows, the banking systems in several Latin American countries have started to face a challenge well-known in major industrial countries: the securitization of many financial instruments that heretofore appeared mostly on bank balance sheets. In Latin America, capital markets alternatives to bank loans are beginning to be available on a fairly wide scale, most notably the corporate bond market in Chile, money markets in Mexico, and equity markets in a number of other countries. By and large, the most internationally well-known firms have raised capital in the U.S. and Euromarkets. This has raised concerns that the franchise value of the banking system may weaken in Latin America. This section evaluates the potential competitive threat that domestic securities markets pose to the franchise value of banks as well as the potential threat posed by international capital markets.

As suggested by the evidence in the previous subsection as well as the discussion on the nature of the bank franchise value in Section II, a strong banking franchise can improve the performance of bond and equity markets because banks are in a better position to monitor corporate liquidity than are equity holders; thus, a capital market and a strong banking system can be complementary rather than competitive.

In highly developed capital markets, such as the U.S., short-term money market instruments, primarily commercial paper market, have replaced bank loans as the primary source of short-term credit to corporations. Even there, however, banks continue to play the role of liquidity monitor. Commercial paper issuers obtain a credit line from banks to ensure investors that they can meet their commitments to deliver interest and principal on time. In addition, if there should be an operational problem during the issuance of commercial paper, the corporation can draw on its credit line until the problem in cleared up. These credit lines are not credit guarantees; they can be, and are, canceled at very short notice. It is the cancellation of a commercial bank credit line that signals to other investors that the borrower's credit quality has deteriorated. Thus, the threat of a line cancellation gives banks tremendous power over a borrower's business, even though the bank no longer makes a loan.

Given the importance of the banking franchise, even in highly developed financial markets, what, then, is the competitive threat that capital markets pose to the franchise value of banks? Because capital market development creates alternative sources of funds available to corporations, it leads to a reduction in the role of bank loans in corporate finance. The spread between the interest rate on loans to corporations and bank funding costs declines, and bank profits decline. Under normal circumstances, profitability would be restored by a shrinkage of the banking industry both through mergers and through a decline in the percentage of financial

CHART No. 10.
Volatility of Local Market Equity Index 1

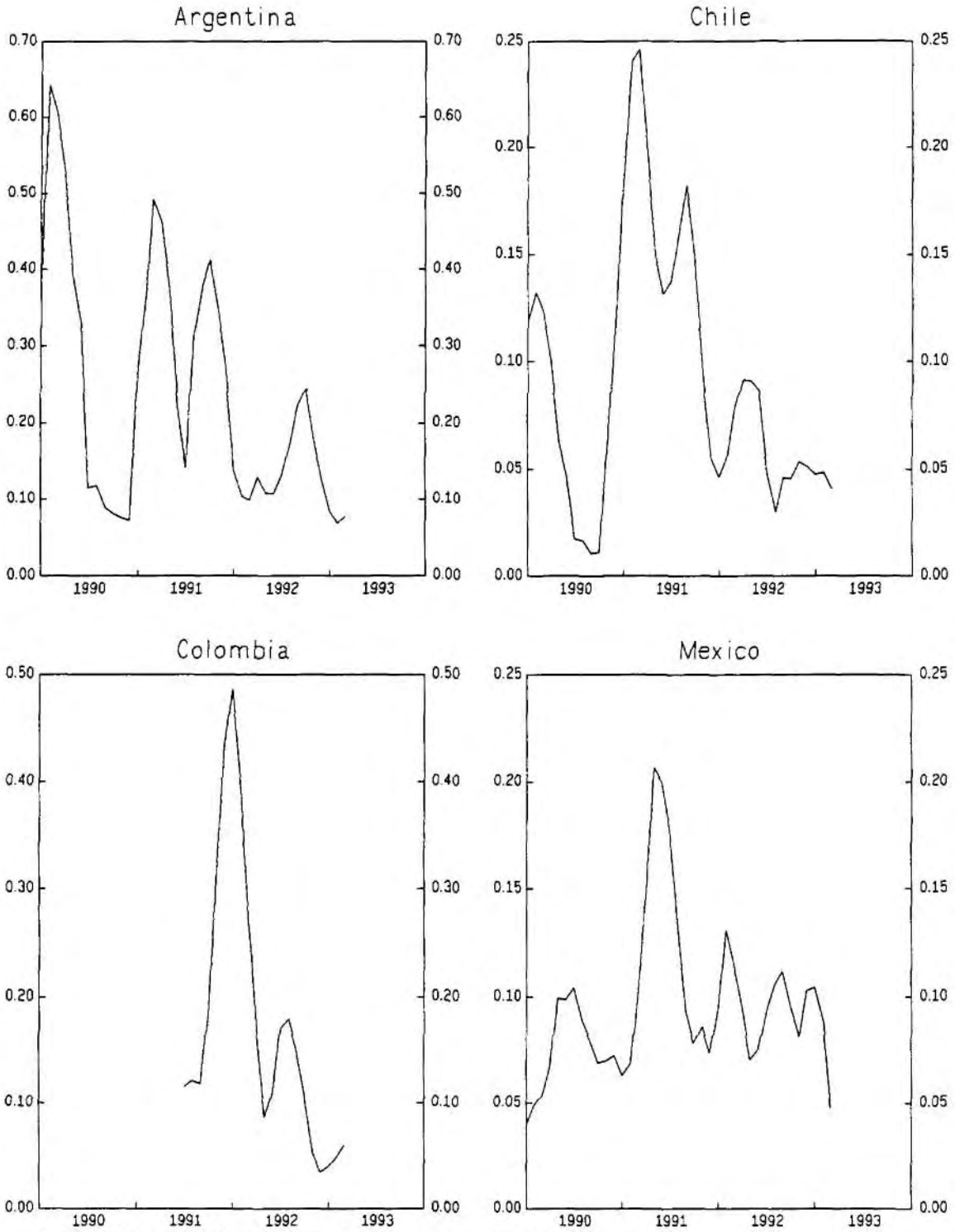


Source: *International Finance Corporation, Emerging Markets Database.*

1/ Volatility is defined as the square root of the mean squared proportional deviations from the mean over the current month and preceding 5 months.

CHART No. 11.

Volatility of IFC Equity Index in Local Currency 1

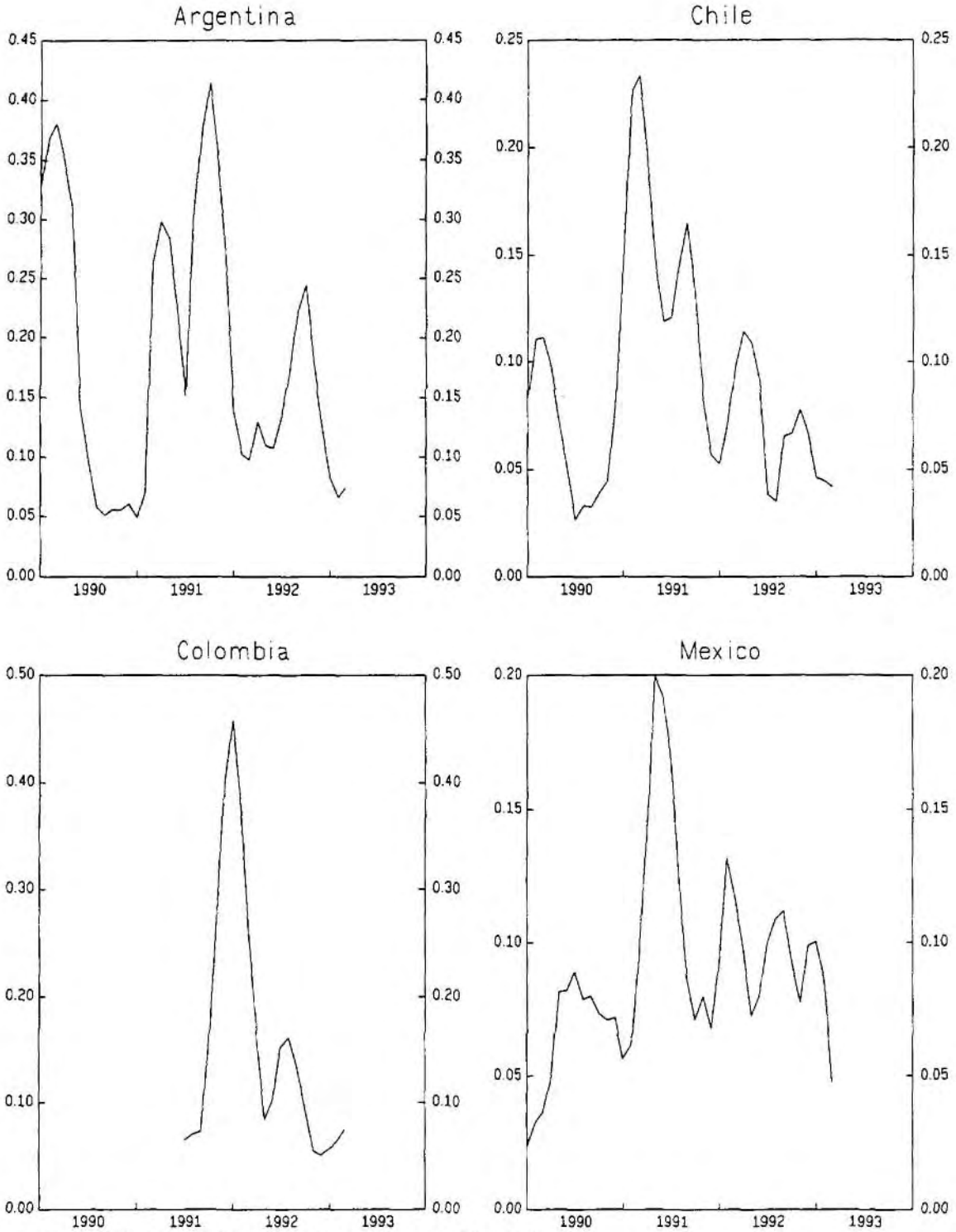


Source: International Finance Corporation, Emerging Markets Database.

1/ Volatility is defined as the square root of the mean squared proportional

CHART No. 12.

