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Issues in Recent Banking Crises in Developing Countries

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Abstract

This paper compares experiences with banking crises in seven countries in order to analyze the factors governing the crises and the effectiveness of measures to deal with the problems. The linkages between deregulation of the financial sector, and financial crises are examined. The portfolio shifts during crisis periods are studied. The major lesson from these experiences is that the regulatory and portfolio weaknesses in the financial sector have strong effects on the macro-economy and can exacerbate the costs of macroeconomic adjustment. Structural measures to correct these weaknesses are important for the effectiveness of adjustment policies.

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### Summary

This paper compares the recent experiences with banking crises in seven countries--Argentina, Chile, Malaysia, Philippines, Spain, Thailand, and Uruguay--in order to examine the linkages between macroeconomic conditions, financial sector reforms, and financial crisis, to analyze the major manifestations of the crisis, and to assess the effectiveness of measures to deal with the problems.

In the sample countries, the connection between deregulation and financial crises derived from an unstable macroeconomic environment, the development of unsound liability structures of nonfinancial firms (prior to or after the reform), and the weaknesses in the institutional structure of banking reflecting in part inadequate prudential controls.

The periods of banking crises were associated with major portfolio shifts. In most countries the demand for currency shifted upward, the interest elasticity of currency demand fell, the demand for M2 rose, and interest elasticity of M2 demand also rose. Money multipliers tended to decline, or their historic patterns were interrupted. Institutional weaknesses in many countries also contributed to credit market instability characterized by high lending rates, rising loan defaults, and credit rationing, all reinforcing each other. These developments and the need to balance the conflicting objectives of monetary stability and lender-of-last-resort obligations during crises together complicated monetary management.

Measures to deal with failing banks included liquidations and mergers to some extent, but more commonly, consisted of various forms of subsidies to recapitalize the banks. Measures to deal with borrowers included stretching out of debt maturities, financial support, technical assistance, and debt-equity conversions. Reforms of prudential regulations, banking supervision, and in some cases deposit insurance were a common response to crises episodes. The sharing of the widespread losses in the banking system among depositors, borrowers, the banking system, and the government depended upon the specific techniques to deal with the problem banks and the legal environment. In most cases the government assumed the bulk of the losses typically by imposing a subsidy burden on the central bank through various financial mechanisms, or by explicitly transferring the nonperforming assets to a separate fiscal agency. The latter method seems to have distinct advantages in terms of monetary control, loan recovery, and equitable sharing of widespread loan losses.

The key lesson is that the regulatory and portfolio weaknesses in the financial sector have strong effects on the macroeconomy and can exacerbate the costs of macroeconomic adjustment. Structural measures to correct these weaknesses are important for the effectiveness of adjustment policies, particularly monetary policies.

## I. Introduction

This paper examines recent experiences with banking crises in seven countries--Argentina, Chile, Malaysia, Philippines, Spain, Thailand, and Uruguay--with a focus on the linkages between macro-economic conditions, financial sector reforms and financial crisis, and on the range and effectiveness of measures to deal with the problems. 1/

The enormous diversity of experiences with crises, due to cross-country differences in macroeconomic conditions, the regulatory framework, the intensity of the crisis, and the approaches to dealing with them, makes it difficult to generalize and develop stylized descriptions or standardized prescriptions. Nevertheless, certain common issues stand out from these experiences; in particular, three key lessons emerge:

- (1) While it is clear that macroeconomic instability can weaken the asset portfolio of financial institutions, regulatory and portfolio weaknesses in the financial sector themselves can have feed back effects on the macroeconomy, and seriously complicate adjustment and growth policies. Appropriate corrections of the regulatory framework, central bank operating procedures, and portfolio quality in the financial system are important to ensure the effectiveness of adjustment policies.
- (2) Sound prudential policies and their proper enforcement are critical for minimizing major disruptions to growth and stability.
- (3) In dealing with failing banks, the commonly used method of recapitalization based on central bank subsidies is less efficient than the approach based on transfer of nonperforming assets to a separate agency with explicit funding sources.

