

WP/88/66

INTERNATIONAL MONETARY FUND

Central Banking Department

Liberalization, Crisis, Intervention: The  
Chilean Financial System, 1975-1985

Prepared by Andrés Velasco\*

Authorized for Distribution by V. Sundararajan

July 21, 1988

Abstract

This paper surveys the evolution of the Chilean financial system from 1975 to 1985, analyzes the causes and the consequences of the major crisis in the financial system during 1981-83, and examines the measures adapted to contain the crisis and restore the financial system to normalcy. The analysis suggests that certain features of the financial sector--growing loans of dubious quality, limited central bank supervision--raised the vulnerability of the sector to the external shocks and macroeconomic policy changes experienced by Chile. Channels through which financial sector troubles may have exacerbated the impact of real shocks are also explored.

MASTER FILES  
ROOM E-130  
001

JEL Classification Numbers:  
1216; 3116; 3140

---

\* This paper was prepared while the author was a summer intern in the Central Banking Department. The author is indebted to Mr. T. Baliño, Ms. L. Koenig, Mr. J. Leimone, and Mr. V. Sundararajan for extremely helpful comments and information. Any remaining errors are the responsibility of the author, as are the views contained in this document.

Contents

|  | <u>Page</u> |
|--|-------------|
| Summary  | iii         |
| I. Introduction  | 1           |
| II. The Financial Reform   | 5           |
| 1. Institutional changes   | 5           |
| 2. Regulatory reform   | 8           |
| 3. Capital flows   | 10          |
| III. Impact of the Financial Reform: Some Macro-Aggregates                           | 13          |
| 1. Domestic savings  | 1           |
| 2. Investment  | 14          |
| IV. Impact of the Financial Reform: The Growth of Financial Assets                   | 14          |
| V. Impact of the Financial Reform: The Expansion of Domestic Debt                    | 22          |
| VI. Impact of the Financial Reform: Interest Rates                                   | 32          |
| 1. Nominal interest rates  | 33          |
| 2. Real interest rates   | 37          |
| 3. The spread between loan and deposit rates   | 40          |
| VII. Four Grand Theories of the Financial Crisis: Separating Micro from Macro Causes | 41          |
| VIII. Reacting to the Crisis   | 47          |
| 1. Measures to aid domestic borrowers  | 48          |
| a. Reprogramming of firm loans   | 48          |
| b. Reprogramming of housing loans (mortgages)  | 49          |
| c. Sectoral lines of credit  | 49          |
| 2. Measures to aid financial intermediaries  | 49          |
| a. Emergency loans to banks  | 49          |
| b. Subsidies to facilitate reprogramming of loans                                    | 49          |
| c. Purchase of risky loans by Central Bank   | 50          |
| 3. Other relief measures   | 52          |
| a. Preferential exchange rate  | 52          |
| b. Interest subsidies on swap operations   | 52          |
| 4. Reform of bank regulations and legislation  | 59          |
| IX. Avoiding and Managing Financial Crises: Some Lessons from the Chilean Experience | 61          |
| Appendix. Interaction Between Micro and Macro Variables in a Financial Crisis        | 66          |
| References   | 68          |

### Summary

This paper surveys the evolution of the Chilean financial system from 1975 to 1985, analyzes the causes and the consequences of the major crisis in the system during 1981-83, and examines the measures adopted to restore the system to normalcy.

In the mid-70s, Chile initiated a program of liberalization of its financial system by privatizing commercial banks, abolishing interest rate ceilings and nonmarket allocations of credit, eliminating barriers to entry, and gradually freeing international capital flows. As a result, total financial assets and the range of financial instruments and institutions expanded rapidly. The response of domestic savings and private investment was initially slow, but began to improve after 1978, although this progress was temporarily interrupted by the crisis.

In the post-reform period, domestic real and nominal interest rates remained stubbornly high. The paper surveys several hypotheses to explain this phenomenon and suggests that conditions in the domestic credit market were probably more important than international factors in explaining the interest rate behavior. The demand for bank credit remained strong, owing to pressures to continue lending to troubled borrowers, to roll over scheduled principal payments, and to capitalize interest. Since the supply of credit was not adequately responsive, reflecting in part the remaining restrictions on capital mobility, interest rates remained high. This phenomenon was accentuated by the interlocking ownership patterns that facilitated the channeling of a sizable portion of loans to banks' own enterprises and by other factors that permitted excessive risk taking.

In the early 1980s, terms of trade and interest rate shocks affected the private sector, already weakened by a lengthy period of high domestic real interest rates and an overvalued exchange rate. As a result, substantial portions of banks' portfolios became nonperforming. The authorities eventually intervened in 16 financial institutions, and granted substantial emergency credit. Such measures contained the propagation of the crisis, but the resulting liquidity expansion contributed to rapid reserve losses in late 1981 and 1982.

The crisis led to a massive restructuring of the Chilean financial system. Certain institutions were liquidated and others recapitalized. Banks were able to improve their position by selling nonperforming loans to the Central Bank, by accessing a wide range of subsidy programs, and rescheduling loans to private sector borrowers. The package restored stability to the financial system, but the cost was a large increase in commercial bank liabilities to the Central Bank and a large transfer of interest subsidies through the Central Bank. In the years since the crisis, bank legislation has also been overhauled; the new law tightens capital requirements and bank supervision, while restricting the scope of state deposit insurance.



## I. Introduction

In the mid-1970s the Government of Chile undertook a comprehensive program of liberalization. A central component of this program, and one that became increasingly prominent after 1977, was a drastic overhaul and deregulation of the country's financial system. Such a reform was carried out in the spirit of the well-known McKinnon-Shaw prescription that abolishing "financial repression" is essential for sustained economic development (McKinnon, 1973; Shaw, 1973): banks were privatized, regulations relaxed and interest rate ceilings abolished, and integration with world capital markets increased. The process of financial reform was accompanied by stabilization policies aimed at reducing the persistent macroeconomic disequilibria, reflected particularly in hyperinflation during the early 1970s.

During the course of the stabilization cum reform program, auspicious signs emerged from both the financial and real sectors of the economy for several years before a major financial crisis interrupted the progress. During 1977-81 inflation fell (albeit slowly) and output boomed while domestic capital markets expanded vigorously (see Table 1). However, by late 1981 the financial system was indisputably submerged in a major crisis. By one estimate, the nonperforming assets of banks had reached 22 percent of capital and reserves by the end of 1981, and were to rise to 47 percent at the end of 1982 and 113 percent in May of 1983 (Arellano, 1983a). Two successive waves of government "interventions" (one in November 1981 and one in January 1983) were necessary to rescue or liquidate the troubled financial intermediaries. By early 1983, eleven commercial banks (including the nation's two largest private banks) and five financial companies (financieras) were under government intervention or had been liquidated. Many other financial institutions only survived due to a generous infusion of government subsidies. The severity of the crisis contributed to a substantial weakening of macroeconomic performance and major readjustments in policies. The fixed exchange rate regime, maintained for almost three years, collapsed in June 1982. During 1982-83 inflation rebounded somewhat, and real output fell by over 14 percent in 1982 alone. In the years since, there has been a gradual resumption of growth, and a changed emphasis in stabilization policies, while the financial system is being rebuilt.

This paper focuses on the possible causes of the crisis in the Chilean financial system, and analyzes the measures adopted to deal with the crisis and the impact of these measures. The Chilean process resembles the "classical" boom-and-bust cycle of financial crises, as described by Minsky (1977) and Kindleberger (1978). 1/ The paper will, therefore, follow the upswing in financial intermediation which occurred in the late 1970s, and attempt to analyze the weaknesses that eventually

---

1/ This point has been stressed by Barandiarán (1983).

Table 1. Chile: Main Macroeconomic Indicators

|  | 1975             | 1976             | 1977           | 1978           | 1979    | 1980    | 1981    | 1982    | 1983    | 1984    | 1985    | 1986    |
|--|------------------|------------------|----------------|----------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Inflation <u>1/2/</u>                              | 340.7<br>(343.3) | 174.3<br>(197.7) | 63.5<br>(84.2) | 30.3<br>(37.2) | 38.9    | 31.2    | 9.5     | 20.7    | 23.1    | 23.0    | 26.4    | 17.4    |
| Devaluation vis-a-vis<br>the U.S. dollar <u>3/</u> | 354.5            | 104.9            | 60.5           | 21.4           | 14.9    | 0.0     | 0.0     | 88.3    | 19.2    | 46.5    | 43.4    | 11.4    |
| Real exchange<br>rate <u>4/</u>                    | 97.9             | 79.9             | 90.0           | 100.0          | 92.4    | 79.8    | 70.5    | 99.4    | 93.4    | 106.1   | 135.7   | 146.8   |
| M <sup>1</sup> growth <u>3/</u>                    | 254.8            | 195.3            | 108.2          | 66.9           | 64.5    | 56.8    | -6.0    | 9.4     | 26.6    | 13.1    | 11.3    | 41.3    |
| Real wages <u>5/</u>                               | -3.2             | 2.9              | 10.4           | 6.4            | 8.3     | 8.4     | 9.0     | 0.5     | -10.9   | —       | —       | —       |
| Unemployment <u>6/</u>                             | 16.7             | 16.8             | 13.2           | 14.0           | 13.6    | 11.8    | 11.1    | 22.1    | 22.2    | —       | —       | —       |
| Fiscal deficit <u>7/</u>                           | -1.7             | 3.7              | 1.7            | 2.1            | 4.8     | 5.5     | 0.8     | -3.4    | -2.8    | -4.4    | -2.6    | -1.9    |
| Current account<br>deficit <u>7/</u>               | -4.5             | 0.9              | -3.7           | -5.3           | -5.5    | -7.8    | -14.3   | -9.5    | -5.4    | -10.7   | -8.2    | -6.3    |
| Real GDP growth <u>8/</u>                          | -12.9            | 3.5              | 9.8            | 8.2            | 8.3     | 7.8     | 5.7     | -14.3   | -0.7    | 6.3     | 2.4     | 5.7     |
| Stock price<br>index <u>9/</u>                     | 4.2              | 13.7             | 46.3           | 100.0          | 202.7   | 381.5   | 284.2   | 254.1   | 213.3   | 258.1   | 330.3   | —       |
| International<br>reserves <u>10/</u>               | 55.9             | 405.1            | 426.5          | 1,090.1        | 1,938.3 | 3,123.2 | 3,213.3 | 1,815.0 | 2,036.3 | 2,302.9 | 2,449.9 | 2,351.3 |

1/ December to December percent change; Central Bank of Chile. CPI base: 1978 = 100.

2/ Figures in parentheses are from Cortazar and Marshall (1980) CPI.

3/ December to December percent changes, International Financial Statistics (IFS).

4/ Measured in December of each year. Nominal exchange rate adjusted by a trade-weighted index of the exchange rates and CPIs of Chile's 16 major trading partners. Base: December 1978 = 100.

5/ Cortazar (1983). Uses Cortazar-Marshall price index as deflator.

6/ CEPAL (1983). Arithmetic average of quarterly survey results. Does not include Minimum Employment Plan.

7/ Overall deficit of the nonfinancial public sector, as a percent of GDP.

8/ IFS, 1980 prices.

9/ Central Bank of Chile, Boletín Mensual, December Índice General de Acciones. Base: December 1978 = 100.

10/ IFS, in millions of U.S. dollars.

led to systemic difficulties. The analysis pays close attention to the interaction among financial and macro variables and policies.

The macroeconomic policies and outcomes up to the 1982 crisis are well known and have attracted ample academic attention (Corbo (1985); Dornbusch (1984); Edwards (1985); Foxley (1983); Harberger (1985); Sjaastad (1983); Zahler (1983)). 1/ It will suffice here to outline some of the main changes in the macroeconomic environment that accompanied the financial reform. A major aim of the stabilization policy during this period was to lower the rate of inflation, which had neared hyperinflationary levels in 1973. To a large extent, the inflation reflected the need to finance huge fiscal deficits, which in 1973 had reached 22 percent of GDP.

A tighter fiscal policy was a main component of the policy package. While the growth of fiscal expenditures was reduced, the Government took strong measures to increase revenue. These measures included a tax reform, price increases for goods and services produced by the public sector, and also the sale of many enterprises that the previous administration had nationalized. As a result, the public sector had achieved significant overall surplus by 1979.

Monetary and exchange rate policies were also modified. The Government followed a policy of moderate expansion in domestic credit combined with a crawling peg. The strategy was to gradually lower the rate of inflation while improving the reserve position of the central bank and preserving the competitiveness of Chilean exports.

The exchange rate policy was changed in December 1977, when the Government introduced a daily schedule for the exchange rate for the following two months. In February 1978, this schedule was extended for eleven months and at the end of that year it was extended through December 1979. These schedules implied a declining rate of devaluation, with the aim of driving inflation closer to international levels. In addition, it was hoped that preannouncement of the devaluation rates would help in removing uncertainty and serve to align domestic interest rates with those abroad. In June 1979, the exchange rate was pegged at 39 pesos--the level that, according to the schedule, would only have been reached in December. Moreover, the Government announced that there would be no further devaluations.

Perhaps the most dramatic policy changes occurred in the foreign sector. The authorities moved rapidly to eliminate trade restrictions and sharply reduced both the dispersion and levels of tariffs. However, they moved more slowly in freeing capital movements. Most capital

---

1/ The microeconomic aspects of policy changes and their effects have also been described in some detail (Arellano (1983a); Barandiarán (1983); Díaz-Alejandro (1985); Zahler (1985); and Luders (1986)).

outflows remained restricted through the 1970s and all new foreign borrowing or refinancing of existing credits by commercial banks remained subject to prior approval of the Central Bank, except for short-term lines of credit.

These policies succeeded in lowering inflation to less than 10 percent per year by 1982, while achieving a rate of growth of GDP of 7 percent per year over the period 1976-81. However, in 1982-83, and coinciding with the financial crisis, the country plunged into a major recession; GDP fell by 14 percent in 1982 and 1 percent in 1983, while unemployment increased from a low of 11 percent in 1981 to over 22 percent in 1982. This recession had both foreign and domestic causes. The most important foreign causes were the collapse in the prices of Chile's main export commodities (especially copper), the appreciation of the U.S. dollar, and higher interest rates abroad. The main domestic cause was a deterioration of competitiveness, caused by the combination of fixed exchange rate and backward-looking wage indexation. The cumulative effect of high domestic interest rates since 1975, following the financial sector liberalization, had weakened the financial health of enterprises, and this also served to deepen the recession. Furthermore, the Chilean Government addressed the situation of declining competitiveness and deteriorating external balance by restraining domestic demand and lowering nominal wages, and--when those measures proved insufficient--by abandoning the fixed exchange rate of the peso on June 15, 1982, when the peso was initially devalued by 15 percent. Following a further sharp depreciation, the peso declined to Ch\$66 per U.S. dollar by September 1982, when it was announced that exchange rate adjustments would follow a crawling peg.

While these developments served to accelerate inflation from 10 percent in 1982 to 27 percent in 1983, the economy started to recover. In 1984, real GDP grew by almost 6.3 percent, while inflation fell to about 20 percent. Recovery continued in 1985, when GDP grew by about 2.4 percent, although inflation accelerated to about 26.5 percent. The rate of unemployment fell sharply to about 12 percent by 1985, with real average wages declining steadily during 1982-85.

Against this background, the central purpose of this paper is to analyze systematically the connection between macro and purely financial developments, and try to separate the micro from the macro causes of the financial crisis. It is usually taken for granted that undesirable macro outcomes such as high real interest rates and overvalued exchange rates had a negative impact on the position of borrowing firms, and thereby on the financial system as a whole. The reverse and more subtle question of how the financial sector disequilibria affected the health of the macro-economy is seldom asked. This paper discusses the possibility that the financial sector troubles might have contributed substantially to the creation of instability elsewhere in the economy. In turn, the macro disturbances that they helped create would come back to "haunt" the

banks, via a weakened pool of borrowers and large quantities of non-performing assets.

A second distinguishing feature of this paper is an attempt to examine the interrelationships between several widely accepted hypotheses concerning Chile's financial crisis. The financial reform was quite controversial when implemented, but ex post there exists remarkable agreement as to "what went wrong." Many such explanations, however, are in the nature of partial equilibrium analyses that focus only on a particular feature of the financial problem (high interest rates, for instance). This essay juxtaposes them and explores their mutual compatibility. Finally, this paper benefits from recently published work (Gálvez and Tybout (1985); Corbo and Sánchez (1985); Arriagada (1985)) on the microeconomic performance of Chilean firms during the relevant period. This information permits a better discussion of some common assumptions about the link between firm bankruptcies and bank problems.

Distributional and welfare issues are only dealt with very superficially. The process of financial reform and the measures to deal with the financial crisis have probably had major distributional and welfare consequences, but their measurement and evaluation should be the subject of a separate study.

## II. The Financial Reform

The process of financial reform began shortly after the new administration came to power in 1973. Broadly speaking, the reform included institutional, regulatory and international aspects, which will be considered in that order. By 1980, the process of liberalization was essentially complete. From 1981 onward, new changes would take place, though now mostly in response to the growing imbalances.

### 1. Institutional changes

The financial system was almost entirely under state control in late 1973. After a long period of mixed ownership, virtually all financial institutions had been nationalized during the administration of 1970-73. In addition, a number of entities linked to ministries and state agencies directly supplied credit to sundry activities.

In 1974, Chile had twenty domestic nationalized commercial banks. The following year all but one (the Banco del Estado) were sold to the private sector. The system thus became a predominantly private one, although the Banco del Estado has maintained a large and active presence throughout the period.

The process and terms by which the banks were transferred to private groups has been criticized. Differential access to credit and weak (and

eventually abolished) legislation against concentration of ownership meant that the bulk of commercial banks ended up in the hands of a few large conglomerates, some of which had also recently acquired scores of reprivatized manufacturing and service enterprises (Arellano (1983b)). 1/ Interlocking ownership and management patterns were eventually to be blamed for some of the mistakes made by these institutions.