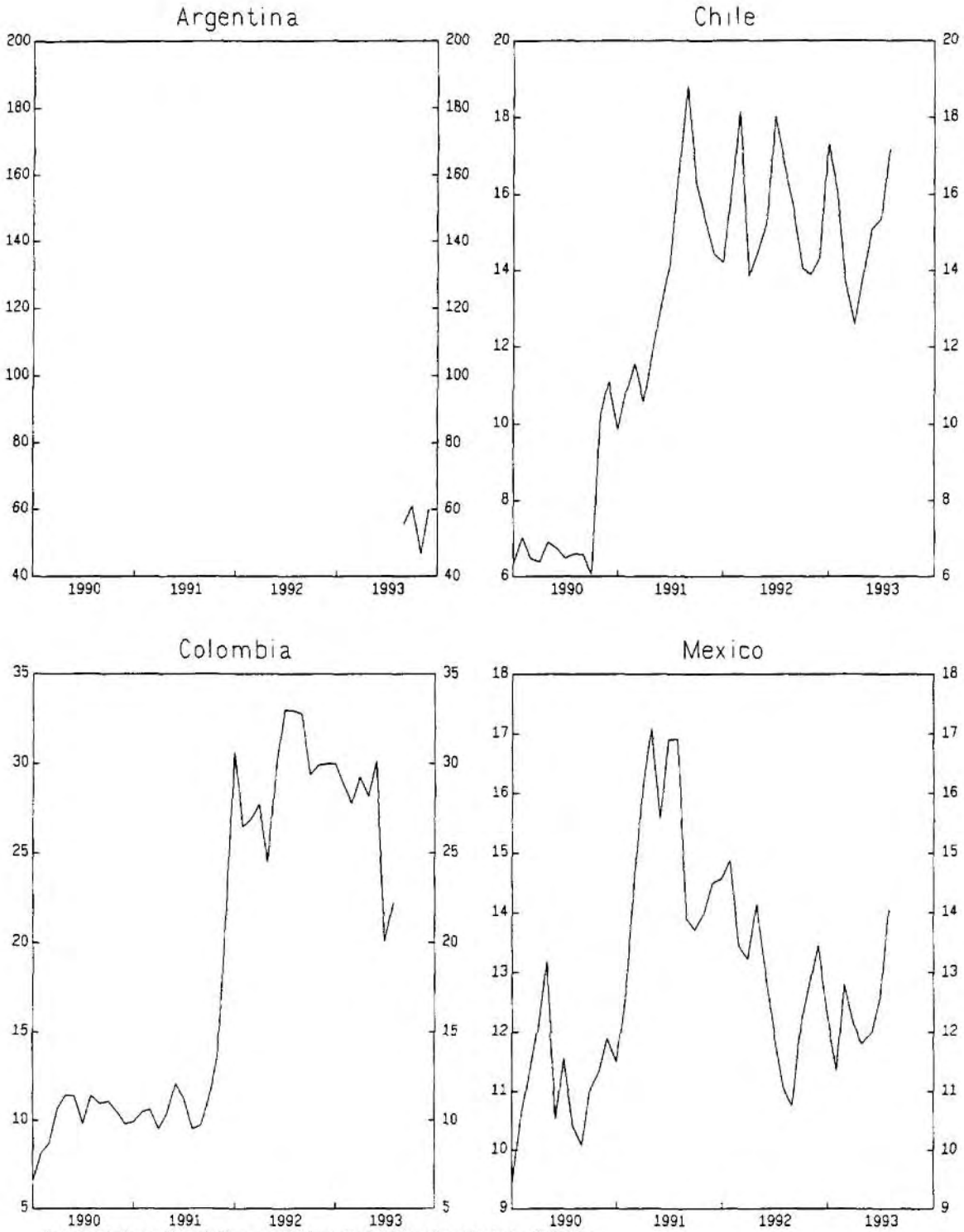
Volatility of IFC Equity Index in U.S. Dollars 1



Source: International Finance Corporation, Emerging Markets Database.

1/ Volatility is defined as the square root of the mean squared proportional deviations from the mean over the current month and preceding 5 months.

CHART No. 13.
Price Earnings Ratio



Source: International Finance Corporation, Emerging Markets Database.

instruments supplied by banks. A scaled down banking system would then continue to play its important role in maintaining borrower liquidity. 1/

It is very difficult, however, for policymakers to scale down the banking system. Because of the important role that banks play in maintaining liquidity in financial markets and in providing accounts used as the means of payment, they are usually implicitly or explicitly insured by the government, either through direct deposit insurance or through access to central bank credit. This insurance is often not priced appropriately, preventing bank deposit costs from fully reflecting the risks that banks take. Consequently, bankers who operate banks that should exit with this shift have an incentive to maintain their profitability by taking increased risks. 2/ The gains from using the insurance subsidy to generate profits increases as competition from capital market instruments causes spreads on safe credits to decline. Thus, at some point even banks with formerly strong franchises will be tempted to take risks. 3/ The recent banking crisis in the developed world--Japan, the United States, and Scandinavia, indicate the difficulty in timing regulatory actions to prevent the increase in bank risk.

In Latin America, therefore, the main issue in evaluating the capital market impact on the franchise is whether the spread that banks can earn by holding short-term loans to corporations on their balance sheets has fallen to the point where banks seek alternative risky investments. The spread available to banks in holding corporate loans can be approximated by considering the cost to corporations of borrowing in the short-term money market relative to the marginal cost of banks in funding corporate loans. Banks' marginal funding costs are the costs that banks face in raising liabilities in the money markets, such as the wholesale CD (certificate of deposit) market and the interbank market. If this spread is relatively high, this implies banks can still make money by lending to large corporations, and the balance sheet franchise is relatively safe.

The only market for which there are published data on commercial paper rates and money market bank funding rates is Mexico. In this market, there are two wholesale funding markets available to banks: the banker's

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1/ The function of providing liquidity is still important, but the demand for bank loans to provide liquidity declines as capital markets develop. Capital markets develop because markets are liquid enough to settle payments at the end of the day with securities rather than with "good funds." This argument is presented in detail in Section II.

2/ See Weisbrod, Lee, and Rojas-Suarez (1992).

3/ See Weisbrod, Lee, and Rojas-Suarez (1992).

acceptance (BA) market and the interbank market. 1/ In early 1994, the commercial paper rate was about 13.5 percent and the BA and interbank rates were about 11.5 percent; thus, the spread between the commercial paper market and the BA or interbank markets was about 200 basis points, compared to only a few or no basis points in the U.S. (Chart 14). 2/ Consider the following scenario: if the noninterest expense involved in a bank making a large corporate loan is assumed to be 75 basis points, which is high by U.S. standards, the bank would still be able to earn a 125 basis point spread between a loan priced at the commercial paper rate and its marginal cost of funds. If the bank funded this loan with an 8 percent equity to loan ratio, 3/ it would earn a pretax return on equity of 27 percent, which is high even for a market where Treasury bill rates (CETES) are somewhat less than 10 percent. 4/ Thus, it appears that developments in domestic capital markets have not yet significantly threaten the profitability of Mexican banks.

Besides Mexico, Chile is the other Latin American country where the issue of competition to banks coming from domestic capital markets has arisen. Chile is perhaps the only Latin American market that has developed a corporate bond market. As in the case of the Mexican commercial paper, the impact of this market on the bank franchise must be measured in terms of the spread between corporate bond interest rates and the marginal cost of funds facing banks. Unfortunately, this spread cannot be measured as directly as the spread in the commercial paper market in Mexico, but there is strong in direct evidence that, if the spread between bond interest rates and the marginal funding costs of banks were available, it would be relatively large.

As a percentage of GDP, the corporate bonds market grew rapidly during the period 1988-91; and it has slowed down recently (Table 9). In 1992,

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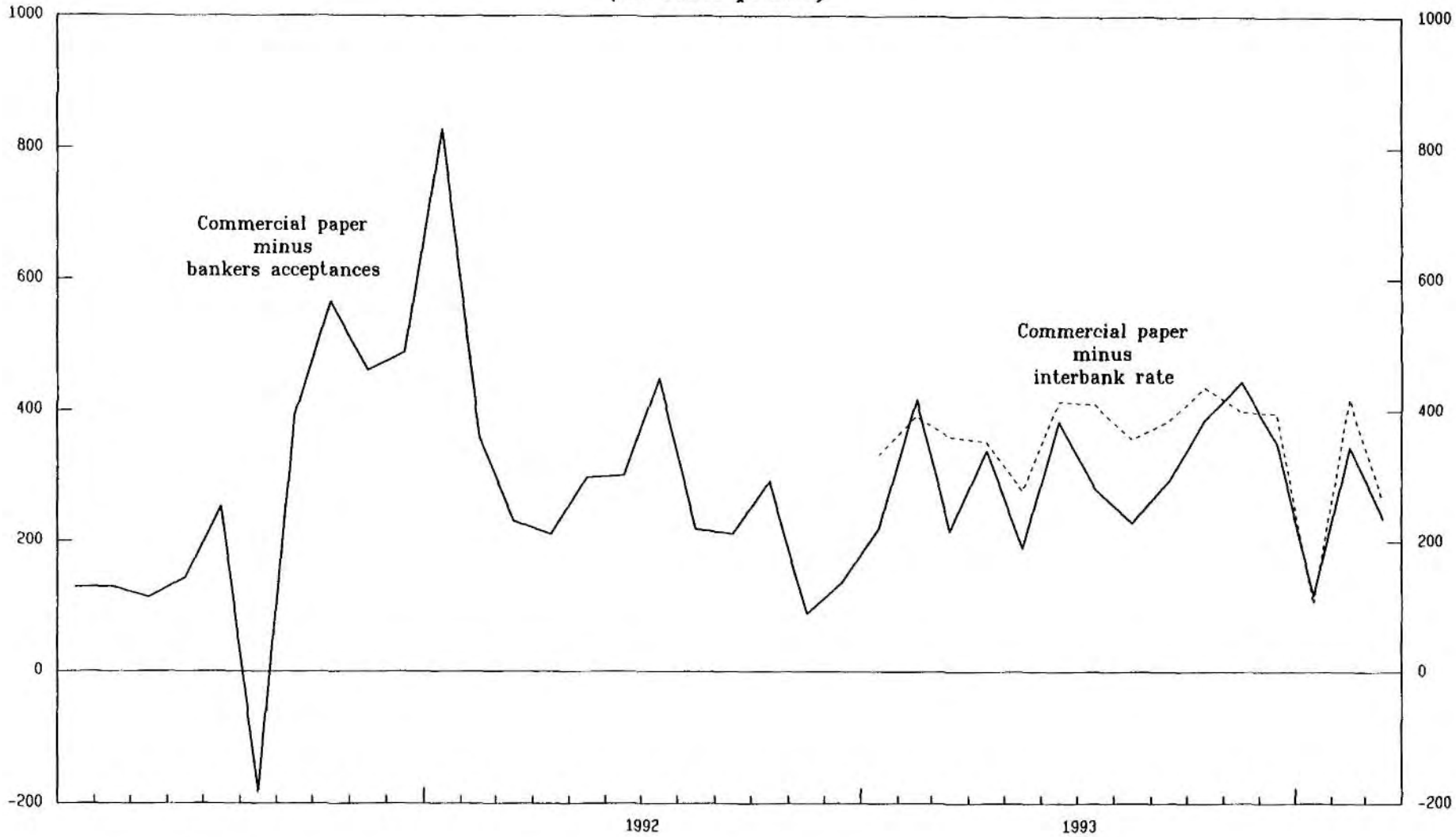
1/ Banker's acceptance was an important funding instrument for banks in 1989 when reserves requirements on deposits reached 100 percent. When these requirements were eliminated, the market for banker's acceptances shrank substantially and bank deposits regained their importance as a funding source for banks.

2/ Moreover, the spread between commercial paper and short-term deposits was about 400 basis points in early 1994.

3/ This equity ratio is chosen to conform to the capital guidelines of the Bank for International Settlements.

4/ This calculation assumes that 92 percent of the loan is funded at the bank's marginal cost of funds and the remaining 8 percent of funds is raised in the equity market. Banks earn 13.5 percent on the entire loan, which is the commercial paper rate. They pay 11.5 percent, the BA rate, on 92 percent of the funds used to make the loan as well as 75 basis points of non-interest expenses on the entire amount of the loan. Based on this revenue stream and the funding and non interest costs, banks earn about 27 percent on the remaining 8 percent of funds used to make the loan, which represents the equity funding.

Chart 14. Mexico: Interest Rate Spreads on Selected Financial Instruments, March 1991 - March 1994
(In basis points)



Source: Banco de Mexico, *Indicadores Economicos* (Nov. 1991 and Mar. 1994).