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1/ This is a revised version of the paper presented at the IMF Central Banking Seminar, Dec. 1-11, 1988. Many countries have suffered a financial crisis in the present decade, prompting a renewed analysis of the causes, consequences, and possible solutions for a problem that had attracted a lot of attention up to the 1930s when the establishment of deposit insurance seemed to make financial crises a thing of the past. Much of the discussion in the last few years has focused on the experience of the United States (e.g., the savings and loan rescue operations). The case of developing countries and the implications of banking problems for adjustment policies were examined in a series of case studies that were presented in the Central Banking Seminar. This paper offers a summary and overview of the case studies and highlights the major policy conclusions.

The latter approach seems to carry distinct advantages in terms of monetary control, loan recovery, and transparency in distributing the burden of loan losses.

The rest of the paper is organized as follows: Section II discusses the definitions and models of "banking crisis" in order to highlight some of the key hypotheses with which to interpret the crisis episodes. Section III provides an overview of the case studies by considering first, the relationship between a banking crisis and macroeconomic conditions (Section III.1), the propagation of the crisis (Section III.2) and the linkages between deregulation and the crisis (Section III.3). The impact of the banking crisis on money demand and credit developments is examined in Sections III.4 and III.5. Sections III.6 and III.7 analyze the measures to deal with the crisis as well as the long-term reforms of the financial system that ensued. Section III.8 contains some concluding remarks focusing on lessons for structural reforms and stabilization policies.

## II. Definitions and Models of Crisis Situations

The terms "banking crisis" and "banking distress" are defined more precisely, and the macroeconomic consequences of the crisis or distress situations are highlighted in this section. Some models or stylized descriptions of crisis episodes are surveyed to serve as background for the empirical analysis that follows.

### 1. Definitions of financial crisis

The terms "financial crisis" and "banking crisis" will be used interchangeably, an acceptable usage for developing countries where the banking system dominates financial intermediation.

The definitions of "financial crisis" found in the literature vary depending upon the specific manifestation of the crisis that is being studied. The definitions include:

- a. Intense demand for reserve money that could not be satisfied for all parties simultaneously in the short run (Schwarz (1986), Miron (1986), Wolfson (1986)).
- b. Liquidation of credits that have been built up in a boom (Mitchell (1941), Veblen (1904)).
- c. A condition where borrowers, who in other situations were able to borrow without difficulty, become unable to borrow on any terms--a credit crunch or a credit market collapse (Guttentag and Herring (1984), Manikow (1986)).

- d. Forced sale of assets due to liability structures that are out of line with market-determined asset values and the consequent further decline in asset values--the bursting of a price "bubble" for example (Flood and Garber (1981), Minsky (1982), Fisher (1933)).
- e. Sharp reduction in the value of banks' assets resulting in apparent or real insolvency of many banks, and accompanied by some bank collapses, possibly accompanied by some runs. 1/

All of the elements emphasized in the above definitions could be present in a "financial crisis" and some may be more important than others in a given episode.

For the purposes of this paper, "financial crisis" is defined as a situation in which liabilities of a significant group of financial institutions exceed the market value of their assets, leading to runs and other portfolio shifts, collapse of some financial firms, and government intervention. Thus, the term "crisis" refers to generalized solvency problems in a financial system due to an increase in the share of nonperforming loans, an increase in losses due to foreign exchange exposure, interest rate mismatch, contingent liabilities, etc., and a decrease in the value of investments, all leading to liquidation, mergers or restructuring. These events occur usually following a shock to the macroeconomy, and reinforce the subsequent declines in output (or a slowing of economic growth) and balance of payments problems.

## 2. Banking distress vs. banking crisis: some real consequences

It is well known that individual banks--which depend critically on the confidence of their creditors and which typically have large gearing ratios--are subject to runs. These runs can destabilize banking systems either because major macroeconomic or sectoral shocks affect depositor confidence in a wide range of banks, or because the payment difficulties in one bank spread through the system, reflecting the financial interdependence among banks. Such interdependence arises because a bank's failure may jeopardize borrowers' ability to service their loans with other banks, or simply because the lack of adequate information on the relative soundness of various banks may lead bank creditors to lose confidence in the banking system as a whole when an individual bank fails.