Even before the commercial banks were privatized in May 1974, short-term transactions at free interest rates had been allowed. This gave rise to a new kind of financial entity--the financieras--which initially enjoyed great flexibility and a competitive advantage, given that interest rates on commercial bank deposits were not freed until a year later. Initially, the financieras operated under little control, although in December 1976 problems in some of them prompted an increase in their supervision. 2/

The development of financieras was only one manifestation of a general increase in new financial intermediaries during the 1970s. Efforts were made to lower barriers to entry, and this change brought in foreign banks. Table 2 describes the evolution of the system. By 1981 Chile had 23 domestically owned banks (one of which was state owned), 18 foreign banks and 13 finance companies (financieras), reflecting a near tripling of the number of financial intermediaries since the mid-1970s.

During this process, the Sistema Nacional de Ahorros y Préstamos (SINAP) 3/ faced serious difficulties. Founded in 1960 to provide housing credit, it captured a very large portion of domestic financial savings during the 1960s. The SINAP had made long-term commitments (housing loans) financed with short-term indexed deposits, which were inexpensive as long as interest rate ceilings existed. When these were abolished in 1975, the SINAP was caught in a squeeze. It effectively went bankrupt in 1976, and the state guaranteed its deposits.

---

1/ It is also sometimes argued that the banks were privatized at unusually generous terms. However, it is hard to harmonize this argument with the accompanying critiques of ownership concentration. If the banks were sold cheaply, then not only large "grupos" would have had access to them, unless the Government had intentionally discriminated against other potential buyers.

2/ Both "formal" and "informal" financieras were in operation until December 1976, when the latter were eliminated by the institution of a formal approval procedure for institutions or individuals desiring to receive deposits from the public. Accounting standards were tightened and capital requirements increased to a level equivalent to 75 percent of the capital required from commercial banks.

3/ National Savings and Loan System.

Table 2. Chile: Structure of the Financial System

|  | 1974      | 1975      | 1976      | 1977      | 1978      | 1979      | 1980      | 1981      | 1982      | 1983      | 1984      |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Total number of banks<br>and finance companies | <u>21</u> | <u>20</u> | <u>20</u> | <u>39</u> | <u>47</u> | <u>54</u> | <u>56</u> | <u>54</u> | <u>49</u> | <u>45</u> | <u>45</u> |
| Domestic banks <u>1/</u>                       | 20        | 20        | 18        | 18        | 22        | 24        | 25        | 23        | 21        | 19        | 19        |
| Foreign banks                                  | 1         | 1         | 2         | 3         | 4         | 12        | 13        | 18        | 19        | 19        | 19        |
| Finance companies                              | --        | --        | 26        | 18        | 21        | 18        | 18        | 13        | 9         | 7         | 7         |

Source: Larrain (1985).

1/ Only one domestic bank is state owned after 1975.

## 2. Regulatory reform

Changes in bank regulation were many and spread over time. Space limitations permit only a stylized description. The general aim of these changes was to promote the rapid growth of the financial system and increase competition.

As has been noted already, controls on interest rates were lifted in 1975. During the period of so-called financial repression (1930-1975), the combination of interest rate ceilings and high inflation had consistently yielded negative real rates. This changed after liberalization. It was hoped that positive real yields on domestic financial assets would reduce preferences toward foreign or nonproductive assets. Indexed savings instruments and domestic dollar assets would help in this task. The attractiveness of domestic financial investments was also to be enhanced by changes in tax legislation, which took account of inflation and ensured that thereafter only real interest earned counted as taxable income.

Another much-criticized feature of the previous system--an array of quantitative controls on credit--was also eliminated. Selective credit controls had been a widely used tool of economic policy until then. After 1975 it was expected that the market mechanism alone would allocate credit, with the presumption that this would improve the allocation of resources.

Banks' costs were reduced by lowering the cost of holding required reserves, which could become quite substantial under inflationary conditions. In order to reduce this cost, the Central Bank began paying competitive interest on such reserves, starting in May 1976. Subsequently, reserve requirements were gradually lowered, to 10 percent for sight deposits and 4 percent for time deposits, and interest payments on reserves were phased out.

At the same time, the system moved toward multi-purpose banking. Distinctions among commercial, investment, mortgage and development activities were abolished in an effort to increase competition and lower costs. Foreign banks were also allowed to open branches in Chile and to purchase Chilean banks. This led to a rapid process of financial widening. According to Luders (1986):

Savings operations (before a monopoly of the Banco del Estado) were permitted for all banks, and housing mortgage transactions (previously a virtual monopoly of the SINAP) were also expanded to all banks. The volume and diversification of government and Central Bank papers in the market increased noticeably; the range and number of mutual funds increased manifold; businesses began to issue significant amounts of commercial paper which were intermediated by depository institutions, stock exchanges and mutual funds; the insurance business expanded its list of

products; consumer credit offered by financial institutions expanded noticeably, etc.

New regulations also affected the powers of the bank supervisory agency (Superintendencia de Bancos) and changed various aspects of financial activity, such as capital requirements, credit limits, etc. The following is a brief summary of those which are the most relevant for the purpose of this paper.

(a) The jurisdiction of the "Superintendencia de Bancos" was broadened to include all financial institutions and its name was changed to "Superintendencia de Bancos e Instituciones Financieras."

(b) The Superintendencia was authorized to provide general information about the quality of the assets and liabilities of financial institutions in order to increase market transparency.

(c) In November 1974, the capital requirements for banks were increased to take account of past inflation and thereafter were automatically adjusted once a year according to the variation in the CPI index. The maximum debt/capital ratio was maintained at 20 but noncompliance was penalized more strictly, at the rate of 2 percent daily on the excess debt.

(d) In 1974, the law limited to 1.5 percent (for individuals) and 3 percent (for firms and organizations) the maximum individual holdings of bank shares. However, these limits were abolished in 1978 because they had proved very difficult to enforce.

(e) In 1980, the treatment of bank borrowers was made more uniform, with regard to their credit limits in relation to bank capital and reserves. Previously, the legislation favored corporations over other organizations and individuals. The new regulation set a uniform limit at 5 percent for unsecured credits and at 25 percent for secured credits. These limits were halved in the case of borrowers linked to the bank.

(f) In 1980, the limit on bank investment in a given enterprise's shares was raised from 10 to 20 percent of the bank's paid capital and reserves in order to facilitate underwriting operations. However, the limit of 10 percent of the firm's capital was maintained.

(g) Limits on bank borrowing abroad were modified several times, and finally abolished in 1980.

These changes gave more freedom to the financial markets and placed more emphasis on rules than on the authorities' discretion in supervising the system. As the financial crisis unfolded in late 1981, some of these regulatory provisions were modified, as discussed in Sections V and VIII.

### 3. Capital flows

The liberalization of international capital flows has been one of the most widely discussed features of the Chilean experience. The process is discussed in detail in Arellano and Ffrench-Davis (1981), Ffrench-Davis (1983), Mathieson (1982), McKinnon (1982), and Edwards (1984).

After many years of controls, the capital account was only liberalized gradually. Starting August 1976, capital inflows were subjected to a minimum maturity requirement of two years (in 1974-76 the minimum requisite was only six months), and to a varying but small reserve requirement (noninterest-bearing) with the Central Bank. 1/ This minimum maturity remained in force until 1982, when it was abolished in the midst of the crisis.

Banks were allowed to borrow abroad in dollars, but not to assume the exchange risk. The principal of the counterpart domestic loans had to be indexed to the exchange rate (i.e., de facto denominated in foreign currency). There were also some limits (relaxed over time) on banks' foreign indebtedness as a percent of capital and reserves.

The chief purpose of such restrictions was to ensure some control over domestic monetary policy. It was feared that given very high domestic interest rates total liberalization would induce huge and destabilizing capital inflows. 2/ Despite the restrictions on capital inflows, the inflows proved massive, as seen from Table 3, reflecting in part the policy of preannouncing the exchange rate until mid-1979, which made investing in Chile very appealing. 3/ Particularly massive inflows of capital occurred after the change in the exchange rate regime to fixed rates. The monetization of the ensuing reserve buildup was blamed for the slow progress in reducing inflation (Harberger (1982); Corbo (1985)).

As Table 4 suggests, this process led to the rapid accumulation of external debt. Unlike Brazil, Mexico and others, the bulk of the borrowing was done by the private sector: by 1982, 73.2 percent of net foreign

---

1/ These required deposits varied not only over time but also depended on the maturity of the transaction. For instance, in 1980 they were 15 percent for loans with maturities of less than 4 years, 10 percent for those between 4 years and 66 months, and zero for any above 66 months.

2/ See Minister de la Cuadra, quoted in Ffrench-Davis (1983).

3/ To the extent that they were credible, the preannouncements reduced the exchange rate risk, while domestic interest rates remained high. It should be noted, however, that while formally correct, this argument does not necessarily explain fully the extraordinary size of the capital inflows. It has been argued (see Edwards (1986)) that these inflows were not that sensitive to interest rate differentials.

Table 3. Chile: Net Capital Inflows, 1977-82  
(In millions of U.S. dollars)

|      | Semester |         |
|------|----------|---------|
|      | First    | Second  |
| 1977 | 96.4     | 471.7   |
| 1978 | 793.6    | 1,152.5 |
| 1979 | 1,103.4  | 1,144.7 |
| 1980 | 1,239.1  | 1,921.0 |
| 1981 | 2,044.2  | 2,425.1 |
| 1982 | 889.2    | 415.1   |

Source: Guillermo Le Fort, "The Real Exchange Rate and Capital Flows: The Case of the Southern Cone Countries" (unpublished Ph.D. dissertation, University of California, Los Angeles, 1985).

Table 4. Chile: Outstanding External Debt

|   | 1975  | 1976  | 1977  | 1978  | 1979  | 1980  | 1981  | 1982   | 1983  |
|---|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| (In millions of U.S. dollars)               |       |       |       |       |       |       |       |        |       |
| Medium- and long-term public debt <u>1/</u> | 3,504 | 3,488 | 3,513 | 4,336 | 4,810 | 4,720 | 4,504 | 5,157  | 8,588 |
| Other external liabilities <u>2/</u>        | 1,042 | 1,028 | 1,349 | 2,071 | 3,391 | 6,026 | 9,979 | 11,796 | 8,827 |
| (In percent of GDP) <u>4/</u>               |       |       |       |       |       |       |       |        |       |
| Medium- and long-term public debt <u>1/</u> | 41.8  | 31.0  | 26.2  | 28.2  | 23.2  | 17.2  | 13.7  | 21.4   | 43.6  |
| Other external liabilities <u>2/</u>        | 12.1  | 9.2   | 10.1  | 13.5  | 16.4  | 21.9  | 30.3  | 48.9   | 44.8  |
| Total external debt <u>3/</u>               | 53.9  | 40.2  | 36.3  | 41.7  | 39.6  | 39.1  | 44.0  | 70.3   | 88.4  |

Source: Central Bank of Chile.

1/ Outstanding medium- and long-term public and publicly guaranteed debt repayable in foreign currency.

2/ Includes suppliers' credits to private sector; lines of credit for imports of capital goods to commercial banks, Banco del Estado, and development banks; credits to private sector under Articles 14, 15, and 16 of International Exchange Law and DL 600; and short-term lines of credit to commercial banks, Banco del Estado, and Central Bank of Chile.

3/ Sum of medium- and long-term public debt and other external liabilities.

4/ GDP in current Chilean pesos converted to U.S. dollars at the following exchange rates: 1975—4.911; 1976—13.054; 1977—21.529; 1978—31.656; 1979—36.80; 1980—39.0; 1981—39.0; 1982—50.91; and 1983—78.60.

debt had been incurred by the private sector. Most importantly for our purposes, financial institutions accounted for the lion's share of private external borrowing (72.9 percent of total inflows--private and public--in 1981).

A drastic and thoroughgoing trade liberalization was also carried out. Quantitative controls were abolished and tariffs swiftly rationalized and lowered--by June 1979 a uniform tariff of 10 percent (excepting automobile imports) was in place. The order of liberalization of the foreign sector has been a much discussed issue in the Chilean case, in which liberalization of the capital account lagged substantially behind that of the current account. Both ex post and ex ante it has been argued that this was the correct sequence that maximized the chances for adequate macroeconomic control (McKinnon (1982); Edwards (1984); Calvo (1986)). Indeed, McKinnon (1982) has gone as far as to say that "Chile is to be treated as a norm or standard of reference" in this regard. While there is consensus that this was the right order, disagreements remain as to the speed and magnitude of the liberalization process.

### III. Impact of the Financial Reform: Some Macro-Aggregates

A central objective of financial reform is the improvement of the economy's saving and investment performance. This section reviews some of the available evidence on the course of domestic saving and real investment. The discussion is far from being exhaustive, and is only intended as background for subsequent sections.

#### 1. Domestic savings

The impact of financial liberalization on the economy's overall rate of savings is difficult to determine a priori. First, liberalization only affects the institutionalized part of the financial market: little can be said about its impact on noninstitutionalized sources of finance that tend to be important in repressed financial systems. Second, microeconomic theory provides no unambiguous propositions on the effect of higher interest rates in the institutionalized market--a typical first-round effect of financial liberalization--because the income and substitution effects point in opposite directions. Moreover, higher interest rates may affect the distribution of income among sectors whose propensity to save may be different (e.g., enterprises and households). Empirically, the matter is also far from being settled. 1/ In his recent empirical paper Giovannini (1985) concludes that in LDCs the interest elasticity of savings is likely to be small. The experience of Chile also seems to point in this direction.

---

1/ For discussion and estimation see not only McKinnon (1973) and Shaw (1973), but also Fry (1978), van Wijnbergen (1983), Giovannini (1985), and Molho (1986).

Table 5 presents some evidence on the evolution of savings in Chile. The data shows significant year-to-year variation in the ratio of gross national savings to GDP, with a peak of almost 20 percent in 1974 and a trough of about 2 percent in 1982. Moreover, the average saving ratio for the liberalization period (1974-83) did not differ significantly from previous periods: for that period the saving ratio averaged 10.7 percent compared to about 12.7 percent during 1966-73; however, excluding the recession years of 1982-83, the ratio increases to just 12.6 percent (only 11.4 percent if the 1974 peak is excluded). The paucity of data makes it even harder to draw conclusions about the distribution of savings between the private and the public sector. Nevertheless, available evidence suggests that the private sector was practically always in deficit, and the public sector in surplus, and that the sectoral saving ratios also show substantial variation during the period. The privatization of the social security system completed in 1981 may have had a negative impact on total savings, insofar as part of the contributions previously paid into the state social security were spent instead of saved.

## 2. Investment

The data in Table 6 indicates a significant increase (as a percent of GDP) in private investment over the period 1975-81 followed by sharp decline during 1982-85, reflecting the impact of the recession and the financial crisis. The sharp increase until 1981 is particularly significant in light of the high real interest rates on loans charged over this period; to a large extent, this increase in private investment was offset by a decline in public investment, which was part of the program to reduce the fiscal deficit and the size of the Government. As a consequence, in 1975-82 average gross fixed investment as a percentage of GNP was only marginally higher than it had been in 1966-74. Therefore, the effect on GNP growth of the shift in the composition of investment would depend on whether the marginal productivity of the projects undertaken by the private sector was higher or lower than the marginal productivity of alternative public sector projects. A definite answer to this question would require further study, which is beyond the scope of this paper.

## IV. Impact of the Financial Reform: The Growth of Financial Assets

One of the most remarkable features of the Chilean experience after 1975 is the tremendous expansion of financial intermediation. As Table 7 shows, total financial assets rose from 19.7 percent of GNP in 1975 to 48.1 percent in 1982. The share of the organized financial system in

Table 5. Chile: National and Domestic Savings  
(As percentage of GDP)

|         | Net National<br>Savings<br>(1) | Capital<br>Consumption<br>(2) | Gross<br>National<br>Savings<br>(3) = (1) + (2) | Net Factor<br>Payments<br>Abroad<br>(4) | Gross<br>Domestic<br>Savings<br>(5) = (3) + (4) |
|---------|--------------------------------|-------------------------------|---|---|---|
| 1960-65 | 1                              | 10                            | 11  | ...                                     | ...   |
| 1966-70 | 7                              | 8                             | 15  | ...                                     | ...   |
| 1971-73 | -1                             | 10                            | 9   | 1                                       | 10  |
| 1974    | 9<br>(9)                       | 11                            | 20  | 2                                       | 22  |
| 1975    | -7<br>(4)                      | 15                            | 8   | 4                                       | 12  |
| 1976    | 1<br>(8)                       | 13                            | 14  | 3                                       | 17  |
| 1977    | -1<br>(8)                      | 12                            | 11  | 3                                       | 14  |
| 1978    | 1<br>(5)                       | 11                            | 12  | 3                                       | 15  |
| 1979    | 2<br>(7)                       | 10                            | 12  | 3                                       | 15  |
| 1980    | 4<br>(9)                       | 10                            | 14  | 3                                       | 17  |
| 1981    | 1                              | 9                             | 10  | 4                                       | 14  |
| 1982    | -9                             | 11                            | 2   | 8                                       | 10  |
| 1983    | -7                             | 11                            | 4   | 9                                       | 13  |
| 1984    | -9                             | 11                            | 2   | 10                                      | 12  |
| 1985    | -6                             | 11                            | 5   | 12                                      | 17  |

Source: National Accounts Statistics: Analysis of Main Aggregates, 1983/84, United Nations, New York (1987); and Central Bank of Chile.

Note: Figures in parentheses relate to net savings of the public sector.

Table 6. Chile: Gross Domestic Capital Formation  
(In percent of GDP)

|         | Gross Fixed<br>Capital Formation | Change in<br>Stocks | Gross Domestic<br>Capital Formation |        |       |
|---------|----------------------------------|---------------------|-------------------------------------|--------|-------|
|         |                                  |                     | Private                             | Public | Total |
| 1960-65 | 15.1                             | -0.9                | 3.8                                 | 10.5   | 14.3  |
| 1966-70 | 14.5                             | 1.6                 | 4.7                                 | 11.3   | 16.0  |
| 1971-73 | 13.4                             | -1.9                | -0.9                                | 12.4   | 11.5  |
| 1974    | 17.4<br>(0.5)                    | 3.8                 | 8.4                                 | 12.8   | 21.2  |
| 1975    | 15.4<br>(2.6)                    | -2.3                | 4.6                                 | 8.5    | 13.1  |
| 1976    | 12.7<br>(3.0)                    | 0.1                 | 7.4                                 | 5.4    | 12.8  |
| 1977    | 13.3<br>(6.4)                    | 1.1                 | 7.7                                 | 6.7    | 14.4  |
| 1978    | 14.5<br>(8.0)                    | 3.3                 | 11.6                                | 6.2    | 17.8  |
| 1979    | 15.6<br>(9.8)                    | 2.2                 | 12.6                                | 5.2    | 17.8  |
| 1980    | 17.6<br>(11.1)                   | 3.4                 | 15.6                                | 5.4    | 21.0  |
| 1981    | 19.5<br>(13.4)                   | 1.2                 | 15.6                                | 5.1    | 20.7  |
| 1982    | 15.0<br>(10.0)                   | -3.7                | ...                                 | ...    | 11.3  |
| 1983    | 12.0<br>(7.3)                    | -2.2                | ...                                 | ...    | 9.8   |
| 1984    | 12.3<br>(6.4)                    | 1.3                 | ...                                 | ...    | 13.6  |
| 1985    | 14.2<br>(7.2)                    | -0.5                | ...                                 | ...    | 13.7  |

Source: Cuentas Nacionales de Chile, 1960-1983, Dirección de Política Financiera, Central Bank of Chile.