Table 9. Chile: Corporate Bonds Outstanding, 1980–92

	Corporate bonds (1)	Gross Domestic Product (2)	(1)/(2)
		(In billions of pesos)	(In percent of GDP)
1980	2.0	1,075.3	0.18
1981	3.7	1,273.1	0.29
1982	21.1	1,239.1	1.70
1983	21.0	1,557.8	1.35
1984	20.0	1,893.4	1.06
1985	29.1	2,576.6	1.13
1986	12.3	3,246.1	0.38
1987	32.6	4,159.8	0.78
1988	107.8	5,411.0	1.99
1989	242.2	6,778.4	3.57
1990	411.7	8,477.9	4.86
1991	659.9	10,939.2	6.03
1992	758.1	13,740.0	5.52

Source: Chilean Superintendencia de Valores y Seguros; and IMF.

corporate bonds, which equalled about 5.5 percent of GDP, were almost entirely held by pension funds and insurance companies, with two thirds of the volume held in pension funds. 1/ In contrast, pension funds and insurance only held 17 percent of total equities. In 1993, the top five pension funds held 74 percent of the total assets of all pension funds as well as 75 percent of the corporate bonds held by pension funds (Table 10). These figures indicate that the market for corporate bonds is quite narrow and concentrated; implying that the market is relatively illiquid--that is, a single trade probably moves the market price significantly. The illiquidity of the market should tend to keep interest rates on corporate bonds relatively high compared to a more liquid instrument like bank deposits. This would suggest that bank spreads and bank profits are still relatively immune from domestic capital markets competition.

A possible further threat to the franchise value of the banking system in Latin America is large corporate access to the capital markets of the United States and Europe. For example, large, well-known firms with stable revenue bases, such as utilities, have raised equity funds in the U.S. market through American Depository Receipts (ADRs), which trade on the major stock exchanges. 2/ In addition, some firms have issued medium-term notes, which are bond-like instruments not subject to disclosure requirements of bonds, in the U.S. market. Despite their name, these instruments have varying maturities, sometimes quite long. 3/

How much of a threat does U.S. market access pose to the franchise value of banks in Latin America? Since ADRs are similar to equity instruments, a strong domestic banking franchise is an important complement to access to the U.S. domestic market as it is to access to domestic equity markets. The threat posed by access to the medium-term note market is best evaluated by considering why Latin American firms are not significant users of U.S. short-term money markets, such as the commercial paper market. U.S. money markets are highly liquid, and large U.S. corporations use money market instruments rather than bank loans when cash outflows do not quite match cash inflows. It might seem relatively simple for a Latin American telephone company, for example, to issue commercial paper in the U.S. market, and engage in a currency swap to cover its cash outflow in its local market. In this way, it would seem to be able to lock in a low borrowing cost from a highly liquid market.

1/ For a relative comparison, in the United States, corporate bonds are about 19 percent of GDP.

2/ Foreign firms use ADRs to become listed on a U.S. stock exchange without being subject to the Security and Exchange Commission's disclosure requirement. To issue ADRs, however, foreign firms must hold a deposit with a U.S. chartered bank to guarantee payment of dividends. Receipts verifying the existence of these deposits are the instruments that are actually traded.

3/ See Crabbe (1993).

Table 10. Chile: Pension Funds Assets by Type of Issuing Agencies, December 1993

(In percent of all pension funds assets)

	Government Institutions								
	Total	Central Bank of Chile	Treasury	Minviu	Financial Institutions	Enterprises	Investment In Foreign Entities	Other	Total Assets
All pension funds	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Five largest funds 1/	75.2	75.2	71.6	82.9	69.3	75.2	88.4	57.7	74.0

Source: Chile Superintendencia de Valores y Seguros.

1/ Cuprum, Habitat, Provida, Santa Maria, and Summa.

This transaction, however, is not as simple as it might first appear. A currency swap, like any futures contract, is priced according to the relative nominal interest rates between two markets. The currency in which nominal interest rates are higher will trade at a discount at maturity of that contract relative to the currency where nominal interest rates are lower. Swap contracts are usually priced off of money market interest rates, such as the interbank rate. In Latin America, since money markets are relatively illiquid, banks may not be willing to price a contract off the interbank rate. If, for example, in Mexico, a peso dollar swap contract were priced off the Mexican commercial paper rate rather than the interbank rate, the discount on pesos at maturity of the contract would be relatively large because the commercial paper rate is higher than the interbank rate. This would erode a large portion of the gain to raising short-term funds in the dollar market.

In Chile, the corporate bond market is really a medium-term market, which might seem to provide an interest rate that could be used to price currency swaps for firms that issue medium-term notes in the United States. Again, the partial evidence presented above indicates that, like the Mexican commercial paper market, this market is illiquid, implying that Chilean medium-term interest rates include a liquidity premium, which reduces the cost advantage of raising funds in the more liquid U.S. market.

Based on the evidence of how fixed income and equity markets in Latin America operate, it seems that a strong capital markets threat to the banking franchise is some years away. The most liquid capital markets in the region are equity markets; even where fixed income markets are operational, namely the commercial paper market in Mexico and the corporate bond market in Chile, spreads are high relative to bank costs and the paper is held by a few investors. The growth of equity markets, however, poses some dangers for policymakers worried about unstable capital inflows.

V. Financial Soundness and Macroeconomic Stability: A Bank Balance Sheet Approach

This section focuses on the macroeconomic consequences of banks' performance. Specifically, it analyzes the extent to which the sustainability of a widely implemented type of stabilization program in Latin America, namely, an exchange rate-based program, depends on the performance of the banking sector. This complements the discussion in the previous two sections where--using a sample of five countries--the main task was to analyze how alternative policy environments in those countries affected the behavior and performance of banks, as well as the options available to the authorities to handle financial difficulties.

Recent literature on the sustainability of adjustment programs has focused on the destabilizing effects associated with the lack of credibility in the permanence of the announced policies (see, for example, Calvo (1986), Obstfeld (1986), Flood and Garber (1984a), Calvo and Vegh (1990), Rojas-

Suarez (1992)). An often cited example is that even in cases where there is a long-run consistency between macroeconomic fundamentals and the announced exchange rate policy, lack of credibility in the persistence of the announced policy may result in a speculative attack on the domestic currency. Since the attack itself changes the fundamentals--most notably, by expanding domestic credit, if the authorities accommodate the demands of speculators, or domestic short-term interest rates, if the authorities attempt to defend the exchange rate parity by increasing the cost of speculation--the government may find it too costly to defend the exchange rate on a sustained basis; in such cases, the authorities may validate the attack and abandon the announced exchange rate.

As discussed in Section IV, the capital inflows experienced by the Latin American region in the early 1990s have raised a number of concerns among policymakers. While Section IV focused on the concerns of a possible reversal of the inflows on the stability of the financial system, this section deals with another major concern associated with fears of a reversal of the inflows, namely, the sustainability of the announced exchange regimes. 1/ The major concern in this area is that a reversal of the capital inflows could make the announced policy stance unsustainable and would, therefore, result in an abandonment of the adjustment programs. 2/ To the extent that perceptions about the temporary nature of those flows grow, doubts about the sustainability of the large current account deficits evidenced in many Latin American countries during the period 1991-93 (Chart 1 and Table 8) may arise, triggering expectations of an exchange rate devaluation. 3/ Leaving aside the factors that may generate a reversal of capital inflows 4/, the question still remains as to whether the central banks of these countries may be able to sustain their announced policies if such reversal of capital inflows materializes.

1/ Notice that, from an analytical point of view, a lack of credibility in the commitment of an announced policy--say, the exchange rate or the fiscal stance--is similar to the perception that the behavior of a key nonpolicy fundamental--say, the capital inflows--is transitory. On the destabilizing effects of temporary policies, see Calvo (1986).

2/ For further discussion on the issues related to recent capital inflows in developing countries, see Calvo, Leiderman and Reinhart (1993b).

3/ Notice that the current account balance is related to the policy stance regarding sterilization. To the extent that sterilization is successful in constraining the expansion of domestic credit, a current account deficit could be either avoided or, at least, reduced.

4/ There are a large number of factors that could trigger a reversal of capital inflows, including: further and bigger increases in the interest rates in the United States, a political disturbance in a Latin American country or a failure to consolidate macroeconomic policies and/or structural reforms. For further discussion on the sustainability of capital inflows to Latin America, see, Claessens and Gooptu (1993).

In the remainder of this section, it is argued that the degree to which a Latin American central bank may be able to withstand a speculative attack on its domestic currency--whether involving a reversal of the capital inflows or not--depends crucially on two factors: (a) the extent of the commitment of the central bank to stabilize prices in the financial sector; and (b) the strength of the banking sector. While (a) is a natural extension of the well-known literature on speculative attacks 1/, (b) has not received sufficient attention in the economic literature. In addition, this section also addresses the issue of the appropriate holdings of foreign exchange reserves by central banks.

As discussed in Section II and reinforced in Section IV, although banks are a dominant feature in the financial landscape of Latin America, there are also significant differences in the degree of importance of banks and in the structure and organization of financial markets among countries in the area. The analysis that follows, therefore, centers on two cases that may best represent the alternative financial structures of the region: (1) an economy where the financial sector is largely dominated by banks and dollar-denominated deposits are an important component of the banks' balance sheets (such as Argentina and Peru); and (2) a financial sector where some other long-term financial institutions, such as pension funds, are important players in absorbing financial flows and where dollar-denominated deposits are not an important fraction of total bank deposits (such as Chile). 2/ By considering the specific effects of dollarization, the analysis will also derive conclusions for bank-dominated systems where banks' deposits are largely denominated in the domestic currency (such as Mexico).

In both cases, stock exchanges are assumed to be a small, albeit growing, component of the financial sector. In conformity with the current policy stance in most Latin American countries, it will be assumed that the government does not allow the nominal exchange rate to adjust freely to market conditions. 3/

1. A bank-intermediated system facing a significant degree of dollarization

In the financial system to be analyzed here, the regulatory framework and/or domestic economic conditions prevent banks from facing significant competition from other financial intermediaries. This system, which characterizes many Latin American countries, can persist for long periods of time, even when constraints on credit allocation or interest rate controls

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1/ See, for example, Flood and Garber (1984b), Krugman (1979).

2/ Notice that, although the analysis could incorporate the use of any foreign currency, U.S. dollars are, by far, the most commonly used currency in which bank deposits in foreign currency are denominated in those countries where foreign currency deposits are allowed.

3/ This is true even in those Latin American countries with the lowest degree of government intervention in foreign exchange markets such as Peru.

are removed; an explanation for this occurrence is that high volatility in the net revenues of domestic firms complicates their issuance of commercial paper and bonds or their placement of equity shares. 1/ As discussed in Sections II and IV, while commercial paper and corporate bonds are practically nonexistent in most Latin American countries (Chile being the exception for corporate bonds), stock markets are booming but the number of listed shares is very limited; as a result, bank credit remains the sole source of credit for the majority of firms.

Dollarization is defined here in its broadest form, namely to indicate that the U.S. dollar is used not only as a store of value, but also as a unit of account and as medium of exchange. 2/

Assets issued by residents of a particular country are subject to two kinds of risks: (a) the risk of large losses in the real value of assets denominated in the domestic currency as a result of economic policies that lead to rapid inflation or to large exchange rate depreciations; and (b) the default risk associated with solvency problems in the issuing institutions, or with the expropriation of domestic assets. 3/ If the banking sector is perceived as sound and bank profitability is viewed as having a high priority among the authorities' goals--effectively ruling out the probability of expropriation of deposits since such an action would hamper banks' stability--a lack of confidence in the stability of the exchange rate would trigger a switch into bank liabilities denominated in U.S. dollars. By comparison, a lack of confidence in the soundness of the banking system would induce depositors to move their deposits denominated in either the domestic currency or U.S. dollars outside the domestic financial market; that is, it would trigger what is commonly known as capital flight. 4/ Notice that expectations of a exchange rate devaluation could also induce capital flight in a sound bank-dominated financial system where deposits denominated in a hard foreign currency--the U.S. dollar--are not allowed.