The latter contagion effect is a peculiar feature of the banking business which makes it very different from other businesses. Such contagion is due to the following characteristics: (a) the difficulty

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1/ See "The Search for Financial Stability: The Past Fifty Years," a conference organized by the Federal Reserve Bank of San Francisco, June 23-25, 1985.

in knowing the market value of bank loans; (b) the fact that reductions in the value of bank assets do not simultaneously reduce bank liabilities; (c) the fact that depositors are paid back on a first-come-first-served basis; and (d) the relatively low cost (foregone interest) of withdrawing bank deposits as compared with the probable cost of losing the capital value of the deposit. As will be seen later in this paper, attempts to deal with bank runs have addressed one or more of these characteristics.

The advent of deposit insurance or implicit guarantees has allowed an insolvent financial institution to stay in business so long as its liquidity position remains manageable (sometimes thanks to central bank assistance). This situation, in which banks are insolvent but not illiquid, is more properly described as "banking distress" rather than "banking crisis;" this paper focuses on the latter type of phenomenon.

A banking "crisis" has immediate economic effects. It disturbs normal credit relationships and raises the cost of credit intermediation. 1/ It induces a flight to quality by both banks and their creditors; it weakens monetary and budgetary control. For example, the need to support or recapitalize weak banks, and the possible instability in the demand for money--and hence in the price level and economic activity--in times of banking crisis all complicate the task of regulating monetary growth and stabilizing the economy. While the propagation of the crisis can be avoided by appropriate lender-of-last-resort intervention, and, when it affects only one or a few banks, by the provision of information about the true conditions of banks (in order to isolate the unsound from the sound banks), 2/ the crisis, by itself, generates large and pervasive uncertainty (subjective as it may be), which lowers the perceived return on real assets, and depresses real investment and growth. Some economists have argued that a "crisis" has real effects only insofar as it affects the growth of money stock--reduces it as in the 1930s, or raises it as in modern times. However, the weight of evidence seems to suggest that the direct adverse impact of a financial crisis on credit markets, balance of payments, and real

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1/ This effect includes rising interest spreads, collapse of individual credit markets, borrowers forced into nontraditional credit sources at high cost, untimely recall of loans, etc.

2/ The value of provision of information in containing the crisis is analyzed in Batchelder (1986).

economic activity can be substantial, and these are in addition to the impact through changes in interest rates and monetary expansion. 1/

A distress situation has effects which resemble those of a crisis, but in a less acute form. A situation of continuing "distress" will perpetuate the resource misallocations that might have originated the distress conditions; prolong resource allocations that would no longer be appropriate following a change in the macro-environment; provide incentives for further risk taking which could aggravate the ongoing losses of financial institutions; and raise the probability of a widespread banking crisis in the event of a major shock--such as a sharp change in relative prices, or a switch in policy regimes such as deregulation. As a result, the effectiveness of stabilization and liberalization policies can be ensured only through supporting structural reforms designed to reduce the "distress" and restore and preserve the soundness and stability of financial intermediaries. However, in the presence of widespread financial distress, the design of stabilization-cum-structural reform policies raises complex issues for the speed and sequencing of various structural reforms, and these complexities and the cost of adjustment could become manifold in the case of an actual financial crisis.

### 3. Some stylized descriptions or models of crisis situations

In the last decade there has been a great resurgence of academic and popular interest in financial crises. Although a comprehensive review of the literature is beyond the scope of this paper, it is useful to outline the major analytical approaches in order to formulate key hypotheses that could be tested in the context of the crisis episodes to be studied here. The theories differ regarding (1) the source of financial distress in the nonfinancial sector; (2) the factors affecting the demand and supply of credit; and (3) the specific manifestations of the crisis itself, leading to a multitude of definitions noted earlier.