Note: Figures in parentheses relate to private sector fixed investment.

Table 7. Chile: Financial Assets <sup>1/</sup>

|      | Total Financial Assets<br>Year-End Balance | Monetary<br>Assets<br><sup>2/</sup> | Nonmonetary Assets<br>in Financial System<br><sup>3/</sup> |      |
|------|--|-------------------------------------|--|------|
|      | <u>In billions of<br/>current pesos</u>    | <u>In percent<br/>of GNP</u>        | <u>In percent of total assets</u>                          |      |
| 1973 | 0.47                                       | 14.9                                | 53.0   | 14.3 |
| 1974 | 2.99                                       | 20.0                                | 27.7   | 14.0 |
| 1975 | 11.36                                      | 19.7                                | 26.1   | 16.2 |
| 1976 | 33.75                                      | 19.0                                | 25.4   | 25.0 |
| 1977 | 75.80                                      | 21.0                                | 24.1   | 38.6 |
| 1978 | 123.10                                     | 23.0                                | 24.6   | 48.6 |
| 1979 | 237.80                                     | 29.6                                | 21.1   | 50.1 |
| 1980 | 395.70                                     | 34.9                                | 19.8   | 59.8 |
| 1981 | 510.80                                     | 39.0                                | 14.7   | 69.8 |
| 1982 | 578.40                                     | 48.1                                | 14.0   | 70.7 |

Source: Central Bank of Chile, Boletín Mensual.

<sup>1/</sup> These are financial assets held by the public, i.e., liabilities of the financial system.

<sup>2/</sup> Includes currency and demand deposits and time deposits held by the private sector.

<sup>3/</sup> Paper issued by commercial banks, development banks and financieras.

Note: Definition of total financial assets excludes equity and time and demand deposits held by the public sector.

overall financial intermediation rose as well: papers issued by commercial and development banks and financieras went from 16 percent to 70.7 percent of total financial assets in the same period. In 1976-81, value added from financial services expanded at a real annual average of 18.4 percent, more than 2.5 times the rate of expansion of the economy as a whole. 1/

At the same time, there were significant shifts in the composition of financial assets. A crucial shift was the move away from money and toward short-term, highly liquid, interest-bearing assets. According to the IFS, quasi-money accounted for 8.16 percent of GDP in 1975 and 22.32 percent in 1986. 2/ This tendency follows naturally the upward trend of short-term interest rates paid on quasi-money after liberalization and the richer menu of financial assets available to the public.

The boom in financial intermediation, however, did not bring a substantial lengthening of the average maturity of financial instruments. As shown in Table 8, much of the expansion in financial instruments came from the shift from money to interest-earning assets with maturities of less than 90 days. Longer-term assets (with maturities over 90 days) languished. They accounted for 54 percent of total assets in 1975, and for only 44.4 and 37.2 percent in 1980 and 1981, respectively. 3/

The above figures do not include equity markets, which experienced a boom of their own. The (real) stock price index rose by 2,685 percent between 1976 and the peak year of 1980 (see Table 1). Prices of real estate, land and other comparable stores of value rose dramatically as well.

How is this boom in financial intermediation congruent with the poor performance of domestic savings? An influential view, formulated for the general Southern Cone case, may be worth quoting at some length:

In a financially repressed economy with a history of persistent inflation, wealth is held as money, land and capital... Money is held because of its property as a means of payment; capital, because of its expected yield in use; and land, as a shelter against inflation. Expected land yields may be low, but they are strongly correlated with inflation rates.... In this context, financial reform-mongers typically propose introducing an indexed government bond as an instrument of financial liberalization. 4/ In the presence

---

1/ Central Bank of Chile, Boletín Mensual.

2/ See also Table 7.

3/ There was a healthy shift, however, from assets with 90-day to 1-year maturities to those extending beyond 1 year. See Table 8.

4/ For our purposes, the introduction of any asset that pays a consistently positive rate of return will play this role.

Table 8. Chile: Maturities of Financial Assets

(In percent of total)

|      | Monetary<br>assets<br>(1) | Less than<br>90 days<br>(2) | 90 days to<br>1 year<br>(3) | Over 1 year<br>(4) |
|------|---------------------------|-----------------------------|-----------------------------|--------------------|
| 1973 | 53.0                      | 3.1                         | 40.5                        | 3.4                |
| 1974 | 27.7                      | 18.3                        | 47.2                        | 6.8                |
| 1975 | 26.1                      | 19.9                        | 39.0                        | 15.0               |
| 1976 | 25.4                      | 27.2                        | 28.8                        | 18.6               |
| 1977 | 24.1                      | 38.0                        | 25.4                        | 12.5               |
| 1978 | 24.6                      | 44.7                        | 19.5                        | 11.2               |
| 1979 | 21.1                      | 37.6                        | 20.6                        | 20.7               |
| 1980 | 19.8                      | 35.8                        | 22.7                        | 21.7               |
| 1981 | 14.7                      | 48.1                        | 13.3                        | 23.9               |
| 1982 | 14.0                      | 44.0                        | 16.7                        | 25.3               |

Source: Arellano (1983b).

Monetary assets = Private money holdings: Currency + Demand Deposits

Less than 90 days = Pagarés Descontables Banco Central (PDBC), Depósitos y Captaciones Bancos y Financieras, Ventas PDBC con pacto retrocompra, Ahorro a la vista, Emisión Pagarés Descontables de Tesorería (PDT), PDBC Reserva Técnica, CEPAC, Venta Cartera Bancos, Operaciones con Cuentas de Ahorro Sistemático (CAS)

90 days to 1 year = Cuotas Ahorro Corvi, Depósitos y Captaciones Bancos y Financieras, Ahorro a Plazo, Depósitos de Ahorro e Inversión (DAI), Cuentas de Ahorro SINAP, Valores Hipotecarios Reajustables (VHR), Ahorro Sistemático Cooperativo, Depósitos Plazo Banco Estado

More than 1 year = Cuentas Ahorro Reajustables (CAR), Pagarés Reajustables de Tesorería (PRT), Bonos y Letras Hipotecarias, Bonos Hipotecarios SINAP, Debentures, Pagarés Banco Central Sistemático Previsión, Bonos de Reconstrucción, Pagarés Reajustables Caja Central

Note: Until 1975 all time deposits in banking system are classified in (2).

of such an attractive asset with a strong back-up market, saving propensities should increase and a higher proportion of wealth should be held as productive capital.... (However), indexed bonds tend to replace capital (and money) rather than land in private portfolio holdings. True-market-oriented financial reforms are accompanied by a general liberalization of interest rates, in the context of a demand-contractory package of policies...An excess supply of money may also obtain, in spite of contractionary policies, if the demand for money is sufficiently lowered by the introduction of the indexed bond.... (Díaz-Alejandro and Bacha (1982)).

This critical view of the consequences of financial liberalization captures some of the tendencies described so far: the extent to which the growth in some financial assets was the consequence of substitution away from money; the boom in interest-bearing financial assets; the sluggishness in the demand for real capital. However, it fails to account for the boom in overall financial intermediation, not just in close money substitutes. It also neglects the upward dash of the price of the existing capital stock, which took place even as the demand for investment goods remained low. An explanation of these phenomena requires a closer look at the details of the Chilean situation.

A commonly mentioned cause for the spectacular growth of financial assets are increases in private wealth. It is conjectured that either increases in expected permanent income or in the yield of assets held by the public would have created an upward wealth effect, some of which spilled into higher demand for financial assets. As Barandiarán (1983) puts it: "The change in expectations toward higher wealth was the decisive factor in the extraordinary expansion of private demand for goods and services...The financial system grew alongside private sector wealth: capital gains realized by the owners of real assets turned in part toward the financial system, producing a monetization of real private assets (in the sense that highly liquid paper was issued on the basis of these assets)."

One must be careful in assessing how solid a foundation this constituted for the growth in bank and financiera liabilities. Whether increases in expected permanent income were effective or only perceived must be a moot question, but some of the optimism displayed at the time seems justified in the wake of a massive removal of distortions, a change which had the potential for increasing real income. High interest rates produced attractive short-term yields on financial assets, and this also created a perception of increased wealth. Finally, booming stock, land, and real estate prices certainly increased wealth and hence the accumulation of financial assets. However, it seems very likely that such exploding asset prices were unrelated to market fundamentals (like the conceivable real yield on capital and land) and hence unsustainable. In fact, econometric evidence (Meller and Solimano (1983)) suggests that

indeed there was a speculative bubble in stock prices, of the sort described by Blanchard and Watson (1984).

Another key element in the expansion of financial assets was the reorientation of savings toward the financial system. 1/ During the period of "financial repression," the government served as a channel for an important portion of national savings. These were in turn directly invested by the government or lent to state enterprises and the public. As these uses of funds declined after 1973, more and more of the resources obtained by the Government were channeled through the financial system (the liabilities of the consolidated financial system vis-a-vis the government rose). Another important change involved the social security system, which was privatized starting in May of 1981. The bulk of social security contributions were thereafter deposited in the financial system. By year-end 1982 such funds accounted for 7.7 percent of total deposits.

Finally, the single largest source of the expansion of domestic bank liabilities was foreign borrowing. Particularly between 1978 and 1981, capital inflows exceeded current account deficits (see Table 1), leading to a buildup of international reserves. Whether the borrowers were domestic banks or firms, 2/ such funds would eventually find their way into higher deposits in the financial system. At the end of 1981, reserves were equal to almost 10 percent of GDP, and to 35 percent of all paper issued domestically by the financial system.

Of course, capital inflows are not an exogenous variable. In Chile, the bulk of foreign borrowing was contracted by domestic banks, which actively sought foreign loans. The same can be said of domestic deposits: banks and financieras have ample means at their disposal to regulate their acquisition of deposit liabilities and are only willing to attract funds insofar as they expect to relend them, ideally at a profit. The expansion in bank liabilities described must have had a counterpart in a corresponding increase in bank loans. Indeed, it is likely that vigorous growth in the demand for bank credit may have acted as a "pull-factor," prompting banks to attract additional resources to meet this demand. To explore such a conjecture we must examine the course and nature of bank lending, a subject to which we now turn.

---

1/ This point has been stressed by Arellano (1983b).

2/ Unlike many other countries in the hemisphere, in Chile the Central Bank borrowed little in this period.

V. Impact of the Financial Reform:  
The Expansion of Domestic Debt

Between 1974 and 1982, the accumulated stock of debt of the non-government sector went from 5.0 percent of GDP to 61.7 (Table 9). The ability of private economic agents to pay interest and principal on such a staggering stock of debt was eventually to become the key weakness of the Chilean experiment.

Much of the debt was denominated in dollars, a factor which increased the service burden after the 1982 maxi-devaluation. Table 10 offers a breakdown of total loans of the financial system by currency and maturity. In 1981, peso loans accounted for almost 62 percent of the total, and dollar loans for the rest. Moreover, such debt was predominantly short term: that same year, 67 percent of loans denominated in pesos had maturities of less than one year. Dollar loans were somewhat longer term, given the two-year minimum maturity required of capital inflows, but cheaper dollar credit tended to be rationed and was inaccessible to many. 1/ The short-term nature of credit available to firms was a cause of concern throughout the period. Already in 1976 Corbo warned: "Domestic currency debt is made up almost entirely of 30-day loans. These credits are renewable according to different mechanisms, but firms are subjected to a rate of interest they cannot predict beyond thirty days and are faced with the problem of renegotiating each month the total of their credits."

A first explanatory factor of the growth in debt ratios (Table 9) must focus on the financial euphoria that seems to have overtaken Chilean economic agents starting sometime in 1977 and peaking in 1980-81. 2/ Barandiarán (1983) has maintained that "the generalization of optimistic expectations about the prospects for the national economy was the main cause of the increased indebtedness of firms and households in 1980 and 1981." But as Barandiarán himself emphasizes, the rationality of such euphoric expectations is hard to justify, even after taking into account hopes about increased national permanent income: these hopes cannot explain a tenfold increase in real domestic indebtedness.

---

1/ Regulation on foreign borrowing (see Section II) had the effect of shutting out smaller borrowers from the external market. Collateral and creditworthiness considerations may have also played a role. Domestically, then, banks which did borrow abroad had some market power over dollar credit allocation. See Section VI for further discussion of this issue.

2/ The Chilean economy grew rapidly in 1977-80 despite the modest improvement in investment performance (see Tables 1 and 6). Such growth was probably associated with increased capacity utilization and/or efficiency gains in the use of capital.

Table 9. Chile: Loans of the Financial System  
to the Nongovernment Sector

| End of         | Total                      |                   | Banking System 1/ | Central Bank      |
|----------------|----------------------------|-------------------|-------------------|-------------------|
|                | In billions of pesos, 1977 | In percent of GDP | In percent of GDP | In percent of GDP |
| 1969           | 51.5                       | 18.6              | 8.3               | 10.3              |
| 1970           | 53.4                       | 18.9              | 8.4               | 10.5              |
| 1973           | 82.4                       | 28.7              | 4.4               | 24.2              |
| 1974           | 87.7                       | 30.2              | 5.0               | 25.2              |
| 1975           | 92.7                       | 39.0              | 6.4               | 32.6              |
| 1976           | 87.2                       | 33.3              | 8.9               | 24.4              |
| 1977           | 110.7                      | 38.5              | 14.8              | 23.7              |
| 1978           | 130.4                      | 41.9              | 20.3              | 21.6              |
| 1979           | 150.0                      | 44.5              | 28.2              | 16.3              |
| 1980           | 183.8                      | 50.7              | 40.2              | 10.5              |
| 1981           | 234.8                      | 61.5              | 54.9              | 6.6               |
| 1982 <u>2/</u> | 251.9                      | 76.3              | 61.7              | 14.6              |

Sources: 1969-78, Central Bank of Chile, Series Monetarias; 1979-82, Central Bank of Chile, Boletín Mensual; and 1979-82 (total loans only), Superintendency of Banks and Financial Institutions, Información Financiera.

1/ Starting in 1979 includes development banks and financieras.

2/ November.

Table 10. Chile: Currency and Maturity Structure of Loans 1/  
(In billions of pesos)

| End of | Domestic Currency Loans |              | Total |
|--------|-------------------------|--------------|-------|
|        | Below 1 year            | Above 1 year |       |
| 1978   | 65.5                    | 19.2         | 84.7  |
| 1979   | 120.7                   | 41.0         | 161.7 |
| 1980   | 238.9                   | 90.9         | 329.8 |
| 1981   | 328.6                   | 164.6        | 493.2 |
| 1982   | 283.3                   | 236.6        | 519.9 |

  

| End of | Foreign Currency Loans |              | Total |
|--------|------------------------|--------------|-------|
|        | Below 1 year           | Above 1 year |       |
| 1978   | 45.1                   | 31.8         | 76.9  |
| 1979   | 71.6                   | 55.1         | 126.7 |
| 1980   | 116.1                  | 107.1        | 223.2 |
| 1981   | 143.3                  | 163.3        | 306.6 |
| 1982   | 147.1                  | 306.3        | 453.4 |

Source: Arellano (1983b).

1/ Excludes overdue loans.

A substantial amount of bank credit directly or indirectly financed an increased demand for consumer durables. As already mentioned, years of import restrictions had given rise to a pent-up demand for imported consumer durables, whose low relative price during the period of peso overvaluation made them even more attractive. At the same time, expectations of a real devaluation and/or of a return to higher tariffs made overstocking a rational course of action (see Calvo (1986)). This led to a flood of consumer imports, the purchase of which was often financed with bank credit at variable interest rates. This last feature made repayments particularly difficult in 1981-82, as real peso rates rose. This was also true of dollar credit, contracted cheaply but almost prohibitive after the devaluation. Repossession of items purchased on credit became common in 1982.

Other practices added a great deal to this boom in credit demand. An important share of credit was extended to grupos (financial and manufacturing conglomerates) seeking to purchase firms or other already existing assets. An unusual sort of competition took place among these conglomerates, in which market share or sheer size seem to have mattered more than profitability or efficiency. In a few years, these groups had acquired practically all the nation's largest manufacturing and banking firms, and in the process had sent stock prices soaring. Whether these groups acted speculatively (expecting to sell later at a higher price) or whether they thought the exorbitant purchase prices were justified by high present value of expected real return is irrelevant. The point is that asset prices behaved "as if" a speculative bubble were taking place (Meller and Solimano (1983)) and the process probably absorbed a nontrivial share of the nation's available credit.

Stock prices were also inflated by the practice of grupo firms of trading stock among themselves, thus boosting the price of their shares above market value. These stocks were then used as collateral for bank credit. This was but one of many practices intended to facilitate the use of bank credit by grupo firms. <sup>1/</sup> Often such credit was devoted to purchase banks themselves, in an operation that Luders (1986)--following the terminology of the time--terms a "bicycle": "... the bank would grant a loan to a corporation controlled by the new owners of the same bank; and the corporation would use the proceeds of the loan to pay for the shares it was acquiring."

The consequences were twofold. First, a good portion of bank credit went to finance the consolidation or expansion of grupos. Second, loans to firms belonging to the same conglomerate as the lending bank came to account for a substantial portion of banks' portfolios--this became known as the problem of the cartera relacionada. By June 1982 the cartera relacionada accounted for 21.1 percent of the loans of the five largest

---

<sup>1/</sup> Grupos purchased both firms being "re-privatized" and others which had always been in the private sector.

private banks. In the case of the Banco de Santiago, the nation's largest private bank, this figure was 45.8 percent (Arellano (1983b)).