As discussed above, many Latin American countries--with or without a significant degree of dollarization--have experienced a sharp increase in

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1/ See Weisbrod and Lee (1993) for a detailed discussion on this issue.

2/ The need to clarify the use of the concept is important as there is no agreement on the meaning of the term, and some authors (See, for example, Calvo and Vegh (1992)) would refer to this broad use of the foreign currency as "currency substitution"

3/ See L. Rojas-Suarez (1991). Notice that, although the distinction between the two types of risk is made for analytical purposes, a situation may arise in which both risks become indistinguishable. For example, expectations of a devaluation--which increases the first kind of risk--may increase the expectations that the authorities would freeze dollar-denominated bank deposits--which increases the default risk--in an attempt to defend the domestic currency.

4/ Notice that funds need not to flow outside the country; they may well remain in an informal financial market dealing in U.S. dollars.

foreign exchange reserves in recent years (Table 8). Although the stock of foreign exchange reserves in the central bank is an important factor for assessing the effects of a possible reversal of the capital inflows on the exchange rate, its importance is associated with the degree of dollarization in the economy. In the extreme case of a fully dollarized economy, an attack on the domestic currency is meaningless since the domestic currency no longer plays any significant role in the system; however, agents holding U.S. dollar deposits in domestic banks may demand to convert them into liabilities issued by U.S. authorities that are held by the central bank. 1/ In contrast, in a less than hundred percent dollarized economy, the stock of foreign exchange reserves has a role to play in maintaining an announced exchange rate regime: an attack on the foreign exchange reserves of the central bank would involve short-term bank liabilities denominated in domestic currency. As in the case of the former example, agents may also demand to convert U.S. dollar-denominated deposits into U.S. dollar bills. As will be discussed below, however, a speculative attack on the central bank foreign exchange reserves involving bank liabilities denominated in U.S. dollars will occur only if the public fears that its dollar-denominated deposits are no longer safe in the domestic banking system.

The decision of how large the stock of foreign exchange reserves should be is perhaps one of the key policy decisions of central bankers in Latin America. The discussion in Sections III and IV made it clear that a large net foreign asset position held by a central bank carries with it two risks: first, it increases the temptation for governments to delay the correction of policy inconsistencies; and second, it provides central banks with the option of facing an adverse shock to the domestic economy by simply selling those foreign assets and expanding credit rapidly, with adverse consequences for the soundness of the banking system. That this is particularly true in cases where the central bank has a weak franchise value is evidenced by the Peruvian experience during the mid-1980s. In other words, too many foreign exchange reserves in the hands of central banks may limit the amount of market discipline that authorities feel the need to exert in making policy decisions. Moreover, when domestic interest rates (adjusted for changes in the exchange rate) are higher than international rates for risk-free assets, holding foreign exchange reserves is costly for the authorities as the marginal cost of central bank debt is higher than the marginal revenue of holding foreign exchange.

The discussion above suggests that there is a clear tradeoff associated with holding foreign exchange reserves: on the one hand, they provide the resources to defend an exchange rate parity and on the other hand they give rise to some risks and costs for sound policymaking, including delaying reforms of the banking sector. Aware of this problem, authorities in many Latin American countries are taking a policy stance regarding their desired

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1/ Investors may also want to convert other assets denominated in U.S. dollars into U.S. dollar bills. They would be successful, however, only to the extent that the central bank guarantees convertibility of those assets.

holdings of foreign exchange reserves in a way that, according to their perceptions, minimizes such tradeoff. Indeed, their position regarding sterilization practices is a reflection of these choices. In the following two subsections, these choices are addressed.

a. The monetary base is fully backed by foreign exchange reserves

One of the central bank's choices is the decision to maintain a ratio of the stock of (gross) foreign exchange reserves to the monetary base equal to or greater than one. This decision has been made explicit in Argentina's "convertibility law" established in March 1991, but has been implicitly followed in many other Latin American countries during the early 1990s--including three of the countries analyzed in Sections III and IV. 1/ The question to be addressed here is to what extent the solvency of a banking system is an important factor to determine the stability of a pre-announced exchange rate in a dollarized economy where the monetary base is fully backed by foreign exchange reserves.

To analyze the importance of a solvent banking system for the stability of a pre-announced exchange rate, assume that an adverse shock--which will remain unspecified here--generates a lack of confidence in the sustainability of the announced policies. Two cases will be considered: First, the shock produces a generalized expectation of a devaluation, but banks are perceived as being sound. 2/ Second, the lack of confidence in the exchange rate is accompanied by a lack of confidence in the banking system.

(1) Lack of confidence in the exchange rate policy, but banks are perceived as solvent

In an economy where U.S. dollar bank-accounts are allowed and the banking system is perceived to be sound, lack of credibility in the exchange rate policy does not need to generate a flight from the domestic financial system; rather, the public would be induced to convert its domestic currency-denominated deposits into U.S. dollar-denominated deposits. In addition, speculators taking positions against the domestic currency would increase their demand for domestic currency-denominated loans on the expectation that the devaluation would bring about a capital gain. However, if the central bank is committed to keeping the monetary base fully backed up with foreign exchange reserves, the central bank would not validate the expansion of credit denominated in domestic currency (i.e., it would not

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1/ By the end of 1993, the ratio of gross foreign exchange reserves in Colombia, Mexico, and Peru were around 1.5. In contrast, Chile kept a smaller ratio of 0.8.

2/ In the remainder of this subsection it is assumed that the exchange rate equals one. This simplifies the exposition greatly without affecting the analysis.

provide banks with reserves to allow the expansion of credit); 1/ instead, the domestic currency interest rates would increase. 2/

While central bank policy would prevent the extension of credit denominated in domestic currency, the public may be able, to a large extent, to convert its domestic currency-denominated deposits into U.S. dollar deposits. 3/ In the extreme, the public may want to have all its deposits (and cash holdings) denominated in U.S. dollars. 4/ Assuming that reserve requirements on domestic currency-denominated deposits equal those on foreign currency deposits, banks will need to convert the value of their cash assets (for reserve requirements purposes) denominated in domestic currency into U.S. dollars. As a result, the domestic monetary base will be extinguished, but the reduction in the stock of foreign exchange reserves held at the central bank will be limited to the initial stock of domestic currency in circulation (i.e., currency held by the public and outside the banking system) 5/. That is, the monetary system; i.e, currency and deposits held by the public, would become--at least temporarily--fully dollarized.

Even in the extreme case when people would like to move out of the domestic currency altogether, full dollarization will not persist if: (a) there are some pre-existing private contracts requiring payments in domestic currency; and (b) the authorities demand certain payments to take place in domestic currency--such as taxes, trading involving government bonds denominated in domestic currency, etc. While the demand for domestic currency to make payments on pre-existing domestic-currency denominated

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1/ In a fractional reserve requirement system, the monetary base includes reserve requirements on deposits denominated in domestic currency, other bank deposits in the central bank and domestic currency in circulation.

2/ Likewise, by not providing an expansion of domestic currency to satisfy an increase in banks' reserve requirements, the monetary authorities would make it too expensive to reschedule existing loans denominated in U.S. dollars into loans denominated in domestic currency.

3/ Notice that the conversion of domestic currency-denominated time and saving deposits into U.S. dollar deposits would usually carry a cost. It is assumed here that either (a) those costs are negible or (b) those costs are outweighed by the expectations of large losses in the real value of those deposits arising from a devaluation.

4/ Although this is a highly unlikely case if interest rates are allowed to fluctuate freely, the example is used here to evaluate the capacity of the system to withstand a flight from domestic currency-denominated assets. In a more realistic scenario, the people induced to shift into U.S. dollar assets would be those whose expectations of the size of the devaluation exceeds that contained in the interest rate on domestic currency-denominated deposits.

5/ This is so because reserve requirements on domestic currency deposits held at the central bank will be converted into reserve requirements on foreign currency deposits also held at the central bank.

contracts may only be temporary (it may vanish as the contracts expire), the demand for domestic currency to comply with the authorities' regulations will be permanent. Therefore, if conditions (a) and/or (b) hold, the monetary base will not vanish (or may do so for a very brief period of time) following the sudden loss of credibility in the announced exchange rate policy; it will, however, be reduced significantly.

An example of the changes in the balance sheets of banks and the central bank that may follow immediately after a sudden lack of confidence in the exchange rate regime is shown in Annex I. Following the conversion of domestic currency-deposits into U.S. dollar-deposits, banks may find themselves with a mismatch in the currency denomination of their assets (domestic currency and dollars) and liabilities (only dollars in the example under consideration). However, the same factors that would make the full-dollarization a temporary process would also make the currency mismatch temporary: as pre-existing stocks of loans denominated in domestic currency mature and the need to undertake transactions that are required to be carried out in domestic currency leads to the conversion of some U.S. dollar deposits into domestic currency, the currency mismatch would disappear. The correction of the currency mismatch is shown in the example presented in Annex I. That example also shows a plausible new equilibrium where, compared to the original situation, the monetary base has fallen drastically and the dollarization process has strengthened significantly.

An interesting question remains, however: once the overhang of loans denominated in domestic currency matures, will borrowers engage in further borrowing denominated in domestic currency for business purposes? Although there is no definite answer to this question, the dynamics of expectations behavior serves to shed light on this issue. Clearly, if the authorities are able to convince the public at large about their commitment to the exchange rate, the initial decrease in the demand for domestic currency-denominated loans would reverse because the real interest rate would decline.

Alternatively, uncertainty regarding expectations may lead some people convinced of the authorities' commitment to believe that others remain unconvinced and that a further speculative attack may occur in the future (resulting in additional increases in the interest rate on domestic loans). These perceptions will affect the process of dollarization. Clearly, the initial increase in the interest rate, following the speculative attack, hit not only speculators but borrowers in domestic currency, whose loans matured at the time of the attack. Borrowers convinced of the monetary authorities' commitment may fear the possibility of unanticipated future speculative attacks, since the resulting increase in interest rates would affect their maturing loans. Those borrowers may find it beneficial to shift the currency composition of their liabilities to the banks into U.S. dollar loans. That is, in this plausible outcome different perceptions regarding the credibility of the monetary authorities' defense of the domestic currency would result in a strengthening of the dollarization process. Notice that, in this example, the persistence of dollarization results from

lack of full information regarding expectations. That is, dollarization can strengthen even if everybody individually believes in the authorities' commitment but attaches a positive probability to the fact that others may not believe in such a commitment. Although this situation cannot persist in the long-run, it can considerably lengthen the strengthening of the dollarization period.

The discussion above assumes that the authorities are able to use the interest rate defense as a tool to respond to speculative attacks. Some empirical examples suggest, however, that in some cases the authorities perceived the costs associated with such increases in the real interest rates as exceeding the perceived benefits from defending the exchange rate parity and, as a result, a devaluation followed. 1/

In general, the costs to the authorities of increasing interest rates on domestic currency assets are well known: the government's and businesses' financing costs increase, which may lead to a decline in output and employment. In addition, the increase in interest rates exerts a downward pressure on the price of nonbank assets, including the equity market. In the case under consideration, to the extent that some transactions need to be carried out using domestic currency, there could be a short-term decline in real activity following the temporary rise in real interest rates. Moreover, the default risk faced by banks may increase following the speculative attack as the increase in domestic-currency real interest rates may adversely affect some borrowers' capacities to pay. If, as assumed, banks were sound, they would be well-capitalized and would be able to withstand the temporary increase in the default rate without the support of the monetary authorities.

