

IMF WORKING PAPER

This is a working paper and the author would welcome any comments on the present text. Citations should refer to an unpublished manuscript, mentioning the author and the date of issuance by the International Monetary Fund. The views expressed are those of the author and do not necessarily represent those of the Fund.

MASTER FILES

ROOM C-130

001

WP/87/77

INTERNATIONAL MONETARY FUND

Central Banking Department

The Argentine Banking Crisis of 1980

Prepared by Tomás J.T. Balíño*

Authorized for Distribution by V. Sundararajan

November 17, 1987

Abstract

This paper discusses the crisis of the Argentine financial system that began in 1980, which led to bank failures and significant changes in the system. The analysis--which emphasizes the role of the regulatory framework--suggests that elements exogenous to the financial system, such as changes in the exchange rate regime, had a major role in determining the extent of the crisis. While Central Bank measures succeeded in containing the crisis, some of them (e.g., interest rate controls) contributed to the shrinking of the real size of the financial system and caused a sizable wealth redistribution.

JEL Classification Numbers:

1216, 3116, 3120

*I wish to thank Ms. Linda M. Koenig and especially Mr. V. Sundararajan for their helpful comments; any errors remain my own. Mr. Dawit Makonnen provided valuable research assistance. The help of Mr. José A. Uriarte of the Central Bank of Argentina in obtaining and interpreting some of the data is gratefully acknowledged.

<u>Contents</u>	<u>Page</u>
Summary	iii
I. Introduction and Overview of the Literature	1
1. Introduction	1
2. Overview of the literature on financial crises	1
II. The Economic Environment	5
1. The evolution of GDP and its components	6
2. The behavior of monetary and credit aggregates	9
3. The behavior of interest rates	13
4. Foreign sector liberalization	18
5. Wage policy	23
6. Changes in asset prices	23
7. The combined effect of changes in interest rates and relative prices	27
8. Enterprise debt	31
9. Business failures	33
III. The Financial Crisis	35
1. The financial system before the crisis	35
a. Main characteristics of the Argentine financial system at the time of the financial reform of 1977	36
b. The financial reform of 1977	37
c. Prudential regulations and bank supervision before the crisis	37
d. Alert indicators	43
2. The crisis	44
a. First episodes of the crisis	44
b. The authorities' reaction to the crisis	46
(1) Emergency measures	46
(2) Solutions to the private debt problem	48
(3) Measures to restructure the financial system	55
c. Effects of the crisis on the Central Bank's ability to conduct monetary policy	57
d. Costs and distribution effects of the crisis	59
(1) Costs to the Central Bank of liquidating a financial institution	59
(2) Wealth redistribution effects	60
IV. Conclusions	62
References	66

Summary

The Argentine financial system experienced a major crisis that began in March 1980, when one of the largest private banks failed and three other major banks had to be intervened. The crisis spread rapidly during 1980-82, resulting in 71 financial institutions being liquidated--a restructuring process that has not yet finished. The purpose of this paper is to study the causes and consequences of the crisis, with a special emphasis on the impact of the regulatory environment. The paper examines the macroeconomic factors as well as factors that are specific to the financial system and tests the validity for the Argentine case, of various hypotheses usually advanced in the existing literature.

A broad conclusion that can be drawn from the analysis is that, although elements endogenous to the financial system--such as the high level of interest rates following the liberalization and loans of dubious quality--contributed to the crisis, elements exogenous to the system--such as changes in the exchange rate regime--played a major role in determining the extent of the crisis.

Inadequate supervision of the financial system also contributed to the crisis. There is evidence that the financial institutions liquidated in the early stages of the crisis had particular problems that alert indicators and closer monitoring could have detected earlier. Earlier detection would not only have given more time to find solutions, but could also have reduced the size of the problem by limiting the growth of those institutions. However, even with better supervision, some deterioration of the quality of bank portfolios could not have been avoided in light of the instability of economic conditions that made forecasting and planning very uncertain. Nevertheless, there is little doubt that improved supervision would have allowed the financial system to withstand such deterioration better.

The Central Bank was able to contain the propagation of the crisis by granting emergency credits to troubled institutions, and by reversing (retroactively) its previous policy of gradually reducing the scope of deposit insurance. Also, the crisis gave impetus to the program to improve bank supervision, and prompted the introduction of more flexible ways to deal with troubled institutions in order to reduce the need for the inherently costly liquidations.

The reintroduction of interest rate controls brought relief to borrowers. However, it also shrank the size of the financial system as depositors became reluctant to hold financial assets carrying a negative real yield. This, together with other measures taken to help borrowers and financial institutions--such as increased central bank funding of the financial system--undoubtedly made monetary management more difficult and can be considered contributing factors to the higher inflation

and loss of international reserves that had started with the crisis. The huge debt relief granted in 1982 also raises difficult issues, such as the fairness of the substantial redistribution of wealth that it implied and whether more selective relief could have achieved a similar result in a less costly way.

The Argentine Banking Crisis of 1980

I. Introduction and Overview of the Literature

1. Introduction

In March 1980, one of the largest private banks in Argentina failed--Banco de Intercambio Regional (BIR); within a few days, three other major banks had to be intervened, two of which were subsequently liquidated. Thus began a serious crisis of the Argentine financial system, which resulted in 71 financial institutions being liquidated in 1980-82--a restructuring process that has not yet finished--and caused far-reaching changes not only in the financial system but also in economic policies. Several authors have analyzed these developments, but most have focussed mainly on the broad macroeconomic aspects, while some have dealt with selected features of the Argentine financial sector in the context of the crisis. The purpose of this paper is to integrate these two sets of analyses, and focus more closely on the financial sector by emphasizing the regulatory aspects that previous studies have largely ignored. The plan of the paper is as follows: the first chapter provides a brief overview of selected literature on financial crises--with special reference to that on the Argentine crisis; the second presents evidence on the macroeconomic and general business environment; while the third analyzes the crisis itself. Finally, the fourth chapter presents the conclusions. The research strategy followed in the paper reflects the notion that an appropriate analysis of the crisis has to look beyond the financial system, because a main cause of the crisis was the deterioration of the system's loan portfolio, and this deterioration was in part due to developments in the general economic environment and their impact on business conditions.

2. Overview of the literature on financial crises

The literature on financial crises and bank failures can be divided into two main groups, although there is much overlap between the two: the literature that takes a systemic approach to the problem and the literature that takes a case-by-case approach. The first group focusses on macroeconomic causes of financial crises, which are generally beyond the control of individual financial institutions. Two major strands of thought belong in this group: the monetarist and fragility strands.

The monetarist strand appears in the works of Friedman and Schwartz (1963) and Cagan (1965), among others; much of their analysis focuses on the U.S. experience in the 1930s. These writers suggest that financial crises are caused by a loss of public trust in the ability of banks to honor their commitments, which is aggravated by errors in monetary policy. The loss of trust can be triggered by a deterioration in the

quality of bank loans. 1/ Moreover, Friedman and Schwartz suggest that even sound banks can go bankrupt if they have to liquidate assets in a very short period in order to honor their commitments to convert deposits into currency on demand. In addition, this conversion will reduce the money supply and money income. However, an adequate monetary stance can abort this process at an early stage. 2/

The fragility strand can be traced back to Irving Fisher (1932; 1933). It considers that financial crises are an integral part of the business cycle; more specifically, they are an inevitable consequence of booms. In Fisher's view, crises are part of a cycle whose upswing is prompted by new investment opportunities--due to some exogenous factor--that lead to an investment boom financed by bank credit. Eventually, this leads to general overindebtedness--defined as a situation where economic agents have insufficient liquid assets to meet their liabilities. 3/ "In such a situation, a crisis can be triggered by errors in judgment by debtors or creditors" (Bordo (1985, p.9)). Debtors can be forced to sell their assets at distress prices to pay their debts. This distress selling can trigger a liquidity crisis which in turn can lead to a banking crisis and a recession--provided that the monetary authorities do not intervene.

Hyman Minsky has continued Fisher's tradition with his theory of financial fragility. He has described three types of financing units that involve an increasing risk of collapse (fragility): hedge financing units, whose cash receipts exceed payments; speculative financing units, whose receipts are smaller than payments over some periods; and Ponzi financing units, whose interest portion of cash payment commitments exceeds net cash receipts. Note that these definitions are unrelated to the net worth of the project, which may be positive in all three types of financing (e.g., in the last type, accrued income may account for a large part of income). Although all three units are vulnerable to events that reduce the cash flow from their assets, it is the speculative and Ponzi financing units that are particularly vulnerable to changes in interest rates or financial market disruptions (e.g., a liquidity crunch), because they must refinance their position continuously. In Minsky's view, the upswing of the cycle generates an increased demand for finance which eventually creates a shift to speculative and Ponzi finance (i.e., a more fragile environment), and raises interest rates. A further rise in interest rates can lead to "distress selling" of assets and to the

1/ However, Friedman and Schwartz do not find much supporting evidence for this in the 1930-31 U.S. banking crisis.

2/ Such a stance was not taken during the 1930-31 U.S. banking crisis, according to Friedman and Schwartz.

3/ This description relies heavily on Michael Bordo's paper (1985).

process of banking crisis and recession that Fisher described. 1/ Kindleberger's work on financial crisis follows Minsky's but places greater emphasis on the international aspects of crises, and concludes that speculation in tradeable goods and foreign securities provides the necessary link for the transmission of crises from one country to another. 2/ Kindleberger (1978) also discusses several speculative historical experiences that led to crashes in the past. Along similar lines, the idea of speculative "bubbles" in asset prices that end in a crisis 3/ has been discussed in a rational expectations framework more recently (Flood and Garber (1981)).

The second group of literature focuses on causes of financial crises that are intrinsic to the financial system or to individual financial institutions. Some authors emphasize fraud and irregularities in bank management as major causes of bank failures. 4/ In a recent article, Sinkey (1985) suggests a fairly long list of major causes of bank failures: mismanagement, wheeling and dealing, cut-rate lending, aggressive liability management, strategic blunders and lack of controls. He also classifies bank risks into several categories, of which credit risk is the most important, followed by interest rate risk.

Finally, some writers adopt an eclectic view, using both macro and microeconomic elements to explain bank failures. For example, Bovenzi and Nejezchleb (1985) discuss several explanations for bank failures in the United States, such as general macroeconomic conditions; real interest rates; disparity in regional economic growth and regulatory changes. They conclude that high real rates and recessions are two major macroeconomic causes of bank failures, while the effects of deregulation are far less certain; easing branching restrictions, for instance, appears to have little effect on bank failures, while easing chartering restrictions appears to increase the overall failure rate only because new banks have a higher failure rate than established banks.

The Argentine financial crisis has been discussed mainly in the context of the analysis of economic policies during 1977-81, with only

1/ For an interesting discussion, see Minsky (1977) and Bosworth, Sinai and Lintner (1977).

2/ Bordo (1985) discusses the two approaches in a recent study for six developed countries. He finds that "consistent with the monetarist approach...financial crises involving banking crises had strong effects in aggravating (if not producing) the effects of monetary contraction on the real economy" (p. 22). However, he also finds evidence supporting the Minsky-Kindleberger views on the international transmission of crises.

3/ For example, Rolnick and Weber (1984) attribute failures of banks during the Free Banking Era in the U.S. to falling asset prices.

4/ See Benston and Sinkey (1977).

a few studies focussing on the financial system. ^{1/} We will briefly review the different approaches that have been followed in the literature. Fernández discusses three causes of financial crises: inadequacies of free market economies, inappropriate monetary policy and inherent instability of the financial system. ^{2/} In his view, the latter gives the best explanation of Argentina's financial crisis: under a fractional reserve system with state deposit insurance, financial institutions in trouble can delay failure by resorting to "liability administration". Liability administration is described as the policy of an institution that, facing a cash shortfall caused by nonperforming loans, must raise interest rates to attract new deposits in order to replace those maturing; this policy can lead to an explosive situation. According to Fernández, this situation arose during the Argentine financial crisis as firms defaulted on their bank loans. These defaults were due to enterprise failures caused by frustrated expectations over macroeconomic policy and also over the relationship between interest rates and the rate of change of the price of their product. Finally, Fernández finds merit in Simons' proposal of financial reform, under which sight deposits would have a 100 percent reserve requirement to preserve their liquidity while time deposits would be replaced by bank acceptances or shares whose value would be market-determined--i.e., time deposits would resemble present mutual fund shares.

Commenting on Fernández's paper, Feldman (1983) suggests that the financial crisis should not be interpreted in isolation but should rather be viewed as a reflection of the real sector crisis that resulted from the growing incompatibility between real domestic interest rates and the rates of return of investments in domestic assets. Furthermore, he suggests that high domestic interest rates largely reflected risk premia due to devaluation expectations that exceeded the Government's preannounced--and realized--devaluation rates.

Dreizen (1984) uses Minsky's framework in an interesting analysis of the Argentine crisis. He constructs several indicators to study the financial situation of a sample of industrial firms. One of these indicators is a "fragility indicator", computed as the ratio of debt service to self-generated funds--defined as after-tax profits inclusive of depreciation allowance and interest payments. Using these indicators, he concludes that during 1977-83, the financial structure of firms became increasingly fragile and had to face strong destabilizing shocks, most of which originated in the financial market. Among these shocks, he cites restrictive monetary policy, bank failures and devaluations, which took place at different times over the period 1977-83.

^{1/} See, for example, Ardito Barletta, Blejer, and Landau (1985).

^{2/} Fernández (1983a and 1983b). Similar views, in a broader context, appear in Fernández (1985).

Another recent paper, by Petrei and Tybout (1985), examines firm indebtedness by analyzing a sample of industrial firms during the liberalization phase of 1976-81. They suggest that these firms obtained huge financial subsidies due first to "real currency appreciation and unconstrained access to foreign credit, then again in 1981 because of an exchange insurance program. Moreover, the consequent growth in the debt/capital ratio accelerated in 1980, coinciding with lower profit rates for the firms in the sample; this became a factor in the development of the crisis" (ibid., p. 13).

Arnaudo and Conejero (1985) analyze the Argentine crisis by comparing the three banks that failed in 1980 (Banco de Intercambio Regional, de Los Andes and Internacional) with each other and with the average of private domestic banks. They conclude that several indicators of bank behavior provided advance warning of the impending failures of the three banks.

Damill and Frenkel (1987) further develop some of the points raised in the previous literature. They suggest that the negative real rates of 1979 prompted firms to borrow more, which increased their fragility. This fragility was exacerbated by the short maturities of loans, which made firms particularly vulnerable to "exogenous shocks", such as higher interest rates induced by changes in exchange rate expectations. The consequent loss of profitability of some sectors increased the share of nonperforming loans in bank portfolios. Moreover, some banks that went bankrupt in 1980 had spectacular rates of growth, which the authors attribute to "speculative elements".

The literature reviewed above suggests different possible causes of financial crisis, which will be examined in the context of the Argentine experience.

II. The Economic Environment

The period 1976-82 was rich in economic changes in Argentina. The economic team that came to office in March 1976 inherited a difficult situation whose main characteristics were a high rate of inflation, a serious balance of payments problem, and a substantial fiscal deficit. The new team not only adopted short-term measures to cope with this situation but also carried out some important structural reforms, of which the most radical took place in the financial sector. However, many of these measures and reforms were blamed for the serious difficulties that surfaced when the financial crisis erupted. As a result, beginning in March 1981, economic policy was modified significantly and most of the reforms begun in 1976 were scrapped.

This chapter presents some evidence on the behavior of the economy over the period 1976-1982, in order to assess the contribution of changes

in the economic background to the financial crisis. The evidence presented includes: first, the evolution of GDP and its major components; second, the evolution of monetary aggregates; third, the behavior of some important prices: interest rates, the exchange rate, and some asset prices, and fourth, the evolution of enterprise debt.

1. The evolution of GDP and its components

The evolution of GDP and its components is relevant for the analysis of the financial crisis on at least two grounds. First, a significant body of literature produced by Kindleberger, Minsky and others asserts that financial crises are an integral part of the business cycle, being a necessary consequence of the previous boom. Second, a downturn in economic activity can reduce firms' sales and profits in the affected sectors, thus compromising the liquidity and solvency of these firms and, therefore, their ability to service their debt.

Table 1 presents the phases of the reference cycle for Argentina for 1960-82, while Table 2 presents the data of the national accounts for 1976-82. ^{1/} Table 1 shows that the financial crisis came after an economic expansion: the failure of the Banco de Intercambio Regional in March 1980 came immediately after the expansionary period that lasted from March 1977 to February 1980.

The national accounts' data (Table 2) confirm that the financial crisis came after a period of economic expansion: although GDP fell by 3.4 percent in 1978, it grew at rates substantially above historic performance in 1977 and 1979; over the period 1976-79 the average growth rate was of about 3 percent. However, the crisis cannot be dated as easily with reference to investment, because investment kept growing at a rate much above historic averages even after the crisis started; only in 1981 did it begin to fall sharply. Finally, Table 3 presents data on the sectoral rates of growth of GDP. These data show sharp changes in the performance of many sectors; in particular, the financial sector grew much faster than total GDP over 1977-80 but fell sharply in 1981-83. Moreover, in any given year rates of growth varied substantially across sectors. These sharp fluctuations in performance undoubtedly required substantial adjustments on the part of economic sectors, which might have affected their debt-servicing capacity.

^{1/} The reference cycles have been estimated with the methodology suggested by the National Bureau of Economic Research for its studies on U.S. business cycles.