Finally, perhaps the single most important factor behind the growth of domestic indebtedness was the rolling over of credits and the capitalization of interest. As Arnold Harberger (1985) has put it: in Chile there existed "a substantial 'false demand.' The false demand for credit consists of the rolling over of what are essentially bad loans." By 1981 many borrowers were in a tenuous situation. As Gálvez and Tybout (1985) have documented, real peso overvaluation and sustained high real interest rates were major sources of difficulties for manufacturing firms, particularly those competing in the export and import sectors. Tables 11 and 12 show estimates of firm bankruptcies and of loans in default, respectively. By 1981 these figures were nontrivial: 2.3 percent of the portfolio of the total financial system; this share rose to 8.2 percent in 1982, and 18.5 percent in 1983. The implicit dangers were, however, greater than these figures would suggest. Chilean banks as a whole were undercapitalized with respect to their historical averages (Behrens (1985)) so that the ratio of nonperforming assets to total capital and reserves was extremely high: Arellano (1983a) estimates it at 11, 22, 47, and 113 percent for the years 1980-83, respectively.

Furthermore, the line between a performing and a nonperforming asset becomes fuzzy when rollovers and capitalization of interest are widely used to keep many problem loans on the books. There is substantial consensus (Arellano (1983b); Zahler (1985); Harberger (1985); Luders (1986)) that such practices accounted for a large share of the expansion in bank credit. Under the extremely high interest rates, interest accumulated on domestic currency loans between 1977 and 1982 would add up to 72 percent of outstanding peso loans by year-end 1982.

Real interest rates (corrected by CPI) on loans averaged 77 percent per annum in 1975-82 (see Table 13). Why would firms and households continue to borrow in pesos at rates so far above any conceivable return on real investment? One possibility is that, locked into short-term credits, firms continued to borrow with the expectation that "interest rates would soon decline." Another possibility is that the real rates we can compute are ex post, while ex ante expected rates were much lower. In 1981 and 1982, for instance, real rates rose largely because of a swift decline in inflation associated with the appreciation of the dollar in international markets. <sup>1/</sup> However, such expectational mistakes can perhaps explain a one-time increase in indebtedness, but not a sustained increase such as that witnessed by Chile. In the latter part of the

---

<sup>1/</sup> See Corbo (1985). Since the peso was pegged to the dollar, dollar appreciation was tantamount to a revaluation of the peso vis-a-vis other major currencies. This means that the reduction in Chilean inflation in 1981 may well have been unexpected.

Table 11. Chile: Number of Total Bankruptcies

| Year | Corporate<br>Enterprises | General<br>Establishments |
|------|--------------------------|---------------------------|
| 1974 | ...                      | 75                        |
| 1975 | ...                      | 81                        |
| 1976 | ...                      | 131                       |
| 1977 | ...                      | 224                       |
| 1978 | 2                        | 312                       |
| 1979 | 4                        | 344                       |
| 1980 | 15                       | 415                       |
| 1981 | 29                       | 431                       |
| 1982 | 75                       | 810                       |

Source: Fiscalía Nacional de Quiebras,  
taken from Luders (1986).

Table 12. Chile: Loan Defaults  
(As percentage of total loan portfolio)

|                | Commercial Banks | Finance Companies | Financial System |
|----------------|------------------|-------------------|------------------|
| 1974           | 1.4              | ...               | ...              |
| 1975           | 2.8              | ...               | ...              |
| 1976           | 1.7              | ...               | ...              |
| 1977           | 1.4              | ...               | ...              |
| 1978           | 1.2              | ...               | ...              |
| 1979           | 1.1              | ...               | ...              |
| 1980           | 0.9              | ...               | ...              |
| 1981 <u>1/</u> | 2.4              | 2.1               | 2.3              |
| 1982 <u>1/</u> | 8.2              | 8.1               | 8.2              |
| 1983 <u>1/</u> | 18.7             | 5.9               | 18.5             |

Source: Behrens (1985), taken from Luders (1986).

1/ Including "risky portfolio" loans sold to Central Bank.

Table 13. Chile: Alternative Real Loan Rates

|                   | Corrected<br>by CPI <u>1/</u> | Corrected by<br>Capital Goods<br>Prices <u>2/</u> | Corrected by<br>Stock Market<br>Index <u>3/</u> |
|-------------------|-------------------------------|---|---|
| 1975              | 164.9                         | 38.9  | -1,494.4  |
| 1976              | 176.4                         | 150.7   | 124.5   |
| 1977              | 92.9                          | 60.3  | -81.5   |
| 1978              | 55.0                          | 26.3  | 34.1  |
| 1979              | 23.1                          | 24.3  | -40.7   |
| 1980              | 15.7                          | 19.5  | -35.3   |
| 1981              | 42.4                          | 38.6  | 77.4  |
| 1982              | 42.4                          | 47.0  | 73.7  |
| 1983              | 15.9                          | 21.8  | 58.8  |
| 1975-82 <u>4/</u> | 76.6                          | 50.7  | --  |

Sources: Central Bank of Chile, Boletín Mensual, Cuentas Nacionales, 1960-83.

1/ Nominal loan rate in pesos corrected by GPI.

2/ Nominal loan rate in pesos corrected by the implicit deflator of fixed capital formation statistics. See Cuentas Nacionales.

3/ Nominal loan rate in pesos corrected by IGPA (Indice General Precios de Acciones).

4/ Arithmetic average.

period it is likely that many firms were willing to borrow at any ex ante rate simply to stave off bankruptcy. On the basis of data obtained by Gálvez and Tybout (1985), net earnings drop sharply after 1980, especially for firms producing tradables and, at about the same time, the gearing ratio of firms begins to rise. This is consistent with the hypothesis that capitalization of interest and other related lending can be considered "distress borrowing" for a nontrivial number of firms.

Lastly, it has been argued that firms acted this way because postponing bankruptcy long enough made a government bailout more likely. According to Arellano (1983b), "...as borrowers become aware that this is a generalized phenomenon that has no micro but only macroeconomic solutions, they become indifferent to the interest rates they are charged. Debts become mere entries in the books--banks cannot collect them. This must have been the perception of large debtors--certainly the conglomerates--during much of the period, and has certainly been the perception of the immense majority of debtors since 1982." What borrowers expected ex ante we may never know; but ex post those who expected that mounting debts would bring some kind of official help turned out to be correct.

While many institutional features of the post-reform Chilean financial system facilitated excessive risk-taking and unsound lending patterns, the legislation aimed at curtailing such patterns was weak or nonexistent until 1980, and the Superintendency of Banks allowed those practices insofar as they did not violate the letter of the law. Only in 1980-81, the Superintendency gradually set up a system for the classification of loans according to risk--irrespective of whether or not they were overdue--and the corresponding rules were established for "individual" provisions for nonperforming loans to supplement the "overall" provisions. 1/ In late 1981, measures were adopted which limited the amount of bank exposure to a single enterprise and to a bank's own subsidiaries. But it was not until 1982 that a set of comprehensive measures that tightened bank supervision were approved. The regulations included a more precise definition of the limit on loans to a single enterprise, that took into account the interlocking ownership of firms; 2/ in the case of banks classified as unstable or poorly managed, the Superintendency was empowered to regulate the bank's new lending, rolling-over of existing credit and collateral requirements; the Superintendency also began to develop a formal system of rating financial

---

1/ Loans were ranked into five categories according to their soundness, and specific provisioning requirements were applied against all loans ranked in the third category or below.

2/ While the limit of 5 percent (of a bank's capital and reserves) for unsecured loans--and any excess up to the limit of 10 percent to be secured--was retained, the limit covered not only the loans made directly to an enterprise, but also a share of loans made to other institutions which hold stocks of the enterprise.

institutions based on CAMEL indicators; 1/ and commercial banks were prohibited from investing in equity capital, agricultural land, merchandise, or livestock, and from accepting stock as loan collateral (so as to limit the use of inflated stocks as collateral).

Minimum capital-asset ratios in force in Chile at the time also made it expensive for banks to write off loans. When a loan is declared to be bad, capital and surplus must be reduced by the amount of bad debt, but the loan portfolio must be reduced by an even greater amount because of regulations on the minimum capital-to-asset ratio. Banks were quite unwilling to do this at a time of high loan rates and booming credit demand.

Furthermore, banks were able to engage in this sort of risky lending because they were not subject to the discipline of depositor or state supervision. Explicit peso deposit guarantees did not exist in Chile until January 1983, but the widespread perception seems to have existed that the government would rescue depositors in the event of a bank crunch. This perception was reinforced at the time of the collapse of Banco Osorno in 1976, when the government granted a 100 percent bailout of depositors and other creditors.

The issue of implicit guarantees has been widely discussed in the Chilean context. That peso deposits were perceived to be guaranteed seems clear: there were no major bank runs even as practically all the nation's major banks teetered on the verge of collapse and this fact was amply discussed in policy circles and even in the press. 2/ Whether bank owners/managers 3/ perceived their investments and/or reputations to be guaranteed is clearly a different matter. If this was the case, it has been argued, bankers had incentives to undertake excessively risky investment. Again, ex ante expectations are unclear, but some ex post observations can be made. Starting in late 1981 many bank managers lost their jobs, and some even went to jail. When the banks were intervened, the owners temporarily lost control over the banks, and were eventually to see their ownership diluted by the issuance of new stock. Many banks, whether intervened or not, received generous subsidies. 4/ The relevant counterfactual with which this outcome must be compared is not one in which bank owners/managers lose nothing, which is entirely unrealistic; it is one in which banks are immediately liquidated, asset prices

---

1/ Indicators measuring capital, asset quality, management, earnings and liquidity.

2/ Explicit deposit guarantee was granted in January of 1983, initially for the period up to December 31, 1983, but it was extended periodically, until a formal deposit insurance scheme was instituted in 1986 (see Section VIII).

3/ The distinction is difficult to make, because often major grupo shareholders were directly involved in bank management.

4/ See subsequent sections for a further treatment of this issue.

plummet, and bankers are left with little or nothing in their hands. Relative to this counterfactual scenario, we can conjecture that Chilean bankers did enjoy a substantial government "guarantee" ex post.

At any rate, had an implicit deposit guarantee not existed, the logic of the market would have necessarily disciplined bankers. Realizing that many banks were in difficulties, depositors would have transferred their funds toward the more solid institutions. If accounting were pristine and information flows efficient, then the collapse of unsound banks would not have affected the rest. If, on the other hand, a panic had been generated, 1/ the system might have failed anyway, but at a much earlier date. 2/

Lastly, the issue of guarantees to foreign creditors warrants special mention. As Díaz-Alejandro (1985) has stressed, the Chilean foreign borrowing was largely private and was contracted under explicit government assurances that it would remain so. However, the story turned out to be very different. In the words of Arnold Harberger (1985),

...The major international banks seem to have acted in concert, leaving the Chilean government no serious alternative but to assume the position of a reluctant guarantor. There can be little doubt that if each foreign creditor bank and each Chilean debtor bank had been left to work out its financial affairs under the applicable laws, a fair share of the foreign debt of the (failed or failing) Chilean banks would have been written off, and Chile's current debt service problems would consequently have been less.

#### VI. Impact of the Financial Reform: Interest Rates

One of the most puzzling features of the Chilean experience is the behavior of interest rates. It is accordingly one of the most thoroughly studied (Arellano (1983a and 1983b); Sjaastad (1983); Cortés (1983); French-Davis (1983); Meller and Solimano (1983); Corbo and Matte (1984); Rosende and Tosso (1984); Zahler (1985); Harberger (1986); Edwards (1986)) with a variety of methods. In particular, one can examine events chronologically and attempt to ascertain the changing weight of different factors in interest rate determination, as Zahler (1985) has done. Alternatively, one can put forth a few hypotheses which, with some necessary caveats, could apply to the period as a whole. The latter approach is taken here, drawing generously from the published work on the subject.

---

1/ Presumably because depositors could not distinguish between sound and unsound banks.

2/ Perhaps also at a lesser cost to the economy at large, but this would depend on the magnitude and timing of the bank run.

Several stylized facts emerge from the Chilean interest rate story in this period:

(1) High nominal peso rates, not easily explainable by international interest parity considerations.

(2) Extraordinarily high real interest rates on peso loans--over 42 percent annual average in 1975-1982.

(3) A high and relatively stable margin between loan and deposit rates denominated in pesos.

The following subsections discuss these three outcomes in some detail.

#### 1. Nominal interest rates

As Table 14 reveals, nominal peso deposit rates exceeded LIBOR (corrected for ex post devaluation) for much of the period, except for the quarters after the maxi-devaluation of June 1982. A similar phenomenon emerges if we consider dollar loan rates in Chile (corrected for actual devaluation) and LIBOR, presented in Table 15. The differential is also substantial in this latter case, and highly positive for all years except for 1982. Only a small fraction of this differential can be attributed to the premium over LIBOR charged by international lenders to Chile. The average premium charged on loans to Chile was 1.55 percent in 1978, .99 percent in 1979, .99 percent in 1980, .89 percent in 1981, and .97 percent in 1982 (Edwards (1986)). In short, nominal interest rates were "abnormally" high, given that accepted theory would predict a tendency toward interest rate equalization.

Of course, such a prediction assumes substantial capital mobility. However, it is useful to recall that restrictions on capital inflows were present (albeit in declining magnitude) throughout the reform period. 1/ This might explain a portion (though probably a small one) of the remaining differential. But as these restrictions were relaxed over time, the spread fell only slightly.

Restrictions were applied not only on the length and nature of capital inflows, but also on the uses to which they could be put by domestic banks. As already mentioned, the latter were not permitted to take positions in foreign currency, and hence arbitrage directly. 2/ Sjaastad (1983) has argued that these restrictions made arbitrage very costly by requiring several transactions, and therefore, may be held responsible for the stubborn spread. Under such circumstances, "a

---

1/ See Section II of this paper.

2/ Banks had to lend in dollars domestically, and another nonbank Chilean institution would subsequently carry out the lending in pesos.

Table 14. Chile: Spread Between Domestic and International Interest Rates

|                   | Corrected Peso<br>Deposit Rate <u>1/</u> | LIBOR | Spread <u>2/</u> |
|-------------------|--|-------|------------------|
| 1975              | -0.2                                     | 7.7   | -7.9             |
| 1976              | 193.0                                    | 6.1   | 186.9            |
| 1977              | 60.4                                     | 6.4   | 54.0             |
| 1978              | 46.3                                     | 9.4   | 36.9             |
| 1979              | 34.6                                     | 12.0  | 22.6             |
| 1980              | 39.7                                     | 14.1  | 25.6             |
| 1981              | 41.7                                     | 16.5  | 25.2             |
| 1982              | -35.2                                    | 13.2  | -48.4            |
| 1983              | 10.4                                     | 9.8   | 0.6              |
| 1975-82 <u>3/</u> | 47.5                                     | 10.7  | 36.8             |

Sources: Central Bank of Chile and own estimates.

1/ Nominal deposit rate in pesos minus effective devaluation.

2/ Corrected peso deposit rate minus LIBOR.

3/ Arithmetic average.

Table 15. Dollar Interest Rates

(Annual percentages)

|                     | Loan Rate <u>1/</u><br>(1) | Deposit Rate <u>1/</u><br>(2) | LIBOR <u>2/</u><br>(3) | Spread <u>3/</u><br>(4) |
|---------------------|----------------------------|-------------------------------|------------------------|-------------------------|
| 1975                | 86.7                       | 3.1                           | 7.7                    | 79.0                    |
| 1976                | 118.3                      | 44.3                          | 6.1                    | 112.2                   |
| 1977                | 58.2                       | 19.6                          | 6.4                    | 51.8                    |
| 1978                | 51.1                       | 32.7                          | 9.4                    | 41.7                    |
| 1979                | 40.5                       | 29.9                          | 12.0                   | 28.5                    |
| 1980                | 46.9                       | 37.4                          | 14.1                   | 32.8                    |
| 1981                | 51.9                       | 40.8                          | 16.5                   | 35.4                    |
| 1982                | -12.2                      | -20.4                         | 13.2                   | -25.4                   |
| 1983                | 18.3                       | 6.4                           | 9.8                    | 8.5                     |
| 1975-1982 <u>4/</u> | 55.2                       | 22.9                          | 10.7                   |                         |

Source: Zahler (1985).

1/ Rates on short-term operations (30 to 90 days). Include actual exchange rate devaluation.

2/ Annual average of monthly data on six-month dollar rates.

3/ Loan rate minus LIBOR.

4/ Simple arithmetic average

Chilean banker may be indifferent between paying 3 percent per month for domestic funds as opposed to 1.5 percent for dollars." But as H. Cortés has pointed out, Chilean banks at no time seemed bent on arbitraging, nor did they oppose the above restrictions. The two principal uses of foreign credit were grupo loans and foreign trade financing. Hence, Cortés (1983) concludes that the Sjaastad hypothesis, while theoretically correct, is probably quantitatively unimportant.

Another commonly held explanation of deviation from interest parity (Arellano (1983b), Zahler (1985)) alludes to market segmentation: those who were privileged by their contacts and/or collateral (presumably the grupos) could borrow cheaply abroad; remaining borrowers had to resort to expensive credit in pesos. The idea is appealing in its simplicity, and informal observation suggests that it probably has some validity. However, it is difficult to test rigorously. Further doubts are cast by the Gálvez-Tybout observation (1985) that grupo firms do not seem to have enjoyed abnormally low borrowing costs.

Other authors (Corbo and Matte (1984)) have stressed that Chilean and foreign assets were imperfect substitutes, and hence there was little reason to expect a convergence to interest parity. They have provided evidence to this effect by estimating a simple monetary model with three assets: money, domestic interest-earning assets and foreign assets. Under perfect substitutability and no sterilization, in this model a decrease in domestic credit by the Central Bank should be matched by an equal capital inflow (reflected in higher reserves) which would leave the monetary base constant. For Chile, the estimated offset coefficient was -0.34, suggesting that asset substitutability was less than perfect (Corbo and Matte (1984)). The logic of this argument is indisputable, but once again its applicability to the specifics of the Chilean interest rate situation is unclear. Whatever the reason (and in spite of this apparent limitation in asset substitutability) capital inflows to Chile were massive and unprecedented. That they had only a second-order impact on interest rates is still puzzling, even in the context of imperfect asset equivalence.