The exchange rate parity can be preserved only if the authorities stand ready to accept the possible effects on the real economy of an increase in domestic real interest rates and avoid the temptation to expand credit in domestic currency--thereby, abandoning the full backing of the monetary base with international reserves. Dollarization can, however, help to minimize the well-known tradeoff between real activity and exchange rate stability. The faster firms can adjust the currency composition of their liabilities--i.e., borrow in U.S. dollars rather than in domestic currency--the more limited the effect on the real sector. 2/ Dollarization would be particularly important for those firms whose access to financial markets is limited to the domestic banking system. In the absence of dollarization, these firms would have to face the higher domestic real interest rates--the

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1/ The exchange rate crisis of the European Monetary System during the Fall of 1992 offers a good example of the costs associated with using the interest rate defense to protect the exchange rate parity. For a detailed analysis of this episode, see Goldstein and others (1993).

2/ This is of course related to the maturity structure of the existing stock of domestic currency-denominated debt at the time of the speculative attack.

higher the financing costs, the more contractionary the effect of using the interest rate to defend the exchange rate parity. 1/

The discussion in this section has made it apparent that in a bank-dominated system where liquid assets are largely bank liabilities, the authorities may be able to defend successfully its parity against a speculative attack if (a) the banking system is sound and is perceived as such; and (b) the monetary base is fully backed by foreign exchange reserves. In this process, a plausible outcome is that the process of dollarization would be strengthened if either the authorities fail in convincing the public of their commitment to the announced exchange rate policy or if some economic agents believe that further speculative attacks could occur in the future. 2/ Allowing U.S. dollar-denominated accounts in the banking system is crucial for these results: by providing a source of financial investment denominated in foreign currency, dollarization prevents capital flight following a sudden loss of confidence in the exchange rate. Also, by providing a source of domestic credit denominated in foreign currency, dollarization minimizes the adverse impact of an increase in domestic currency-interest rates on the financing costs of firms and, therefore, minimizes the pressure on the authorities to expand credit in domestic currency.

(2) Lack of confidence in the exchange rate policy and in the soundness of the banking system

In this case an adverse shock generates not only a lack of credibility in the exchange rate system, but also a lack of confidence in the stability and soundness of the banking system. Now, the public has an incentive to shift all of its deposits--in domestic and foreign currency--out of the domestic banking system. Since, in the case considered here, there are no domestic alternatives for the public to keep their financial savings, there is an incentive to transfer the funds outside the country--that is, an incentive for capital flight.

If perceptions are right and the banking system is not sound, there is little that the authorities can do to prevent a sustained flight from the banking system (with the exception of a freezing of deposits). If banks are not solvent, they will not be able to use their assets to satisfy the public demand to cash in its deposits--nonperforming loans cannot be liquidated to match the closing of deposit accounts. In this circumstance, the central

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1/ Likewise, the net fiscal effect of a temporary increase in interest rates on domestic assets will be minimized if the government is able and willing to shift the currency composition of its debt.

2/ There is, of course, the alternative available to the authorities to increase the number of transactions that have to be carried out in domestic currency to such extent that they could force a process of de-dollarization. As discussed above, however, such alternative would only motivate capital flight even in cases when the banking system is perceived as sound.

bank would face strong pressure to bail out banks by extending credit to these institutions. If the central bank were to expand the monetary base to extend credit to banks, however, the central bank would de-facto be abandoning its commitment to fully back the monetary base with international reserves; this in turn, would hamper significantly the central bank's ability to satisfy the demand for foreign exchange reserves at the announced exchange rate.

In contrast, a solvent banking system has a larger chance of withstanding a "lack of confidence crisis": first, in order to pay bank depositors, loans in good standing can be sold--if there is a secondary market for bank loans--or used as collateral to obtain credit from foreign institutions or--if there is room for monetary expansion without violating the assumption that the monetary base is fully backed by foreign exchange reserves--to obtain credit from the central bank; in this situation, the degree of maturity matching between assets and liabilities as well as banks' access to additional sources of liquidity become important factors to the success of the banks to a run. 1/ Second, if banks are able to match the outflow of deposits with bank assets, the maximum amount of demand for central bank foreign exchange reserves would equal the monetary base plus dollar-denominated reserve requirements, if the central bank does not expand domestic credit further. 2/ Since the monetary base is fully backed by foreign exchange reserves, the central bank would be able to satisfy the demand for foreign currency at the established exchange rate. 3/ As the discussion so far indicates, bank soundness complements exchange rate stability.

As in case (1), the central bank commitment to backing the monetary base with international reserves would imply an increase in the domestic currency real interest rate following the increased demand for domestic currency-denominated liabilities by speculators. Also, as in case (1), the increase in real interest rates may increase the default rate faced by banks. If banks are initially well-capitalized, the losses can be absorbed; otherwise, banks that were solvent before the run would become insolvent, inducing a further run out of the domestic banking system. The key,

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1/ Obviously, banks would not keep a perfect currency and maturity match between bank assets and liabilities. Likewise, however, it would be extremely unlikely that the run would dry-up bank liquidity hundred percent, especially in an economy fully dependent on banks for undertaking financial transactions.

2/ Total net liabilities of the central bank can be approximated as the monetary base plus other net liabilities denominated in foreign currency, which for the purpose of this discussion is assumed to equal U.S. dollar-denominated reserve requirements (see the example in Annex I).

3/ For this to be true, foreign exchange reserves need to be accounted as net of U.S. dollar bank deposits in the central bank to satisfy reserve requirements (see the discussion in subsection (1) above.

therefore, is appropriate bank capitalization such that a sound bank would remain sound following an unexpected increase in the default rate.

There is an additional similarity with case (1): if banks are indeed solvent, the authorities would be able to maintain the exchange rate parity only if they can resist the temptation to expand the monetary base to avoid the costs associated with the increase in the interest rates (even in the case where the increase is temporary). There is, however, an important difference with case (1). Since the disintermediation from the domestic banking sector would include both domestic and foreign deposits, firms that fully depend on domestic banks would not be able to redenominate the currency of their loans because liquidity in both currencies would have dried up following the speculative attack; those firms would then have to pay in full the increased financing costs. If the process is understood to be temporary, these firms would have a greater incentive than before to delay production plans to avoid the increased financing costs; the temporary effects on output would, therefore, be greater than in case (1). Likewise, government domestic financing costs would be greater in this case. Notwithstanding these increased costs, if banks proved to be sound, the process of bank disintermediation would tend to reverse itself.

Would the results be affected by the inflow of large amounts of foreign capital before the crisis? If the banks were sound and stayed solvent and profitable during the inflows of capital, i.e., did not increase the risk of their loan portfolio, there should be no significant difference with the results discussed above. The size of the banks' balance sheets would be larger and so would be the size of the temporary reversal of flows, but the analysis would remain unchanged.

If banks were not sound (or had a weak franchise value, to use the terminology utilized in the previous sections) the previous capital inflow would make a difference: bankers who were not prepared to price risk correctly might have used the inflows of capital to extend risky loans that, in the presence of an adverse shock, would turn into nonperforming loans. If a bank run were to occur, the authorities would have to face the additional pressure to bail out failing banks; the amount of central bank credit necessary to do so would increase in proportion to the size of the capital inflows used to extend bad loans. At this point, it is useful to recall the discussion on sterilization contained in Section IV. As noted there, sterilization seems unnecessary if the banking system is solvent because the size of the capital inflows should make no significant difference. However, a sterilization policy seems to deserve strong consideration if banks are not yet strong enough to make sound credit decisions and the authorities fear a bank run before bank restructuring is completed. In this case, as discussed in Section IV, curtailing the expansion of banks' balance sheets through sterilization seems appropriate. Although the costs of sterilizing are well known 1/, they may be

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1/ See Calvo (1991).

outweighed by the costs of a bank run in the context of bad credit decisions. Sterilization could then be used as a temporary measure to allow enough time for banks to consolidate their operations. It is important to stress, however, that sterilization would yield the desired results only if the monetary authorities are in a position to make better allocation of financial resources than the banking sector. 1/

b. The monetary base is only partially backed-up by foreign exchange reserves

The discussion above suggests that a stock of foreign exchange reserves smaller than the monetary base may weaken the central bank's ability to defend the exchange rate if a lack of credibility crisis emerges. This is the typical case analyzed in the traditional literature of speculative attacks (see Flood and Garber (1984), Krugman (1979)), and does not need an extended discussion. There are two main conclusions appropriate to the example analyzed here.

First, even if there is no lack of confidence in the solvency of the banking system--such that the public would only want to change the currency denomination of its deposits--a speculative attack on the domestic currency may force the monetary authorities to abandon the exchange rate since, in a massive attack on the currency, the central bank might not have enough foreign exchange reserves to satisfy the demands from the public to convert domestic currency holdings into U.S. dollars. The higher the stock of domestic currency assets held by the public (including cash and bank deposits) the greater the pressure on the central bank's foreign exchange reserves. 2/

Defending the exchange rate would, therefore, most likely involve a greater increase in the domestic currency real interest rate than if the monetary base were fully backed by foreign exchange reserves. As discussed

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1/ On the appropriate choice of sterilization method, see the discussion in Section IV.

2/ If the reserve requirement on U.S. dollar deposits is smaller than that on domestic currency deposits, banks might find themselves with excess reserves following the conversion of domestic currency-deposits into U.S. dollar deposits. Banks might, therefore, be willing to extend further credit in domestic currency and the central bank may find that it is asked to convert these new domestic-currency deposits into U.S. dollars. Further pressure on the exchange rate would then follow.

above, this would increase the costs of defending the parity and might increase the authorities temptation to abandon such efforts. 1/

Second, and not surprisingly if there were to be a loss of confidence in the domestic banking system, the pressures for a devaluation may be greater if the stock of foreign exchange reserves is smaller than the monetary base, even if the banks are solvent and could use their assets to cash out the closing of deposits. 2/

2. A more diversified financial system

The limitations on the diversification of the financial system in Latin America were discussed in Section II. Indeed, as mentioned above, in countries where banks' relative importance in the financial system has declined, the only significant competition in absorbing savings comes from pension funds. On the lending side, banks remain the most important source of credit; with the exception of Chile, very few firms in other countries issue bonds in the domestic markets; and the stock exchanges in Latin America, although showing rapid increases in share prices, have a limited number of listed companies. 3/

Having said that, it is important to recognize that the quick expansion of equity markets may create pressures on the government to protect the real value of share prices, especially if the development of more sophisticated and diversified capital markets becomes part of the priorities of the government. Indeed, a current policy discussion among policy regulators in Latin America concerns the extent of government involvement in developing capital markets. To keep the analysis relevant for Latin America, this example will assume that banks remain the most important source of liquidity in the system, but that long-term assets, such as bonds and equity compete

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1/ Notwithstanding these additional pressures, as in the case when the monetary base is fully backed-up by foreign exchange reserves, the possibility of substituting among the domestic and the foreign currencies may minimize the impact of the increase in domestic currency real interest rates on the firms' and government financing costs; this may, therefore, minimize the costs of defending the exchange rate.

2/ As discussed above, if (a) the banks can liquidate assets to match the closing of deposits, and (b) the authorities do not expand domestic credit further, the maximum demand for foreign exchange reserves would equal the monetary base plus reserve requirements on U.S. dollar deposits. This demand would not be fulfilled if the monetary base exceeds the stock of foreign exchange reserves.