The business cycle approach, 2/ as modified and extended by present-day writers holds that the financial environment responds

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1/ For a discussion of the impact of a banking crisis on real economic activity, see Bernanke (1983). The linkages between domestic banking crisis and external debt problems are discussed in Velasco (1987, 1988). Misallocation of foreign exchange resources is often reflected in the large foreign exchange exposures and low quality of assets of the banking system. The resulting insolvency and illiquidity of banks would weaken monetary control, or induce excessive foreign borrowing, and precipitate a balance of payments crisis.

2/ This approach is developed in Minsky (1977), Kindleberger (1978), Wolfson (1986), Woinlower (1980, 1985), and Taylor and O'Connell (1985), by extending and modifying the classical business cycle analysis contained in Veblen (1904) and Mitchell (1941).

endogenously to the state of the business cycle or to some "displacement" which opens up opportunities for profit. For example, such a "displacement" could be financial sector liberalization. The key hypothesis is that financial fragility--defined as vulnerability to economic shocks--increases over the course of the business cycle expansion, and in response to some "displacement."

An economy's financial fragility is a function of factors such as the liquidity of the economy, the proportion of firms which need to borrow in order to honor outstanding debt obligations--or even to pay interest, debt-equity ratios, the share of short-term debt in total debt, etc. Financial fragility might also increase due to rising interest rates and over-optimistic expectations that prevail during an investment boom. This does not mean that financial crises occur at the peak of the business cycle--as some writers have argued--but rather that they result from systemic forces that develop near that peak. In particular, interest rates rise partly because of the increase in the interest-inelastic component of demand for credit. Although velocity of credit rises initially, lenders start to restrict lending as cash-flow problems of firms accumulate and nonperforming loans build up. Banks tighten their lending policies, but also attempt to meet loan demands from their prime customers by decreasing the growth of non-loan investments in relation to loans, reducing excess reserves, and if possible, relying on purchased funds. These developments make the economy more vulnerable to a crisis by reducing the capacity of the financial system to withstand a shock. A surprise event--either a new macro or institutional development, or an unexpected bankruptcy (or the threat of one) disturbs these financing patterns, initiating a crisis--defined as a sudden, intense demand for reserve money--which is reflected in investor anxiety, bank runs and portfolio shifts. Usually the immediate crisis is resolved by lender-of-last-resort operations of the central bank.

Credit market conditions--demand and supply--have received considerable attention among crisis theorists. Some argue that the demand for credit is interest-inelastic or that the supply of credit is perversely elastic in certain situations of strong excess demand for credit, such as the peak of the business cycle. Wojniower (1980) argues that at those peaks credit is determined by the availability of funds and credit rationing, since demand is essentially insatiable at any conceivable rate of interest. In such an environment, an interruption of the supply of credit triggers a business cycle downturn.

Some economists view credit rationing and credit market collapse as equilibrium phenomena that reflect market failures of various sorts. <sup>1/</sup> At certain levels of interest rates, or at certain levels of default risk, a rise in interest rates may not equilibrate the supply and demand

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<sup>1/</sup> See Stiglitz and Weiss (1981), Manikow (1986), and Guttentag and Herring (1984).

for credit. An increase in interest rates will simply reduce the expected profits from lending--assuming additional deposits could be mobilized with higher interest rates--insofar as only higher risk borrowers are willing to borrow ("adverse selection" due to a worsening of the mix of applicants), and borrowers are induced to take on higher risks ("moral hazard"). 1/ In this framework, the default risk is viewed as a positive function of interest rates, debt/equity ratio of borrowers, and the degree of uncertainty in the system. Since raising interest rates beyond a point is futile, there will be credit rationing which could trigger the collapse of some nonfinancial firms. Thus, banks will have to decide what to do when they feel overexposed to a borrower whose solvency has become questionable, in the presence of major shocks that raise uncertainty and default risk. A solution would be to refuse all forms of credit to such a client, including the rollover of existing loans. However, a bank may decide to continue to provide finance--increasing its exposure--if it feels that the borrower's situation is likely to improve in the future due, for instance, to anticipated government intervention (e.g., subsidies or a debt bailout). 2/ Another case of market failure can arise if, for many economically sound projects, the demand and supply of funds do not meet at any interest rate/risk combination due to an exaggerated evaluation of risk on the part of the lenders.