What about devaluation expectations? Even in a partially open economy, expectations of devaluation must have had some impact on peso interest rates. The problem, of course, is how to compute such expectations. Ex post devaluation was zero in 1980 and 1981 and very large in 1982, but conceivably fears of an abandonment of parity were already alive in 1981. Using Bayesian methods, in fact, Le Fort (1985) has estimated that the expected rate of devaluation rose from 2 percent in July 1979 (a month after the nominal rate was fixed) to over 26 percent in May 1982, just prior to the maxi devaluation. Assuming away such expectational problems, Edwards (1985) estimated an equation for the nominal interest rate as a function of ex post realized devaluation and other variables. The coefficient on the devaluation variable was significant and had the right sign, which suggests that devaluation expectations did indeed play a role.

Real balances (lagged one period) were also included in the Edwards equation, and also turned to be significant. This fits into the framework postulated by Edwards and Khan (1985): in an economy which is only partially integrated with world capital markets, domestic monetary policy will normally play a role in determining interest rates.

## 2. Real interest rates

Real interest rates in pesos (for both loans and deposits) appear in Table 16, showing extraordinarily high levels during 1975-83. In the words of Meller and Solimano (1983), "...this sole fact inevitably had to lead to an economic and financial collapse." Certain features of the evolution of real rates over time can be explained with ease: after the capital account was partially liberalized in 1979, rates tended to fall; when inflation in 1981-82 was lower than expected, 1/ rates surged upwards. Rosende and Tosso (1984) have suggested such a sequence. Using a simple Fisher-type consumption-savings model they argue as follows: in the early years of the period, increases (real or perceived) in permanent wealth tended to reduce savings, and pushed up the real interest rate. This pressure was relieved somewhat by the entry of large amounts of foreign savings after 1979. As the crisis approached, capital inflows dried up. In the midst of a recession, domestic savings dried up as well, and the real interest rate shot up once again. The dynamics of such a process are highly plausible. However, even at their lowest in 1979-80, real interest rates on peso loans averaged 14.25 percent (LIBOR in those two years averaged 13.05 percent). Additional explanations still seem to be warranted.

As Edwards and Khan (1985) have emphasized, in a semi-open economy both "external" and domestic factors should help determine interest rates. The obvious "external" factors in this case are the international real interest rate and the expected real devaluation. Edwards (1985) reports that both factors seem to have been significant. 2/ By contrast, Meller and Solimano (1983) attempted to assess the impact of the expected nominal devaluation (estimated with parallel exchange market data on ex post devaluation) on the real interest rate. Estimation of a reduced form of the Dornbusch (1980) model yielded a coefficient with a "wrong" sign for expected devaluation, suggesting no effect. Hence, the evidence is mixed on the impact of devaluation expectations on the real rate of interest. Casual empiricism, however, suggests that in 1979-80 (at least) both the policymakers' commitment to the fixed exchange rate and the level of international reserves were high. At that time, expectations of devaluation must have been very low, yet nominal deposit interest rates were still in the 40-50 percent range (see Table 17).

---

1/ See discussion in Section V of this paper.

2/ Edwards (1985) apparently used the realized real devaluation as a proxy for expected changes.

Table 16. Chile: Real Interest Rates

|                   | Real Peso<br>Loan Rate | Real Peso<br>Deposit Rate |
|-------------------|------------------------|---------------------------|
| 1975              | 164.9                  | 68.7                      |
| 1976              | 176.4                  | 125.1                     |
| 1977              | 92.9                   | 58.9                      |
| 1978              | 55.0                   | 38.6                      |
| 1979              | 23.1                   | 10.9                      |
| 1980              | 15.7                   | 8.5                       |
| 1981              | 42.4                   | 32.2                      |
| 1982              | 42.4                   | 29.7                      |
| 1983              | 15.9                   | 3.9                       |
| 1975-82 <u>1/</u> | 76.6                   | 46.3                      |

Sources: Central Bank of Chile; monthly rates taken from Boletín Mensual (several issues) annualized and corrected by official CPI. Rates correspond to short-term (30-90 days) bank transactions.

1/ Arithmetic average.

Table 17. Chile: Nominal Interest Rates

|                   | Nominal Peso<br>Loan Rate | Nominal Peso<br>Deposit Rate | Spread |
|-------------------|---------------------------|------------------------------|--------|
| 1975              | 505.6                     | 409.4                        | 96.2   |
| 1976              | 350.7                     | 299.4                        | 51.3   |
| 1977              | 156.4                     | 122.4                        | 34.0   |
| 1978              | 85.3                      | 68.9                         | 16.4   |
| 1979              | 62.0                      | 49.8                         | 12.2   |
| 1980              | 46.9                      | 39.7                         | 7.2    |
| 1981              | 51.9                      | 41.7                         | 10.2   |
| 1982              | 63.1                      | 50.4                         | 12.7   |
| 1983              | 42.7                      | 30.7                         | 12.0   |
| 1975-82 <u>1/</u> | 175.9                     | 135.3                        | 30.0   |

Sources: Central Bank of Chile; monthly rates taken from Boletín Mensual (several issues) and annualized. Rates correspond to short-term (30-90 days) bank transactions.

1/ Arithmetic average.

As far as demand factors are concerned, demand for real liquidity was fueled, as already mentioned, by the "bad loan problem" faced by banks. Harberger (1985) identifies this "artificial demand for credit" as one of the two key reasons why real interest rates in Chile were so high (the other being the "decapitalized" state of Chilean firms).

On the supply side, a "credit crunch" has been singled out as a cause of high real rates by various authors. In Edwards' (1985) estimation, the absence of sufficient real liquidity stands out as a significant factor. The same holds for the work of Meller and Solimano (1983), who conclude that "monetary policy plays an important role in the determination of the real interest rate."

Care must be exercised, however, in ascertaining the source of this alleged credit crunch. Domestic credit grew 47.2, 30.4 and 97.1 percent in 1980, 1981 and 1982, respectively. (The corresponding inflation rates were 31.2, 9.5 and 20.7 percent). Hence, booming demand, not tight supply, seems to be at the root of this excess demand for credit. This gives additional credibility to the above-mentioned Harberger hypothesis.

### 3. The spread between loan and deposit rates

Table 17 also suggests that there was a substantial spread between lending and deposit rates over the period, which accounts for part of the high absolute level of real loan rates. Although real interest paid on deposits was high (particularly in 1981 and 1982), it cannot fully explain the high rates charged for loans. Meller and Solimano (1983) maintain, based on their econometric work, that the spread is totally independent of the variables that determine the real interest rate. This suggests that microeconomic factors must have been at work in maintaining the wedge between loan and deposit rates.

Early in the financial reform period the combination of high reserve requirements and substantial inflation was blamed for the spread. But as has been discussed in Chapter II, interest began to be paid on bank reserves in May 1976, and required reserve ratios were gradually brought down to very low levels. Hence, the impact of reserve requirements on bank costs was minimized over time. Another cost-based argument is that made by Sjaastad and mentioned above. As we saw before, the quantitative importance of this argument is probably rather small. Finally, it is commonly conjectured that Chilean banks' unit operating costs were much higher than those for comparable institutions in developed countries. This feature has been variously attributed to inefficiency, inexperience, setup costs, economies of scale, etc., but its quantification must await a detailed micro-analysis of the banks' books. It is also possible that bank managers attempted to offset the high risk of their portfolio with a higher spread, or that bad loan reserve provisions forced the spread upward--such provisions constitute an "operating cost", after all.

Frequent mention is also made in the literature (Arellano (1983b); Meller and Solimano (1983); Zahler (1985)) of the oligopolistic characteristics of the Chilean banking system, 1/ but the dynamics of the process remain unclear. Barriers to entry were reduced, and monopoly rents should have fallen over time. Vigorous competition seems to have existed among banks and financieras but for some reason it focused on quantity and product differentiation and seems to have had little impact on financial prices.

A plausible though imperfect hypothesis to explain this puzzle goes like this: for a given market-determined deposit rate, the spread will depend on the cost of holding reserves, on operational costs, and on dividends paid to stockholders. Ceteris paribus, the higher the dividends paid, the larger is the spread. In Chile, banks found themselves with a large portion of nonperforming loans, so that their effective cash inflow was small in spite of the high loan rates charged. Had nonperforming loans been of manageable size, banks could have lowered dividends and/or management salaries and/or other flexible costs to cushion the blow. However, given the magnitude of accumulating bad debt, a crisis was inevitable. 2/ Bankers then faced a dilemma: the higher the bank earnings and dividends are, the worse the cash flow of the firm and the sooner the crash would come. At one end, if dividends were infinity, the crisis would have occurred immediately; at the other extreme, if dividends were zero the crisis would be postponed but the sum of dividends paid over the period would also be zero. Somewhere in between there had to be a rate of earnings/dividends--and hence the spread--that maximized the present value of bank owners' earnings. This was conceivably the stable state the Chilean bankers chose.

#### VII. Four Theories of the Financial Crisis: Separating Micro from Macro Causes

The macroeconomic environment began to deteriorate dramatically in 1981. According to the indices computed by Corbo (1985), the real exchange rate appreciated about 45 percent between the second quarter of 1979 (when the nominal parity was fixed) and the end of 1981. 3/ The trade balance worsened accordingly, and, for 1981, the current account deficit reached a staggering 16.5 percent of GDP. Between October 1981 and June 1982, the Central Bank of Chile lost US\$555 million in international reserves. The need for a real devaluation was by then beyond

---

1/ Monopolistic competition actually seems a better label.

2/ Losses per unit of time could not be fully offset by lowering costs and dividends.

3/ The actual figures are 46.8 percent for the ratio of nontradables' prices to export prices, and 38.3 percent for the ratio of nontradables' prices to import prices.

doubt, and policymakers considered a mandatory cut in money wages as a possible alternative to nominal devaluation, but the idea was soon dropped. The devaluation (18 percent in nominal terms) came in June, and it was accompanied by a relaxation of the indexation of minimum wages, which had put a floor to private sector wage adjustments, 1/ to ensure that a real devaluation would take place as well. The devaluation was deemed insufficient by the public, and speculation continued. An additional US\$890 million in reserves was lost in the rest of the year, as floats and crawls were tried as means of stabilizing the exchange market. An almost 90 percent nominal devaluation was to occur before this objective was achieved. To cushion the impact, preferential exchange rates for dollar debtors were swiftly set up.

The Chilean financial crisis had begun to unfold in late 1981. By then the difficult macroeconomic conditions were taking their toll on the profit statements of firms, and business bankruptcies surged--most prominently, CRAV, a large sugar refining company, failed in May 1981. During the year, real interest rates, which had fallen in 1980, began climbing upwards again, placing further strains on a weakened financial structure characterized by high debt equity ratios among enterprises and a significant amount of nonperforming assets in the portfolios of banks.

The first public shock came in November 1981, when the Government decreed the "intervention" of three banks, a development bank, and four financieras that together accounted for over one third of the loan portfolio of the financial system. Two of the banks were among the six largest private commercial banks in the country (Banco Español de Chile and Banco de Talca); the other was a small regional bank. The intervened banks began losing deposits in September 1981; the decline in deposits from August to December amounted to Ch\$24 billion, of which almost Ch\$16 billion took place in November. All of 1982 was plagued by rumors and by evidence of further firm and bank problems, made more urgent by the rapidly worsening macroeconomic situation. 2/ Fears were confirmed in January 1983, when the Government placed seven banks and one financiera under temporary government management. 3/ These institutions had a 45 percent share in outstanding loans, and 41 percent of total deposits. They included the nation's two largest private commercial banks (Banco de Chile and Banco de Santiago), which served as standard-bearers for the two most powerful grupos. Thereafter, a wide array of programs would be

---

1/ Minimum wages had been readjusted at fixed intervals. Each such government-decreed rise matched the CPI inflation accumulated since the previous readjustments.

2/ Two banks and one financiera, all quite small, accounting for 1.5 percent of total loans, had to be intervened during 1982.

3/ Three were immediately liquidated. In contrast with previous intervention, the Government only guaranteed 70 percent of deposits this time. But it became necessary to compensate 100 percent of the foreign creditor's claims.

put into effect to stabilize the remaining institutions and to restructure and restore the intervened ones to health. 1/

What triggered a crisis of this magnitude? The financial system had long been engaged in a rather unstable process of credit expansion, but (until sometime in 1981) international reserves and the real economy seemed to be booming in spite of it. The immediate activators of the collapse were two. First, capital inflows declined sharply (see Table 3). In the first semester of 1982, net capital inflow totaled US\$889.2 million--only 36 percent of the inflow in the previous semester. Of course, much of this reduction, had exogenous causes--the South Atlantic war, the Mexican problems of August 1982, and the generalization of the Latin American debt crisis. Second, asset prices dropped due to bankruptcies and the reversal of previously optimistic expectations. This had an unusually large impact on the financial health of firms, for a good portion of profits until then had consisted of (unrealized) capital gains. 2/ After the fall in asset prices, many firms that had only suffered from short-term liquidity problems were revealed to be long-term insolvent.

Concerning the deeper or structural causes of the financial sector problem, the hypotheses formulated with this more ambitious purpose in mind can be classified (somewhat arbitrarily) into four groups:

(1) External shock explanations: the negative impact from abroad (higher interest rates, deterioration of the terms of trade, credit rationing) was so large that no domestic financial system could have withstood it;

(2) Macro-shock explanations: the macroeconomic environment was sufficiently hostile, and variables (like the real interest rate and exchange rate) sufficiently out of line to ensure the collapse of the financial system;

(3) Inherent market instability explanations: unregulated markets can be destabilized by random events. This is especially true in financial markets, where elements such as expectations and trust play a key role. What happened in Chile was nothing but the unfortunate disequilibrium of an otherwise sound market; and

(4) Inadequate financial reform explanations: reforms in Chile were carried out with little or no regard for possible market imperfections. Competition and the free flow of information were not sufficiently encouraged. The outcome was a predictable combination of several

---

1/ A detailed description of the measures taken is to be found in the next section of this paper.

2/ Barandiarán (1983) has stressed this point.

market failures (oligopoly pricing, moral hazard, adverse selection, etc.).

Of course, these four views are but caricatures that require appropriate qualifications. They serve, however, as focal points to structure our discussion.

From the point of view of the interaction of a troubled financial system with the economy at large, explanations (1) and (2) above are equivalent: they both maintain that the problems came from outside the financial system. Two counter-factuals are available to evaluate such an argument. One is to consider what happened to the Chilean financial system the last time it suffered an external shock of this magnitude--in the 1930s. With all the caveats that such a comparison requires, one can note that during the Great Depression no Chilean bank went bankrupt, nor did any bank from the "major countries" in Latin America: Argentina, Brazil and Mexico (Díaz-Alejandro, 1983). A second standard of comparison is the recent fate of Latin American countries that did not liberalize their financial systems, but which were under as great external stress as Chile was. Brazil, Peru, Colombia and Venezuela emerge as possible contrasts. These countries experienced many macro and micro problems over the last decade, but not financial problems of the magnitude experienced by Chile. This does not deny that maintaining financial repression probably entails substantial costs. Nor does it imply that keeping banks alive through more or less open subsidization (as some Latin American governments seem to have done in the 1930s) is a costless exercise. Such counter-examples, however, do suggest that there are tools at the disposal of government that can, to some extent at least, reduce the vulnerability of a financial system to the vagaries of the macro environment. It seems undeniable that such tools were not used in time during the Chilean episode of the early 1980s.

It is also important to note that not all banks in Chile experienced the same difficulties in the recent period. The conservatively managed Banco del Estado (the nation's second largest) emerged from the crisis practically unscathed. So did the various foreign banks operating in Chile. Of course, private and state, domestic and foreign banks were subjected to the same macroeconomic storms. The key seems to be in the differences in micro management, to which we now turn.

By contrast to the other two, hypotheses (3) and (4) focus on the financial system itself in searching for the causes of the crisis. One stresses that such a crisis could have happened to any market system, given the inherent instability of financial markets and the severity of exogenous shocks during the period; the other, that a crisis was bound to happen to this particular market system because of the nature of the institutions with which it had been endowed at the time of the financial reform. Obviously, serious enough shocks can disequilibrate even the soundest of markets. But, while a sound market will tend to cushion the impact of perturbations, an unsound one will tend to magnify them.

Unfortunately, Chile seems to belong in the latter category. Regardless of the role played by other factors, it is difficult to escape the conclusion that the Chilean financial problem had a perverse micro dynamics of its own, which in turn was only made possible by the peculiar pattern of ownership and regulation with which the system emerged from the process of reform. Ex post at least, the market failures visible in the Chilean financial markets belong to the textbook variety (moral hazard, adverse selection, oligopolistic pricing), which were fostered by certain government policies (implicit guarantees, lack of portfolio supervision, allowance of interlocking ownership and lending patterns).

Furthermore, there is a strong case to be made that financial sector imbalances contributed to create the macro disequilibrium, and not just the other way around. Among theorists of stabilization, there is increasing recognition of the crucial role that credibility plays in disinflation-cum-reform programs. 1/ Announced exchange rate policy clearly enjoyed substantial credibility until sometime in 1981, and such beliefs were buttressed by healthy international reserves. But the stabilization program coexisted with a mounting private financial deficit which was clearly unsustainable in the long run and which, under the (apparently justified) assumption of implicit guarantee, would eventually become the responsibility of the Government. What measures (domestic credit creation, inflation, etc.) the Government would choose to deal with this problem could not be anticipated, but they were unlikely to be compatible with the maintenance of a fixed exchange rate, a cautious monetary policy, 2/ and careful management of expectations as the backbone of the anti-inflation policy.

The point can be put in a slightly different way. It is often argued, as in the Argentine case, that the combination of a slow crawl of the exchange rate with a large fiscal deficit would make the policy package inconsistent, and hence unviable. Where, then, was the inconsistency in the Chilean program, where fiscal deficits had been contained? What variable played the role that the budget deficit played in Argentina? An often-mentioned possibility is the system of backward full wage indexation (Edwards (1985); Corbo (1985)); combining it with a fixed exchange rate was tantamount, it is argued, to imposing two numeraires on the economy--eventually, one had to give. Without underestimating the seriousness of this problem, the financial deficit can be suggested as an additional source of "incredibility" in the Chilean case. Díaz-Alejandro (1985) has hinted at this possibility:

The massive use of Central Bank credit to 'bail out' private agents raises doubts about the validity of pre-1982 analyses of the fiscal position and debt

---

1/ For a general treatment, see Sargent (1986). For a treatment focussed on the Southern Cone case, see Calvo (1986).