3/ International placement of bonds and equity in the international capital markets by private Latin American companies are improving both in terms of the number of issues and in the terms of the contracts. See, Collyns and others (1993). Once again, however, these markets remains small and confined to a selected number of large companies with international standards.

with bank loans as sources of credit. Also, bonds are assumed to be denominated in domestic currency.

a. Lack of credibility in the exchange rate policy

Assume, as before, that banks are sound and are perceived as such, but an adverse shock results in a speculative attack on the domestic currency. What difference does the introduction of financial assets competing with bank loans make to the analysis? The key difference is that it imposes additional constraints on the monetary authorities and, may therefore, weaken their capacity to defend the exchange rate.

The public would want to shift from domestic currency-denominated assets to foreign currency-denominated assets. In addition to bank deposits, the public now has a more diversified portfolio of assets that it may want to convert into foreign currency denominated assets. Pension fund managers, as well as the general public, would then have an incentive to transform bonds and, probably equity, into foreign currency assets (cash or foreign currency deposits). 1/2/

The outcome of this attack on the domestic currency depends once more on the monetary policy followed by the central bank. If the monetary base is required to be fully backed by foreign exchange reserves at all times, the public as a whole would not be able to convert its bonds and equity holdings into U.S. dollar-denominated bank deposits. To understand this result, it is necessary to realize that for an economic agent to sell a bond or equity denominated in domestic currency, some other agent must give up a bank deposit denominated in foreign currency; but this is not possible in the aggregate since it is in contradiction to the fact that the public in the aggregate wants to reduce its holdings of domestic currency assets. Two outcomes would then be possible: (a) the monetary base would not expand and bond prices, and perhaps equity prices, would fall, or (b) the monetary base would expand to prevent a decline in asset prices. The latter would imply a de-facto abandonment of the full backing of the monetary base and would validate the attack on the exchange rate; this, in turn, would significantly weaken the central bank position to defend the parity.

1/ Notice that if there were bonds denominated in foreign currency, the public may just want to change the currency composition of its assets and there may not be a shift toward bank deposits denominated in foreign currency.

2/ Since equity is a real asset, it is not clear that the demand for it would decline following adverse expectations about the exchange rate. The most affected issuing firms, however, would be those whose liabilities are mostly denominated in U.S. dollars while their earnings are denominated in domestic currency (an example could be a firm producing a nontradable good using imported inputs).

The outcome described in (a) would increase the probability that the monetary authorities could maintain their exchange rate policy. The downside of this outcome, however, is that the decline in asset prices, by reducing the real wealth of their holders, may increase the probability of default faced by banks, if asset holders are also banks' debtors. 1/ If the authorities perceive that the decline in asset prices may lead to problems in the banking system, they may have an incentive to abandon the exchange rate policy. That is, a more developed financial system imposes greater obstacles to the defense of an exchange rate even if the banking system is sound and if the monetary base is fully backed up by foreign exchange reserves. 2/ Notice that this can be interpreted either (a) as an argument against fixed exchange rates, or (b) as an argument to keep most financial transactions under the roof of banks, at least during the transition period toward macroeconomic stabilization--when loss of confidence crises are likely to occur.

b. Lack of confidence in both the exchange rate policy and the soundness of the banking system

Can the availability of assets competing with banks' liabilities help to prevent capital flight in the case of a bank run? Only if the alternative assets were denominated in foreign currency. This is just an extension of the discussion above and needs no further comments. 3/ Notice, however, that even if asset alternatives to bank deposits were denominated in foreign currency and capital flight was avoided, the stability of the exchange rate would still depend on the strength of the banking system. Just as in the case where banks were the only financial institutions, the decline in the demand for assets denominated in domestic currency--cash and bank deposits--would imply a reduction in the stock of foreign exchange reserves held as the central bank and, therefore, puts pressure on the announced parity. That is, the pressure on the exchange rate does not depend on whether the foreign currency stays in the economy or

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1/ Banks would also be directly affected if they hold a significant proportion of the assets whose relative prices declined.

2/ The larger the stock of international reserves relative to the monetary base, the higher the probability of success for a central bank defending a parity in a speculative attack. In the extreme, if foreign exchange reserves equal the monetary base plus the value of bonds and equity, a speculative attack would have little chance of being successful. However, as discussed at the beginning of this Section and in Sections III and IV, keeping a high ratio of foreign exchange reserves to the monetary base--which could be achieved through high reserve requirements on U.S. dollar deposits or through sterilization--may entail high costs both for the real sector--through the effects of higher real interest rates--and for the banking system--as it may weaken the franchise value of banks.

3/ The currency denomination of capital markets instruments may deter capital flight only to the extent that the lack of confidence includes only the banking system and not the entire financial system.

leaves it through capital flight; instead, it depends on whether international reserves leave the central bank.

3. A summary of the results

This section has used a simple balance sheet approach to analyze the role of a sound banking system in allowing the central bank to maintain the announced exchange rate policy following a speculative attack on the domestic currency. A summary of the results follows:

a. Dollarization may be an ally for governments pursuing exchange rate-based stabilization programs, but only if the banking system is sound. Dollarization may prevent capital flight if a lack of confidence in the persistence of the economic program leads agents to substitute away from bank deposits and other assets denominated in domestic currency into those denominated in foreign currency. Dollarization also minimizes the impact on output and employment resulting from a possible increase in domestic currency-interest rate that may follow the speculative attack, since domestic firms may find it advantageous to shift from domestic-currency denominated bank-loans to dollar-denominated bank loans. 1/

b. In sharp contrast, if a bank-dominated financial system is not sound but the public does not have information about banks' financial difficulties, dollarization may be a problem for governments undertaking serious adjustment efforts. In this case, although a speculative attack on the domestic currency may not be followed by capital flight, the problem would not vanish as depositors would just shift the currency composition of their deposits within the same troubled banks. 2/ In the event of a run out on the banking system, pressures to rescue problem banks would increase the government's incentives to abandon the announced exchange rate policy.

c. Sterilization may be a useful policy in bank-dominated financial systems facing a large inflow of foreign capital, but only as a temporary measure to give time to banks to strengthen their balance sheets. As discussed in Section IV, if the banking system is sound, sterilization is not only unnecessary but it also increases the financing costs of firms and the authorities.

d. Increasing the domestic real rate of interest to defend the exchange rate may weaken the banking system since it may lead to an increase in the default rate faced by banks. If banks are well capitalized, however, the authorities may not face significant pressures to extend credit in order

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1/ Or to the extent that it is permissible by the legislators, from issuing bonds denominated in domestic currency to issuing bonds denominated in foreign currency.

2/ The problem would compound if the reserve requirement on dollar-denominated deposits is lower than that on domestic currency deposits. In that case, the balance sheets of troubled institutions would expand further.

to rescue banks in trouble--that is, the better the banks' capitalization, the greater the probability that the authorities would be successful in preserving the exchange rate parity.

e. A more diversified financial system imposes additional constraints on a government defending the exchange rate after a speculative attack. For the exchange rate defense to be successful, asset prices would tend to decline. If such fall in asset prices is viewed as having a serious impact on the real sector of the economy, the authorities may have a greater incentive to expand domestic credit and abandon their exchange rate policy.

The Mechanics of a Speculative Attack in a Dollarized Sound Banking System where the Monetary Base is Fully Backed Up by Foreign Exchange Reserves: An Example

Assume that the authorities impose the following reserve requirements:

- on domestic currency denominated deposits = k = 10 percent
- on foreign currency-denominated deposits = j = 20 percent

Assume also that transactions required to take place in domestic currency (pay taxes, for example) are such that the public needs to hold a minimum of deposits denominated in domestic currency equal to $10. For simplicity, assume that the public hold no cash, so that their entire financial wealth takes the form of bank deposits. The exchange rate between U.S. dollars and domestic currency is assumed to equal 1.

An initial position can be characterized as follows (where bank capital has been netted out in the accounts):

Banks		Central Bank	
Assets	Liabilities	Assets	Liabilities
Reserve requirements in: domestic currency = 10 U.S. dollars = 20 Loans in: domestic currency = 90 U.S. dollars = 80	Deposits in: domestic currency = 100 U.S. dollars = 100	Foreign exchange reserves = 30	Monetary base = 10 Bank deposits in U.S. dollars = 20

A lack of confidence in the announced exchange rate may lead to a shift away from the domestic currency. Hypothetically, if no other change occurs, the balance sheet may look as follows in the instant immediately after the shift away from domestic deposits. 1/

Banks		Central Bank	
Assets	Liabilities	Assets	Liabilities
Reserve requirements in: domestic currency = 0 U.S. dollars = 30 Loans in: domestic currency = 90 U.S. dollars = 80	Deposits in: domestic currency = 0 U.S. dollars = 200	Foreign exchange reserves = 30	Monetary base = 0 Bank deposits in U.S. dollars = 30

1/ The dynamics toward the final position could take a variety of forms. The example presented here is chosen only for illustrative purposes.

As the monetary authorities will not accommodate an speculative attack on the domestic currency, the interest rate on domestic currency-denominated loans will increase. Such rise will prevent a currency restructuring of domestic currency loans.

In the above balance sheets, banks are not satisfying reserve requirements in U.S. dollars and, therefore, that position is a desiquilibrium one that could only exist for a very brief period of time. The position also shows a mismatch in the currency composition of banks' assets and liabilities. As: (a) the existing stock of loans denominated in domestic currency expires and (b) the public need to hold a minimum of $10 in domestic currency-denominated deposits becomes binding, a possible outcome may be:

Banks		Central Bank	
Assets	*Liabilities*	*Assets*	*Liabilities*
Reserve requirements in: domestic currency = 1 U.S. dollars = 29 Loans in: domestic currency = 9 U.S. dollars = 116	Deposits in: domestic currency = 10 U.S. dollars = 145	Foreign exchange reserves = 30	Monetary base = 1 Bank deposits in U.S. dollars = 29

In this outcome, the dollarization process has strengthened and will remain so, unless the public becomes convinced of the monetary authorities' commitment to the exchange rate. Also, due to a reserve requirement on U.S. dollar deposits higher than that on domestic currency-denominated deposits, the new equilibrium involves a lower level of total loans to the economy. Notice that if k=j, total loans would have remained unchanged.

Table A1. Argentina: Summary Accounts of the Financial System, 1982-92

(In percent of gross domestic product)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 1/
Consolidated financial system											
Net foreign assets	-10.16	-12.52	-12.13	-16.02	-14.72	-19.03	-18.45	-36.69	-39.93	-18.20	-9.89
Net domestic assets	31.31	34.09	32.64	32.61	33.05	39.56	41.85	55.78	52.58	28.03	22.59
Credit to public sector	11.79	19.35	15.09	13.01	14.12	19.29	25.38	44.46	33.21	14.61	10.44
Credit to private sector	28.49	23.65	19.34	16.02	15.93	18.47	18.18	23.61	19.63	12.59	15.54
Liabilities to private sector	21.15	21.57	20.51	16.78	18.23	20.57	23.40	19.09	12.65	9.84	12.70
Central Bank											
Net international reserves	-3.70	-6.14	-7.08	-9.43	-9.52	-13.03	-12.15	-30.57	-33.01	-15.38	-7.26
Assets	2.65	2.57	2.26	5.26	4.05	2.77	3.92	4.46	10.40	5.00	4.85
Liabilities	4.68	6.70	7.21	12.25	11.60	13.85	14.75	28.70	36.22	14.85	8.36
Treasury liabilities 2/	1.66	2.01	2.12	2.56	2.01	2.04	1.53	6.33	7.19	5.53	4.00
Net domestic assets	23.48	24.19	20.75	26.01	24.64	27.47	29.61	41.95	38.26	19.70	12.12
Credit to public sector	7.31	17.38	13.49	13.20	13.02	15.69	21.78	35.95	22.93	10.59	8.00
Credit to financial system	21.84	12.73	12.02	8.67	13.12	16.46 4/	20.61	29.62	21.06	9.91	9.22
Liabilities to financial system	15.17	13.36	9.50	12.44	10.92	10.46	13.50	5.77	1.97	1.44	1.47
Liabilities to private sector	3.94	4.16	3.93	3.96	4.61	3.99	3.87	5.60	3.27	2.88	3.39
Commercial banks											
Net foreign assets	-6.46	-6.38	-5.05	-6.41	-5.21	-5.53	-6.21	-5.92	-6.93	-2.80	-2.59
Net domestic assets	24.46	16.46	24.89	14.33	16.03	10.89	11.79	40.21	28.93	18.19	19.47
Credit to public sector	4.36	1.90	1.56	-0.19	1.00	3.43	3.60	8.53	10.23	3.99	2.42
Credit to private sector	25.34	20.94	17.75	15.46	15.62	17.06	17.82	23.33	19.55	12.47	15.35
Reserves 3/	14.57	13.01	9.39	12.44	11.12	10.50	13.41	11.79	1.95	1.60	1.54
Liabilities to Central Bank	16.56	6.79	13.22	7.92	8.21	-- 4/	--	28.45	14.63	10.11	9.23
Liabilities to private sector	16.00	16.30	16.01	12.44	13.82	15.81	18.99	13.05	9.32	6.88	9.19

Sources: Central Bank of Argentina; Ministry of Economy; International Monetary Fund, International Financial Statistics; and IMF staff estimates.