Table 1. Argentina: Phases of the Reference Cycle, 1960-1982

Expansion		Contraction	
Period	Length (Months)	Period	Length (Months)
July 1963-May 1967	46	Aug. 1961-July 1963	23
Dec. 1967-Dec. 1974	84	May 1967-Dec. 1967	7
Nov. 1975-July 1977	20	Dec. 1974-Nov. 1975	11
Mar. 1978-Feb. 1980	23	July 1977-Mar. 1978	8
		Feb. 1980-Jan. 1981	11
Jan. 1981-July 1981	6	July 1981-Apr. 1982	9
Average length:	35.80 months	Average length:	11.50 months

Sources: Arranz and Elías (1984).

The behavior of output aggregates in Argentina conforms with the experience of other countries that have suffered financial crises: for instance, Bordo (1985, p. 3) says that "...most financial, banking and stock market crises have occurred at or shortly after the reference peak and have been associated with the severity of the ensuing cyclical behavior." In addition, this evidence is broadly consistent with the financial instability thesis mentioned above. However, verification of this thesis requires finding not only that the crisis followed a boom but also that it was actually related to higher riskiness in the financing of firms; this point will be analyzed later on.

Table 2. Argentina: Main Components of Aggregate Supply and Demand

	Supply			Demand		
	GDP	Imports	Total	Consumption	Gross Domestic Investment	Exports
(In australes; 1970 prices)						
1976	10,066.0	674.5	1,074.5	7,596.7	2,173.3	970.5
1977	10,702.6	868.2	11,570.8	7,748.3	2,594.8	1,227.7
1978	10,343.4	783.7	11,127.1	7,604.1	2,200.5	1,322.5
1979	11,022.4	1,185.2	12,207.6	8,539.6	2,373.2	1,294.8
1980	11,142.8	1,628.1	12,835.6	9,042.3	2,551.2	1,242.1
1981	10,423.3	1,628.1	12,051.4	8,754.0	1,957.1	1,340.3
1982	9,882.3	942.9	10,825.2	7,810.2	1,655.1	1,359.9
1983	10,213.0	4,898.5	11,111.9	8,124.6	1,513.6	1,473.7
1984	10,459.0	955.5	11,414.6	8,640.2	1,310.9	1,463.5
(Percent variation over the previous year)						
1976	-0.4	-25.6	-2.5	-7.7	6.4	31.6
1977	6.3	28.7	7.7	2.0	19.4	26.5
1978	-3.4	-9.7	-3.8	-1.9	-15.2	7.7
1979	6.6	51.2	9.7	12.3	7.9	-2.1
1980	1.1	42.8	5.1	5.9	7.5	-4.1
1981	-6.5	-3.8	-6.1	-3.2	-23.3	7.9
1982	-5.2	-42.1	-10.2	-10.8	-15.4	1.5
1983	3.4	-4.7	2.6	4.0	-8.6	8.4
1984	2.4	6.4	2.7	6.3	-13.4	-0.7

Source: Central Bank of Argentina, Estimaciones Trimestrales sobre Oferta y Demanda Global, October 1985.

Table 3. Argentina: Gross Domestic Product
(Constant 1970 prices)

	Percent Changes over Previous Year								
	1976	1977	1978	1979	1980	1981	1982	1983	1984
Agriculture	4.7	2.5	2.8	2.8	-5.5	1.9	6.9	1.9	3.7
Mining	2.4	8.5	1.9	6.3	5.8	0.6	0.3	2.1	-0.9
Manufacturing	-3.0	7.8	-10.5	10.2	-3.8	-16.0	-4.7	10.8	4.0
Electricity, gas and water	3.7	4.6	3.3	10.7	7.8	-1.1	3.1	8.0	6.5
Construction	14.9	12.2	-4.8	-0.5	1.1	-13.8	-19.8	-6.8	-20.1
Commerce	-5.8	7.6	-7.7	10.8	5.7	-6.9	-17.9	3.5	4.8
Transport and communications	-0.8	5.3	-1.6	6.3	2.1	-5.2	-2.6	4.1	4.3
Finance, insurance and real estate	-4.2	13.8	6.7	8.0	12.3	-5.3	-11.5	-7.5	0.8
Other services	0.3	0.8	0.9	2.0	2.2	2.0	-0.1	1.9	2.2
Total	-0.4	6.3	-3.4	6.6	1.1	-6.5	-5.2	3.4	2.4

Source: Central Bank of Argentina, Estimaciones Trimestrales sobre Oferta y Demanda Global.

2. The behavior of monetary and credit aggregates

Table 4 presents data on the behavior of monetary and credit aggregates in the period 1976-1982, which are useful not only to complete the general background but also to analyze whether monetary factors could have caused the financial crisis.

The table presents the data in nominal terms, from which two main conclusions can be obtained. First, that monetary and credit aggregates grew at a very fast pace throughout the period; second, that time deposits increased significantly their share in M2, jumping from 36 percent in 1976 to 71 percent in 1981.

The data in Table 4 suggest that the crisis cannot be attributed to monetary causes: money grew in nominal terms at a high rate both before and after the crisis, although the rates of growth of M1 and M2 fell sharply in 1980, once the crisis was already under way. Moreover, the data for domestic credit show a similar pattern. ^{1/}

^{1/} Domestic credit is the variable that the Government could control over most of the period because international reserves were endogenous, with the Government setting the exchange rate.

Table 4. Argentina: Main Monetary and Credit Aggregates, 1976-1982 ^{1/}

(In thousands of australes)

	1976	1977		1978		1979		1980		1981		1982	
	Amount	Amount	Per- cent Increase	Amount	Per- cent Increase	Amount	Per- cent Increase	Amount	Per- cent Increase	Amount	Per- cent Increase	Amount	Per- cent Increase
<u>In nominal terms</u>													
a. Monetary aggregates													
Currency	41	107	(61.7)	333	(210.5)	787	(136.2)	1,642	(108.6)	3,021	(84.0)	8,736	(189.2)
Demand Deposits	52	101	(95.9)	230	(127.7)	596	(158.9)	1,093	(83.4)	1,589	(45.3)	6,128	(285.7)
M1	93	208	(125.1)	563	(170.4)	1,383	(145.5)	2,735	(97.8)	4,610	(68.5)	14,864	(222.5)
Time and Savings deposits	53	292	(449.2)	868	(197.7)	2,915	(235.8)	5,282	(81.2)	11,368	(95.3)	23,458	(106.4)
M2	146	500	(243.2)	1,431	(186.3)	4,298	(200.2)	8,017	(86.6)	15,978	(99.3)	38,322	(139.9)
Deposits of the public sector with commercial banks	38	125	(229.1)	286	(127.8)	673	(135.6)	1,413	(109.9)	2,861	(102.5)	8,253	(188.5)
b. Credit aggregates													
Domestic credit ^{2/}	189	655	(246.2)	1,829	(179.1)	5,392	(194.8)	11,268	(109.0)	33,457	(196.9)	104,491	(212.3)
Credit to the private sector ^{3/}	121	433	(257.9)	1,218	(181.0)	4,002	(228.6)	8,345	(108.5)	22,197	(166.0)	68,928	(210.5)
Credit to the public sector ^{2/}	68	222	(225.4)	611	(175.3)	1,389	(127.5)	2,923	(110.4)	11,260	(285.2)	35,563	(215.8)

Source: Central Bank of Argentina, Boletín Estadístico, several issues.^{1/} End-of-year data.^{2/} Includes outstanding balance of "Cuenta de Regulación Monetaria" (Interest Equalization Fund).^{3/} Includes loans in foreign currency.

Further evidence on monetary developments is provided in Table 5, which presents data on the behavior of the ratios of currency/money and of excess reserves/liabilities subject to reserve requirements. Changes in these ratios caused monetary contractions in the United States that resulted in financial crises and recessions, according to the monetarist explanation of crises. 1/ This hypothesis implies that these ratios would rise and thereby depress the money multiplier, which could induce a fall in the money supply or in its rate of growth. The data do not support this hypothesis for the Argentine financial crisis. As shown in Table 5, the currency/deposit ratio was lower in end-March 1980 (when the BIR was closed) than in the same period of the previous years; although this ratio tended to rise during the rest of 1980, it still remained below the levels of 1976 and 1977. This would suggest that the crisis undermined the public's confidence in the safety of deposits only briefly. A study for the period June 1977-June 1981 finds evidence of a shift in the intercept of the estimated function for the currency/deposit ratio (Demaestri (1982)). This shift was positive for April and May, and negative for June 1980. Another study for May 1978-March 1982 found that the demand for currency, in real terms, became less sensitive to the deposit interest rate beginning in March 1980 (i.e., before the first major bank was liquidated but after the liquidation of one of the largest financial companies) (Dabós and Demaestri (1983)).

The excess reserve ratio fluctuated widely during the period from June 1977 (the start of the liberalization) to December 1982. 2/ Even after excluding the outlier observations for the second quarter of 1977 and for the whole of 1982, the ratio remains volatile: for instance, it dropped from 1.88 to 0.20 between the second and third quarters, 1978. Despite this volatility, the data for 1979 are well within the historic range of values, suggesting that bank reserve behavior was not a contractionary influence on the money supply. 3/ More importantly, the behavior of bank excess reserves in 1980 shows no departure from their historical pattern, which suggests that the crisis did not affect bank willingness to invest in yield-earning assets.

1/ See, for instance, Friedman and Schwartz (1963) and Cagan (1965).

2/ The 1982 outliers should be disregarded, too, because they reflected the economic and political uncertainties of that year (South Atlantic war, change in administration), as well as the reforms introduced to the financial system by mid-year. The figure for the second quarter of 1977 should also be disregarded, because it reflects the transitional effect of moving from a 100 percent reserve system to the fractional system rather than bank decisions.

3/ This contrasts sharply with the behavior of U.S. banks during the 1930s, when they increased their excess reserves--thus reducing the money supply and deepening the recession in the view of monetarist writers such as Friedman and Schwartz (1963).

Table 5. Argentina: Ratios of Currency to Deposit and Excess of Bank Reserves to Reserve Liabilities

Period	Reserve Requirement <u>1/2/</u>	Currency/Deposits <u>3/</u>	Excess Bank Reserves/Reserve Liabilities <u>1/3/</u>
<u>1976</u>			
I		0.309	
II		0.252	
III		0.230	
IV		0.260	
<u>1977</u>			
I		0.212	
II	45.0	0.213	4.20
III	45.0	0.190	0.78
IV	44.7	0.207	1.51
<u>1978</u>			
I	44.0	0.170	1.07
II	43.0	0.175	1.88
III	40.7	0.164	0.20
IV	31.0	0.229	0.65
<u>1979</u>			
I	27.0	0.175	0.52
II	27.0	0.169	0.51
III	25.0	0.149	0.30
IV	20.0	0.183	0.75
<u>1980</u>			
I	13.2	0.157	0.66
II	11.3	0.174	0.91
III	12.5	0.162	0.51
IV	10.3	0.204	1.13
<u>1981</u>			
I	12.0	0.157	0.16
II	16.0	0.160	0.35
III	18.0	0.133	0.29
IV	15.5	0.183	0.90
<u>1982</u>			
I	16.5	0.127	2.21
II	13.5	0.162	13.65
III	100.0	0.160	11.84
IV	100.0	0.205	5.14

Sources: Central Bank of Argentina, Boletín Estadístico, several issues; Gaba (1981); and International Monetary Fund, International Financial Statistics.

1/ The series begins with the reintroduction of fractional bank reserves in June 1977.

2/ Period average.

3/ End-of-quarter data.

3. The behavior of interest rates

Several authors have blamed interest rate behavior--during and after the liberalization experience--for the business failures that occurred over the 1977-82 period. Therefore, the purpose of this section is to present evidence that can help to evaluate the merits of that explanation. 1/

Table 6 shows a dramatic jump in nominal interest rates when interest rate controls were lifted at the end of the first semester of 1977: both deposit and lending rates more than doubled between the first and second halves of 1977. Table 6 also presents data on the variability of interest rates. This information is relevant insofar as the high volatility of interest rates could frustrate business planning and undermine the financial health of firms. In this regard, Table 6 shows that the monthly variability of interest rates within each year, measured by the coefficient of variation, was lower during 1979 and 1980 than at any other time in the period 1977 to 1982. Such lower variability was probably caused by the policy of preannounced devaluations, followed between December 1978 and March 1981, which encouraged interest rate arbitrage by reducing exchange rate risk. 2/

The data in Table 7 shows that annual average lending rates were positive in real terms during the liberalization period. Also, their highest value (4.87 percent per month, using the WPI) corresponds to the last quarter of 1979; moreover, the annual average of lending rates peaked in 1980. Therefore, high lending rates helped to precipitate and aggravate the crisis by making debt servicing more difficult. However, although these rates were positive on average, and sometimes very high, they were negative during many quarters. Thus the impact on each individual firm depended not only on the sign and size of its net financial position but also on the pattern of this position through time.

The behavior of real lending rates, however, raises several issues. First, did the high loan rates reflect high deposit rates as well as high spreads? Second, why did enterprises not switch to foreign borrowing? Third, why were enterprises prepared to borrow at rates much higher than the marginal rate of return on investment?

1/ Also, many studies have pointed to high real interest rates as evidence of the failure of the liberalization experience. See, for instance, Díaz-Alejandro (1985), pp. 1-24.

2/ If perfect arbitrage obtains, domestic interest rate = international interest rate + expected devaluation. Therefore, a lower exchange rate uncertainty (i.e., a lower variance) reduces the coefficient of variability of the domestic interest rate.

Table 6. Argentina: Nominal Interest Rates, 1974-I to 1982-IV

(In percent per month)

	Quarterly Averages Deposit Rates Lending Rates		Annual Statistics for Monthly Interest Rates									
			Deposit Rates					Loan Rates				
			Mean	Range	Median	Standard Deviation	Coefficient of Variation	Mean	Range	Median	Standard Deviation	Coefficient of Variation
<u>1974</u>			1.30	0.00	1.30	0.00	0.00	1.72	0.00	1.72	0.00	0.00
I	1.30	1.72										
II	1.30	1.72										
III	1.30	1.72										
IV	1.30	1.72										
<u>1975 1/</u>			1.55	0.00	1.55	0.00	0.00	2.90	0.00	2.90	0.00	0.00
I	1.55	2.90										
II	1.55	2.90										
III	1.55	2.90										
IV	1.55	2.90										
<u>1976</u>			3.78	0.00	3.78	0.00	0.00	4.52	0.00	4.52	0.00	0.00
I	3.78	4.52										
II	3.78	4.52										
III	3.78	4.52										
IV	3.78	4.52										
<u>1977</u>			8.70 1/	3.90 1/	8.70 1/	1.61 1/	0.18 1/	10.67 1/	6.49 1/	10.70 1/	2.84 1/	0.27 1/
I Sem.	4.20	4.98										
III	7.34	8.18										
IV	10.07	13.15										
<u>1978</u>			7.21	4.09	6.89	1.10	0.15	8.72	6.07	8.10	1.81	0.21
I	8.55	11.27										
II	6.93	8.27										
III	6.63	7.72										
IV	6.72	7.61										
<u>1979</u>			6.77	1.46	6.59	0.46	0.07	7.36	1.26	7.20	0.43	0.06
I	6.50	7.23										
II	6.53	7.15										
III	7.22	7.86										
IV	6.43	7.22										
<u>1980</u>			4.99	1.71	4.92	0.57	0.11	5.87	1.80	5.76	0.60	0.10
I	5.26	6.07										
II	4.78	5.65										
III	5.11	6.15										
IV	4.79	5.62										
<u>1981</u>			8.06	5.19	7.75	1.60	0.20	9.83	6.61	9.52	2.03	0.21
I	6.79	8.62										
II	8.54	10.58										
III	9.81	11.65										
IV	7.09	8.44										
<u>1982</u>			6.99	3.40	7.06	1.15	0.17	7.98	4.07	8.11	1.20	0.15
I	7.08	8.21										
II	7.15	8.65										
III	5.72	6.60										
IV	7.98	8.47										

Sources: Central Bank of Argentina; and Gaba (1981).

1/ For the second semester of 1977.

Notes: a. The mean data for 1974, 1975, 1976 and first half of 1977 are those in Gaba (1981).

From July 1982 onwards, the interest rates presented are the regulated rates.

Table 7. Argentina: Real Interest Rates, 1974-82

(In percent per month)

Period	Deposit rate		Lending rate	
	Deflated by: $\frac{1}{\text{CPI}}$ $\frac{1}{\text{WPI}}$		Deflated by: $\frac{1}{\text{CPI}}$ $\frac{1}{\text{WPI}}$	
1974	-1.51	-1.27	-1.58	-0.86
1975	-10.16	-10.38	-8.97	-9.19
1976	-8.40	-9.04	-7.75	-8.38
1977 Average	-1.86	-1.42	-0.61	0.01
I Semester	-3.08	-2.96	-2.19	-2.06
III Quarter	-1.68	-1.22	-0.83	-0.38
IV Quarter	0.42	1.44	3.51	4.52
1978 Average	-1.45	-0.51	0.06	0.99
I Quarter	-1.16	0.34	1.57	3.06
II Quarter	-1.84	-0.71	-0.50	0.63
III Quarter	-0.31	-0.13	0.78	0.96
IV Quarter	-2.48	-1.56	-1.59	-0.68
1979 Average	-0.93	-0.56	-0.24	0.13
I Quarter	-2.85	-2.19	-2.12	-1.46
II Quarter	-1.35	-2.13	-0.73	-1.51
III Quarter	-1.28	-2.00	-0.64	-1.36
IV Quarter	1.76	4.08	2.54	4.87
1980 Average	-0.41	1.11	0.48	1.99
I Quarter	-0.86	1.16	-0.05	1.97
II Quarter	-1.12	-0.74	-0.25	0.12
III Quarter	0.93	2.20	1.97	3.23
IV Quarter	-0.60	1.81	0.23	2.65
1981 Average	0.81	-1.01	2.57	0.76
I Quarter	1.77	2.64	3.60	4.48
II Quarter	0.29	-4.54	2.32	-2.49
III Quarter	1.38	0.05	3.22	1.90
IV Quarter	-0.19	-2.19	1.15	-0.84
1982 Average	-3.02	-5.79	-2.02	-4.80
I Quarter	-0.28	-1.06	0.85	0.07
II Quarter	2.06	-3.21	3.56	-1.72
III Quarter	-10.28	-15.50	-9.41	-14.63
IV Quarter	-3.58	-3.39	-3.09	-2.91

Source: Central Bank of Argentina.