2/ Aimed, of course, at maintaining the fixed parity.

of the Chilean public sector.... Ex post, it turned out that the public sector, including the Central Bank, had been accumulating an explosive amount of contingent liabilities to both foreign and domestic agents, who held deposits in, or made loans to, the rickety financial system.

In other words, it is conceivable that the financial sector deficit played the role usually reserved for the fiscal deficit. As is the case with any deficit, it can be financed with bonds or with money creation. The Chilean deficit was at first financed with "bonds": banks borrowed abroad and central bank reserves swelled but domestic credit creation was cautious. Eventually, as the limit on foreign borrowing was reached and domestic bankruptcies increased, many banks were revealed to be significantly overextended. They had to be intervened and/or heavily subsidized by the Central Bank which, in addition, was to assume responsibility for servicing the foreign debt contracted by banks. The prudent fiscal and monetary stance had to be abandoned (at least temporarily), and the end of the exchange rate regime could not be far away. <sup>1/</sup> The Central Bank extended almost US\$1 billion of credit to the financial sector in the last quarter of 1981, and lost about US\$230 million in net foreign reserves; in the first six months of 1982 a further US\$535 million of central bank credit went to the financial system, and an additional US\$325 million of foreign reserves were lost. There can be little doubt that the financial crisis contributed significantly to the loss of reserves and eventually to the collapse of the stabilization plan. First, the intervention of financial institutions led to a rapid expansion in net domestic credit of the central bank to support those institutions. Second, those interventions undermined confidence in the financial system, which contributed to the decline in the demand for domestic financial assets observed in 1982 and 1983. These two factors played a major role in generating expectations of higher inflation and of a depreciation of the peso, as international reserves were drawn down.

This is of course a highly stylized account, but it captures one crucial feature of the Chilean problem. The stabilization plan relied heavily on the moderation of inflationary expectations. This aim was initially achieved, but public confidence could not be everlasting as long as a good share of the nation's banks and firms was perceived to be insolvent. In turn, after a period of confidence the public eventually adopted precautionary measures (such as beginning to accumulate foreign exchange) to protect itself from future policy changes, and this tended

---

<sup>1/</sup> The amounts of central bank credit extended to the financial system appear in Table 19. The reason why this drastic increase is not matched immediately by a comparable increase in monetary aggregates is twofold: first, a decline in international reserves and hence in the monetary base; second, the massive issue of illiquid central bank paper as part of the bank rescue package.

to make the government stabilization policy even more difficult and costly to apply.

#### VIII. Reacting to the Crisis

The Government's early reaction to the mounting macroeconomic troubles evident since 1981 appeared to be guided by the expectation that an "automatic adjustment" would occur in response to such disequilibria. In particular, high real interest rates would reduce the pressure of domestic demand. The problem of an overvalued exchange rate would also correct itself: in the event of a balance of payments deficit reserves would flow out, and the resulting lower money base would push non-tradables' prices down. However, since such adjustments appeared to take too long, the Government decided to take a more activist policy stance beginning in May 1982. By devaluing, the Government aimed at easing the adjustment in relative prices by a policy-dictated change in one money price (the nominal exchange rate). The same held for interest rates: monetary policy began to be actively used to moderate increases in interest rates, especially as external financing increasingly dried out. These efforts to reduce domestic rates were helped later by the decline in international interest rates; in this regard, beginning in 1984, the Central Bank strived to keep domestic rates competitive with international rates. Starting in 1985, public sector domestic borrowing needs also eased due to repayment of domestic debt of the nonfinancial public sector and increased reliance on foreign borrowing. The Central Bank carried out this policy by providing large credit flows at pre-determined rates to financial institutions and by "suggesting" deposit rates to banks.

At the micro level, the Government's attitude before the devaluation was similar in logic. If any firms were near bankruptcy, they would voluntarily declare themselves so. The judicial system would carry out the necessary settlements and liquidations. If asset prices fell as a result, that would only reflect equilibrium conditions in the corresponding markets. The central exception to this general hands-off position was a tightening of Bank Supervision by the Superintendency of Banks. As mentioned, the year of 1982 witnessed attempts to encourage grupos to reduce their debt--to the public but particularly to the grupos' own banks. The problem of the cartera relacionada was on its way to becoming a public issue.

Barandiarán (1983) conjectures that in mid-1981 firms' problems were still of a magnitude that a wave of liquidations would have been feasible in two senses: economically (asset prices would not have plummeted) and logistically (the judicial system could have handled the resulting workload). By mid-1982 a drastic solution of this sort was no longer feasible. A macro relief package was necessary, and it had to come from the Government.

The first round of intervention of financial institutions--involving eight of them--came in November 1981. At this time, substantial amounts of credit began to flow from the Central Bank to the banking system. The June 1982 devaluation put further strains on the ability of banks and firms to service dollar debts, and more vigorous palliative policies began to be adopted. Further rescue measures would be put into effect as part of the early 1983 bank interventions and until early 1985. What follows is a stylized description and classification of these measures.

1. Measures to aid domestic borrowers

a. Reprogramming of firm loans

In 1983 and 1984, the Central Bank established schemes to enable banks to reschedule a portion of their loans to firms. Lenders granted firms lower interest rates and longer maturities. Since this would worsen banks' liquidity and reduce their profits, the Central Bank introduced a scheme of subsidization that is described in the next subsection.

Under the 1983 program, firms' rescheduled debts in pesos carried a real interest rate of 7 percent. The terms for dollar loans were identical except that the 7 percent interest applied to each payment in U.S. dollars (equivalent) on the basis of the current exchange rate. All borrowers were to repay the rescheduled credits in ten years, with a grace period of five years for principal and one year for interest. The second debt rescheduling, implemented in 1984, expanded the amounts eligible for rescheduling, lowered interest rates (5 percent real for the first two years, rising in steps to 7 percent from the sixth year), lengthened the maturities to up to 15 years, and granted more favorable treatment for smaller debtors.

From the point of view of debtors, these were not easy terms. In the first round (1983) 51 percent of the financial system's loans were reprogrammed at subsidized interest rates (7 percent in real terms). The remainder was left at market rates (15 percent, real). The resulting average effective real rate--over 11 percent--was still quite onerous, especially given the recessive situation of the economy.

The magnitude of this program was substantial: by the end of 1984 rescheduled loans accounted for 21.4 percent of domestic credit. <sup>1/</sup> There were some restrictions on eligibility: loans to legally bankrupt firms, to other financial institutions and to holding companies could not be reprogrammed, nor could foreign trade credit. Nevertheless, this was really a "blanket" program that failed to distinguish among firms, and made no effort to separate viable borrowers from those that were not. Whereas under the 1983 program the Central Bank sought to reschedule a

---

<sup>1/</sup> This figure was to drop to 16.4 percent in the course of 1985.

mandatory minimum 30 percent of the debts of all eligible debtors, the 1984 program varied the percentage rescheduled according to the size of loans. While since late 1985 the possibility of a "case-by-case" rescheduling exercise had been discussed, only a program for small debtors was implemented--in 1986--and without any subsidy or credit from the Central Bank. This program included supervisory incentives and penalties aimed at encouraging banks to regularize the situation of small borrowers.

b. Reprogramming of housing loans (mortgages)

A similar program was established for mortgage debts. Amounts to be rescheduled included installments unpaid since 1981 and a decreasing percentage of installments payable between 1983 and 1987. The rescheduled amounts became loans denominated in UFs <sup>1/</sup> and carrying 8 percent annual interest. The Central Bank purchased part of the rescheduled loans from the financial institutions with a note in UFs also at 8 percent, and the remainder of the rescheduled payments with a central bank line of credit carrying 7 percent real annual interest.

Under this scheme, over 36,000 loans were reprogrammed. Rescheduled amounts were not very large--about US\$120 million outstanding as of August 1985.

c. Sectoral lines of credit

As part of efforts to cushion the impact of the crisis on some sectors and to revive others, the Central Bank established some special lines of credit. Some of these have been targeted to: working capital needs, payroll financing, labor hiring incentives, construction and public works, and reforestation. They all provide credit to firms at below-market rates. They also carry an implicit subsidy for the financial intermediary involved, for the cost of central bank credit for these lines of credit is lower than what banks are allowed to charge the user.

2. Measures to aid financial intermediaries

a. Emergency loans to banks

Such loans were granted to both intervened and nonintervened banks at the start of the crisis. These were later repaid and converted to equity when more comprehensive aid packages were put in place.

b. Subsidies to facilitate reprogramming of loans

As noted earlier, the loan reprogramming was facilitated by the

---

<sup>1/</sup> The UF (Unidad de Fomento) is a unit of account indexed to the GPI.

provision of subsidies to the banks and financieras involved: the Central Bank extended to financial institutions lines of credit to be repaid within ten years at a real 1/ interest of 5 percent, with a grace period of five years for principal and one year for interest; in turn, financial institutions were to use the funds to buy six-year central bank notes on which payments are made quarterly at an annual rate of 12 percent. 2/ In short (and abstracting from the different maturities), banks exchanged their own paper yielding 5 percent for central bank paper yielding 12 percent, thereby receiving a 7 percent spread (with no risk) as subsidy.

c. Purchase of risky loans by Central Bank

The Central Bank decided, beginning in 1982, to facilitate the recapitalization of the banking system. The first scheme, announced in July 1982, involved a Central Bank purchase of the substandard loan portfolio of banks up to a maximum of 100 percent of the capital and reserves of each bank. The Central Bank would pay for this purchase by issuing noninterest-bearing central bank bonds. Banks would have to repurchase 5 percent of these loans every six months for ten years. Both the loans and the bonds would be adjusted for inflation. This scheme improved the balance sheet position of the banks involved by temporarily removing substandard assets from their portfolios and by effectively giving them the possibility of writing off bad loans over a ten-year period.

A more comprehensive recapitalization scheme was introduced in February 1984. 3/ In essence, the new scheme provided for the Central Bank to purchase with cash substandard loans at par for up to 150 percent of capital and reserves of each bank. In order to reduce the monetary impact of cash purchase, the selling bank must use the proceeds to repay any outstanding emergency loans from the Central Bank, and any remaining balances must be used to purchase central bank pagarés (IOUs). Once again, the implicit subsidy is substantial: the central bank pagarés carry a real rate of return of 7 percent (UF + 7 percent) and a four-year maturity. Banks could also exchange an additional amount of substandard loans (up to 100 percent of their capital and reserves) for a noninterest-bearing, nontransferable central bank note. Loans exchanged for central bank notes had to be repurchased over ten years at their initial real value. Loans sold for cash had to be repurchased at their initial value plus a 5 percent real interest rate over ten years. Bank

---

1/ Credits are denominated in UFs.

2/ The rates on dollar-denominated notes carried a yield of LIBOR plus 2.125 percent, or the prime rate plus 2 percent, at the financial institution's option. These notes (both domestic and dollar denominated) were not transferable except among financial institutions.

3/ Loans repurchased in 1982 had to be converted to the 1984 scheme. The new scheme also aimed to increase the liquidity of banks.

shareholders were required, at the time of sale, to devote all dividends on their shareholdings to this repurchase until the repurchase was completed. New capital contributions also faced a partial limitation on dividends--only up to 30 percent of earnings can be distributed as dividends--until the loan repurchase was completed. By the end of August 1985, the amount of bad loans sold by the commercial banks had reached US\$2.36 billion (of which 96 percent was sold by domestic banks; in turn, 75 percent of which by intervened banks). While initially only nonintervened banks were allowed to sell substandard loans to the Central Bank, from 1985 the intervened banks were also allowed to participate. As a result, the purchases of substandard loans continued through 1987. 1/

In addition, the Government decided to recapitalize intervened banks directly. A law passed in February 1985 allowed the Superintendency of Banks to require intervened institutions to increase their equity to make them financially viable. 2/ The new stock would be first offered to existing stockholders, and then to third parties. Any portion of the required capital stock that was not subscribed would be purchased by CORFO. 3/ CORFO would pay for these shares by assuming the emergency credits that intervened banks had earlier received from the Central Bank. In other words, the Central Bank emergency credits were converted to equity. CORFO would have to sell its bank shares within five years, at a rate of 20 percent per year as a minimum. Any unsold stock would be automatically transferred free of cost to the shareholders that had already contributed to the equity increase. Moreover, the law established that at no point could CORFO shares of a bank exceed 49 percent of the bank's capital. Any losses under this program would accrue to the Central Bank, although the law provides for reimbursement from the Treasury up to a certain amount.

In order to attract interest in the shares of effectively bankrupt institutions, CORFO made the terms very attractive. Only a small down-payment was necessary; the balance is payable in 10 years at 5 percent real interest. 4/ With some limits, individuals with no tax arrears enjoyed even more favorable conditions: 15 years and no real interest. Owners of such stock also enjoyed substantial fiscal advantages: not only tax exempt dividends but also a tax credit equivalent to 20 percent of the value of shares purchased.

---

1/ To facilitate this process, new regulations approved in May 1986 allowed for the purchase by the Central Bank as substandard portfolio up to an amount of 350 percent of new capital contributions. As of March 1987, total purchases of substandard loan portfolios by the Central Bank amounted to about Ch\$676 billion.

2/ Recapitalization was a prerequisite for selling substandard loans to the Central Bank.

3/ CORFO is Chile's state development agency.

4/ UF adjustment plus 5 percent.

Through these mechanisms, the five intervened banks were returned to the private sector during 1986. Four were fully capitalized and sold-- these included the largest two in the nation: Banco de Santiago and Banco de Chile, whose shares had been sold to over 57,000 shareholders by December 1986, with their management fully privatized subsequently. The fifth (Colocadora Nacional de Valores) was merged with the Banco de Santiago.

3. Other relief measures

a. Preferential exchange rate

In mid-1982, the Central Bank established a preferential exchange rate for debt service payments on certain dollar-denominated loans. 1/ Since December 1982, the resulting subsidy has been paid with negotiable central bank notes with a maturity of six years. 2/ In 1984, the Central Bank introduced some restrictions on access to this program. In 1985, further restrictions were enacted, and it was decreed that the program would be gradually phased out. 3/ As a result, while the devaluation of the peso 4/ in February and June of 1985 increased the total cost of the program for that year, this cost fell subsequently.

b. Interest subsidies on swap operations

Swap operations have existed since 1983, and have provided a hedge to domestic agents possessing dollar liabilities. The outstanding swap of dollars derived from the repayment of certain foreign currency loans by domestic residents to local banks were converted into dollar-denominated accounts at the Central Bank, carrying a yield of six-month

---

1/ In effect, the program provides debtors with access to foreign exchange at a below-market price. The implicit subsidy can be calculated as  $S = D(E_o - E_p)$ , where S = subsidy (in pesos), D = dollar amount purchased by domestic resident to service dollar debt,  $E_o$  = official exchange rate, and  $E_p$  = preferential exchange rate.

2/ Before that it was paid in cash, with the consequent expansionary impact.

3/ In February 1984, most public enterprises were excluded from the subsidy and the access of firms engaged in export activities was limited. In 1985, when the decision to phase out the system was taken, the subsidy was maintained for debts of US\$50,000 or less outstanding.

4/ Until mid-1985 the preferential rate was indexed to inflation. Hence, real devaluations increased the spread between the preferential and market rates, and hence the size of the subsidy.

LIBOR plus a spread. 1/ Banks can only draw funds from these accounts in order to purchase foreign exchange to service their external debt. Against the remaining balance the Central Bank issues peso-denominated lines of credit to banks at a predetermined real interest rate. In the course of 1985, measures were taken to moderate the impact of the subsidy. The premia over LIBOR that the Central Bank paid on these deposits were gradually reduced, and eliminated by February 1987, and efforts have been made to decrease the immediate monetary impact of the program. The Central Bank also established a schedule for the elimination of the subsidy on swaps: for new operations, this subsidy was eliminated by the end of April 1987.

The most important result of all these relief programs is that they kept the banking system functioning, however tenuously. The importance of this development for an economy trying to climb out of a deep recessive cycle cannot be overstated. As the overall economy recovered somewhat (real GDP grew 6.3 and 2.4 percent in 1984 and 1985, respectively), the firm bankruptcy problem was not as dramatic as it was in 1982, and banks' fortunes have risen accordingly. In 1985 the banking system as a whole showed after-tax profits amounting to 6.2 percent of capital--the first such profits since 1981. In 1986, the system registered profits of about 4 percent of capital. 2/

The overall bank rescue operation may also have facilitated--together with the decline in international interest rates--a moderation of domestic interest rates (Table 18). This overall encouraging trend obscures some short-term cyclical fluctuations. In the course of 1985, for instance, real loan rates rose slightly--even as deposit rates edged down--as banks tried to shield themselves from the losses from certain problem loans. However, real rates declined again in 1986, presumably aided by the fall in international rates.

The counterpart to the improved asset position of many banks (fewer problem loans, less cartera relacionada) has been a dramatic increase in central bank financing of commercial banks. For instance, this financing became more important than deposits as a source of funding (Table 19). Moreover, outstanding borrowing in pesos from the Central Bank were four times the capital and reserves of the banking system as of June 1985, and was equivalent to almost 50 percent of the sum of loans and foreign assets of the system. A similar point can be made for the income figures, dependent as they are on central bank support. As a result of

---

1/ Notice that devaluation of the peso increases the domestic currency value of these deposits, and creates a loss for the Central Bank. Devaluation adjustments are accrued but not paid in cash, thus postponing the monetary effect. Only interest on these accounts is paid in cash, and then only in pesos.

2/ The decrease reflected the reduction in central bank subsidies summarized above.