1/ Preliminary data.
2/ Foreign currency bonds (BONEX, BOTE, BOTESO, and BOCON). The item also encomposes the adjustment for BONEX included in the BCRA's reserve assets.
3/ Includes bonds and frozen deposits in the Central Bank.
4/ The decomposition of Central Bank credit by financial institutions is not available.
5/ On June 1, 1983 the peso argentino, equal to 10,000 pesos was introduced. On June 14, 1985 the austral, equal to 1,000 pesos argentino, was introduced. On January 1, 1992 the peso argentino, equal to 10,000 australes, was introduced.

Table A2. Mexico: Summary Accounts of the Financial System, 1982-93

(In percent of gross domestic product)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993 1/
Financial system												
Net foreign assets	-1.09	3.64	4.66	3.88	4.49	12.51	1.89	1.28	1.76	3.16	3.26	3.92
Net domestic credit	67.84	54.76	49.58	51.76	70.35	61.21	42.21	43.15	39.10	40.82	35.48	40.79
Credit to public sector 2/	50.85	44.20	36.67	38.45	55.43	48.45	30.85	27.51	21.15	16.52	11.58	5.42
Credit to private sector	16.01	14.78	16.08	14.42	15.05	15.70	13.98	19.14	23.10	28.99	29.34	38.74
Other foreign liabilities 3/	32.63	27.55	22.53	27.18	42.42	42.89	21.70	19.70	14.38	13.19	11.59	12.83
Other liabilities 4/	2.72	1.89	2.33	2.12	2.62	2.58	2.26	2.30	1.81	1.91	1.75	2.12
Money and quasi-money	31.20	28.96	29.37	26.35	29.80	28.28	20.14	22.43	24.66	28.87	25.39	29.75
Bank of Mexico												
Net foreign assets	-1.93	2.82	4.24	2.38	2.27	9.76	1.05	0.40	1.77	4.16	3.92	4.98
Assets	1.64	4.13	5.85	4.78	8.11	15.73	3.86	3.82	4.64	6.61	5.98	6.42
Liabilities 5/	-3.57	-1.31	-1.61	-2.39	-5.84	-5.97	-2.81	-3.42	-2.87	-2.45	-2.05	-1.44
Net domestic credit	7.07	0.97	-0.43	1.27	1.59	-5.97	2.32	3.15	1.82	-0.41	-1.00	-2.20
Credit to public sector 2/5/	21.01	16.65	12.71	12.10	12.45	5.10	8.06	7.50	5.84	2.48	2.02	-0.86
Net credit to financial institutions 6/	-11.98	-13.59	-12.40	-9.02	-8.57	-5.82	-3.12	-1.87	-1.30	-0.22	-0.51	0.80
Net credit to banks 7/	-12.84	-13.55	-12.14	-8.12	-6.62	-3.57	-1.71	-0.95	-0.86	-0.71	-0.43	-0.22
Credit to private sector	0.18	0.16	0.15	0.19	0.30	0.30	0.15	0.14	0.12	0.12	0.12	0.12
Currency in circulation	5.14	3.79	3.80	3.65	3.86	3.79	3.37	3.55	3.58	3.75	2.92	2.78
Commercial banks 8/												
Net foreign assets	0.77	0.62	0.31	1.21	1.71	2.32	0.62	0.67	-0.16	-1.22	-0.93	-1.27
Net claims on Bank of Mexico	12.85	13.85	12.61	8.02	6.50	3.44	1.70	0.61	0.60	0.73	0.48	0.32
Net domestic credit	22.25	18.73	18.82	20.15	28.18	27.87	19.72	23.76	26.25	30.94	27.21	31.52
Credit to public sector 2/	7.82	7.39	7.01	9.99	17.10	16.15	9.65	6.73	7.76	7.90	4.29	1.29
Credit to private sector	13.77	11.37	12.44	10.90	11.04	11.68	10.57	16.07	20.63	26.43	26.67	34.53
Other foreign liabilities 3/9/	10.00	8.77	6.80	7.36	10.82	8.98	5.21	5.69	5.38	5.02	4.42	4.59
Other liabilities 10/	2.37	2.22	2.15	1.93	2.36	2.27	1.93	2.02	1.68	1.72	1.58	1.88
Money and quasi-money 11/	23.49	22.21	22.78	20.09	23.20	22.41	14.91	17.52	19.83	23.71	20.77	24.10
Government development banks 8/												
Net foreign assets	0.08	0.17	0.11	0.29	0.50	0.42	0.21	0.21	0.14	0.22	0.28	0.21
Net claims on Bank of Mexico	-0.31	-0.05	-0.17	-0.18	-0.28	0.13	0.01	0.13	0.06	-0.02	-0.05	-0.10
Net domestic credit	25.98	21.32	18.34	22.50	34.37	35.73	18.45	15.29	10.16	9.58	8.83	11.28
Credit to public sector 2/	22.01	20.87	17.36	16.36	25.87	27.20	13.15	11.28	7.55	6.14	5.27	4.98
Credit to private sector	2.07	2.54	3.26	3.33	3.71	3.72	3.25	2.92	2.34	2.44	2.55	4.09
Other foreign liabilities 3/9/	22.82	18.65	15.48	19.80	31.60	33.93	16.49	14.01	9.00	8.18	7.17	8.24
Other liabilities 4/	0.35	0.21	0.14	0.19	0.25	0.29	0.33	0.28	0.13	0.19	0.17	0.24
Money and quasi-money 11/	2.57	2.58	2.66	2.61	2.74	2.06	1.86	1.35	1.24	1.42	1.71	2.88

Sources: Bank of Mexico; International Monetary Fund, International Financial Statistics; and IMF staff estimates.

1/ September 1993 data.
2/ Net credit to federal government plus net credit to other public sector.
3/ Sum of medium- and long-term liabilities plus money and quasi-money in foreign currency.
4/ Liabilities to nonbank financial public sector (which excludes liabilities to official trust funds of the Bank of Mexico); it also includes capital and surplus for 1982-84.
5/ For 1982, balance of payments support loan from Bank for International Settlements (BIS) was included as a foreign reserve liability of the monetary authorities and only a portion appears as credit to the Federal Government.
6/ The sum of the following categories: Net credit to official trust funds of Bank of Mexico, net claims on FICORCA, net credit to commercial banks, and net credit to government development banks.
7/ Sum of net credit to commercial banks plus net credit to government development banks.
8/ Data for 1985-92 are significantly revised in late-1980s, and hence the 1981-83 data are not strictly consistent with the 1985-92 data.
9/ Medium- and long-term liabilities item included in this category also includes net disbursements under Commodity Credit Corporation (CCC) loan in 1983, 1984, and 1985.
10/ Liabilities to nonbank financing public sector (which excludes liabilities to official trust funds of the Bank of Mexico) for 1985-92; it also includes liabilities to rest of banking system for 1983 and 1984 and capital and surplus for 1982.
11/ Excludes public sector deposits incorrectly classified as private sector deposits

Table A3. Peru: Summary Accounts of the Financial System, 1982 –92

(In percent of gross domestic product)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 1/
Consolidated banking system											
Net international reserves	4.43	0.34	2.62	6.74	1.86	-2.21	-10.98	-0.28	0.13	4.05	3.50
Medium- and long-term foreign assets	-1.73	-1.88	-1.29	-1.19	-0.29	-0.02	0.44	0.61	1.82	0.47	0.37
Net domestic assets	19.40	25.72	25.46	16.64	16.27	21.19	33.69	19.53	15.55	7.21	4.51
Nonfinancial public sector	5.26	6.33	4.08	-1.33	1.52	4.65	1.55	3.82	4.30	0.44	-0.34
Private sector	16.17	20.50	20.77	15.56	13.58	13.45	14.25	11.06	11.36	7.70	6.40
Liabilities to private sector	22.11	24.18	26.79	22.19	17.84	18.98	23.15	20.05	17.51	11.72	8.39
Central Reserve Bank											
Net international reserves	5.23	3.90	6.40	10.42	3.83	-0.46	-8.45	0.37	1.44	3.22	2.96
Assets	9.49	11.64	15.10	16.68	7.35	4.51	10.16	6.01	11.53	6.79	5.26
Liabilities	4.26	7.74	8.70	6.27	3.52	4.97	18.63	5.63	10.08	3.57	2.26
Medium- and long- term foreign assets	-0.40	0.26	0.27	-0.92	-0.26	-0.08	0.05	0.46	1.19	0.30	0.23
Net domestic assets	-1.02	-0.35	-2.62	-4.66	1.37	6.80	14.36	5.11	2.68	-1.24	-1.65
Nonfinancial public sector	2.69	3.58	-0.90	-3.91	-0.94	1.51	-6.50	-0.99	-2.14	-0.47	-0.62
Banking system	-4.58	-5.01	-6.02	-7.14	-2.54	-0.72	-0.57	3.07	-0.29	-1.89	-1.84
Private sector	0.24	0.38	0.26	0.07	0.05	0.03	0.05	0.04	0.03	0.02	0.01
Liabilities to private sector	3.81	3.82	4.05	4.64	4.95	6.26	7.98	5.94	5.31	2.29	1.56
National Bank											
Net international reserves	-0.19	-2.91	-2.67	-2.08	-1.09	-1.07	-3.61	-1.47	-1.95	0.32	0.15
Medium- and long- term foreign assets	-0.75	-0.86	-0.27	-0.13	0.05	0.08	0.22	0.21	0.37	0.04	0.04
Net domestic assets	1.74	4.76	4.35	3.63	1.99	1.92	5.42	2.16	2.73	-0.06	0.02
Nonfinancial public sector	1.09	3.52	4.33	1.71	2.20	2.81	6.58	3.57	6.15	0.64	0.30
Banking system	0.69	1.44	0.95	3.14	1.07	1.33	0.39	-0.37	-0.56	-0.07	0.32
Private sector	0.69	0.65	0.59	0.48	0.27	0.30	0.37	0.30	0.36	0.29	0.27
Liabilities to private sector	0.60	1.02	1.42	1.62	0.85	0.92	2.04	0.92	1.15	0.31	0.22
Commercial banks											
Net international reserves	0.42	-0.87	-1.16	-1.62	-0.71	-0.82	-0.55	0.67	0.92	0.72	0.52
Medium- and long-term foreign assets	0.06	0.18	0.27	0.25	0.11	0.18	0.52	0.28	0.51	0.20	0.16
Net domestic assets	14.13	17.10	19.35	14.63	11.11	10.54	11.89	10.65	8.75	7.72	5.65
Nonfinancial public sector	0.29	0.84	0.41	0.42	-0.08	0.33	0.35	0.84	-0.03	-0.13	-0.15
Banking system	4.93	5.52	7.78	5.73	3.99	3.21	3.00	0.91	2.34	2.09	1.53
Private sector	9.79	11.68	10.94	8.66	7.27	6.84	8.57	7.41	7.68	5.57	4.65
Liabilities to private sector	14.61	16.41	18.46	13.46	10.52	10.10	11.86	11.60	10.17	8.64	6.34
Development banks											
Net international reserves	-0.34	0.22	0.04	0.02	-0.16	-0.06	-0.37	-0.06	-0.28	-0.21	-0.16
Medium- and long-term foreign assets	-1.32	-1.46	-1.56	-0.39	-0.20	-0.21	-0.35	-0.14	-0.24	-0.06	-0.06
Net domestic assets	4.54	4.18	4.37	2.65	1.79	1.93	1.99	1.56	1.39	0.78	0.49
Nonfinancial public sector	0.99	0.37	0.21	0.45	0.34	0.20	1.11	0.39	0.32	0.20	0.14
Banking system	-1.22	-2.36	-3.03	-1.84	-2.55	-3.13	-3.16	-3.85	-1.82	-0.21	-0.22
Private sector	7.56	6.87	6.96	6.15	5.99	6.27	5.25	3.31	3.26	1.62	1.27
Liabilities to private sector	2.66	2.93	2.66	2.27	1.42	1.67	1.27	1.38	0.87	0.49	0.28