$\frac{1}{\text{CPI}}$ The formula used for deflation was: Real rate = (Nominal interest rate - Rate of inflation)/(1 + Rate of inflation).

Tables 6 and 7 indicate that, while lending rates fluctuated in line with variations in deposit rates, the large and volatile spreads contributed significantly to the observed high lending rates. In order to explain the high spreads, Gaba decomposed them into the cost of reserve requirements, the cost of excess reserves, and the gross financial yield for the bank (after taking into account the effect of noninterest-bearing deposits). ^{1/} It was found that, except for the second half of 1977 when the high reserve requirement accounted for the largest share of the spread, by far the major component was the gross financial yield required to cover administrative costs and profits.

Some studies have identified high administrative costs as a significant component of the spreads; ^{2/} although these costs, shown in Table 8, are sizable, a large residual component of the spread remains to be explained. One explanation of the residual is that banks had some monopoly power, which they exploited by charging rates that included a monopoly rent. On the surface, this explanation is appealing: bank services are differentiated products where the scope for imperfect competition exists (e.g., it is costly for borrowers to switch banks). However, a corollary of this explanation is that more competition should lower spreads. In this regard, the liberalization measures, which not only freed interest rates but also eliminated barriers to entry, should have undermined the monopolistic position of the banking system and thus lowered spreads. However, it could be argued that while eliminating entry barriers reduced monopolistic rents, dismantling interest rate controls allowed banks to better exploit whatever monopoly power they retained. Thus, the net effect of the 1977 reform on the rent component of spreads would be ambiguous. Another possible explanation is that high spreads reflected risk premium on loans, which rose due to uncertainties about the course of economic policy and to the fact that banks knew very little about many of their new clients. ^{3/} An advantage of this explanation is that it also helps to explain why borrowers were willing to pay high real rates. ^{4/} However, it is inconsistent with the explanation that borrowers were willing to pay high

^{1/} Gaba (1981).

^{2/} See, for example, The World Bank (1984).

^{3/} The increase in the real size of the financial market reflected not only the growth of loans to old bank clients but also lending to new borrowers, some of which operated in fields that became more dynamic as a result of the change in relative prices described later in this paper. Also, personal loans and mortgage loans gained much importance. It is worth while noting in this regard that, for long periods before the reform, banks were not allowed to make personal loans for consumption.

^{4/} Such borrowers would be investing in risky projects with a high expected rate of return. Therefore, they would be prepared to borrow, even at a high rate, since in case of failure they would default on their loan but in case of success they would keep the entire profit.

Table 8. Argentina: Financial Institutions' Administrative Costs, 1981-82 1/

	Dec. 1981	June 1982	Dec. 1982	May 1982
Official national banks	6.0	2.8	4.0	5.8
Official state and municipal banks	12.8	9.4	13.3	12.3
Domestic-owned private commercial banks	7.7	7.9	9.9	9.8
Foreign-owned private commercial banks	9.2	8.8	9.6	8.9
Investment banks	13.4	8.5	13.0	13.5
Finance companies	9.0	9.5	14.8	15.8
Credit cooperatives	11.9	12.6	21.6	22.7
Savings and loan associations	7.4	10.1	12.9	12.7
Weighted average <u>2/</u>	8.0	7.0	8.8	8.7

Sources: The World Bank (1984); and own estimates.

1/ Administrative costs per year as percentage of total loans.

2/ The weights used are the shares in total loans as of end-December 1982.

rates because they expected a government bailout, because if bankers also expected a bailout for their borrowers then their loans had little risk. 1/ A detailed analysis of the causes of high spread would require considerable further work, which is beyond the scope of this paper. 2/

Although as a result of high spreads domestic loans appeared more expensive than foreign loans, firms did not switch to foreign sources of credit, in part because the preannounced devaluation schedule did not fully eliminate the uncertainty over the course of the exchange rate. In this regard, several authors 3/ have suggested that a perceived exchange risk discouraged foreign borrowing. This is consistent with the fact that the domestic deposit rate exceeded the yield in

1/ For the bailout explanation see, for instance, Calvo (1986).

2/ A major problem would be to obtain the required data. For instance, the data on spreads before and after June 1977 cannot be compared easily because lending rates before that date were accompanied by credit rationing, which involved practices--such as compensating balances--that increased the actual cost of borrowing.

3/ See, for instance, Rodríguez (1982) and Feldman (1983).

pesos of dollar deposits abroad until February 1981, ^{1/} thus indicating that borrowers and depositors shared similar expectations over the course of the exchange rate. Another reason is that probably only large enterprises had direct access to foreign credits (Petrei and Tybout (1985)). The evolution of the interest rate differentials is depicted in Table 9, where the U.S. prime rate was taken as the representative rate for borrowers and the Treasury bill rate as the representative rate for deposits. Analyzing a similar data set, Blejer concluded that the Argentine financial market was informationally efficient but that an uncorrelated time-varying risk premium was present during the period June 1977-August 1981 (Blejer (1982)).

Several hypotheses have been offered to explain why firms borrowed at relatively high real interest rates. Besides the high-risk and bail-out hypotheses mentioned above, other explanations include distress borrowing by firms in difficulties and speculative borrowing, induced by devaluation expectations. ^{2/}

4. Foreign sector liberalization

The policies followed in the external sector, especially exchange rate policies, had an important impact on the soundness of the financial system. Not only did they have a direct impact through capital flows and the value of the foreign debt of firms, but also they changed dramatically many relative prices in the economy--in particular, asset prices.

The lackluster record in the fight against inflation prompted the authorities to use the exchange rate as a stabilization instrument, beginning in December 1978 and ending in March 1981. ^{3/} The technique used for this purpose consisted of periodically publishing a schedule of daily devaluations for given periods of time. Their strategy aimed at making tradeable prices follow international prices while nontradeables would follow a similar path, assuming some substitutability between tradeables and nontradeables. Moreover, the preannouncement of the rate was expected to reduce uncertainty and help make domestic interest rates move in line with foreign rates. The first exchange rate schedule covered the period through August 31, 1979. On April 6, 1979, a second schedule was announced that covered the period through December 1979. The monthly rate of devaluation included in these schedules went down gradually: in 1979, it fell from 5.2 percent in January to 3 percent in

^{1/} On February 2, 1981 the Central Bank devalued the peso by 10 percent despite having announced in October 1980 that the monthly devaluation rate for that month and the following months--with no specified time limit--would be of 1 percent.

^{2/} See The World Bank (1984), p. 207. A detailed discussion of distress borrowing is presented in Dreizzen (1984) and in Fernandez (1985).

^{3/} Prices had been rising at about 7-8 percent per month between the last quarter of 1977 and the last quarter of 1978.

Table 9. Argentina: Interest Rate Differentials Between Domestic and Foreign Rates

(Quarter averages; in percent per month)

	U.S. Rates 1/		Interest Rate Differential	
	Prime Rate	Treasury Bill Rate	With Argentine Lending Rate	With Argentine Deposit Rate
<u>1977</u>				
III	6.41	6.29	1.77	1.05
IV	8.58	8.45	4.58	1.62
<u>1978</u>				
I	7.19	7.06	4.10	1.50
II	4.45	4.30	3.82	2.63
III	3.37	3.22	4.35	3.40
IV	5.62	5.45	1.99	1.27
<u>1979</u>				
I	5.97	5.77	1.26	0.73
II	5.24	5.05	1.91	1.48
III	4.84	4.64	3.02	2.58
IV	4.44	4.19	2.78	2.24
<u>1980</u>				
I	3.90	3.68	2.17	1.58
II	3.41	2.93	2.24	1.85
III	2.41	2.23	3.74	2.89
IV	2.33	2.11	3.29	2.68
<u>1981</u>				
I	6.89	6.52	1.75	0.27
II	25.91	25.55	-15.32	-17.00
III	5.29	4.90	6.37	4.92
IV	9.07	8.68	-0.63	-1.59
<u>1982</u>				
I	15.08	14.80	-6.87	-7.72
II	12.53	12.20	-3.87	-4.70

Sources: International Monetary Fund, International Financial Statistics; and Central Bank of Argentina.

1/ Adjusted for the actual depreciation of the peso.

December, adding up to a total devaluation of 61.5 percent over the year. On October 1, 1979 the third schedule was issued: it set a 2.8 percent devaluation for January, 1980, to be reduced by 0.2 percentage points per month through the end of 1980; however, in September 1980 the authorities revised the schedule and announced that the devaluation rate that had been set for October (1 percent) would be maintained for November and December. This revision attempted to ease public concern over the real appreciation of the peso, which had begun to affect the exchange market. ^{1/} Since this attempt was unsuccessful--international reserves fell over the last quarter of 1980--the authorities announced in December that during the first quarter of 1981 the rate of devaluation for the selling and buying rates would be different: 2 percent per month for sales and 1 percent for purchases. This failed to curb currency speculation because of a widespread perception that the peso was overvalued and that the new Administration to be inaugurated on April 1 would not support the existing exchange policy.

On February 3, the outgoing administration devalued the peso by 10 percent and announced a schedule of daily devaluation through August 31, 1981, which ostensibly had the concurrence of the incoming administration. However, capital outflows continued in earnest, because of a general perception that the incoming administration would depreciate the peso even further. Indeed, on April 2, the new authorities scrapped the policy of preannounced devaluations and sharply devalued the peso (by 23 percent the selling rate and 23.4 percent the buying rate). In addition, they stated that, in the future, they would follow a policy of frequent mini-devaluations. Despite these statements, further reserve losses prompted a new devaluation of about 23 percent on June 2 (in terms of U.S. dollars per peso) and, 20 days later, the foreign exchange market was split in two: a commercial market, where the rate was set by the Central Bank and a financial market where the rate would be determined by the market. ^{2/} Transactions carried out in the latter market included most new financial transactions, sale of a specified fraction of the proceeds of some exports and, in general, all transactions that were not allowed to be made through the commercial market. In order to reduce the impact of past devaluations on private foreign debt and to encourage renewal of foreign loans, the authorities compensated borrowers for the effects of the June devaluation on loans that were rolled over for at least one year. In addition, they established an exchange insurance facility to encourage a further rollover of foreign debt: in order to qualify, new loans--or loan renewals--had to have a minimum maturity of 1¹/₂

^{1/} Moreover, the bank failures had begun to erode public confidence in the course of the economy.

^{2/} In practice, the Central Bank followed a crawling-peg policy to adjust the commercial rate, while it also intervened to some extent in the financial market.

years. In the last quarter of 1981, the scope of the exchange insurance facility was broadened and a swap facility was established for six-month operations.

A new Administration that came to power in December 1981 returned to a more liberal exchange system. It unified the exchange markets, eliminated the exchange insurance and swap facilities, liberalized sales of foreign currency, and announced that the peso would be allowed to float. However, in April 1982, drastic exchange controls were imposed to cope with the problems that arose from the South Atlantic conflict with the United Kingdom. Subsequently, a new Administration, inaugurated in July 1982, reintroduced dual exchange markets, one commercial and the other financial. The Central Bank set the rate in the first market while in the second it intervened solely as a buyer, at a pre-determined rate. Gradually, however, operations initially assigned to the commercial market were transferred to the financial market and in November both markets were merged.

These policies had substantial impact on the real effective exchange rate, as depicted in Table 10. These data show a real appreciation of the peso of about 31 percent (export-weighted index) or 35 percent (import-weighted index) between December 1977 and March 1980 (when the financial crisis surfaced). This appreciation continued until the end of 1980 to a cumulative total of 40.5 percent (export-weighted index) or 42.5 percent (import-weighted index); in January 1981, the effective exchange rate began to fall due to the faster devaluation of the peso, a process that continued for the rest of the period covered in Table 10.

The uncertainty introduced by shifts in exchange rate policy was compounded by the changes in the degree of openness of the economy to capital and trade flows. During 1976-82, the openness of the economy to capital flows changed several times. The first period, from April 1976 to March 1981, was characterized by a dismantling of restrictions and a higher degree of integration of the domestic and international financial markets. The foreign sector problems that surfaced in 1981 and 1982 increased the risk of foreign borrowing for both borrowers and lenders and reduced that integration; this was fostered by the increased exchange rate volatility mentioned above, by the dwindling reserves, and by the measures taken in 1982 that restricted debt repayments.

The liberalization of capital flows was coupled with trade liberalization during 1976-81, although trade liberalization was never as comprehensive as financial liberalization. Two main pieces of trade liberalization were a program of phased tariff reductions over the period 1979-84 and the elimination of import prohibitions. However, the tariff reduction program was abandoned on April 1, 1981 by the newly-inaugurated Administration.

Table 10. Argentina: Evolution of the Exchange Rate, 1976-82

	Exchange Rate (Australas per 100 U.S. dollars, period average)	Real Exchange Rate Indices 1/ Export-Weighted Import-Weighted (Dec. 1969=100) (Dec. 1969=100)	
1977			
Dec.	0.00599	106.1	109.4
1978			
Dec.	0.01007	91.6	88.4
1979			
Dec.	0.01662	75.3	72.0
1980			
Mar.	0.01751	72.8	71.5
June	0.01858	70.3	69.2
Sept.	0.01937	68.7	67.7
Dec.	0.01996	63.1	62.9
1981			
Mar.	0.02339	67.5	66.5
	<u>Commercial</u> <u>Financial</u> 2/		
June	0.04396 0.04974	75.6	77.0
Sept.	0.05578 0.07455	80.9	80.0
Dec.	0.07679 0.10725	79.7	78.5
1982			
Mar.	0.10872	94.3	93.4
June	0.15163	97.3	96.6
Sept.	0.26816	99.9	99.4
Dec.	0.46021	111.5	111.0

Source: Central Bank of Argentina.

1/ Based on monthly averages of the nominal exchange rate adjusted by price (WPI) and exchange rate movements in Argentina's major trading partners.

2/ From June 22, 1981 to December 24, 1981 and from July 5, 1982 to November 1, 1982 the foreign exchange market was split into a commercial and a financial market. For effective exchange rate calculations, the rate actually applicable to trade transactions (i.e., commercial or mixed rate) was used.

5. Wage policy

The wage policy followed during much of the liberalization period aimed at adjusting salaries more or less in line with inflation, as measured by the consumer price index. This policy, combined with the exchange rate policy described above, increased real labor costs dramatically. Table 11 presents real wage indices for three deflators: the consumer price index (WAG.CPI), the wholesale price index (WAG.WPI), and the exchange rate index (WAG.EXR). ^{1/} The combined effects of the wage and foreign sector policies are striking: the real wage in terms of dollars increased by almost 177 percent between December 1978 and December 1980, ^{2/} while real wages in terms of the CPI and the WPI increased by only 23 and 54 percent, respectively. ^{3/} This resulted in a loss of competitiveness of Argentine tradeable goods, which deteriorated the foreign sector position and the economic solvency of producers of those goods.

6. Changes in asset prices

The purpose of this section is to investigate whether a speculative bubble could have played a role in the crisis. ^{4/} A speculative bubble that drove up the price of assets could have induced people to borrow in order to purchase those assets. When the bubble burst, the price of assets would suddenly become lower than the value of the counterpart loans. ^{5/} This would have made borrowers unable--and unwilling--to repay their debts, while banks would find that foreclosing did not allow them to recover their credits in full.

Table 12 presents the prices of some assets deflated by the wholesale price index (those with the suffix "WPI") and by the peso/dollar exchange rate (those with the suffix U.S.). These deflators are particularly useful because of the existence at the time of substantial public holdings of financial assets and liabilities linked to the WPI or the U.S. dollar. Thus, the ratios in Table 12 also illustrate the opportunity cost of holding real assets relative to holding such

^{1/} The exchange rate index is expressed in pesos per dollar.

^{2/} These points were chosen to coincide with the period when the policy of preannounced devaluations was fully implemented.

^{3/} Notice the difference in the real wage changes measured with the CPI and WPI. Real wage increases were lower using the CPI probably because services and nontradables have a heavier weight in that price index.

^{4/} In the case of Chile, Meller and Solimano (1983) agree that "speculative elements and high real interest rates" were responsible for the crisis of the financial system. Their tests suggest the existence of a speculative bubble in the Chilean stock market.

^{5/} Falling asset prices have been blamed for some bank crises, such as the "wildcat banking crisis". See Rolnick and Weber (1984).

Table 11. Argentina: Evolution of Real Wages

(Base: January 1978 = 1)

	WAG.CPI	WAG.WPI	WAG.EXR
1977			
March	1.545	1.417	1.223
June	1.271	1.182	1.074
September	1.139	1.074	1.037
December	0.890	0.866	0.834
1978			
March	0.860	0.871	0.887
June	0.870	0.910	1.057
September	0.712	0.748	0.961
December	0.932	1.006	1.416
1979			
March	0.802	0.880	1.378
June	0.887	0.953	1.681
September	0.829	0.875	1.794
December	0.813	0.919	1.833
1980			
March	0.857	1.026	2.132
June	0.812	0.983	2.257
September	1.194	1.499	3.600
December	1.148	1.546	3.918
1981			
March	1.067	1.474	3.391
June	1.193	1.451	1.695
September	1.135	1.332	1.910
December	1.269	1.411	1.924
1982			
March	1.029	1.121	1.688
June	0.888	0.838	0.785
September	1.389	1.156	1.028
December	1.557	1.303	1.118
1983			
March	1.468	1.246	1.120
June	1.874	1.643	1.617
September	1.645	1.411	1.008
December	1.687	1.476	1.714
1984			
March	1.695	1.537	1.323
June	1.750	1.566	1.710
September	1.946	1.837	2.147
December	1.683	1.600	1.915

Source: Central Bank of Argentina.