Table 18. Chile: Interest Rates on 30- to 89-Day Operations of Commercial Banks

(In percent per month) 1/

|                       | <u>Nominal</u> |          | <u>Real 2/</u> |          |
|-----------------------|----------------|----------|----------------|----------|
|                       | Loans          | Deposits | Loans          | Deposits |
| <u>Annual average</u> |                |          |                |          |
| 1981                  | 52.0           | 40.8     | 38.7           | 28.6     |
| 1982                  | 63.1           | 47.8     | 35.1           | 22.4     |
| 1983                  | 42.7           | 27.9     | 15.9           | 3.9      |
| 1984                  | 37.2           | 26.1     | 11.4           | 2.3      |
| 1985                  | 40.4           | 31.6     | 11.4           | 4.1      |
| <u>1983</u>           |                |          |                |          |
| March                 | 3.1            | 2.2      | 1.2            | 0.3      |
| June                  | 3.0            | 2.1      | 1.4            | 0.4      |
| September             | 2.8            | 1.9      | 0.5            | -0.4     |
| December              | 2.6            | 1.8      | 2.0            | 1.2      |
| <u>1984</u>           |                |          |                |          |
| March                 | 1.7            | 0.9      | -0.8           | -1.5     |
| June                  | 2.1            | 1.4      | 0.8            | 0.1      |
| September             | 2.1            | 1.2      | -0.8           | -1.7     |
| December              | 4.2            | 2.9      | 2.7            | 1.5      |
| <u>1985</u>           |                |          |                |          |
| January               | 3.0            | 1.9      | -0.1           | -1.2     |
| February              | 3.5            | 2.6      | 1.5            | 0.6      |
| March                 | 3.3            | 2.7      | 0.5            | -0.1     |
| April                 | 3.9            | 3.4      | 1.6            | 1.1      |
| May                   | 3.4            | 2.9      | 1.4            | 0.9      |
| June                  | 3.1            | 2.6      | -0.6           | -1.0     |
| July                  | 3.6            | 3.1      | 2.3            | 1.8      |
| August                | 2.3            | 1.8      | 1.4            | 0.9      |
| September             | 1.9            | 1.4      | 0.7            | 0.2      |
| October               | 2.1            | 1.7      | 0.6            | 0.2      |
| November              | 2.1            | 1.7      | 0.5            | 0.1      |
| December              | 2.3            | 1.9      | 1.0            | 0.6      |
| <u>1986</u>           |                |          |                |          |
| January               | 2.2            | 1.7      | -0.5           | -0.9     |
| February              | 2.7            | 2.0      | 1.8            | 1.1      |
| March                 | 1.9            | 1.3      | 0.4            | -0.2     |
| April                 | 2.1            | 1.6      | 0.7            | 0.2      |
| May                   | 2.0            | 1.5      | 1.3            | 0.8      |
| June                  | 1.6            | 1.0      | 0.3            | -0.3     |
| July                  | 1.8            | 1.4      | 0.8            | 0.4      |
| August                | 1.7            | 1.2      | 1.1            | 0.6      |
| September             | 1.5            | 0.9      | --             | 0.6      |
| October               | 1.9            | 1.6      | 0.4            | 0.1      |
| November              | 2.0            | 1.6      | 0.6            | 0.2      |
| December              | 2.0            | 1.6      | 0.5            | 0.1      |

Source: Central Bank of Chile, Síntesis Monetaria y Financiera.

1/ Weighted average of the rates on all operations during the month.

2/ The nominal rate less variation in the CPI during the month.

3/ Suggested maximum nominal deposit rate for 30-day deposits, 1985-86.

|             |     | <u>Effective date</u> |     |             |     |
|-------------|-----|-----------------------|-----|-------------|-----|
| <u>1984</u> |     | <u>1985</u>           |     | <u>1986</u> |     |
| December 8  | 1.7 | February 7            | 2.5 | January 3   | 1.5 |
|             |     | April 8               | 3.2 | February 5  | 1.9 |
|             |     | May 3                 | 2.7 | February 24 | 1.5 |
|             |     | June 5                | 2.4 | March 3     | 1.1 |
|             |     | July 9                | 2.9 | April 2     | 1.5 |
|             |     | July 26               | 2.4 | May 22      | 1.2 |
|             |     | August 5              | 1.6 | May 30      | 1.0 |
|             |     | August 21             | 1.3 | June 6      | 0.8 |
|             |     | September 3           | 1.2 |             |     |
|             |     | October 2             | 1.5 |             |     |
|             |     | December 6            | 1.7 |             |     |

Table 19. Chile: Central Bank Financing of Commercial Banks

(In percent)

|   | June 1981 | June 1985 |
|---|-----------|-----------|
| Credit from the Central Bank relative to:                     |           |           |
| (a) Commercial bank deposits in domestic and foreign currency | 6.9       | 117.2     |
| (b) Domestic loans and foreign assets of commercial banks     | 3.4       | 49.8      |
| (c) Commercial banks' capital accounts                        | 26.9      | 400.1     |

Source: IMF, International Financial Statistics.

the support extended to the rest of the financial system and of the preferential exchange rate subsidy, in 1982 central bank credit (in terms of liabilities to the private sector) rose by 94 percent and by a further 433 percent in 1983 (Table 20). The bulk of central bank credit in 1983 consisted of credit to financial intermediaries and transfers to banks and the corporate sector as part of the preferential exchange rate and other programs involving subsidies. During 1984 the credit expansion of the Central Bank slowed down to 174 percent, even though the Central Bank continued to be the principal channel of foreign loans to Chile.

During 1985, Central Bank credit increased by about 200 percent, largely reflecting the losses arising from the preferential exchange rate and swap subsidies discussed above, which are registered as "other assets" in Table 20. Credit expansion was financed to a much larger extent from domestic sources in 1985 compared with 1984: liabilities to the private sector increased by about 90 percent, especially reflecting the issue of medium-term notes to finance the preferential exchange rate subsidy. The issuance of central bank paper has limited the liquidity effect of the subsidies. As this paper matures, however, and its interest is paid, its inflationary impact will have to be offset somehow. 1/

Similarly, despite the progress on the interest rate front some problems remain. Although deposit and lending rates have fallen, spreads continue to be substantial, as banks attempt to offset losses from bad loans not sold to the Central Bank (Table 18). Furthermore, the reduction in interest rates owes a great deal as well to government aid. Without these transfers from the Central Bank, interest rates charged to new borrowers would probably be much higher.

A reasonable case can be made that the main effect of the measures taken since 1982 has been to postpone and dilute over time the impact of the crisis. Progress has been made in many areas, but key issues remain to be settled.

One such issue is the determination of conditions that will enable individuals and enterprises to service their rescheduled debts without incurring further unpayable obligations. As mentioned earlier, the conditions faced by borrowers (unlike those for lenders) have been quite stringent since the start. This has created great pressures for further reprogrammings, concessions, etc. Some of these have been granted, but the debate continues until today. According to Arellano (1984):

---

1/ The spectacular growth of central bank credit to the financial system is in evidence in Table 20. The impact of such credit on monetary aggregates, however, has been moderated by the massive issue of central bank paper (Table 21). Such bond financing of government spending is subject to the by-now-well-understood limits discussed by Sargent and Wallace (1986).

Table 20. Chile: Operations of the Central Bank  
(Percentage change with respect to liabilities to the  
private sector at the beginning of the period)

|  | 1982         | 1983         | 1984         | 1985         |
|--|--------------|--------------|--------------|--------------|
| <u>Net international reserves</u>        | <u>-94.5</u> | <u>-93.2</u> | <u>-13.0</u> | <u>-1.6</u>  |
| <u>Net domestic credit</u>               | <u>94.4</u>  | <u>433.4</u> | <u>174.3</u> | <u>199.6</u> |
| Net credit to the nonfinancial           |              |              |              |              |
| public sector <u>1/</u>                  | -36.9        | -9.8         | 69.8         | -50.1        |
| SINAP                                    | 15.2         | 26.5         | 18.0         | 21.0         |
| Credit to the private sector             | -0.4         | 21.2         | -0.9         | 0.4          |
| Net credit to financial                  |              |              |              |              |
| intermediaries                           | 167.0        | 375.8        | -30.4        | 18.6         |
| Capital and reserves <u>2/</u>           | -77.2        | -56.1        | 55.0         | -29.9        |
| Other assets                             | 26.7         | 75.9         | 62.8         | 239.6        |
| <u>Net medium- and long-term</u>         |              |              |              |              |
| <u>foreign liabilities <u>3/</u></u>     | <u>6.4</u>   | <u>235.0</u> | <u>133.6</u> | <u>108.2</u> |
| <u>Liabilities to the private sector</u> | <u>-6.4</u>  | <u>105.2</u> | <u>27.5</u>  | <u>89.7</u>  |
| Currency                                 | -1.6         | 18.0         | 10.6         | 10.9         |
| Other <u>4/</u>                          | -4.9         | 87.2         | 17.0         | 78.8         |
| <u>Memorandum items:</u>                 |              |              |              |              |
| Total net foreign liabilities            |              |              |              |              |
| (in billions of pesos)                   | 101.1        | 328.2        | 146.7        | 109.9        |
| Inflation rate (CPI)                     | 20.7         | 23.1         | 23.0         | 26.4         |

Source: Central Bank of Chile, Balance Sheet.

1/ Excludes holdings of treasury notes on account of the 1983-85 capitalization of the Central Bank. These notes are included in other assets.

2/ Minus equals increase in capital and reserves.

3/ Includes foreign liabilities on account of deposits placed by the corporate sector in the Central Bank in the context of the 1983-85 re-scheduling agreements with foreign commercial banks.

4/ Includes medium-term notes issued by the Central Bank to finance the preferential exchange rate subsidy.

Table 21. Chile: Holdings of Financial Assets by the Private Sector

(Rate of growth, in percent)

|                                  | 1982  | 1983  | 1984 | 1985 |       |       |      | Year  |
|----------------------------------|-------|-------|------|------|-------|-------|------|-------|
|                                  |       |       |      | I Q  | II Q  | III Q | IV Q |       |
| <u>Changes in nominal</u>        |       |       |      |      |       |       |      |       |
| stocks <u>1/</u>                 | 13.6  | 21.4  | 30.0 | 13.8 | 9.5   | 11.3  | 9.0  | 51.2  |
| Money                            | 7.3   | 27.7  | 12.0 | 5.8  | 1.6   | -1.9  | 5.6  | 11.3  |
| Other assets                     | 14.9  | 20.2  | 33.8 | 15.2 | 10.8  | 13.3  | 9.4  | 58.2  |
| Quasi-money <u>2/</u>            | 11.1  | 1.3   | 36.4 | 11.4 | 11.4  | 11.5  | 7.5  | 48.9  |
| Central bank notes               | 38.5  | 424.0 | 32.5 | 44.1 | 15.2  | 26.5  | 16.5 | 144.5 |
| Treasury notes                   | —     | 263.8 | -0.4 | 11.0 | -3.7  | 2.6   | 14.2 | 22.7  |
| <u>Changes in real</u>           |       |       |      |      |       |       |      |       |
| stocks <u>1/ 3/</u>              | -5.9  | -1.4  | 5.7  | 5.2  | 1.2   | 7.6   | 4.3  | 19.6  |
| Money                            | -11.1 | 3.8   | -9.1 | -2.2 | -6.1  | -5.2  | 1.1  | -11.9 |
| Other assets                     | -4.8  | -2.3  | 8.8  | 6.5  | 2.4   | 9.5   | 4.8  | 25.1  |
| Quasi-money <u>2/</u>            | -8.0  | -17.8 | 10.9 | 3.0  | 3.0   | 7.8   | 3.0  | 17.8  |
| Central bank notes               | 14.7  | 325.6 | 7.7  | 33.2 | 6.5   | 22.3  | 11.6 | 93.5  |
| Treasury notes                   | —     | 195.6 | -9.5 | 2.6  | -12.9 | -0.8  | 9.3  | -2.9  |
| <u>Memorandum items:</u>         |       |       |      |      |       |       |      |       |
| Changes in real stocks <u>3/</u> | -5.9  | -1.4  | 5.7  | 5.2  | 1.2   | 7.6   | 4.3  | 19.6  |
| Held by private social           |       |       |      |      |       |       |      |       |
| security funds                   | 213.1 | 78.0  | 32.1 | 8.6  | 7.2   | 10.5  | 8.0  | 38.9  |
| Held by rest of the              |       |       |      |      |       |       |      |       |
| private sector                   | -12.1 | -10.2 | 0.5  | 4.3  | -0.4  | 6.8   | 3.3  | 14.6  |

Source: Central Bank of Chile.

1/ Foreign currency deposits are valued at the end-of-period exchange rate.

2/ Includes time and savings deposits, mortgage bonds, and foreign currency deposits.

3/ Nominal changes deflated by changes in the consumer price index.

...the granting of very strict reprogramming conditions-- which are not sustained later on--has been typical since 1982... In the end, experience has demonstrated that unrealistic conditions such as the ones that prevailed both before and after the reprogrammings cannot be applied to debtors, and in the long run they end up raising costs and further eroding credibility.

Even after loans had been reprogrammed, the bad debt problem persisted: as a percentage of all loans, overdue loans started to rise again in 1985. Improved economic conditions over 1986 and 1987 appear to have diminished somewhat the extent of this problem. 1/

#### 4. Reform of bank regulations and legislation

As part of the response to the financial crisis, the prudential regulations were strengthened (as discussed in Section V) and a new legislative framework was being developed to govern the restructured financial system. However, in the immediate aftermath of the crisis, it was necessary to allow sufficient flexibility in the application of various legal and accounting regulations in order to permit time for adjustment. This flexibility in the period following the 1981 and 1983 interventions encompassed such areas as time allowed for an overdue loan to be transferred to the nonperforming portfolio, the term for constituting individual provisions, rules governing disposal of physical assets acquired by banks from debtors, interest accruals, the definition of capital and reserves for the purpose of capital adequacy regulations, etc. Only in late 1984, new regulations were issued to return to more orthodox accounting practices. Also, since January 1983, the general deposit guarantee had been extended from time to time, and in June 1986, deposit insurance was granted only to domestic Chilean banks that met specified minimum capital requirements and only upon application by each individual bank. 2/

A new banking law was enacted in November 1986 modifying several key aspects of existing legislation in order to formalize existing supervisory practices, to further strengthen prudential regulations, and to streamline the deposit guarantee scheme. The thrust of the reform was to

---

1/ The indicators prepared by the Bank Superintendency show that overdue loans that had represented 3.5 percent of banks' loan portfolios as of December 1985 and 3.8 percent as of December 1986 had fallen to 2.9 percent as of August 1987. However, for the same dates, the ratio of loans sold to the Central Bank over all loans (i.e., loans in banks' loan portfolios plus loans sold to the Central Bank) equalled 20.9, 23.8, and 23.0 percent. Thus, part of the improvement in the quality of banks' portfolios might have been due to further sales of bad loans to the Central bank.

2/ Financial institutions that receive a state-guaranteed pay or commission of 0.0625 percent on the average amount of guaranteed deposits.

minimize the need for state intervention in the financial system by facilitating market self-regulation. <sup>1/</sup> The law also tried to eliminate some of the practices that had led to problems in the past, such as lending to related groups.

In order to increase information to the public, the new law directed the Superintendency to publish detailed information on the nature and quality of the assets of each of the financial institutions it supervises, at least three times a year. Also, different levels of confidentiality were set. Strict confidentiality applies only to deposits and other sources of funds to the financial system. Banks are allowed to release other information to firms specializing in the analysis of financial institutions and, more generally, to anyone with a legitimate interest--provided such disclosure cannot be seen to harm a bank customer.

The law also strengthened bank supervision by converting previous Superintendency regulations into law and making some Superintendency powers more explicit. It also defined more precisely the concept of bank client, in order to take into account interrelated ownership.

The foregoing measures were intended to give depositors a better knowledge of the soundness of financial institutions. As a consequence, the authorities felt that state deposit insurance should be reserved only to small savers, for whom 90 percent coverage of their time deposits with a maximum of 120 UFs remains. The elimination of the state insurance on other deposits has been taking place gradually, and will only be completed in 1989. However, sight deposits will still be fully protected. Banks have to maintain in liquid central bank or treasury assets the equivalent of sight deposit balances exceeding 2.5 times the bank's capital. Moreover, should a bank be unable to meet its obligations to sight deposits by selling off those liquid assets, the Central Bank would advance the necessary funds. In other words, sight deposits remain fully protected, but banks have been restricted as to how they can invest such deposits. A bank with insolvency problems can--subject to Superintendency approval--enter into agreements with its creditors proposing ways to meet its obligations. All bank creditors are eligible for these agreements, with the exceptions of holders of sight deposits and time deposits--to the extent that the latter are covered by the state deposit insurance. These agreements may include partial or total capitalization

---

<sup>1/</sup> The Bank Superintendency, in explaining the measures, pointed out to the need "to emphasize the private nature of the financial system, not only as regards its operation and ownership but, especially, its mechanisms to distribute risks and absorb losses... agents participating in the market--bankers, debtors and depositors--have a central responsibility to oversee the good use of the funds entrusted to financial institutions," Información Financiera, Superintendencia de Bancos e Instituciones Financieras, December 1986, p. IX.

of eligible bank liabilities, extension of the maturity of the liability, partial writeoff, etc. Lack of agreement of an insolvent bank with its creditors is one of the grounds for the Superintendency to liquidate the bank.

The new law has tightened capital requirements. A bank has to increase its capital not only when it no longer meets the minimum capital requirement--as previous law mandated--but also when it does not comply with the required ratio between its capital and reserves, and deposits and other liabilities. The law establishes the time frame within which recapitalization must take place; in case of noncompliance, the bank is forbidden from increasing its loans or any other investments, except central bank instruments. The law also facilitates the rescue of a troubled bank by another. The rescuing bank can lend up to the equivalent of 25 percent of its capital to the troubled bank for two years. The loan can only be repaid if the latter bank has been sufficiently recapitalized--without including the loan for this computation. If the loan is not repaid within two years, it can be used: (a) as a capital contribution, in case of merger of the two institutions, or (b) to capitalize the borrowing bank but without the shares remaining in the hands of the lending bank.

While it is too soon to assess the impact of the new legal framework on the functioning of the banking system, the foregoing reforms constitute an interesting attempt at balancing the desire to minimize state interference with private banks and the state's perceived responsibilities in monetary policy. The law appears to assign a much greater degree of responsibility to the state in ensuring the smooth functioning of the payments system than in protecting the private sector's time deposits and other liabilities. 1/

#### IX. Avoiding and Managing Financial Crises: Some Lessons from the Chilean Experience

1. Financial liberalization is likely to be characterized by rapid growth in quasi-money and the creation of new forms of financial intermediation. However, conventional indicators of financial "deepening" or "widening" may be misleading in two senses.