To summarize, the foregoing examples signify market failures arising from moral hazard which is costly to monitor privately, adverse effects on the mix of borrowers when interest rates go up, or the inadequacy of lenders' perception of default risk. These market failure theories provide a justification for government intervention in the credit market through loan guarantees, lender-of-last-resort facilities, or direct credit to certain segments of borrowers, and through tighter banking supervision. 3/

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1/ In the context of creditor-borrower relationships, "moral hazard" usually refers to the risk that "the borrower after obtaining the loan may act in such a way as to increase the probability of default in an effort to raise the probability of very high returns." (Guttentag and Herring (1984), p. 1369). In the same context, other aspects of moral hazard include: the risk that the borrower may not use the cash flow from his project to service the debt; and the risk that the borrower may pledge his assets to another creditor. The importance of each type of moral hazard will depend upon the nature of the loan contract.

2/ A borrower will tend to engage in riskier behavior as his solvency deteriorates since potential losses arising from that behavior are limited to the enterprise's net worth but the gains are not.

3/ The role of banking supervision is to develop procedures for both creditors and supervisors to monitor financial fragility and vulnerability to shocks, identify exposure to moral hazards, and formulate standards (e.g., capital adequacy) for evaluating the appropriateness of particular levels of risk exposure.

While the above theories focus on the behavior of credit markets as a contributor to the crisis, or as a manifestation of the crisis, the monetary approach emphasizes the central role of the growth of money stock and its variability in causing a crisis (Friedman and Schwarz (1963), Brunner and Meltzer (1988)). In this framework, the financial crisis need not occur at any particular stage of the business cycle, but could develop whenever the central bank's control of the money supply or reserve money is erratic and results in excessive monetary tightening. This triggers a financial crisis as banks are suddenly forced to sell assets in order to obtain needed reserves. This forced sale of assets reduces their price, raises interest rates, threatens bank solvency and reduces confidence. Banking and debt crises are thus regarded as endogenous events conditioned by economic policy and the banking structure, and not as a separate and independent exogenous shock. In the absence of offsetting action by the central bank, debt and banking crises lead to an excess demand for money, which is an integral part of the monetary policy transmission mechanism. 1/ While bank failures may arise due to exogenous factors such as poor credit decisions, the fall in the money stock propagates and deepens the crisis. Moreover, banking crises are regarded as important mainly because of their impact on money growth.

### III. Crisis and Adjustment--An Overview of Case Studies

Against this background, the following questions will be addressed in the context of experiences of the sample countries. 2/

1. Did the crisis mainly reflect major macroeconomic shocks and macroeconomic instability? Were the banking problems exogenous events that aggravated the impact of macroeconomic shocks?
2. What was the contribution of financial reforms, or the lack of such reforms--deregulation of interest rates, changes in entry and activity regulations, reforms of prudential regulation and supervision--to mitigating, aggravating or causing the financial crisis? Did financial reform increase financial fragility?

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1/ The supply of money falls owing to the rise in the currency/deposit ratio as deposits are reduced in failed banks, the public want to hold more currency relative to deposits. Demand for money also falls because currency is an imperfect substitute for deposits. The fall in the supply of money will exceed the fall in demand, unless the monetary authorities increase base money sufficiently.

2/ See Appendix I for a brief overview of the financial crises and their dimensions in the sample countries.

3. How was the behavior of monetary and credit aggregates altered by the crisis? What was the contribution of monetary policy in alleviating or aggravating the crisis?
4. How did the authorities respond to the crisis? What were the key support operations and regulatory adaptations? What should be the principles to govern the design of such support operations?

In most of the sample countries the banking crisis occurred after a period of economic expansion, and was associated with balance of payments problems, substantial changes in relative prices, and in some cases major political uncertainties. In none of these cases could a monetary contraction have caused the financial crisis, although credit market conditions did play a role in propagating it. Interest rate deregulation and other regulatory reforms took place long before the crisis in some cases, and contemporaneously in others. Weakness in bank supervision was a common factor in most cases, even in countries where prudential regulations appeared to be comprehensive. Measures to deal with the crisis varied greatly, reflecting a complex set of objectives and institutional constraints.