Table 12. Argentina: Selected Relative Prices of Assets

	PCARWPI	PCARUS	PAPTWPI	PAPTUS	PCATWPI	PCATUS
1977						
March	1.052	0.908	0.846	0.730	1.149	0.991
June	0.917	0.833	1.041	0.946	1.089	0.990
September	1.032	0.997	1.040	1.004	1.195	1.154
December	1.011	0.973	1.024	0.986	1.054	1.015
1978						
March	1.077	1.097	0.866	0.882	0.874	0.890
June	1.085	1.261	1.137	1.321	0.836	0.971
September	1.174	1.509	1.055	1.356	1.023	1.315
December	1.179	1.659	1.144	1.610	1.270	1.788
1979						
March	1.077	1.686	0.755	1.183	1.217	1.906
June	0.899	1.586	1.133	1.999	1.319	2.326
September	0.863	1.769	1.441	2.954	1.648	3.377
December	1.073	2.140	1.233	2.460	1.434	2.860
1980						
March	1.081	2.246	1.397	2.901	1.308	2.718
June	1.065	2.445	1.221	2.805	1.412	3.244
September	1.088	2.613	1.493	3.586	1.258	3.023
December	1.098	2.784	1.520	3.852	1.100	2.789
1981						
March	1.138	2.618	1.490	3.428	1.018	2.342
June	1.128	1.318	1.210	1.414	1.059	1.237
September	1.202	1.724	1.078	1.545	0.928	1.330
December	1.093	1.491	0.976	1.330	1.277	1.742
1982						
March	1.267	1.908	0.754	1.136	1.113	1.677
June	1.132	1.060	0.713	0.668	1.226	1.148
September	1.134	1.009	1.103	0.981	1.496	1.331
December	1.212	1.039	0.884	0.758	1.422	1.220
1983						
March	1.189	1.069	0.985	0.886	1.307	1.175
June	...	...	0.940	0.925	1.307	1.286
September	...	...	0.866	0.619	1.322	0.945
December	...	...	0.773	0.898	1.203	1.397
1984						
March	...	...	1.082	0.931	1.273	1.096
June	...	...	1.007	1.099	1.056	1.153
September	...	...	0.884	1.034	1.516	1.773
December	...	...	0.975	1.167	1.018	1.219

Source: Central Bank of Argentina.

financial assets (or liabilities). The first two columns, which correspond to the price of cars, illustrate the effect of the appreciation of the peso over much of the liberalization period (as well as the restrictions on car imports). While cars appreciated by only 18 percent vis-a-vis the wholesale price index between June 1977 and March 1980, they appreciated by almost 170 percent vis-a-vis the U.S. dollar over the same period. Furthermore, in this period the rate of appreciation vis-a-vis the WPI was negative in several quarters, while the appreciation vis-a-vis the dollar was continuous except for two quarters (last quarter of 1977 and second quarter of 1979). The appreciation vis-a-vis the dollar extended until the end of 1980, just before the the policy of preannounced devaluation began to change in February 1981.

The evolution of the relative prices of second-hand apartments (third and fourth columns of Table 12) differs from that of cars. *First, there is a fairly steady appreciation both with respect to wholesale prices and to the dollar: between June 1977 and March 1980 apartments appreciated by 34 percent vis-a-vis wholesale prices and by 207 percent vis-a-vis the dollar; by December 1980 these rates of appreciation had reached 46 percent and 307 percent.* 1/ The last two columns correspond to cattle prices. 2/ Again, although cattle appreciated by about 20 percent vis-a-vis wholesale prices between June 1977 and March 1980, its appreciation vis-a-vis the dollar was much higher--175 percent over the same period.

In summary, Table 12 suggests that no general pattern was evident for asset prices until June 1981, when the substantial devaluations of the peso that had taken place since the end of March caused asset prices to plummet in terms of dollars; the dollar prices of assets remained substantially below the 1979-80 values throughout the remainder of the period under analysis. In the case of apartments, the real depreciation was not only in terms of dollars but also in terms of the wholesale price index: the latter fall began in the first quarter of 1981 and the real price of apartments never returned to the high levels of the period that began in the second quarter of 1979 and ended in the first quarter of 1981.

1/ This appreciation did not result from higher costs of construction. Although the latter increased faster than wholesale prices, the ratio of the two indices increased by just 8.5 percent between June 1977 and March 1980 and by 35.6 percent between June 1977 and December 1980.

2/ The price of cattle was included because it was one of the most important prices in the Argentine economy for which data were available. However, cattle prices have the problem of being subject to the live-stock cycle; their level depends to an important extent on the decisions on stocks taken some time before.

Table 13 presents series on the index of value of the stock market, which reflects the value of the outstanding shares of all firms listed in the Buenos Aires Stock Exchange valued at the latest available price. The first column shows the average value of the index over each month, while the other two columns present the deflated values using the wholesale price index (second column) and the exchange rate index (third column). The series display a high degree of variability; 1/ nevertheless, the index appreciated, both in terms of the wholesale price index and of the dollar, between the last quarter of 1977 2/ and the first quarter of 1980--which is the peak month of the two series. This presents a striking contrast to the behavior of the relative price of the other assets discussed above. Stock prices dropped both in nominal and relative terms (compared to wholesale prices and the U.S. dollar) immediately after the start of the financial crisis (March 1980); on the contrary, the dollar price of the assets included in Table 12 continued to increase while their price relative to wholesale prices did not show any significant change in the next few quarters after that date.

The evidence in Tables 12 and 13 do not support the hypothesis that a bursting speculative bubble caused the first episodes of the crisis (i.e., the bank failure and interventions of March-April 1980). However, the value of enterprises declined dramatically after the crisis began, partly as a result of the uncertainty induced by the crisis. This fall deepened the financial crisis by reducing the value of collateral and by making it more difficult for enterprises to substitute the capital market for the banking system.

7. The combined effect of changes in interest rates and relative prices

The variability of interest rates and relative prices--including those of assets--complicates the analysis of the impact of lending interest rates on various sectors during the liberalization period. Gauging this impact would help to analyze the merit of some demands for debt relief, which were based on the assertion that extended periods of high interest rates had driven many borrowers into insolvency. 3/ A way to analyze this issue is to compute the cumulative effect of real lending rates on a loan, using different price indices. This is done

1/ For instance, the coefficient of variation for the data in the second column equalled 0.524 for monthly data over the period January 1977-December 1984.

2/ The monthly series allow for a more precise dating of the trough in October 1977.

3/ See Fernández (1983a) analysis, p. 85, which suggests frustrated expectations over the relationship between interest rates and rate of change of individual enterprise's prices were a reason for enterprise failure.

Table 13. Argentina: Stock Market Behavior

(Base: January 1978 = 1)

	Index of Stock Value		
	Nominal value	Deflated by WFI	Deflated by exchange rate
1977			
March	0.853	1.837	1.586
June	0.712	1.279	1.162
September	0.528	0.742	0.717
December	0.565	0.622	0.599
1978			
March	1.786	1.555	1.584
June	1.667	1.165	1.354
September	3.195	1.837	2.360
December	3.177	1.439	2.026
1979			
March	6.416	2.265	3.547
June	13.493	3.715	6.554
September	11.320	2.402	4.923
December	12.139	2.403	4.795
1980			
March	21.488	3.772	7.836
June	14.578	2.179	5.003
September	15.382	2.109	5.066
December	12.477	1.569	3.976
1981			
March	15.198	1.692	3.892
June	13.035	1.007	1.177
September	14.578	0.853	1.222
December	22.918	1.028	1.403
1982			
March	19.809	0.706	1.064
June	34.384	0.917	0.858
September	57.926	0.872	0.776
December	61.150	0.667	0.572
1983			
March	98.127	0.744	0.669
June	181.043	1.018	1.002
September	287.462	0.988	0.706
December	468.200	1.001	1.162
1984			
March	1,184.650	1.658	1.427
June	1,323.600	1.117	1.220
September	1,487.820	0.715	0.836
December	2,345.670	0.691	0.827

Sources: Indicadores de Coyuntura, several issues; and Boletín de la Bolsa de Comercio de Buenos Aires, several issues.

in Table 14 below, for selected prices. Figures on that table correspond to the ratio between the value of a loan $\frac{1}{2}$ and the price index indicated at the top of each column. Therefore, if a ratio rises between two dates, the debt burden of the borrower rises, measured as the units of the price index that he would need to repay the loan. Alternatively, in the case of an asset, it indicates what yield of the asset, compounded and net of depreciation, would have allowed the borrower to keep his wealth unchanged between the chosen dates.

The data in Table 14 show substantial volatility in most of the series: in particular, this is the case when wages and cattle prices are chosen as denominators (first and sixth columns). However, a few patterns can be identified in some series. One, several distinct sub-periods can be identified in the ratio to the wholesale price index (column 2). The first runs from September 1977 to September 1978, with the ratio growing steadily by 29 percent in the full year; the second runs for a full year from September 1978 and shows a fall of 12 percent in the ratio. From September 1979 through March 1981, there is a steady rise in the ratio at an annual rate of 39 percent. In the case of cars (column 4), the only full year with a continuous trend runs from March 1980 through March 1981, where the ratio grows by 28 percent. Two, the ratio to foreign exchange (column 3) increases continuously from the beginning of the series until the abandonment of the preannounced devaluation scheme in March 1981. Finally, the ratio to stock prices (last column) increased almost continuously between June 1979 and March 1982 (March 1980 and December 1981 being the only exceptions). ^{3/} The data just described indicates that the debt burden, measured by the wholesale price index or by the stock market index, had begun to increase about two quarters before the first episodes of the crisis and continued to do so until the end of the first quarter of 1982. The fall in the debt burden that began in the second quarter was due both to a rise in stock prices and to a fall in real interest rates, which in turn resulted from interest rate ceilings established in July 1982. For the same reasons, the debt burden measured in dollars also goes down dramatically after March 1982 (column 3) if the exchange rate is used as the denominator. ^{4/}

^{1/} It is assumed that interest on the loan--at the average lending rate--is compounded monthly and that there are no payments of interest or principal until the loan matures. Since loans in Argentina were made at an adjustable rate, both new and old loans paid the same rates.

^{2/} The value of the loan is set equal to one in January 1978.

^{3/} The fall shown in December 1981--which also appears in most of the series--can be attributed, at least in part, to the effect of a "reference rate" (similar to a maximum rate) established in November 1981.

^{4/} The devaluation of the peso helped to restore the competitiveness of many firms but also increased the debt burden of those that had borrowed in foreign currency. However, the latter obtained debt relief later.

Table 14. Argentina: Real Interest Rates for Selected Price Indices

(Base: January 1978 = 1)

	Deflator Index 1/						Stock Prices
	Wages	WPI	Exchange Rate	Cars	Second-hand Apartments	Cattle	
1977							
Mar.	0.631	0.895	0.772	0.851	1.058	0.779	0.487
June	0.730	0.864	0.785	0.942	0.829	0.793	0.675
Sept.	0.797	0.856	0.827	0.829	0.823	0.717	1.154
Dec.	1.122	0.972	0.936	0.962	0.950	0.922	1.562
1978							
Mar.	1.215	1.058	1.078	0.982	1.221	1.211	0.680
June	1.185	1.078	1.252	0.993	0.948	1.290	0.925
Sept.	1.481	1.108	1.424	0.944	1.050	1.083	0.603
Dec.	1.082	1.088	1.532	0.923	0.951	0.856	0.756
1979							
Mar.	1.188	1.045	1.636	0.970	1.383	0.859	0.461
June	1.053	1.003	1.769	1.116	0.885	0.760	0.270
Sept.	1.108	0.970	1.988	1.124	0.673	0.589	0.404
Dec.	1.214	1.115	2.225	1.040	0.904	0.778	0.464
1980							
Mar.	1.150	1.180	2.451	1.091	0.845	0.902	0.313
June	1.205	1.185	2.720	1.113	0.970	0.839	0.544
Sept.	0.867	1.300	3.122	1.195	0.871	1.033	0.616
Dec.	0.908	1.404	3.559	1.278	0.924	1.276	0.895
1981							
Mar.	1.081	1.594	3.666	1.400	1.069	1.565	0.942
June	1.031	1.496	1.747	1.326	1.236	1.413	1.485
Sept.	1.183	1.576	2.259	1.310	1.462	1.698	1.848
Dec.	1.093	1.541	2.102	1.410	1.580	1.207	1.499
1982							
Mar.	1.384	1.552	2.338	1.225	2.059	1.394	2.197
June	1.776	1.488	1.393	1.314	2.087	1.214	1.623
Sept.	0.881	1.018	0.906	0.898	0.923	0.681	1.167
Dec.	0.722	0.941	0.808	0.777	1.065	0.662	1.411
1983							
Mar.	0.717	0.893	0.803	0.752	0.907	0.684	1.200
June	0.546	0.897	0.883	...	0.955	0.686	0.881
Sept.	0.548	0.774	0.553	...	0.893	0.585	0.783
Dec.	0.502	0.741	0.860	...	0.958	0.616	0.740
1984							
Mar.	0.437	0.673	0.579	...	0.621	0.528	0.406
June	0.384	0.601	0.656	...	0.597	0.569	0.538
Sept.	0.298	0.548	0.640	...	0.620	0.361	0.766
Dec.	0.354	0.566	0.678	...	0.581	0.556	0.819

Sources: Raw data provided by the Central Bank of Argentina and Tables 12 and 13.

1/ Value of loan deflated by different price indices. The loan takes a nominal value of one in January 1978 and its quarter-to-quarter variations are due to accumulated interest (at the average market lending rate). The deflators are the price indices included in Tables 12 and 13.

8. Enterprise debt

The previous discussion suggests that economic agents had to face important shocks during the financial liberalization, which included significant changes in key relative prices--including assets--and, during some periods, high borrowing costs. The vulnerability of firms to such shocks depends, inter alia, on the ratio of debt to total assets ("gearing ratio") not only because a high ratio magnifies the impact of interest rates on firm profits but also because it indicates that the firm has a low capital base to absorb losses. Petrei and Tybout (1984) have analyzed the evolution of this and other similar ratios over the period 1976-81. Their analysis is based on financial statements of 155 publicly-traded industrial corporations, classified into three major categories: exportable goods producers, importable goods producers, and nontradeable goods producers; some of these ratios are reproduced in Table 15 below. The first column in Table 15 corresponds to the beginning of the liberalization period, the second to the period of preannounced devaluations, and the last to the period after massive devaluations of the peso.

The ratios show that, except for exportables, the gearing ratio increased over the liberalization period, while liquidity fell and foreign debt increased as a proportion of total assets. Petrei and Tybout (ibid., p. 50) conclude that "During the late 1970s, firms appear to have substituted dollar debt for peso debt, keeping their overall leverage stable. But beginning in 1980, when earning rates fell sharply, firms steadily increased their reliance on debt finance. So this year and thereafter, some of the increase in firms' financial riskiness may have been due to distress borrowing. The beginning of the upward leverage trend corresponds to the emergence of banking sector crises, and may well have been a causal factor." Using the same data base, Dreizzen (1984) constructed an indicator of financial fragility "f", based on Minsky's theories. This indicator is defined as the ratio of debt service payments to self-generated funds where debt service is defined as debt amortization plus interest payments, while self-generated funds are defined as profits plus asset depreciation and interest, minus taxes. Dreizzen's sample included 143 "normal" enterprises and 23 that had to renegotiate their debts under judicial surveillance. Therefore, it is possible to compare the behavior of these two categories of enterprises. The data on Table 16 suggest that the firms that eventually fell under judicial surveillance had a much higher increase in the index of fragility than normal firms. However, it is unclear whether this index provides an explanation of why some firms had difficulties or whether it just describes those difficulties--i.e., being unable to service debts with their own resources. Be that as it may, the data in Table 16 confirm that the enterprise debt ratio grew dramatically for both types of enterprises as the financial crisis unfolded.

Table 15. Argentina: Selected Financial Ratios of Industrial Firms

		1977	1980 III	1981 IV
Liquidity Ratio:	X	0.619	0.545	0.919
(Current assets-Inventories/	M	0.759	0.693	0.698
Current liabilities)	NT	0.756	0.651	0.650
Gearing Ratio:	X	0.406	0.443	0.440
(Total debt/Total assets)	M	0.455	0.503	0.531
	NT	0.440	0.543	0.579
Net Foreign Assets Ratio:	X	-0.007	-0.028	0.015
(Net foreign assets/	M	-0.046	-0.081	-0.112
Total assets)	NT	-0.021	-0.090	-0.118

Source: Petrei and Tybout (1985).

Note: X: Exportable goods producers
M: Importable goods producers
NT: Nontradeable goods producers

Table 16. Argentina: Fragility Indices of Industrial Firms

	Fragility Coefficient by Type of Firm			Debt/Equity Ratios by Type of Firm	
	Normal	Under Judicial Surveillance	Total	Normal	Bankrupt & Under Judicial Surveillance
1977	307	272	313	0.85	1.41
1978	394	365	375	0.90	1.41
1979	304	337	293	0.85	1.78
1980	298	7,407	335	1.11	3.45
1981	297	11,105	330	1.97	3.04

Sources: Dreizzen (1984); and The World Bank (1984).