First, ratios like M2/GDP may rise precipitously due to substitution effects away from other assets or to sudden inflows of foreign savings. The growth of short-term financial assets does not imply (or require) an enhanced national savings performance; nor does it neces-

---

1/ This differential treatment of sight and time deposits resembles the ideas included in the "Chicago plan for monetary reform" advanced in the 1930s. These ideas are discussed, for instance, in Friedman (1959), Ch. 3.

sarily entail an efficiency gain as in the channeling of resources away from stores of value with low marginal product toward more productive assets, for instance.

Second, financial "deepening" and "widening" are not necessarily tantamount to the emergence of well-developed financial markets, if by this we mean a situation where key markets are not missing and relative prices are reasonably close to any conceivable range of social optima. Markets for long-term transactions, in particular, develop only slowly, even in the context of cautious fiscal and monetary policies and declining inflation. Real interest rates can remain extremely high and erratic, far from the course of variables like the marginal product of real capital. For these and other reasons, investment can stagnate even as financial intermediation booms.

2. Conceptually, one can distinguish between two internally consistent ways of organizing a financial system: (1) laissez-faire, without supervision but also without government insurance and a binding and credible precommitment ruling out future bailouts; (2) government-provided deposit insurance, which is then sold to banks at actuarially fair prices; to reduce the adverse selection and moral hazard problems typical of insurance schemes, the Government exercises stringent supervision of bank activities.

The choice between the two systems (or combinations between them) should ultimately be guided by empirical considerations, but one warning should be kept in mind: laissez-faire will work in financial markets only if:

(a) information flows are efficient and inexpensive, so that customers can easily assess the soundness of a bank's operations;

(b) the behavior of depositors and creditors is rational, so that problems in one bank will not lead to runs at other otherwise sound institutions. If these two rather demanding conditions are not met, then system (2) ought to be the choice of the cautious policymaker.

3. Chilean experience suggests that effective bank supervision should not be limited to the enforcement of certain key required minimum ratios. Problems caused by interlocking ownership patterns are of such magnitude that they breathe new life into the old-fashioned principle that cautions against banks owning firms, or vice versa. It is highly doubtful that Chilean banks would have extended so many unsound loans had not many of them gone to banks' own related enterprises. Without this sizeable cartera relacionada a financial crises of Chile's proportions could never have occurred.

4. There is also a problem that often arises when financial liberalization is carried out in a high-inflation setting. Highly

negative (controlled) real interest rates usually are a serious problem under financial repression, and reformers clamor for their elimination. Chile 1975-82 suggests that sustained highly positive real rates can constitute at least as serious a problem. When real rates stubbornly remain above any conceivable rate of return on investment, firm problems will become widespread. The firm's borrowing decision is then distorted: rather than borrow to invest or to finance working capital, many firms will now borrow to pay interest or simply to stave off bankruptcy. Under institutional arrangements such as Chile's, the problem can quickly snowball and will inevitably lead to a system-wide crisis.

It is also important to notice that even in an economy as open as Chile's, policy could have an important effect on domestic interest rates, both nominal and real. A central conclusion of this paper is that domestic supply and demand factors were the most important causes of high interest rates. This suggests, among other things, that it may have been a mistake to assume, without further verification, that only fully open economy models were to be used in designing and evaluating policies in Chile.

5. An "artificial demand" for credit, arising from continuing bank lending to troubled enterprises, seems to have been a major force behind high domestic interest rates. The rolling over of scheduled principal payments and the capitalization of interest tended to increase the demand for credit. In turn, banks tended to raise deposit rates in order to attract domestic resources to finance these practices. Loan rates went up correspondingly, bringing further difficulties to the immense majority of firms whose peso borrowing was short term.

It is noteworthy that the upward pressure on interest rates remained even at times when monetary policy was somewhat expansionary. This suggests that architects of stabilization programs should closely monitor institutional developments in credit markets and the composition of credit recipients, when in the process of setting monetary targets. What may seem like a generous rate of credit expansion to the private sector may turn out to be unduly restrictive if the lion's share is taken up by the needs of troubled firms. 1/

6. While macroeconomic shocks can aggravate economy-wide financial problems, the ways in which financial crises can foment macroeconomic disequilibrium are less well understood. A connection will likely exist among firm problems, credit demand and interest rates, as already discussed. In the presence of high real interest rates, private investment will predictably suffer. But most importantly, the accumulation of "excess" domestic debt can introduce serious distortions into the formulation and effects of macroeconomic policies. If the perception

---

1/ Possible inflationary consequences of increased credit expansion remain, of course.

exists that depositors and/or borrowers and/or financial intermediaries are under the Government's protective umbrella, then agents in the economy can come to expect that future bailouts will require the abandonment of fiscal and monetary prudence. Even if explicit or implicit insurance does not exist, a wave of bankruptcies may induce policymakers to adopt expansionary policies. Alternatively, the authorities may choose to create inflation in order to wipe off part of the debt and shift some of the adjustment burden from debtors to creditors. In short, the presence of a serious financial imbalance calls into question the credibility of any stabilization programs that may be put into practice. Moreover, this loss of credibility can become a self-fulfilling expectation.

7. Voluntarily declared bankruptcies (of firms or banks) will not act as a brake to the unstable financial dynamics that this paper has described. Agents face great incentives to postpone bankruptcy almost at all costs, realizing that the bigger the problem, the more likely it is that some sort of relief will be forthcoming. In the early stages of the problem, the authorities would be well advised to use all measures within their power to counter this logic. Practices like distress borrowing should be monitored and discouraged. The price of financial stability may well be eternal vigilance. This holds even for governments with a preference for laissez-faire: when the bad debt problem becomes sufficiently large, precommitments against bailouts become unenforceable and hence lose credibility.

8. If the problem becomes so widespread that government intervention is inevitable, a central aim of policy should be to uproot the problem as decisively as possible. This involves, above all, taking stock of the situation at once and avoiding the temptation publicly to minimize the importance of the problem--or worse, implying that with a bit of patience it will go away. It is important to make a realistic estimate of the present value of the transfers necessary to restore troubled banks and firms to health. If subsidies are to be granted, debts rescheduled, etc., the terms should be sufficiently generous--given a cautious assessment of the market prospects of the enterprises involved--to make them definitive. Otherwise, firms will soon come to realize that another round of government assistance is necessary. But uncertain of the terms, managers are likely to postpone important investment decisions. The propagation of a "wait-and-see" attitude among business groups unnecessarily delays macroeconomic recovery.

9. In designing aid packages, policymakers face a trade-off between the "across-the-board" and the "case-by-case" approaches. The former fails to distinguish among firms suffering different degrees of difficulties, and may turn out to be unnecessarily expensive; the latter system is not only cumbersome and administratively costlier, but can also run into sticky political complications. In most cases, some combination of these two approaches is likely to be optimal. Whatever the combination, at some point, and to the extent that they can be identified, the

decision has to be made to stop subsidizing nonviable enterprises. Moreover, any "case-by-case" reschedulings should be unanticipated (not announced in advance) and definitive: unanticipated, so that moral hazard problems will be avoided--managers who expect that more troubled firms will get better deals in the future may have an incentive to slacken or to manipulate the company books; 1/ definitive, so that the expectation of additional "case-by-case" reschedulings will not create moral hazard problems in the future.

---

1/ This problem is related to the distinction between anticipated or unanticipated shocks in the rational expectations literature. For example, an unexpected devaluation may serve certain purposes, but an expected one can only cause a loss of reserves.

Appendix. Interaction Between Micro and Macro  
Variables in a Financial Crisis

This Appendix sketches a possible scenario for the interaction of microeconomic and macroeconomic variables, in a process that leads to a financial and macroeconomic crisis.

Start from a situation where the loan and deposit interest rates are such that the banks' cash flow is in equilibrium. Suppose also that, from the point of view of borrowing firms, the cost of bank loans is "right," in the sense that it is no greater than the marginal product of real investment. The disturbing shock can come in one of two ways. First, a real shock can occur so that the return to firms falls below the lending rate. Second, the lending rate can rise (with real return to firms unchanged) because of the liberalization of rates, or a change in monetary policy, or an exogenous rise in foreign rates. <sup>1/</sup> In any case, a wedge will be driven between what the banks charge for loans and what firms can or will effectively pay. A portion of bank portfolios will become nonperforming, and the bank will begin to lose money. Several things are then likely to happen:

(1) Banks will borrow at home or abroad to cover losses and/or replenish reserves.

(2) Banks will raise domestic interest rates to attract further domestic resources.

If the shock is expected to last over time and if borrowing capacity abroad is not unlimited, the public will begin to bet on an eventual government bailout (based on a belief in implicit guarantees). Firms will then increasingly resort to distress borrowing to avoid bankruptcy before the arrival of the helping hand.

Several additional macro misfortunes will further arise from this scenario:

(3) The demand for credit coming from "distress borrowing" will put further pressure on domestic interest rates.

(4) So will the nascent expectations of devaluation (both nominal and real) that appear as agents come to expect that domestic money creation and/or international reserve expenditure may be necessary in a future bank bailout.

(5) Capital inflows (affected by the fixed exchange rate and high interest rates) not consumed by the financing of the current account

---

<sup>1/</sup> These last two assume a semi-open economy.

deficit will tend to boost domestic aggregate demand. Under a fixed exchange rate, the price of nontradables will tend to rise vis-a-vis that of tradables.

Hence, the real interest rate will tend to rise while the real exchange rate 1/ will be pushed downward (i.e., it will become "overvalued"). Both trends will likely have a negative effect on the profitability of firms, 2/ perhaps driving down even further the rate which firms can effectively pay on loans. The process will continue for a while, with the macroeconomy displaying mixed indicators. The out-of-line relative prices will spell trouble to some, while ample reserves will inspire confidence to others. Quite suddenly, as the limits of foreign borrowing are reached or as some unhappy shock worsens expectations, the situation will quickly begin to deteriorate. Reserves will decline swiftly, and falling asset prices will put further strains on firms' income statements. A bank crisis (with government intervention) and a balance of payments crisis will likely occur, with the exact timing and order of the process depending on the magnitude of such variables as remaining central bank reserves, accumulated bad debts, and real private wealth. 3/

---

1/ Defined as  $EP_T/P_N$ , where E = nominal exchange rate  
 $P_T$  = price of tradables  
 $P_N$  = price of nontradables

2/ Real exchange rate overvaluation will only harm firms producing exportables and import-competing items.

3/ For the technical details see Velasco (1987).

References

- Arellano, José Pablo, "El Financiamiento del Desarrollo," in Reconstrucción Económica para la Democracia (Santiago de Chile: Editorial Aconcagua, 1983a).
- \_\_\_\_\_, "De la Liberalización a la Intervención: El Mercado de Capitales en Chile 1974-1983," Colección Estudios CIEPLAN, No. 11 (December 1983b).
- \_\_\_\_\_, "La Difícil Salida al Problema del Endeudamiento Interno," Colección Estudios CIEPLAN, No. 13 (June 1984).
- Arriagada, Pedro, "Adjustments by Agricultural Exporters in Chile during 1974-82," in V. Corbo and J. de Melo (eds.) Scrambling for Survival, Staff Working Papers, World Bank (Washington), No. 764 (1985).
- Barandiarán, Edgardo, "La Crisis Financiera Chilena," Documento de Trabajo, Centro de Estudios Públicos, No. 6 (October 1983).
- Behrens, R., "Los Bancos e Instituciones Financieras en la Historia Económica de Chile", (unpublished thesis, Catholic University of Chile, 1985).
- Blanchard, O. and J. Watson, "Bubbles, Rational Expectations and Financial Markets," in P. Wachtel (ed.), Crisis in the Economic and Financial Structure, Lexington Books (1984).
- Calvo, Guillermo, "Incredible Reforms" (paper prepared for the Conference on Debt, Stabilization and Development, Helsinki, August 1986).
- Corbo, Vittorio, "Reforms and Macroeconomic Adjustment in Chile During 1974-84," World Development (United Kingdom), Vol. 13, No. 8 (August 1985).
- \_\_\_\_\_, "Necesidades Financieras de las Empresas: La Función de las Instituciones Financieras," Estudios Monetarios V, Banco Central de Chile (1976).
- \_\_\_\_\_ and Ricardo Matte, "Capital Flows and the Role of Monetary Policy: The Case of Chile," Documento de Trabajo, Economics Institute, Catholic University of Chile, No. 92 (1984).
- \_\_\_\_\_ and José Miguel Sánchez, "Adjustments by Industrial Firms in Chile during 1974-82," in V. Corbo and J. de Melo (eds.), Scrambling for Survival, Staff Working Paper, No. 764, World Bank (Washington, 1985).

- Cortés, Hernán, "Políticas de Estabilización en Chile: Inflación, Desempleo y Depresión 1975-1982," Cuadernos de Economía, No. 60, Catholic University of Chile (1983).
- Díaz-Alejandro, Carlos F., "Good-bye Financial Repression, Hello Financial Crash," Journal of Development Economics, Vol. 18 (September/October 1985).
- \_\_\_\_\_, "Stories of the 30's for the 1980's," in R. Dornbusch, M. Obstfeld and P. Aspe-Arnella (eds.), Financial Policies and World Capital Markets: The Problems of Latin American Countries, University of Chicago Press for the NBER (1983).
- \_\_\_\_\_ and Edmar Bacha, "Tropical Reflections on the History and Theory of International Financial Markets," in Helleiner (ed.), For Good or Evil: Economic Theory and North-South Negotiations (Toronto, Canada: University of Toronto Press, 1982).
- Dornbusch, Rudiger, "External Debt, Budget Deficits and Disequilibrium Exchange Rates," NBER Working Paper, No. 1336 (April 1984).
- \_\_\_\_\_, "Inflation Stabilization and Capital Mobility," NBER Working Paper, No. 555 (1980).
- Edwards, Sebastián, "The Order of Liberalization of the External Sector in Developing Countries," Princeton Essays in International Finance, No. 156 (December 1984).
- \_\_\_\_\_, "Stabilization with Liberalization: An Evaluation of Ten Years of Chile's Experiment with Free-Market Policies," Economic Development and Cultural Change, Vol. 32 (January 1985).
- \_\_\_\_\_, "Monetarism in Chile 1973-1983: Some Economic Puzzles," Economic Development and Cultural Change (June 1986).
- \_\_\_\_\_ and Mohsin Khan, "Interest Rate Determination in Developing Countries: A Conceptual Framework," Staff Papers, International Monetary Fund (Washington), Vol. 32 (September 1985).
- Fernández, Roque, "La Crisis Financiera Argentina: 1980-1982," Desarrollo Económico, Vol. 23, No. 89 (April-June 1983).
- Foxley, Alejandro, Latin American Experiments in Neoconservative Economics (Berkeley, California: University of California Press, 1983).
- Ffrench-Davis, Ricardo, "El Problema de la Deuda Externa y la Apertura Financiera en Chile," Colección Estudios CIEPLAN, No. 11 (December 1983).

- Fry, Maxwell, J., "Money and Capital or Financial Deepening in Economic Development?" Journal of Money, Credit and Banking (November 1978).
- Friedman, Milton, A Program for Monetary Stability (New York: Fordham University Press, 1959).
- Gálvez, Julio and James Tybout, "Microeconomic Adjustments in Chile During 1977-81: The Importance of Being a Grupo," World Development, Vol. 13 (August 1985).
- Giovannini, Alberto, "Saving and the Real Interest Rate in LDCs," Journal of Development Economics, Vol. 18 (August 1985).
- Harberger, Arnold, "Observations on the Chilean Economy, 1973-1983," Economic Development and Cultural Change (April 1985).
- Kindleberger, Charles P., Manias, Panics and Crashes: A History of Financial Crises (New York: Basic Books, 1978).
- Le Fort, Guillermo, "The Real Exchange Rate and International Capital Flows: The Case of the Southern Cone Countries" (doctoral dissertation, Los Angeles: UCLA, 1985).
- Luders, Rolf, "Lessons from the Financial Liberalization of Chile: 1974-1982" (mimeographed, World Bank (Washington), June 1986).
- Mathieson, Donald J., "Financial Reform and Capital Flows in a Developing Economy," Staff Papers, International Monetary Fund (Washington), Vol. 29 (1982).
- McKinnon, Ronald T., Money and Capital in Economic Development, The Brookings Institution (Washington, 1973).
- Meller, P. and A. Solimano, "Inestabilidad Financiera, Burbujas Especulativas y Tasa de Interés: La Economía Chilena en 1975-83" (mimeographed, Santiago, Chile, 1983).
- Minsky, Hyman, "A Theory of Systemic Fragility," in E.I. Altman and A.W. Sametz (eds.), Financial Crises, Institutions and Markets in a Fragile Environment (New York: John Wiley & Sons, 1977).
- Molho, Lazaros, "Interest Rates, Saving and Investment in Developing Countries," Staff Papers, International Monetary Fund (Washington), Vol. 33 (March 1986).
- Rosende, F. and R. Tosso, "Una Explicación para las Tasas de Interés Real en Chile en el Período 1975-1983," Cuadernos de Economía, No. 62 (April 1984).

- Sargent, Thomas and Neil Wallace, "Some Unpleasant Monetarist Arithmetic," in Thomas Sargent (ed.), Rational Expectations and Inflation (New York: Harper and Row, 1986).
- Shaw, Edward S., Financial Deepening in Economic Development (New York: Oxford University Press, 1973).
- Sjaastad, Larry A., "Failure of Economic Liberalism in the Cone of Latin America," World Economy, Vol. 6 (March 1983).
- Solimano, Andrés, "Liberalización Financiera y Crisis: Aspectos Teóricos y Consideraciones de Política Económica" (mimeographed, Santiago, Chile, 1985).
- Velasco, Andrés, "Financial Crises and External Balance," Journal of Development Economics, Vol. 27 (October 1987).
- Zahler, Roberto, "Recent Southern Cone Liberalization, Reforms and Stabilization Policies: The Chilean Case 1974-1982," Journal of Interamerican Studies and World Affairs (November 1983).
- \_\_\_\_\_, "Las Tasas de Interés en Chile: 1975-82" (mimeographed, Santiago, Chile: CEPAL, January 1985).