Sources: Central Reserve Bank of Peru; International Monetary Fund, International Financial Statistics; and IMF staff estimates.

1/ June 1992 data.

Table A4. Chile: Summary Accounts of the Financial System, 1982–92

(In percent of gross domestic product)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 1/
Financial system											
Net international reserves	1.81	2.36	7.02	5.83	4.81	1.63	4.88	4.73	14.74	17.50	16.60
Net domestic assets	54.00	73.44	93.10	108.50	101.97	96.94	77.60	69.98	63.88	67.45	67.21
Nonfinancial public sector	−1.99	3.39	5.61	3.09	1.29	2.32	−5.39	−10.61	−7.94	−8.32	−8.30
Private sector	66.69	77.75	86.20	82.51	79.87	53.22	51.39	57.08	56.12	60.00	63.22
Net medium- and long-term foreign liabilities	18.09	40.38	61.81	69.26	60.59	49.48	31.35	17.64	14.05	9.99	7.81
Liabilities to the private sector	37.71	35.42	38.30	43.07	46.18	49.10	51.33	57.08	64.57	74.95	78.00
Central Bank											
Net international reserves	5.65	6.87	7.49	7.68	7.36	5.50	9.21	10.21	20.11	20.98	23.69
Assets	6.28	11.97	16.00	17.54	15.60	14.94	15.31	15.52	24.96	24.25	25.70
Liabilities	0.63	5.10	8.51	9.87	8.24	9.44	6.10	5.31	4.84	3.28	2.01
Net domestic assets	0.64	11.61	21.67	30.56	31.85	24.00	12.15	3.88	−7.81	−10.47	−14.65
Net credit to nonfinancial public sector 2/	0.16	0.48	4.77	2.24	1.15	−0.42	−3.28	−9.42	−5.83	−4.34	−6.14
Net credit to financial intermediaries	6.80	16.47	10.42	2.78	−1.93	−25.53	−23.07	−17.61	−28.40	−27.33	−25.50
Credit to private sector	0.22	0.98	0.83	0.70	0.82	0.22	0.18	0.09	0.08	0.06	0.03
Net medium- and long-term foreign liabilities 3/	1.95	11.60	21.73	27.87	27.34	26.23	18.00	10.62	8.95	7.14	5.55
Liabilities to private sector	4.33	7.08	7.44	10.37	11.87	3.28	3.35	3.27	3.35	3.36	3.49
Bank and nonbank financial intermediaries											
Net international reserves	...	...			...	−3.87	−4.33	−5.49	−5.37	−3.48	−7.09
Net domestic assets	...	...	...	...	...	57.40	49.17	46.61	45.14	43.38	47.32
Nonfinancial public sector	...	...		...	...	0.93	−3.00	−1.87	−2.53	−2.30	−2.43
Net credit to financial intermediaries	...	...			...	14.59	11.77	4.51	6.98	6.71	6.40
Credit to private sector	...					51.63	46.82	53.21	50.09	47.88	51.53
Net medium- and long-term foreign liabilities	...	...	...	...	...	23.24	13.35	7.03	5.10	2.85	2.25
Liabilities to private sector	...	...	...	...	...	30.29	31.50	34.10	34.66	37.05	37.98
Pension funds											
Net international reserves	...	...	...	...	...	--	--	--	--	--	--
Net domestic assets	...	...	...	...	...	15.54	16.48	19.69	26.55	34.54	34.53
Nonfinancial public sector	...	...	...	...	...	1.81	0.89	0.68	0.42	0.32	0.26
Net credit to financial intermediaries	...	...	...	...	...	12.30	13.19	15.23	20.68	22.61	22.98
Credit to private sector	...	...	...	...	...	1.37	2.39	3.78	5.96	12.07	11.66
Net medium- and long-term foreign liabilities	...	...	...	...	...	--	--	--	--	--	--
Liabilities to private sector	...	...	...	...	...	15.54	16.48	19.69	26.55	34.54	34.53

Sources: Central Bank of Chile; and IMF staff estimates.

1/ Preliminary data.
2/ Excludes holdings of treasury notes on account of the 1983–86 capitalization of the Central Bank which are included in other net domestic assets.
3/ Includes foreign liabilities on account of deposits placed by the corporate sector in the Central Bank in the context of the 1983–85 rescheduling agreements with foreign commercial banks.

Table A5. Colombia: Summary Accounts of the Financial System, 1982–92

(In percent of gross domestic product)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Financial system											
Net international reserves	7.36	3.29	0.88	2.01	7.60	7.28	8.58	8.68	9.40	15.09	15.05
Net domestic assets	31.57	36.15	38.56	39.42	31.08	31.98	28.81	30.74	23.78	22.00	25.12
Public sector (net) 2/	4.01	7.61	10.59	8.84	3.94	4.99	4.70	4.75	4.07	3.82	3.60
Private sector	33.79	36.28	36.24	37.01	34.18	35.17	34.59	36.26	30.78	27.85	30.11
Liabilities to private sector	38.93	39.44	39.44	41.43	38.68	39.26	37.39	39.42	33.19	37.09	40.17
Banco de la Republica 1/											
Net international reserves	10.88	6.71	3.40	5.58	9.57	9.10	10.99	10.95	12.21	16.30	17.65
Assets	10.88	6.92	3.54	6.27	9.66	9.19	11.11	11.32	12.46	16.49	17.67
Liabilities	0.00	0.21	0.13	0.69	0.09	0.08	0.12	0.37	0.26	0.20	0.02
Net domestic credit	2.34	6.68	9.36	7.71	1.93	2.77	1.28	1.50	−0.66	−1.59	−1.87
Public sector (net) 2/3/	4.21	7.43	9.77	8.14	3.34	3.95	2.87	2.44	2.34	2.22	2.20
Net credit to banks 4/	−3.32	−1.35	−0.97	−1.80	−1.85	−1.86	−2.09	−2.18	−2.83	−4.55	−5.58
Credit to private sector	0.47	0.46	0.34	0.78	0.31	0.45	0.67	1.30	0.02	0.01	0.01
Adjustment account 5/	3.79	4.98	4.44	4.00	2.70	2.92	3.36	3.31	3.73	4.43	4.83
Medium- and long-term foreign liabilities	0.79	0.76	0.68	1.00	1.28	1.35	1.45	1.53	1.66	1.52	1.36
Liabilities to private sector	8.63	7.85	7.65	8.30	7.52	7.61	7.46	7.62	8.16	8.75	9.59
Commercial banks 6/											
Net international reserves	−2.78	−2.81	−2.21	−3.05	−1.58	−1.46	−1.99	−1.66	−1.56	−0.64	−1.25
Net domestic assets	19.97	20.16	16.60	19.81	18.37	18.93	18.24	18.53	15.31	14.21	16.63
Public sector (net) 2/	1.34	1.29	1.55	0.91	0.79	0.83	0.79	0.94	−0.47	−1.08	−1.77
Net credit to financial institutions	0.01	0.11	−0.15	−0.19	−0.63	−0.62	−0.73	−0.62	−1.18	−1.99	−1.58
Credit to private sector	14.46	15.69	14.73	14.79	13.55	14.35	14.71	14.93	15.53	13.33	14.75
Adjustment account	0.00	−0.00	−0.02	0.08	0.05	0.02	0.00	0.00	−0.03	0.02	0.02
Medium- and long-term foreign liabilities	0.00	0.00	0.00	0.00	0.67	0.66	0.89	0.72	0.39	0.19	0.02
Liabilities to private sector	17.19	17.35	16.41	16.68	16.06	16.76	15.36	16.15	13.39	13.36	15.34
Specialized banks 7/8/											
Net international reserves	−0.74	−0.61	−0.32	−0.52	−0.38	−0.34	−0.42	−0.61	−1.24	−0.57	−1.35
Net domestic assets	14.48	15.39	16.33	18.21	16.62	16.72	16.92	18.55	17.28	18.34	19.37
Public sector (net) 2/	−1.52	−1.11	−0.73	−0.21	−0.19	0.21	1.04	1.38	2.20	2.67	3.17
Net credit to financial institutions	−0.05	−0.03	0.46	0.62	0.98	1.09	1.03	1.14	0.08	1.80	1.79
Credit to private sector	16.86	20.13	21.18	21.44	20.32	20.38	19.22	20.03	15.22	14.51	15.35
Adjustment account	0.27	0.22	0.00	0.46	−0.01	0.30	0.20	0.01	−0.01	−0.00	−0.02
Medium- and long-term foreign liabilities	0.37	0.33	0.63	0.78	1.15	1.19	1.72	2.28	2.40	2.80	2.79
Liabilities to private sector	13.11	14.23	15.38	16.45	15.10	14.89	14.58	15.65	13.64	14.98	15.24

Sources: Banco de la Republica; and IMF staff estimates.

1/ Banco de la Republica accounts were revised in December 1989 to improve the account sectorization between private and public sector. Because of this revision the series of credit flows to the private and public sectors, before and after these dates, are not strictly comparable.
2/ Central administration plus rest of public sector.
3/ The category central administration excludes assumption of debt for Col$5,174 million (capitalization of Banco del Estado) and for Col$9,691 million (capitalization of National Electric Finance Company (FEN)) in 1982.
4/ For commercial banks plus specialized banks.
5/ Includes adjustment for exchange rate valuation account; before end-1989 includes capital of Banco de la Republica and Special Exchange Account.
6/ A new reporting system was introduced for financial system accounts starting in December 1989 and was adjusted in December 1990. Thus, data for end-1989 and end-1990 are not comparable to earlier data.
7/ Comprises development finance corporations, trade finance companies, savings and loan companies, cooperative institutions, and development banks (BANCOLDEX, FINAGRO, FINDETER).
8/ A new reporting system for financial system accounts was introduced at end-1990. Data for 1990 are therefore not strictly comparable with earlier data. Data for 1990 exclude PROEXPO.

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