9. Business failures

The economic developments summarized above had an impact on business failures, which in turn were a cause of bank--and NBF--failures. Table 17 presents some data on the liabilities of failed business firms for the Buenos Aires court district. The table shows quarterly total liabilities in nominal terms (first column), deflated by the wholesale price index (second column), and as a ratio to bank credit to the private sector (third column). Inflation makes it difficult to interpret the first column. However, the last two columns give the same broad picture: business failures increase in real terms every year until 1982, peaking in the first quarter of that year, while the ratio of business failures to total private credit shows the same pattern, except for 1980 when the ratio falls. ^{1/} Moreover, the highest real rate of increase of business failures (76 percent) corresponds to 1980 (i.e., when the financial crisis started), although this development is masked in column 3 by the expansive credit policy followed vis-a-vis the private sector. Industry was the sector most seriously hit in the early stages of the crisis: its share in total liabilities of bankrupt firms jumped from 53.7 percent in 1979 to 83.9 percent in 1980 (Table 18).

^{1/} The data in column 2 is easier to interpret than those in column 3 which require special--though plausible--assumptions. These assumptions are that financial liabilities in failed firms can be proxied by total liabilities and that business failures in the entire country can be proxied by business failures in Buenos Aires.

Table 17. Argentina: Total Liabilities of Bankrupt Firms

(In australes)

Liabilities of Firms Declared Bankrupt over the Quarter ^{1/}			
	In Nominal Terms	Deflated by WPI	Deflated by Bank Credit to the Private Sector
<u>1977</u>	<u>3,404</u>	<u>3,985</u>	<u>4,693</u>
I	7	16	48
II	66	121	76
III	248	380	913
IV	3,083	3,468	3,656
<u>1978</u>	<u>17,499</u>	<u>10,099</u>	<u>16,057</u>
I	2,293	2,143	7,615
II	2,151	1,639	3,302
III	1,768	1,094	2,155
IV	11,287	5,223	2,985
<u>1979</u>	<u>73,693</u>	<u>16,452</u>	<u>28,788</u>
I	2,854	1,033	8,123
II	3,387	1,055	2,975
III	25,201	5,720	9,469
IV	42,251	8,644	8,221
<u>1980</u>	<u>209,485</u>	<u>29,024</u>	<u>22,517</u>
I	23,563	4,249	7,969
II	22,195	3,509	4,072
III	39,969	5,639	4,870
IV	123,758	15,627	5,606
<u>1981</u>	<u>440,127</u>	<u>35,799</u>	<u>41,854</u>
I	102,124	11,768	19,118
II	171,723	15,059	11,556
III	58,260	3,776	8,013
IV	108,020	5,196	3,167
<u>1982</u>	<u>1,382,678</u>	<u>39,151</u>	<u>43,733</u>
I	758,210	28,021	27,960
II	170,760	5,105	9,013
III	112,261	2,062	4,522
IV	341,447	3,963	2,238
<u>1983</u>	<u>2,049,399</u>	<u>7,781</u>	<u>12,695</u>
I	187,910	1,553	4,955
II	168,024	1,078	1,533
III	688,781	2,851	3,464
IV	1,004,684	2,299	2,743
<u>1984</u>	<u>15,317,202</u>	<u>10,741</u>	<u>18,956</u>
I	1,810,683	2,879	5,841
II	2,238,114	2,145	3,026
III	5,527,367	3,874	8,671
IV	5,741,038	1,843	1,418

Sources: Indicadores de Coyuntura, several issues; and International Monetary Fund, International Financial Statistics.

^{1/} Comprises data for firms filing for bankruptcy or for judicial surveillance in Buenos Aires courts in each quarter.

Table 18. Argentina: Sector Shares in Total Liabilities
of Bankrupt Firms

(In percent)

	Agriculture	Mining	Industry	Construction	Commerce	Other
1977	0.3		66.2	22.3	8.2	3.0
1978	1.7		29.7	0.5	13.3	53.8
1979	1.8	0.6	53.7	0.2	4.9	38.9
1980	1.9	2.4	83.9	3.2	6.4	2.1
1981	8.5	2.4	55.9	15.8	11.1	6.1
1982	2.3	0.0	58.6	2.7	14.5	22.1
1983	2.4		52.8	19.3	7.8	17.7
1984	0.2	0.0	72.4	7.0	6.5	13.6

Source: Indicadores de Coyuntura, several issues.

III. The Financial Crisis

This chapter focuses on the aspects of the financial crisis that can be considered internal to the financial system. It discusses the main features of the system before the crisis, the measures adopted to cope with the crisis, and the main consequences of the crisis.

1. The financial system before the crisis

This section describes the institutional features of the Argentine financial system--in particular, the bank supervision aspects--that will be helpful to understand the crisis. The description is divided into two parts: the first presents the main features of the system at the time of the financial reform of 1977 while the second presents the main features of that reform.

a. Main characteristics of the Argentine financial system at the time of the financial reform of 1977

The Argentine financial system was heavily regulated prior to 1977. This regulation had been reinforced by the law of nationalization of deposits enacted in 1973 and by the ensuing complementary measures adopted by the Central Bank. The nationalization law had established that commercial banks would receive deposits only for the account and on behalf of the Central Bank; banks had to keep these deposits in the form of cash-in-vault or deposits with the Central Bank. 1/2/ Banks could only lend out their own capital and reserves and the funds that they received from the Central Bank in the form of rediscount. The aim of that law was to empower the Central Bank to allocate credit selectively to different sectors and regions. The Central Bank also set the interest rates on loans and deposits. 3/ However, the system of nationalized deposits and regulated interest rates soon became too rigid, particularly when the inflation rate, which had been repressed by price controls in 1973, went up significantly in 1974 and jumped dramatically in 1975. In addition, the lack of an explicit link between deposits and loans reduced bank incentives to attract deposits. Therefore, the Central Bank had to make the system more flexible. Interest rates on certificates of deposit were freed in 1975 and automatic rediscount facilities, linked to the growth of specified deposits, were introduced; interest rates on time deposits were also raised significantly. Despite these measures, the real yield on nonindexed financial assets was negative in real terms. As a result, over the nationalization period (1973-1977), M2 fell by 50 percent in real terms, time deposits by 56 percent and M1 by 46 percent. This reduction in the size of the financial system was made easier by the existence of indexed government bonds, which not only provided a hedge against inflation, but also were very liquid. 4/

Entry into the financial system was also heavily regulated. The Central Bank had to approve the establishment of new banks and the opening--and closing--of branches of existing banks. 5/6/ The approval

1/ In other words, banks had a reserve requirement of 100 percent. A similar system had existed between 1946 and 1957 (see Balino (1982)).

2/ The Central Bank paid a commission to commercial banks in order to remunerate their work as deposit administrators.

3/ The Central Bank also set maximum fees and commissions on other bank operations.

4/ Indexed bonds issued by the Treasury coexisted with nonindexed assets: these bonds became very popular as a hedge against an increasing and volatile rate of inflation.

5/ With the exception of state banks, which were free to open new branches within their jurisdiction subject only to a communication to the Central Bank.

6/ The Argentine legislation has traditionally vested the powers of chartering, bank regulation, and supervision in the Central Bank.

process included an evaluation of the need for new banking services, capital adequacy, etc. Table 19 presents the evolution of the institutional structure of the Argentine financial system, which includes other financial institutions besides banks--although the latter have been by far the most important financial intermediaries.

b. The financial reform of 1977

The Government that came to power in March 1976 immediately decided that a profound reform of the financial system was needed. The economic program announced on April 2, 1976 stated the need "... to give back to the financial and banking system its flexibility and efficiency [by] eliminating the system of deposit nationalization that is inoperative from the point of view of official credit control and that also conspires against the development and agility of financial activity." ^{1/} The reform legislation was enacted in early 1977; its two main pieces were Law 21495, which authorized the Central Bank to convert the financial system back to a system of fractional reserve requirements, and Law 21526, which provided a new legal framework for financial institutions. ^{2/}

These laws provided the legal basis that allowed the Central Bank to deregulate the Argentine financial system to an unprecedented degree. The Central Bank freed interest rates, which had been regulated, totally or partially, since 1935. At the same time, in order to facilitate competition by improving market transparency, the Central Bank enjoined banks from charging commissions and special fees on loans, practices that had been widely used to raise the cost of credit when rates were regulated. The Central Bank also abandoned most selective credit practices, returning the responsibility for credit allocation to the commercial banking system; however, the Bank established a special line of refinance credit to facilitate export financing at preferential rates by commercial banks.

c. Prudential regulations and bank supervision before the crisis

The purpose of this subsection is to discuss the adaptation of prudential regulations and bank supervision to the new, more liberal, system created by the financial reform. This was a most difficult task because the many years of heavy regulation provided no guidance on how the Argentine financial system would function in a more liberal environment.

^{1/} Central Bank of Argentina (1974, p. 25).

^{2/} The conversion to the fractional reserve scheme became effective as of June 1, 1977.

Table 19. Argentina: Number and Types of Financial Institutions, 1976-1983

(Number of institutions; year-end)

	1976		1977		1978		1979		1980		1981		1982		March 1983	
	Main Office	Branches	Main Office	Branches	Main Office	Branches	Main Office	Branches	Main Office	Branches	Main Office	Branches	Main Office	Branches	Main Office	Branches
Commercial Banks	111	2,906	112	2,951	150	3,101	211	3,720	207	3,714	199	3,787	197	3,957	203	4,336
Federal government-owned	1	553	1	561	1	556	1	573	1	570	1	572	2	553	2	553
State-owned	24	976	24	1,005	24	1,025	24	1,056	24	1,083	24	1,104	24	1,122	24	1,133
Municipality-owned	4	51	5	51	5	56	5	59	5	62	5	65	5	67	5	69
Private Domestic	64	1,100	65	1,132	102	1,250	161	1,814	151	1,784	137	1,705	133	1,869	140	2,140
Private Foreign	18	226	17	202	18	204	20	218	26	215	32	341	33	346	32	341
Development Banks	2	33	2	33	2	33	2	33	2	33	2	33	2	32	2	33
Federal government-owned	1	33	1	33	1	33	1	33	1	33	1	33	1	32	1	33
State-owned	1	—	1	—	1	—	1	—	1	—	1	—	1	—	1	—
Investment Banks	4	—	4	—	3	—	4	—	3	—	3	—	3	—	3	—
State-owned	—	—	1	—	1	—	1	—	1	—	1	—	1	—	1	—
Private Domestic	4	—	3	—	2	—	2	—	1	—	1	—	1	—	1	—
Private Foreign	—	—	—	—	—	—	1	—	1	—	1	—	1	—	1	—
Mortgage Banks	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Federal government-owned	1	51	1	52	1	52	1	52	1	52	1	53	1	53	1	53
Savings Banks	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Federal government-owned	1	40	1	40	1	39	1	40	1	40	1	49	1	50	1	51
Credit Cooperatives 1/	424	13	423	34	377	173	104	13	92	24	92	26	76	23	71	24
Finance Companies 1/	80	40	80	58	138	147	142	205	135	216	126	218	111	214	102	208
Savings and Loan Assoc. 1/	—	—	35	52	35	56	31	43	28	40	25	33	22	35	19	36
Consumer Credit Assoc. 1/	69	88	65	78	14	20	—	—	—	—	—	—	—	—	—	—
Total	692	3,171	723	3,298	721	3,621	496	4,106	469	4,119	449	4,199	413	4,364	402	4,641

Source: The World Bank (1984).

1/ Private, domestic.

The Central Bank of Argentina has traditionally enjoyed wide powers over the regulation and supervision of banks and nonbank financial institutions (NBFIs). Such powers were preserved by the financial reform, thus allowing the Central Bank to revise existing regulations. The revised regulations covered four areas: capital requirements, asset immobilization, liabilities/capital ratios and ratios between the amount of the loan and capital--both of the lender and borrower.

Minimum capital requirements varied according to the type of financial institutions and their location: the highest was set at 2,500 million pesos--equivalent to about US\$6.5 million--for banks established in Greater Buenos Aires and the lowest was set at 30 million pesos--equivalent to about US\$80 thousand for "cajas de crédito" located in marginal areas. 1/2/ These amounts were set as of June 1, 1977 and from then on adjusted annually by the wholesale price index.

The regulations on asset immobilization required that immobilized assets could not exceed 100 percent of the capital and reserves of financial institutions. 3/ For this purpose, immobilized assets were defined as physical assets, prepaid expenses, all kinds of noncurrent and value-impaired loans and some other assets of lesser importance. In addition, noncurrent and value-impaired loans could not exceed 5 percent of the capital and reserves of financial institutions.

The maximum ratio of financial liabilities to net capital and reserves was limited to 25, for all financial institutions. Limits were also set on the maximum financing--including both loans and bank guarantees--that a given client could obtain. These limits were set at 50 percent of the borrower's capital and reserves for borrowing from any individual financial institution and at 80 percent for total borrowing from the financial system. Financial institutions could exceed these limits when clients offered real assets as collateral; also, loans to promote exports, some loans to state suppliers and seasonal loans were not included in this ratio. In addition, total financing to an individual client was limited to 40 percent of the lender's equity and a sublimit of 30 percent was set for actual financing of any kind (i.e. excluding guarantees). There were some exceptions for these limits in the case of foreign trade operations.

At the same time, branching regulations were eased. The new law eliminated the requirement that the Central Bank had to approve branch openings of domestic banks. Thereafter, domestic financial institutions only had to comply with some specific requirements and advise

1/ Ten million pesos = 1 austral.

2/ "Cajas de crédito" are small NBFIs mostly catering to households and small business.

3/ For new institutions, the limit was set at 50 percent initially and increased 10 points annually until the 100 percent limit was reached.

the Central Bank in advance of their intention to open a new branch. However, the Central Bank established that, until May 1980, institutions located outside the major centers would have preference to open branches. 1/ Local branches of foreign banks remained subject to prior authorization. Moreover, the establishment of new institutions and the transformation of those existing were facilitated; in particular, many nonbank institutions were allowed to become banks, which allowed them to increase the scope of their activities.

These regulations were revised over the years of the reform. Most of the revisions in 1978 and 1979 aimed at increasing the freedom of financial institutions. For instance, in 1978 the Central Bank eliminated the limit on maximum bank lending defined as a proportion of the borrower's capital--although the limit defined as a proportion of the lender's capital remained in force. 2/ However, in 1979 the Central Bank increased the minimum capital requirement for financial institutions, measured in real terms. 3/

An important change in regulations took place in 1979 in the area of deposit insurance. Until then, the Central Bank fully insured depositors and also bore the full cost of the insurance scheme. The scheme that became effective in November 1979 provided limited insurance and financial institutions were free to join or not. Those that decided to join had to pay a monthly fee equal to 3/10,000 of their average liabilities subject to reserve requirements. However, the insurance coverage provided by the Central Bank was independent of the insurance fees that it collected; the scheme was not a funded insurance system. Peso deposits of up to a ceiling of 1 million pesos 4/ were fully insured,

1/ It is interesting to note that the three banks that failed in March/April 1980, which included the largest private bank as well as the largest NBFIs in the country--which had failed in the previous year, had their head office in the interior and had used this preference to extend their branch network dramatically.

2/ The new regulations established that maximum lending to an individual client would fall gradually to reach 5 percent of the bank's capital as of January 1, 1980. The purpose of these changes, according to the Central Bank, was to allow financial institutions "... to amply recover their rights to consider and determine, for each operation, the amounts of assistance technically appropriate to the activity and size of the borrower" (Central Bank of Argentina (1978, p. 15)).

3/ There was some hesitation in the Bank's regulatory action. For instance, as of March 1, 1979 the Bank established that at least 50 percent of a financial institution's portfolio had to be covered by domestic collateral or by guarantees from foreign banks. However, this requirement was dropped in late 1979 with the argument that "... [financial] institutions [should] determine [themselves] the... collateral requirements to be provided by their borrower" (Central Bank of Argentina (1979, p. 17)).

4/ Equivalent to about US\$640 dollars.

while those above that amount would be insured only up to 90 percent; the ceiling would be adjusted monthly with the WPI. Deposits in foreign exchange were not insured. These measures changed the perceived riskiness of financial assets dramatically, although this perception only became widespread when failures of large institutions began. A group of institutions was perceived as providing de facto full insurance, despite the fact that most of them chose not to participate in the Central Bank insurance scheme. This group comprised state banks, usually guaranteed by the corresponding government (national, provincial or municipal), and branches of foreign banks, which people felt would receive comfort from their parent banks in case of need. The riskiness of the rest of the system had to be evaluated by the public usually on the basis of scant information.

All in all, the prudential regulations in place at the time were fairly comprehensive. Moreover, lack of observance of central bank regulations carried penalties, which ranged from fines to withdrawal of the charter. However, the Central Bank lacked the supervisory structure that could cope with a financial system that was growing fast and whose freedom of action had increased dramatically. In addition, the liberalization of the system generated lots of activity in the area of mergers, transformation of one type of financial institution into another, branching, etc. At the same time, many new participants were entering into the financial system. Moreover, the Central Bank's supervisory mechanism was largely biased towards monitoring compliance with regulations rather than analyzing the quality of bank assets, which would become a main cause of failures.

The Central Bank recognized these difficulties and started to study ways to improve its bank and NBFI supervision. ^{1/} However, a new comprehensive system of bank supervision became operative only as of January 1, 1981 well after the crisis had begun. ^{2/} In the meantime, the Central Bank supervised financial institutions through the analysis of the reports that they had to submit periodically and also through on-site inspections. It is hard to evaluate the quality and scope of this supervision. However, the Annual Reports of the Central Bank usually provide some data on the number of inspections carried out over the year. Table 20 presents this information together with the average number of financial institutions in each year and the percentage of institutions inspected in each category. Despite being fragmentary, these data suggest a fall, between 1977 and 1981, in the percentage of institutions inspected, which only began to be reversed in 1982.

The above discussion suggests that the main problems in the area of supervision were the lack of an appropriate supervisory mechanism and

^{1/} See Central Bank of Argentina (1979 and 1980).