#### 1. Banking crisis and macroeconomic conditions

In most countries in the sample, the banking crisis occurred after a period of rapid economic growth, characterized by substantial variations in relative performance of economic sectors, which, in turn, reflected major fluctuations in relative price and general business conditions. <sup>1/</sup> The period of the crisis itself was associated with strong reductions in real output in many countries, and a sharp deceleration of output growth in others (Table 1). In all cases real investment ratios fell to varying degrees. The crisis periods were also marked by major external shocks, balance of payments difficulties, and sharp adjustments in exchange rates and interest rates, although the order of occurrence of the balance of payments crisis and overt manifestations of the banking crisis differed greatly. Owing to the consequences of import compression and other adjustments that typically accompanied the balance of payments problems, it is hard to separate the contribution of the banking sector problems to the severity of the recession. Nevertheless, evidence from some countries points to the possibility that the credit market disturbances unleashed by the banking

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<sup>1/</sup> For example, sharp increases in real lending rates to high positive levels after a long history of negative rates (due to financial liberalization), and the introduction of preannounced schedule of devaluation and the subsequent abandonment of preannouncements, all contributed to major variations in general business conditions in Argentina, Chile, and Uruguay.

Table 1. Banking Crises and Macroeconomic Conditions

Country 1/	Growth of Real GDP		Inflation		Current Account Deficit/GNP		Investment Ratio (%)		Terms of Trade (1980 = 100)		Real Effective Exchange Rate 3/ (1980 = 100)	
	Before 2/	During	Before 2/	During	Before 2/	During	Before 2/	During	Before 2/	During	Before 2/	During
Argentina (1980-82)	3.1	-3.6	170.3	121.5	1.5	-3.9	12.8	19.0	88.9	99.8	65.0	81.2
Chile (1981-83)	8.1	-3.4	36.2	18.8	-6.6	-9.9	15.0	14.9	97.5	87.4	90.4	103.8
Uruguay (1982-85)	4.8	-4.2	51.6	47.6	-4.7	-2.2	16.0	10.6	102.1	92.7	90.9	81.4
Philippines 4/ (1983-86)	4.6	-2.0	14.7	19.7	-6.0	-2.2	25.9	20.5	98.1	86.4	101.3	88.8
Thailand (1984-86)	5.4	4.1	7.2	1.7	-5.8	-4.6	22.7	20.5	87.6	82.8	105.8	95.8
Spain (1978-83) 5/	4.8 (0.6)	1.0 (1.5)	15.2 (15.1)	15.3 (13.3)	-1.8 (-2.6)	-1.3 (-2.1)	26.2 (21.8)	21.8 (20.9)	118.0 (95.0)	99.3 (88.9)	99.2 (97.1)	86.3 (88.2)
Malaysia (1985-86)	7.0	0.1	3.8	0.5	-9.0	-1.2	35.7	26.4	82.9	72.1	113.9	101.5

Source: IMF, International Financial Statistics and staff calculations.

1/ Years in parentheses refer to periods of major bank liquidations, interventions and restructuring.

2/ Average of the three-year period before the year when the crisis started.

3/ A reduction in the index means a depreciation of the exchange rate of the domestic currency.

4/ There was a bill market crisis in 1981, with repercussions for the banking system.

5/ While the banking crisis began in 1978, the peak years of the crisis were 1982-83. Using 1982-83 as the appropriate crisis period, the corresponding figures are shown in parentheses.

crisis served to depress output to levels below what might be expected based on relative price changes and real investment performance. 1/

In most countries external imbalances were fairly severe just before the crisis, which in some cases aggravated them. The mis-allocation of foreign exchange resources that underlay the external debt servicing difficulties of many countries was often reflected in the large foreign exchange exposures and low quality of assets of the banking system, thereby creating financial fragility and vulnerability to crisis. When the crisis occurred, the growth in central bank credit needed to contain the propagation of the crisis worsened the balance of payments problems. The large devaluations associated with these problems deepened the banking crisis by affecting the debt service capabilities of debtors with dollar-denominated loans, and by magnifying the losses of banks with large foreign exchange exposures.