^{2/} The new system involved substantial changes in bank accounting and reporting, standardization of auditing procedures, reorganization of the bank supervision area at the Central Bank, etc.

Table 20. Argentina: Inspections of Financial Institutions

	1977	1978	1979	1980	1981	1982	1983
<hr/>							
<u>Banks (including savings banks)</u>							
Inspected	...	41 <u>1/</u>	30 <u>1/</u>	...	...	...	...
Total number of banks	120	139	188	217	210	205	207
Percent inspected	...	30	16	...	...	...	...
<u>NBFIs</u>							
Inspected	305	123	77	...	...	...	...
Total number of NBFIs	588	583	421	266	249	226	200
Percent inspected	52	21	18	...	...	...	...
<u>All financial institutions</u>							
Inspected	...	164	107	...	60	78	80
Total number of financial institutions	708	722	609	483	459	431	407
Percent inspected	...	23	18	...	13	18	20

Sources: Table 18; and Central Bank of Argentina, Memoria Anual, several issues.

1/ Includes 38 partial inspections in 1978 and 4 in 1979.

Note: The figures indicated as total for each type of financial institution are the average of those existing at the end of the year and those existing at the end of the previous year.

the scarce use of the one available, rather than the lack of regulations or supervisory power--which were quite comprehensive. The Central Bank began to work on the first problem soon after the start of the reform, but it only implemented the first major revamping of the supervisory mechanism in 1981, well after the crisis had begun.

d. Alert indicators

The question arises as to whether the Central Bank, using available information, could have detected that a crisis was imminent. A way to answer this question is to construct some indicators and test their power in predicting the crisis; this was done in two papers on the Argentine crisis. The first, by Dueñas and Feldman (1980), present a set of six indicators based on the financial statements (balance sheet and profit and loss statement) that banks have to file with the Central Bank of Argentina. The set comprised the following indicators: (1) liquid assets/deposits; (2) capital, reserves, and nondistributed profits/risk-bearing assets; (3) problem loans/total loans; (4) risk-bearing assets/income-carrying assets; (5) total operating costs/total operating income; (6) net income from exchange operations/total net income. The data sample runs from June 1977 until June 1979 and comprises 17 banks, two of which were liquidated by the Central Bank. The study shows that those indicators would have provided advance warning on the problems of those two banks. However, only in January 1981 did the Central Bank begin to compute and use such indicators systematically, despite the fact that raw data for this computation had been available for a long time.

The second paper, by Arnaudo and Conejero (1985), also concludes that individual bank failures could have been predicted. Relying only on published sources, the authors confronted several indicators for the four major banks that collapsed in March-April 1980 (Banco de Intercambio Regional, Banco de los Andes, Banco Oddone and Banco Internacional). This approach compares these banks with each other and with the average of private domestic banks. Several indicators are discussed: unit defensive position, ^{1/} growth of deposits in relation to interest rate premium paid, cost per unit of deposits, share of foreign exchange operations, branch expansion, etc. Of these, the first three were effective in giving advance warning of the impending collapse. These two studies suggest that some indicators could have predicted the advent of the crisis. Moreover, other information regularly received by the Central Bank--e.g. bank reserve positions--could also have provided additional advance warning of individual problem banks.

^{1/} The unit defensive position is defined as loans/deposits (1 - legal reserve requirement). The authors interpret this mainly as an indicator of bank capitalization. They are assuming implicitly that changes in other assets and liabilities (such as excess reserves or foreign exchange operations) do not distort the values of this indicator.

The studies described above suggest methods for detecting departures of individual banks from the system's norm for some performance ratios. However, although the Argentine crisis initially affected a few individual banks, it became evident fairly soon that most of the system had substantial portfolio problems. Therefore, it is interesting to analyze whether there were some leading indicators of the global problem.

Table 21 presents data on problem loans as reported by banks to the Central Bank. In the case of loans to the primary sector and manufacturing, there is a continuous increase in the share of problem loans since 1976 which caused a similar increase in the global ratio because of the heavy weight of those two sectors in total loans. However, the other sectors do not show such a clear pattern until 1980, when every sectoral ratio shows a dramatic increase and the overall ratio jumps by almost 250 percent. These data suggest that until the end of 1979 the deterioration of the portfolio of the banking system as a whole was not particularly alarming, especially given the structural changes that were taking place in the economy. However, by the end of 1980 the rate of deterioration in the quality of bank assets undoubtedly was alarming. This deterioration can be explained by the fact that during 1980 the economy decelerated (Table 1 suggests that a recession began in the second half of that year). Moreover, indicators of the firms' situation, such as earnings, liquidity, and profits worsened. ^{1/} This worsening is also reflected in the jump in enterprise bankruptcies declared in 1980 (Table 17).

2. The crisis

This section describes the outbreak of the financial crisis and the measures that the authorities adopted to cope with it.

a. First episodes of the crisis

Although many of the problems that led to the financial crisis had been discussed for some time, until 1980 the financial system evolution had not suffered any major setbacks.

The first overt signs of a financial crisis were the failure of one bank on March 28, 1980, the intervention of three others almost immediately, and a significant reshuffling of deposits within the financial system. ^{2/} The failed bank, the BIR, had been a small private

^{1/} See Table 15 above, and Petrei and Tybout (1984).

^{2/} Intervention is the power of the Central Bank to appoint an administrator who displaces the existing administration of a troubled financial institution. However, property of the institution remains with its original owners. Intervention can either be a first step toward liquidation or to reorganization and sale of the institution. Some of the interventions that took place in 1980 were challenged in court--unsuccessfully--because, at the time, the law did not grant explicit intervention powers to the Central Bank.

Table 21. Argentina: Share of Problem Loans in
Bank Loans by Economic Sector

(In percent; end of period)

Share of problem loans per economic sector <u>1/</u>	1974	1975	1976	1977	1978	1979	1980
Primary sector	1.71	1.71	0.35	2.15	2.73	3.52	11.71
Manufacturing	2.80	3.00	0.70	1.07	1.95	3.43	12.83
Electricity, gas and water	0.02	1.08	0.47	0.02	0.37	0.17	0.33
Construction	4.93	2.44	1.43	1.85	1.74	2.32	6.28
Commerce	4.93	1.26	0.60	3.47	3.72	3.18	10.61
Services	0.51	0.27	0.19	0.85	1.23	0.71	3.45
Total <u>2/</u>	1.95	1.79	0.53	1.52	2.22	2.62	9.13

Source: Central Bank of Argentina, Boletín Estadístico, several issues.

1/ This category includes all loans currently overdue for more than ten days, and those that in the past were overdue for more than ten days and where special agreements were reached to regularize payments.

2/ Excludes personal loans and loans to unclassified activities.

bank which in a few years had become one of the largest private banks in the country, with a branch network that had increased from 46 branches in 1977 to 96 in 1979. The failure of this bank represented important losses to its depositors: those that had dollar deposits lost everything 1/ and those that had peso deposits lost the fraction uncovered by deposit insurance (at least 10 percent) plus the cost of having immobilized the insured fraction until the Central Bank actually paid off insured

1/ Their only hope was that the failed bank would have some funds to repay dollar depositors--at least partially--once the liquidation proceedings were finished. Besides the fact that bank liquidations are usually lengthy proceedings, in this specific case there was very little chance that any funds would remain to return dollar deposits.

deposits. 1/ This failure made the public acutely aware of the fact that bank deposits had some risk, which--in addition--varied widely from one institution to another. Funds were withdrawn from institutions whose solvency raised any doubts, and deposited with those considered solvent. Also, operators in the interbank money market became more cautious since participants would have little chance of recovering loans made to a failed financial institution. Among the institutions whose solvency raised doubts were those which had had an enormous expansion in a short time--largely due to the payment of high deposit interest rates--i.e., institutions whose performance resembled the BIR's. The institutions that were considered solvent were those backed either by the Government at any level (national, state or municipal), by a foreign parent institution or, to a lesser extent, those domestic private banks that had a well-established reputation. The reshuffling of deposits was facilitated by their short maturity--time deposits were concentrated in maturities no longer than 30 days. This reshuffling and the drying up of interbank funds helped to propagate the crisis: three banks had to be intervened within a month of the BIR's failure. Although their economic situation might have required some Central Bank action, it was the run on their deposits that made an urgent intervention the only policy action open to the Bank.

b. The authorities' reaction to the crisis

The authorities had to act on several fronts to cope with the crisis. First, they had to take emergency measures to avoid a bank panic; second, they had to search for longer-term solutions to the private debt problem and its impact on financial institutions; and third, they had to find ways to restructure the financial system.

(1) Emergency measures

When the BIR was closed, the Central Bank had to address the solvency problem of those institutions that faced massive deposit withdrawals. The first measure was to create a new credit facility to aid financial institutions whose deposits were falling. The Central Bank took this measure on April 3, 1980 when it became evident that the existing lender-of-last-resort facilities were inadequate, given the size of the withdrawals. The second measure was to increase by a multiple of one hundred the maximum size of fully-insured deposits retroactively to November 18, 1979--which was the date when the reduction in deposit insurance came into effect. 2/ The third measure was the

1/ This period was longer than usual in the case of the BIR due to its extensive network and chaotic administration. The law only required the Central Bank to pay back insured deposits of a financial institution within 30 days of each deposit's maturity. The depositor earned no interest over this period.

2/ The maximum size was increased from 1 million to 100 million pesos (10 australes), which at the time represented an increase from US\$600 to US\$60,000.

authorities' intervention on April 28, 1980 of the three major banks that had suffered the biggest drain in deposits (Banco Internacional, Banco Oddone, and Banco de los Andes).

These measures succeeded in stabilizing the situation gradually. Aggregate deposits fell in real terms immediately after the start of the crisis but by August they were already above the March levels. However, the distribution of deposits among financial institutions changed in favor of state and foreign institutions, a pattern that persisted over time (Table 22).

Table 22. Argentina: Distribution of Deposits Among Groups of Institutions at Selected Dates

(In percent)

	State Banks	Foreign Banks	All Other Financial Institutions
<u>End of:</u>			
March 1980	35.7	8.6	55.7
April 1980	40.9	10.2	48.9
May 1980	43.6	10.6	45.8
June 1980	42.7	10.4	46.9
September 1981	38.9	12.2	48.9
June 1982	40.0	12.7	47.3
June 1983	48.0	12.0	40.0
March 1984	44.7	15.1	40.2

Source: Central Bank of Argentina, Boletín Estadístico, several issues.

(2) Solutions to the private debt problem

Once the immediate danger of a panic had been averted, the authorities turned their attention to the problem of private debt. ^{1/} The first actions aimed at providing relief by encouraging the lengthening of debt maturities, most of which had been very short (i.e. below one year). In November 1980, the Central Bank announced that it would be prepared to make advances to financial institutions at much longer term (one year) than prevailing deposit maturities. By reducing the maturity risk of financial institutions, these loans would encourage them to extend the maturities of their own loans. However, this measure was in operation only in November and December 1980. A second effort was made in April 1981 when a new scheme of central bank advances to financial institutions was announced. This scheme required that the funds be used to refinance existing business debt--mainly debts of the agricultural, manufacturing, and construction sectors. Funds were allocated to financial institutions, first by auction and later by direct allocation, to financial institutions, up to 12 percent of their deposits, at market-related rates. This system was abandoned in November 1981 when a more ambitious refinance program was established by a special law. The main characteristics of this program were as follows:

(a) Banks and other financial intermediaries should refinance 50 percent of the liabilities of the manufacturing sector and 40 percent of the debt of other industrial sectors (excluding personal and mortgage debts) outstanding at the end of August 1981. The refinanced portion of the debt would be payable over seven years, with a three-year grace period. Firms would pay to banks a yearly interest of 3 percent and the principal would be fully indexed to the Financial Adjustment Index (Indice de Ajuste Financiero--IAF), which was computed by annualizing the interest rate paid by selected banks on 30-day deposits (tasa testigo).

(b) Banks and other financial intermediaries were authorized to rediscount with the Central Bank the full amount of the refinanced debt. The rediscount carried a zero rate of interest and was fully indexed to the IAF.

(c) Along with the rediscount, the banks had to lodge with the Central Bank a government bond for an amount equivalent to the rediscount. The bond had a maturity of seven years with a three-year grace period, was not transferable or negotiable (except between banks),

^{1/} Some estimates suggest that total private debt had increased from about 18 percent of GDP in 1976 (year-end) to about 32 percent in 1980 and reached a peak of 39 percent in 1981; this is gross debt, i.e., without subtracting private holdings of financial assets. These figures are from Arriazu, Leone, and López-Murphy (1985).

and paid a yearly interest rate of 6 percent (tax free), with full indexation of the principal to the IAF.

(d) Private financial institutions were free to participate or not in the scheme. However, once participation was agreed on, they had to provide refinancing to all client firms requesting debt consolidation. Participation was compulsory for all official banks.

(e) Participating private institutions had the option to contribute 1.5 percent of the amount refinanced to a guarantee fund administered by the Central Bank. The guarantee fund applied to 75 percent of the refinanced debt, a contingency against bankruptcy or default by beneficiary firms. If a firm defaulted, the guaranteed portion of the principal would be frozen, interest free (though it would continue to be indexed to the IAF), for the remainder of the seven-year period, at the end of which the guarantee would be made effective. The rediscount of that transaction and the equivalent bond would be cancelled.

(f) Firms benefiting from the debt consolidation would have to increase their capital by 10 percent of the refinanced amount (IAF-adjusted) over a two-year period. However, any distribution of dividends would have to be matched by an equivalent cancellation of the (indexed) refinanced debt at the moment the distribution takes effect. Funds provided under this refinancing program reached 4,709 billion pesos, i.e., about 2 percent of total loans to the private sector by March 1, 1982.

The mechanisms outlined above were in essence refinancing schemes with an element of subsidy but then still preserved the principle of free rates. However, near the end of 1981 the authorities diluted this principle by setting a so-called "reference rate" and establishing that any interest differential over that rate had to be deposited with the Central Bank. This measure did not have much impact because the administration changed soon thereafter and the reference rate was rapidly phased out. The administration in office between December 1981 and July 1982 restored free interest rates and tried to follow a free market approach to economic management. However, the South Atlantic war forced the authorities to intervene more actively in the economy--though not in the financial market--and eventually led to the downfall of the Government.

The administration that came to power in July 1982 felt that "there is a manifest disproportion between the magnitude of enterprise and household liabilities, both in pesos and dollars, and also the liabilities of the public sector itself, in relation to the value of real assets, especially productive assets (farm land, urban industrial and commercial real estate, machinery, etc.)". ^{1/} In order to solve this

^{1/} Interview with Domingo Cavallo, President of the Central Bank of Argentina in July 1982 (de Pablo (1986)).

problem, the authorities decided to introduce a drastic reform in the financial sector, whose major aim was to generate negative real interest rates over a limited period of time in order to erode the value of existing bank loans and deposits. 1/ At the same time, new financial assets were created in order to give the public some protection against future inflation, and thus provide the funding for new lending. In broad terms, the strategy called for a transitional period in which the financial system would have three main segments: a regulated segment, whose relative importance would fall over time as negative real rates shrank the value of its assets and liabilities, and two segments, one with free rates and the other indexed, whose combined relative importance would grow over time, while the first segment would disappear eventually.

The regulated segment comprised all deposits of less than 90-day maturity, on which a 100 percent reserve requirement was imposed; these deposits received practically full state insurance. Simultaneously, financial institutions received a central bank loan ("préstamo básico") that they had to apply to refinance existing private debt. Financial institutions had to set a repayment schedule for each client--which could not exceed 60 months. By adding up these schedules, the repayment schedule for the central bank loan was determined. However, banks had to repay the Central Bank even when their clients defaulted. The Central Bank set the rates on both its own credit and the refinanced debt (initially 5.6 and 6 percent). In addition, the Central Bank established another credit facility ("préstamo adicional") that would allow financial institutions to make new loans, or finance accrued interest on old ones. This "préstamo adicional" would grow, as a minimum, by the amount of interest that each institution had to pay on the previous month's "préstamo básico". The idea was that the "préstamo adicional" would allow financial institutions to finance interest accrued on the refinanced debt--since regulated deposits did not provide any lending capacity as they were subject to a 100 percent reserve requirement. 2/

The free-rate segment was limited to nontransferable term deposits with maturities of more than 90 days. Interest was free and the deposits were not subject to reserve requirements but their volume could not exceed the ceiling established by the Central Bank, which was a proportion of the deposits held by each institution on June 30, 1982. For July 1982, this ceiling was set at 6 percent, for August at 12 percent, for September at 20 percent; however, inflation was eroding the real

1/ Other measures taken simultaneously aimed at encouraging the refinancing of private foreign debt and of reducing further the attraction of the public sector securities through the advance repayment of outstanding public debt denominated in pesos. Also, the peso was sharply devalued and the exchange market was split in two--a market for commercial transactions and another for financial transactions.

2/ Other regulations provided incentives for the early liquidation of collateral seized by banks and for the renewal of private foreign debt.

value of the base. Financial institutions could use free-rate deposits, foreign lines of credit and their own funds to make loans at a free rate.

Indexed deposits had to have a minimum maturity of one year (later reduced) and carried a free interest rate. The Central Bank set no limit on their expansion but imposed a 100 percent reserve requirement on them and allowed only individuals, nonprofit institutions and insurance companies to hold these deposits. The CPI was chosen for adjustment and the Central Bank bore the adjustment cost. At the same time, the Central Bank established an automatic line of rediscount, also indexed by the CPI, equivalent to the amount of indexed deposits received by each institution. This rediscount served to finance indexed loans. ^{1/}

The financial system that emerged from these reforms was supposed to gradually evolve back to a free system as the "préstamo básico" and the "préstamo adicional" were repaid. However, later adjustments moved the system in the opposite direction: the regulated segment grew in size--as its 100 percent reserve requirement was lowered gradually--while the free segment languished--as its ceiling kept falling in real terms. Finally, in August 1983 the Central Bank prohibited the acceptance of any new deposits for the free segment, which was phased out as outstanding deposits matured.

The effects of the reform on the real value of the outstanding debt and on the size of the financial system were dramatic: negative real regulated rates eroded the outstanding real value of bank loans and reduced the demand for financial assets. Table 14 shows that the real value of debt outstanding at the end of June 1982 had fallen almost 37 percent by the end of that year, and by 62 percent by the end of 1984; all the other deflators in that table give a similar picture. Moreover, the size of the banking system shrank significantly below its pre-reform size, as measured by the real value of loans and deposits (Table 23). Table 23 shows that the real claims of the system on the private sector outstanding in December 1982 represented only 85 percent of those outstanding in June 1982, a proportion that fell to 70 percent by the end of 1983 and to 63 percent by the end of 1984; for total claims (i.e., including claims on the Central Government) the corresponding figures are 65 percent for the end of 1983 and 60 percent for the end of 1984. Moreover, the proportion of total claims financed by private sector peso deposits declined from 39 percent in June 1982 to 26 percent three months later, and then began to increase--but without reaching the levels that existed during most of the financial liberalization experience.

^{1/} However, financial institutions were discouraged from making indexed loans by the funding risk implicit in the two-year minimum loan maturity as compared to the one-year minimum deposit maturity.

Table 23. Argentina: Evolution of the Banking System
(In thousands of australes)

	Real Claims of the Banking System 1/		Share Funded by Peso Deposits	
	On the Private Sector	Total	Of Claims on Private Sector	Of Total Claims
<u>1977</u>				
I	329	407	0.497	0.403
II	410	508	0.609	0.491
III	465	560	0.635	0.528
IV	478	584	0.672	0.550
<u>1978</u>				
I	471	642	0.742	0.544
II	485	677	0.789	0.565
III	518	684	0.825	0.624
IV	552	703	0.713	0.559
<u>1979</u>				
I	542	716	0.784	0.593
II	581	744	0.782	0.611
III	604	753	0.791	0.635
IV	792	989	0.728	0.584
<u>1980</u>				
I	873	1,086	0.716	0.575
II	910	1,122	0.634	0.514
III	989	1,215	0.662	0.539
IV	1,049	1,261	0.633	0.527
<u>1981</u>				
I	1,148	1,396	0.611	0.502
II	1,099	1,333	0.520	0.429
III	1,021	1,317	0.578	0.448
IV	996	1,285	0.534	0.414
<u>1982</u>				
I	936	1,259	0.592	0.440
II	881	1,216	0.535	0.388
III	798	1,109	0.366	0.264
IV	752	999	0.383	0.288
<u>1983</u>				
I	694	929	0.466	0.348
II	692	918	0.467	0.352
III	600	785	0.473	0.362
IV	621	785	0.505	0.400
<u>1984</u>				
I	597	757	0.548	0.432
II	550	701	0.557	0.437
III	501	650	0.562	0.433
IV	556	731	0.543	0.413

Source: International Monetary Fund, International
Financial Statistics.

1/ Deflated by the WPI.

Table 24 presents quarterly data on deseasonalized monetary aggregates in real terms, for the period of first quarter 1977 to fourth quarter 1984. Two major conclusions can be drawn from that table. First, although the crisis resulted in a fall in monetary aggregates in the second quarter of 1980, there was a recovery in the third quarter, which made M2 reach its peak for the whole period included in Table 24. Also, the fall in the demand for monetary aggregates became increasingly pronounced between the fourth quarter of 1980 and the second quarter of 1981. These two facts suggest that uncertainty on economic policies were more important than the early bank failures in undermining people's willingness to hold peso-denominated assets. That uncertainty was related to the change in administration that took place in April 1981. Second, only after the reintroduction of interest rate controls in the third quarter of 1982 did quasi-money and M2 fall below the levels they had immediately before the liberalization.

As the system shrank, banks had to rely less on the public for their funding and more on central bank rediscount, which became a major source of funding. 1/ Also, as the importance of bank lending fell, the market sought alternative financial sources. Some, like bank acceptances, went through official channels; others, like the inter-enterprise loan market, did not. Lack of information on these alternative sources prevents their analysis in this paper. However, as a general proposition, the existence of a segmented financial market with regulated and unregulated segments could result in a loss of economic welfare and macroeconomic control as compared to a free, integrated market. In particular, the total amount of financial savings is likely to be lower and the cost of capital higher on average due to the market imperfections created by the segmentation.

Besides relieving the burden of peso debts, successive administrations also took measures to relieve the burden of foreign currency debts. One of the first measures was to compensate some borrowers for the increase in the peso value of their debts that resulted from the devaluation of the peso of June 1981. This compensation covered debts incurred or renewed between January 1 and May 29, 1981 that matured until the end of that year subject to the requirement that the debts be rolled over for at least one year. In addition, an exchange insurance scheme was established which resulted in a subsidy to the borrower insofar as the premium charged was below the actual rate of devaluation. 2/ Over time,

1/ This increase in central bank funding began in 1981 when debt relief mechanisms were put in place.

2/ The criteria to calculate the premium varied over time, but two were used quite often: the wholesale price index and the domestic deposit interest rate; the subsidy in the insurance scheme resulted from the significant real depreciation of the peso over the period and from the fact that the domestic deposit rate did not fully reflect the peso depreciation. Moreover, in many cases borrowers could choose the criteria for the adjustment of their exchange insurance premium between two indices--at least. The cost of the subsidies implicit in the insurance scheme were borne by the Central Bank, which also bore the losses caused by swaps.

Table 24. Argentina: Monetary Aggregates in Real Terms ^{1/}
(In thousands of australes)

	M1	Quasi-money	M2
<u>1977</u>			
I	23,480	17,831	41,354
II	25,023	24,293	49,510
III	23,339	28,644	51,767
IV	19,699	30,468	50,303
<u>1978</u>			
I	19,214	33,158	52,317
II	19,254	34,758	53,856
III	19,839	37,710	57,660
IV	19,215	36,809	56,142
<u>1979</u>			
I	19,068	37,188	56,288
II	18,930	40,332	58,909
III	18,542	41,867	60,680
IV	19,897	49,629	69,539
<u>1980</u>			
I	21,147	51,642	72,928
II	21,020	48,607	69,132
III	21,633	51,435	73,441
IV	21,360	50,127	71,446
<u>1981</u>			
I	18,539	46,499	65,266
II	15,259	42,855	57,663
III	14,670	44,589	59,697
IV	14,870	45,686	60,308
<u>1982</u>			
I	14,033	44,305	58,581
II	17,329	44,652	61,587
III	16,155	33,801	50,172
IV	15,216	30,005	45,232
<u>1983</u>			
I	13,784	29,072	42,967
II	13,487	28,811	42,050
III	12,794	27,144	40,123
IV	12,822	27,354	40,128
<u>1984</u>			
I	13,740	27,902	41,732
II	12,986	26,085	38,850
III	11,344	23,488	34,996
IV	10,464	23,045	33,440

Source: Central Bank of Argentina, Boletín Estadístico
(several issues).

NOTES: Quarterly average of end-of-month balances.

M1 = Currency in circulation plus demand deposits
of the private sector

Quasi money: Savings and time deposits and "other
deposits" of the private sector
(accrued interest is a major component
of "other deposits")

M2 = M1 plus quasi money

^{1/} Deflated by the CPI.

the scheme was enlarged and made even more attractive as Argentina's reserve position deteriorated and the authorities tried to induce borrowers to renew their foreign credits.

(3) Measures to restructure the financial system

The Central Bank acted to facilitate the restructuring of the financial system, not only by liquidating failed financial institutions but also by encouraging mergers and sales, and by increasing the Bank's flexibility to deal with problem institutions.

One of the first measures to facilitate mergers was taken in October 1980, when a special line of central bank credit was established to finance a fraction of the cost of mergers and purchases of financial institutions. The financed fraction could vary in each case and the interest rate on this line of credit was below market rates. 1/ Later, the Central Bank created a formal information service to help financial institutions meet partners for mergers or purchases.

In 1982, a new law broadened the powers of the Central Bank to deal with problem financial institutions. The purpose of this law was to give more flexibility to the Central Bank, which, under the old law, had very few options besides liquidating insolvent financial institutions. Liquidation has always been the last-resort remedy provided by the Argentine banking legislation to deal with institutions in serious difficulties and has also been the most severe penalty that could be inflicted on a financial institution. 2/ When the Board of Directors of the Central Bank approves the liquidation of a financial institution, a liquidator--usually from the Central Bank staff--is appointed to replace the chief executive officer and the board of directors of the institution. The first task of the liquidator is to pay the insured part of maturing deposits, with funds advanced by the Central Bank. 3/ The liquidator does not make new loans but is responsible for collecting those outstanding as they mature. In addition, he has broad powers in administering the institution on a day-to-day basis, subject to the approval of senior Central Bank management. His task is completed when

1/ In 1981, 227.1 billion pesos were granted under this facility. To have an idea of its relative importance, in September 1981 the average capital and reserves of a private bank in the Province of Buenos Aires was of about 36 billion pesos; the corresponding figure was lower for most other areas.

2/ A former Governor of the Central Bank of Argentina, Mr. Adolfo Diz, has compared it to the death penalty for individuals. See de Pablo (1986), p. 127.

3/ Usually, the Central Bank recovers only a fraction--in real terms--of the funds so advanced. Such recovery takes place only as the credits made by the failed bank are repaid.

he is able to obtain court approval for the final disposition of the institution's assets and liabilities. The operation of this process is quite costly. First, announcement of the liquidation of a large financial institution can create a confidence crisis. Second, both depositors and borrowers have to transfer their business to another institution. Third, funds advanced by the Central Bank for the liquidation are a source of monetary expansion that may be difficult to sterilize. Fourth, the physical and human resources that were employed by the liquidated institution may lay idle for a relatively long time. Fifth, borrowers from a liquidated bank tend to give relatively low priority to repaying loans made by the liquidated bank, because they prefer to honor their commitments to operating banks, which can be a source of new credits; this introduces a rigidity in credit distribution in favor of the clients of the liquidated institution. Sixth, the cost could be even higher if the liquidated institution had acquired assets from bankrupt borrowers, whose administration must be carried out by the liquidator, who usually has no expertise in administering assets that belonged to the bankrupt borrower (e.g. a steel mill); this case has been quite common.

Thus, liquidation had proved to be a rather costly solution to the problems of financial institutions and the new law aimed at reducing the need for liquidation by allowing different solutions to be applied at the discretion of the Central Bank. 1/ For instance, the Central Bank could give the right to administer a problem institution to another financial institution for a given period of time, at the end of which the administering institution had the option of purchasing the problem institution. 2/ In addition, the Central Bank was granted explicit powers to intervene problem financial institutions--powers that the Bank had already exercised since the crisis started but whose legality had been challenged. In addition, the new law also expanded the Central Bank's choices in liquidation cases: for example, it could decide to liquidate an institution without revoking the latter's charter, in order to facilitate its sale as a functioning institution.

The financial crisis and the actions of the Central Bank added new impetus to the restructuring of the financial system that was already under way when the crisis began. Table 19 above presents some evidence on the changes in the institutional structure of the system. The figures in that table show a trend toward a reduction in the number of NBFIs--with a dramatic fall in 1979--which, to a large extent, resulted from mergers, transformation into banks, or absorption by banks; also, 97 institutions

1/ The Central Bank's decisions can be appealed to the Ministry of Finance or to the courts.

2/ This solution was tried on one of the largest and oldest private banks, the Banco Español del Río de la Plata. However, the administering institution decided not to exercise its purchase option. The Banco Español was finally auctioned and the buyer received central bank assistance for the purchase.

were liquidated between May 1977 and December 1983. The number of banks increased almost continuously until 1981 but this increase was more than offset by the decrease in the number of NBFIs, which resulted in an overall decrease in the total number of financial institutions. It is interesting that despite the reduction in the number of financial institutions, the number of branches increased steadily throughout the period.

c. Effects of the crisis on the Central Bank's
ability to conduct monetary policy

The measures taken by the Central Bank to cope with the crisis had major implications for monetary and credit policy. The immediate effect was a significant change in the sources of reserve money: as Table 25 shows, central bank loans to the financial system were equivalent to less than 2 percent of reserve money just before the start of the crisis (February 29, 1980). However, that share increased dramatically once the Central Bank started to aid troubled financial institutions: by the end of April it had jumped to almost 31 percent, and at the end of the year it exceeded 50 percent and kept increasing during 1981 and 1982.

Table 25. Argentina: Changes in the
Sources of Base Money Creation

	Ratio of Central Bank Loans to Financial Institutions to Reserve Money (In percent)
February 29, 1980	1.87
March 31, 1980	2.76
April 30, 1980	30.82
June 30, 1980	32.24
December 30, 1980	50.12
December 30, 1981	81.61
December 30, 1982	110.11
December 30, 1983	69.03

Source: Central Bank of Argentina, Boletín Estadístico and Memoria Annual, several issues.

The need to accommodate financial institutions--and at a second stage final borrowers--put a heavy burden on the Central Bank. The rapid growth in credit to financial institutions, coupled with faster growth in credit to the Government, resulted in a jump in central bank domestic credit (Table 26). Also, net international reserves of the Central Bank fell by US\$2.9 billion in 1980, US\$3.5 billion in 1981, and US\$5.5 billion (including accumulated arrears) in 1982. Part of this loss of reserves--and of the contemporaneous acceleration in inflation--can be attributed to the faster expansion in net domestic credit of the financial system that started in 1981. However, another cause of the loss was the fall in the demand for peso-denominated assets that resulted from a loss of confidence in the value of the peso. The financial crisis and the

Table 26. Argentina: Shares of Different Sources of
Expansion of Central Bank Liabilities

(In percent)

	End-of-year data							
	1977	1978	1979	1980	1981	1982	1983	1984
a. <u>In reserve money</u>								
Net foreign assets	48.33	87.08	129.74	65.71	61.39	36.91	14.59	30.65
Net claims on government	37.22	41.85	31.94	53.62	94.06	26.49	79.76	78.93
Claims on financial institutions	17.22	8.85	7.44	50.11	81.61	110.42	70.53	89.78
b. <u>In total central bank liabilities</u>								
Net foreign assets	47.28	63.27	76.72	38.78	25.89	21.24	8.85	15.38
Net claims on government	36.41	30.41	18.89	31.65	39.67	15.24	48.38	39.60
Claims on financial institutions	16.85	6.43	4.40	29.57	34.42	63.52	42.78	45.04

Source: International Monetary Fund, International Financial Statistics Yearbook, 1985.

measures taken to cope with it were major factors in this loss of confidence. First, the public realized that a bank failure could entail losses to depositors. ^{1/} Second, the public became aware that the soundness of much of the financial system was doubtful and that any measures taken to solve them were likely to entail losses to holders of financial assets in pesos. These losses would occur because (a) the Central Bank would be forced to assist distressed financial institutions (or final borrowers), which could lead to an excessive monetary expansion immediately--if financed by an expansion in the money supply--or at a later stage--if financed by issuing interest-bearing debt; or because (b) interest rate regulation could be used to erode the real value of the assets and liabilities of financial institutions by generating negative real interest rates.

d. Costs and distribution effects of the crisis

It is easy to write down a fairly long list of the types of cost generated by the financial crisis: welfare losses of lower money balances, deterioration and unemployment of the physical assets of failed financial institutions and bankrupt borrowers, unemployment of labor, misallocation of credit that could not be collected, untimely capital outflows, etc. The list will grow even longer if wealth and income redistribution effects are also considered. However, complete quantification of these costs and distribution effects is practically impossible: not only is it very hard to identify many of these categories, but also data often are unavailable. Nevertheless, some data will be presented in this section with the view of providing a partial illustration of the size of these costs and effects.

(1) Costs to the Central Bank of liquidating a financial institution

When the Central Bank liquidates an institution, it advances the funds needed to pay back all insured deposits. Moreover, it bears the cost of administering the institution until the liquidation process is finished. Since a liquidation ends only when all assets--including loans--have been sold or recovered, it usually takes several years. Only when the liquidation is completed does the Central Bank get paid back for its advances and other expenses and only to the extent that the liquidated institution had valuable assets. ^{2/} Typically, the Central Bank cannot recover the full value--at constant prices--of its advances and expenses. Few figures are published on the losses incurred

^{1/} Even though most of these fears were allayed when practically full insurance for peso deposits was restored retroactively, dollar depositors in the BIR have not yet recovered their deposits.

^{2/} Under the law, the Central Bank's claims on failed financial institutions take precedence over other claims.

by the Central Bank in this regard. Moreover, the process of liquidation is still unfinished for most of the financial institutions that have been closed since the financial crisis began. However, each year the Central Bank makes reserves to cover the estimated cost of various contingencies. By 1982, the reserves earmarked to cover losses from the liquidation of financial institutions totaled 1,673,037 australes, equivalent to US\$364 million at the end of 1982. This figure underestimates the true expected losses because the Bank can also use non-earmarked reserves to cover such losses.