Price behavior varied across various crisis episodes. In most cases inflation decelerated--sometimes fairly sharply--particularly at the onset of the crisis (Table 2). In many cases this was soon reversed in part due to the expansionary impact of measures to deal with the crisis. Movements in key asset prices were important elements in some crises. The fall in property and share values played a role in the Malaysian crisis, owing to the concentration of asset portfolios of many institutions in real estate and shares. The boom and the subsequent fall in land prices were partly responsible for the Uruguayan crisis. In other cases the banking crisis itself and the associated uncertainties seemed to have contributed to the decline in the value of enterprises, making it more difficult to access equity markets just when lenders became more cautious.

## 2. The propagation of financial crisis--bank runs and contagion

The build-up of depositors' anxiety following the failure of a prominent firm or a financial institution, and the subsequent runs that focused on institutions regarded as weak or somehow linked to the initial failure, were common factors that contributed to the propagation of financial crises. The difficulties of weak banks in accessing interbank markets was an additional factor. In some countries the lack of deposit insurance--e.g., the abandonment of full deposit insurance in November 1979 in Argentina--made deposits riskier and helped to propagate the crisis. Insufficient resources of the deposit insurance agency in the Philippines and the resulting delays in settling depositor claims may have contributed to depositors' anxiety and runs. 2/ In all

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1/ This point is further discussed later in the paper. The independent contribution of credit market conditions in causing output declines during the Great Depression is examined in Bernanke (1983).

2/ In practice, the deposit insurance agency in the Philippines seems to have relied heavily on loans from the Central Bank.

Table 2. Banking Crises: Macroeconomic Indicators

(In percent unless otherwise indicated)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
<b>Argentina</b>													
Growth rate of real GDP	5.7	-0.4	-0.4	6.3	-3.4	6.6	1.1	-6.5	-5.2	3.3	2.4	-4.5	5.4
Current account/GNP ratio	0.1	-3.3	1.2	2.2	2.9	-0.5	-3.1	-4.0	-4.5	-4.1	...	...	...
Inflation rate (CPI)	23.5	182.3	443.2	176.1	175.5	159.5	100.8	104.5	164.8	343.8	626.7	672.1	90.1
<b>Chile</b>													
Growth rate of real GDP	1.0	-12.9	3.5	9.9	8.2	8.3	7.8	5.5	-14.1	-0.7	6.3	2.4	5.7
Current account/GNP ratio	-2.6	-6.8	-1.5	-4.1	-7.1	-5.7	-7.1	-14.5	-9.5	-5.7	-10.7	-8.3	-6.5
Inflation rate (CPI)	504.7	374.7	211.8	91.9	40.1	33.4	35.1	19.7	9.9	27.3	19.9	30.7	19.5
<b>Uruguay</b>													
Growth rate of real GDP	3.1	5.9	4.0	1.2	5.3	6.2	6.0	1.9	-9.4	-5.9	-1.5	0.3	8.6
Current account/GNP ratio	-3.1	-5.2	-1.9	-4.0	-2.6	-4.8	-7.1	-5.1	-2.6	-1.2	-2.6	-2.2	1.5
Inflation rate (CPI)	77.2	81.4	50.6	58.2	44.5	66.8	63.5	34.0	19.0	49.2	55.3	72.2	76.4
<b>Thailand</b>													
Growth rate of real GDP	5.4	7.1	8.7	7.2	10.1	6.1	5.8	6.3	4.1	5.9	5.5	3.2	3.5
Current account/GNP ratio	-0.7	-4.3	-2.7	-5.7	-5.0	-7.8	-6.3	-7.3	-2.8	-7.3	-5.2	-4.2	...
Inflation rate (CPI)	24.3	5.3	4.1	7.6	7.9	9.9	19.7	12.7	5.3	3.7	0.9	2.4	1.8
<b>Philippines</b>													
Growth rate of real GDP	5.0	6.4	8.0	6.1	5.5	6.3	5.2	3.9	2.9	0.9	-6.0	5.3	-7.7
Current account/GNP ratio	-1.4	-5.8	-6.1	-3.6	-4.6	-5.1	-5.4	-5.4	-8.1	-8.1	-4.0	--	3.4
Inflation rate (CPI)	34.2	6.8	9.2	9.9	7.3	17.5	18.2	13.1	10.2	10.0	50.3	23.1	0.8
<b>Spain</b>													
Growth rate of real GDP	5.7	1.1	3.0	3.3	1.8	0.2	1.5	-0.2	1.2	1.8	1.9	2.1	3.6
Current account/GNP ratio	-3.7	-3.4	-4.0	-1.8	1.1	0.6	-2.5	-2.7	-2.4	-1.8	1.3	1.8	...
Inflation rate (CPI)	15.7	17.0	15.0	24.5	19.8	15.7	15.6	14.5	14.4	12.2	11.3	8.8	8.8
<b>Malaysia</b>													
Growth rate of real GDP	8.3	0.8	11.6	7.8	6.7	9.3	7.4	6.8	5.9	6.3	7.8	-1.0	1.2
Current account/GNP ratio	-5.7	-5.9	5.4	3.3	0.7	4.6	-1.2	-10.0	-14.0	-12.5	-5.5	-2.1	-0.3
Inflation rate (CPI)	17.4	4.5	2.6	4.8	4.9	3.6	6.7	9.7	5.8	3.7	3.9	0.3	0.7