(2) Wealth redistribution effects

Some of the data discussed above suggested that significant wealth redistribution effects took place during the period under analysis, even before the crisis came out into the open. For instance, the movements in relative prices--particularly those of assets and liabilities--undoubtedly entailed redistribution of wealth among the owners of real and financial assets. Moreover, the crisis also had wealth effects, for example, on holders of foreign currency deposits--which were uninsured. Finally, many of the measures taken to cope with the crisis gave rise to a further wealth redistribution. For example, exchange rate insurance transferred the cost of devaluation from those who had borrowed abroad to the Central Bank. Given the complexity of wealth redistribution effects and the difficulty in obtaining relevant data, only one particular measure--the introduction of interest rate controls in July 1982--will be discussed here. These controls caused a significant wealth redistribution because they resulted in negative real rates, which eroded the value of existing loans and deposits in the financial system. ^{1/} Table 27 presents data for 1982 and 1983, which illustrates the size of these effects. The first two columns show the implicit subsidy for borrowers, measured as the difference between the flow of interest accrued at the regulated rate and the flow that would have accrued in the absence of interest rate regulation. There are two columns because the latter flow is defined according to two alternative assumptions about the nominal interest rate: (a) equal to the rate of inflation (wholesale prices); and (b) equal to the nominal rate that would reflect the average real lending rate that prevailed in the liberalization period (June 1977-June 1982). A similar procedure is used in the third, fourth, and fifth columns to estimate the cost to depositors; for checking deposits, only the rate of inflation alternative is used. The estimates in the table indicate that just in one and a half years borrowers benefitted from an income transfer that ranged between 10.8 and 13.4 percent of GDP, while holders of time and savings deposits lost between 8.3 and 8.9 percent, and holders of checking deposits lost about 4.4 percent of GDP. These are substantial redistributions, which

^{1/} As explained before, the maturity of outstanding debts was also extended.

extended beyond the period covered in Table 27, although the shrinkage of the financial system in real terms probably reduced the total impact of this redistribution. However, as noted at the time by the authorities, this redistribution of wealth between holders of financial assets and liabilities through the measures adopted in July simply could be regarded as an acknowledgment of the reality that many borrowers could not repay the full value of their debts, necessitating a corresponding reduction in the value of deposits.

Table 27. Argentina: Initial Wealth Redistribution Effects of 1982 Interest Rate Regulation ^{1/}

	Borrower Subsidy with Respect to:		Depositor Cost		
			Time and Savings Deposits		Checking Deposits
	Real Lending		Real Deposit		
	Inflation WPI (1)	Rate 1977-82 (2)	WPI (3)	Rate 1977-82 (4)	WPI (5)
<hr/>					
	(As percent of GDP)				
<u>1982</u>					
III	6.80	7.34	4.87	4.76	1.13
IV	<u>1.13</u>	<u>1.56</u>	<u>0.84</u>	<u>0.76</u>	<u>0.48</u>
Total	7.93	8.90	5.71	5.52	1.61
<u>1983</u>					
I	0.70	1.12	0.77	0.68	0.63
II	-0.04	0.38	0.25	0.15	0.55
III	1.68	2.07	1.51	1.41	0.85
IV	<u>0.58</u>	<u>0.94</u>	<u>0.65</u>	<u>0.57</u>	<u>0.72</u>
Total	2.92	4.51	3.18	2.81	2.75
Total for 1982/83	10.85	13.41	8.89	8.33	4.36

Sources: Central Bank of Argentina, *Boletín Estadístico* (several issues); data furnished by the Central Bank of Argentina; and staff estimates.

^{1/} Includes only commercial and savings banks.

Note: (a) The figures for domestic and loans include indexed deposits.

(b) In columns (3) and (4) savings accounts are assumed to earn the same rate as time deposits.

IV. Conclusions

Since this study has covered a broad range of issues, it is useful to summarize its main points before drawing more general conclusions.

1. The financial crisis came about after a period of economic expansion, which was uneven by sector and during which substantial changes in relative prices took place.

2. There is no evidence of a monetary contraction that could have caused the financial crisis--as some authors have claimed was the case during the 1930s U.S. crisis. On the contrary, monetary aggregates were growing at a fast pace before the crisis started and continued to do so thereafter.

3. Nominal interest rates more than doubled when interest rate ceilings were lifted in 1977, remaining significantly higher and more variable than controlled rates had been. Their variability was lower during the period of preannounced devaluations.

4. High real lending rates helped to precipitate and aggravate the crisis. However, since negative real rates prevailed in many quarters, the impact of real rates on borrowers varied according to the timing of their borrowing.

5. While lending rates fluctuated with deposit rates, large and volatile spreads had a major impact on them. These spreads largely reflected the gross margin that served to cover administrative costs and profits. Risk premia and monopolistic behavior are hypotheses that could explain these margins, but they are not tested in this paper.

6. Imperfect access to foreign loans and uncertainty over exchange rate policies can explain why borrowers continued borrowing domestically.

7. Financing of high-yield and high-risk projects, expectations of a bailout, and speculative borrowing are the main hypotheses that several authors have advanced to explain borrowing at high real rates, as observed in Argentina.

8. The policy of preannounced exchange rates--and to a lesser extent trade policies--led to a substantial increase in the price of nontradable goods relative to tradable goods that began in early 1979 and lasted until exchange rate policy was changed in 1981. This forced enterprises to adapt to a dramatically changed economic environment, an adaptation made more difficult by growing uncertainty about the sustainability of those policies.

9. Stock prices, which had been increasing significantly before the financial crisis started, dropped immediately thereafter, both

vis-a-vis the wholesale price index and the dollar. This made enterprises' access to finance more difficult just when lenders became more cautious and lending rates were high in real terms.

10. The debt burden, measured as the ratio of a hypothetical debt to selected prices, shows substantial variability over the liberalization period. Nevertheless, the burden in terms of foreign currency increased continuously between the first quarter of 1977 and the first quarter of 1981, when the situation reversed itself as a result of the devaluation of the peso. Thus, whether a firm was better off by borrowing in pesos or in dollars hinged on the period over which the debt was outstanding. Also, the debt burden for homeowners more than doubled between March 1980 and June 1982, which became a major argument in favor of debt relief at the time.

11. Distress borrowing was a factor in aggravating the crisis, but its influence in starting the crisis is unclear. Some evidence suggests that when enterprise profitability fell, beginning in 1980, gearing ratios increased.

12. Business failures increased during the liberalization period and jumped when the crisis broke out in 1980; industry was the most affected sector.

13. The financial reform of 1977 not only freed interest rates but fostered competition by liberalizing entry into the financial market and the opening of branches.

14. The abandonment of full deposit insurance in November 1979 made deposits riskier and helped to propagate the crisis, until insurance for most deposits was reestablished. Reluctance of the interbank market in lending to troubled institutions also helped to propagate the crisis.

15. The prudential regulations and penalties for noncompliance that were in effect during the liberalization period were fairly comprehensive. However, supervision was more geared to monitoring compliance with regulation than to analyzing the quality of the portfolio of financial institutions. Alert indicators, which might have given advance warning on troubled institutions, were not available until 1981. Moreover, the percentage of institutions inspected on site fell between 1977 and 1981.

16. Bank reports indicated a steady deterioration in bank portfolios, starting in 1976 but accelerating dramatically in 1980.

17. The emergency measures taken by the Central Bank succeeded in stopping the run on deposits that started with the BIR's liquidation.

18. Some evidence suggests that currency holdings became less elastic to the deposit interest rate thereafter. Also, uncertainty over the course of economic policy late in 1980 and early in 1981

appears to have been more important than bank failures in reducing the demand for monetary aggregates.

19. The Central Bank adopted various measures over time to provide debt relief to the private sector. In 1980 and 1981 it implemented schemes to encourage banks to refinance outstanding loans. In July 1982 it took a more drastic approach, whose main elements were interest rate ceilings on most financial assets and debt refinancing. Also, the Bank provided inducement--such as exchange rate insurance--to encourage the rescheduling of foreign debts.

20. The reintroduction of interest rate controls in 1982 was coupled with a rise in the inflation rate. The resulting negative real interest rates caused a dramatic fall in the value of the outstanding stock of debt and also a fall in the demand for monetary assets. At the same time, central bank credit became a major source of funding for the financial system and of growth of reserve money. This contributed to the loss of reserves and rise in inflation experienced after the crisis started.

21. The Central Bank established new facilities, including credit lines, to facilitate absorptions and mergers. Also, the costs implicit in liquidating financial institutions--which was the remedy mandated by law in some situations--induced the Government to give more flexibility to the Central Bank in dealing with those situations.

22. Figures for the cost of bank liquidations are hard to obtain. By the end of 1982, the Central Bank had earmarked provisions equivalent to about US\$364 million, which most likely underestimates such cost. Moreover, the costs of keeping resources idle or using them suboptimally are impossible to estimate. These resources include not only typical bank assets such as bank buildings, computers, etc., but also property acquired by banks through foreclosure that the Central Bank has to manage in the case of failed banks.

23. The financial crisis and the measures taken to cope with it entailed significant wealth redistributions. Depositors in foreign exchange in failed institutions lost their deposits. Also, a further redistribution resulted from the negative real rates that prevailed following the reintroduction of interest rate controls. This redistribution transferred the equivalent of at least 11 percent of GDP to borrowers over one and a half years.

A broad conclusion that can be drawn from the analysis is that--although elements endogenous to the financial system--such as the high level of interest rates following the liberalization and loans of dubious quality--contributed to the crisis, elements exogenous to the system played a major role in determining the extent of the crisis. Macroeconomic policies, particularly with regard to the exchange rate,

forced enterprises to adjust to substantial changes in economic conditions. Uncertainty about policy continuity exacerbated the costs of adjustment. These elements contributed to a recession and the collapse of many firms, which in turn deteriorated the quality of the loan portfolio of the financial system.

Inadequate supervision of the financial system also contributed to the crisis. There is evidence that the financial institutions liquidated in the early stages of the crisis had particular problems that alert indicators and closer monitoring could have detected earlier. Earlier detection would not only have given more time to find solutions, but could have reduced the size of the problem by limiting the growth of those institutions. However, even with better supervision, some deterioration of the quality of bank portfolios could not have been avoided in light of the *instability of economic conditions that made* forecasting and planning very uncertain. Nevertheless, there is little doubt that improved supervision would have allowed the financial system to withstand such deterioration better.

The Central Bank was able to contain the propagation of the crisis by granting emergency credits to troubled institutions, and by reversing (retroactively) its previous policy of gradually reducing the scope of deposit insurance. Also, the crisis gave impetus to the program to improve bank supervision, and prompted the introduction of more flexible ways to deal with troubled institutions in order to reduce the need for the inherently costly liquidations.

The reintroduction of interest rate controls brought relief to borrowers. However, it also shrank the size of the financial system as depositors became reluctant to hold financial assets carrying a negative real yield. This, together with other measures taken to help borrowers and financial institutions--such as increased central bank funding of the financial system--undoubtedly made monetary management more difficult and can be considered contributing factors to the higher inflation and loss of international reserves that had started with the crisis. The huge debt relief granted in 1982 also raises difficult issues, such as the fairness of the substantial redistribution of wealth that it implied and whether more selective relief could have achieved a similar result in a less costly way.

References

- Ardito Barletta, Nicolas, Mario Blejer and Luis Landau (eds.), Economic Liberalization and Stabilization Policies in Argentina, Chile, and Uruguay. Applications of the Monetary Approach to the Balance of Payments, The World Bank, 1983.
- Arnaudo, Aldo A. and Rafael Conejero, "Anatomía de las Quiebras Bancarias de 1980," Desarrollo Económico, Vol. 24, No. 96 (January-March 1985).
- Arranz, Juan M. and Lidia R. Elías, "Ciclos de Referencia para la Economía Argentina," Serie de Estudios Técnicos, Centro de Estudios Monetarios y Bancarios, Banco Central de la República Argentina, No. 60 (July 1984).
- Arriazu, Ricardo H., Alfredo M. Leone, and Ricardo H. López-Murphy, "Políticas Macroeconómicas y Endeudamiento Empresarial," unpublished manuscript, Buenos Aires, 1985.
- Baliño, Tomás J.T., La Reforma Monetaria y Bancaria Argentina de 1946-57 un caso de encaje bancario total? CEMLA, Mexico, 1982.
- Benston, George J. (discussant) and Joseph F. Sinkey, Jr., "Problem and Failed Banks, Bank Examinations and Early Warning Systems: A Summary," in Altman, Edward I. and Arnold W. Sametz, eds., Financial Crises, Institutions and Markets in a Fragile Environment (New York: John Wiley & Sons, 1977).
- Blejer, Mario I., "Interest Rate Differentials and Exchange Risk: Recent Argentine Experience," IMF, Staff Papers, Vol. 29, No. 2 (June 1982).
- Bordo, Michael, "Some Historical Evidence, 1870-1933 on the Impact and International Transmission of Financial Crises," Working Paper No. 1606, National Bureau of Economic Research (Cambridge, Mass., 1985).
- Bosworth, Barry, Allen Sinai and John Lintner, "Discussion," in Altman, Edward I. and Arnold W. Sametz, eds., Financial Crises, Institutions and Markets in a Fragile Environment (New York: John Wiley & Sons, 1977).
- Bovenzi, John and Lynn Nejezchleb, "Bank Failures: Why are there so many?" Issues in Bank Regulation, Vol. 8, No. 3, Winter 1985.
- Cagan, Philip, Determinants and Effects of Changes in the U.S. Money Stock, 1875-1935, National Bureau of Economic Research (New York: 1965).

Calvo, Guillermo A., "Fractured Liberalism: Argentina under Martínez de Hoz," Economic Development and Cultural Change, Vol. 34 (April 1986).

Central Bank of Argentina, Memoria Anual (1978).

_____, Memoria Anual (1979).

_____, Memoria Anual (1980).

Dabós, Marcelo P. and Edgardo C. Demaestri, "La Demanda de Billetes y Monedas en la Argentina. Un Análisis Empírico," Serie de Estudios Técnicos, Centro de Estudios Monetarios y Bancarios, Banco Central de la República Argentina, No. 59 (October 1983).

Damill, Mario and Roberto Frenkel, "De la Apertura a la Crisis Financiera. Un Análisis de la Experiencia Argentina de 1977-82," Ensayos Económicos, No. 37 (March 1987).

Demaestri, Edgardo C., "Estimación de una Función para el Coeficiente de Circulante en los Recursos Monetarios," Serie de Estudios Técnicos, Centro de Estudios Monetarios y Bancarios, Banco Central de la República Argentina, No. 46 (January 1982).

de Pablo, Juan Carlos, "La economía que yo hice," Ediciones El Cronista Comercial, Vol. II (Buenos Aires, 1986).

Díaz-Alejandro, Carlos, "Good-Bye Financial Repression, Hello Financial Crash," Journal of Development Economics, Vol. 18 (1985), pp. 1-24.

Dreizen, Julio, "El Concepto de Fragilidad Financiera en un Contexto Inflacionario," unpublished M.A. dissertation, Pontificia Universidade Catolica do Rio de Janeiro, 1984.

Dueñas, Daniel E. and Ernesto V. Feldman, "Indicadores Financieros de Alerta Anticipada del Desempeño de las Firms Bancarias," paper presented to the Jornadas de Economía Monetaria y Sector Externo, Banco Central de la República Argentina, Buenos Aires, October 1980.

Feldman, Ernesto V., "La Crisis Financiera Argentina: 1980-1982: Algunos Comentarios," Desarrollo Económico, Vol. 23, No. 91 (October-December 1983).

Fernández, Roque B., "La Crisis Financiera Argentina: 1980-1982," Desarrollo Económico, Vol. 23, No. 29 (April-June 1983).

_____, "La Crisis Financiera Argentina: 1980-1982, Réplica," Desarrollo Económico, Vol. 23, No. 91 (October-December 1983).

- _____, "The Expectations Management Approach to Stabilization in Argentina During 1976-82," World Development, Vol. 13, No. 8 (August 1985), pp. 871-892.
- Fisher, Irving, Booms and Depressions, (New York: Adelphi, 1932).
- _____, "The Debt Deflation Theory of Great Depressions," Econometrica, 1933, pp. 337-357.
- Flood, R.P., Jr., and P.M. Garber, "A Systematic Banking Collapse in a Perfect Foresight World," Working Paper No. 691, National Bureau of Economic Research (Cambridge, Mass.: 1981).
- Friedman, Milton and Anna J. Schwartz, "Money and Business Cycles," Review of Economics and Statistics, Vol. 45, No. 1, Part 2, Supplement 1963.
- Gaba, Ernesto, "La Reforma Financiera Argentina--Lecciones de Una Experiencia," Ensayos Económicos, No. 19 (September 1981).
- Kindleberger, Charles P., Manias, Panics, and Crashes: A History of Financial Crises (New York: Basic Books, 1978).
- Meller, Patricio, "Inestabilidad Financiera, Burbujas Especulativas y Tasa de Interés: La Economía Chilena de 1975-83," paper presented to the "Encuentro Nacional de Economistas 1983," Instituto de Economía, Pontificia Universidad Católica de Chile, Punta de Tralca, Chile, December 1983.
- Minsky, Hyman P., "A Theory of Systematic Fragility," in Altman, Edward I. and Arnold W. Sametz, eds., Financial Crises, Institutions and Markets in a Fragile Environment (New York: John Wiley & Sons, 1977).
- Petrei, A. Humberto and James R. Tybout, "How the Financial Statements of Argentine Firms Reflected the Stabilization and Reform Attempts During 1976-81," World Bank Staff Working Papers, No. 706 (1984).
- _____, and James R. Tybout, "Argentina 1976-81: La Importancia de Variar los Niveles de Subsidios Financieros," Cuadernos de Economía, No. 65 (April 1985).
- Rodríguez, Carlos A., "La tasa real de interés," in Fernández, Roque B. and Carlos A. Rodríguez (eds.), Inflación y Estabilidad, Ediciones Macchi (Buenos Aires, 1982).
- Rolnick, Arthur J. and Warren E. Weber, "The Causes of Free Bank Failures," Journal of Monetary Economics, Vol. 14 (1984), pp. 267-291.

Sinkey, Joseph F., Jr., "The Characteristics of Large Problem and Failed Banks," Issues in Bank Regulation, Vol. 8, No. 3, Winter 1985.

The World Bank, Economic Memorandum on Argentina (Washington, D.C.: 1984).