Source: IMF, International Financial Statistics.

cases, confidence was restored by the emergency measures taken by the central bank. These measures encompassed lender-of-last-resort facilities, intervention in troubled financial institutions--including some that were initially outside the central bank's jurisdiction--and the re-establishment of deposit insurance (sometimes retroactively).

In some cases, the financial crisis spread across the country's border. The international propagation of financial crisis could take place either through capital inflows or outflows triggered in one country due to developments in others, or through direct or indirect connections of distressed financial institutions or their customers. A case in point is the demise of the preannounced devaluation scheme for the Argentine peso starting in March 1981, which led to a loss of confidence in Uruguay's similar scheme, causing a massive outflow of capital in that country, and contributing to the Uruguayan crisis. Also, the failure of two banks in Uruguay, Banco Pan de Azúcar and Banco de Italia was largely the result of the failure of their parent institutions abroad (a Chilean and an Argentine bank, respectively).

### 3. Banking crisis and financial sector reform

An often-debated issue is whether financial sector reforms helped to trigger or aggravate financial crises.

The timing and intensity of the crisis, and the timing and scope of financial sector reforms--interest rate deregulation, and the liberalization of entry and portfolio regulations--varied considerably among the sample countries (Appendix I). In Argentina, Uruguay and Chile the deregulation of interest rates had been completed and entry and branching restrictions relaxed by the mid-to-late seventies, while the financial crises were concentrated in the early eighties. In Spain, a gradual deregulation of interest rates was begun in 1974, starting with the freeing of interest rates on longer-term loans and deposits, and ending only in 1987 when rates on demand deposits and savings deposits of less than six months were freed. <sup>1/</sup> By the mid-seventies, branching regulations and activity restrictions on various classes of banks had been liberalized. Various portfolio regulations--mandatory investment coefficients--had been reduced since 1974. The banking crisis in Spain was a protracted affair that began in 1977/78 and intensified in 1982/83 before subsiding. In the Philippines, the deregulation of interest rates in 1981 just preceded the first episodes of the financial crisis. In Thailand, interest rates remained subject to administrative ceilings, which were adjusted on several occasions. A higher ceiling applied to finance companies, which were the institutions initially affected by the 1983/84 crisis. In Malaysia interest rates were deregulated in 1978,

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<sup>1/</sup> The rates on deposits of one year or more had been free since 1977 and those on time deposits of six months to one year were set free in 1981.

although at various times strong moral suasion was exercised on interest rate developments. For example, from October 1985 to February 1987, interest rates on deposits of less than 12 months' maturity were subject to restrictions. 1/ This was also a period of recession when authorities faced crises among deposit-taking cooperatives, and strengthened a wide range of prudential regulations to contain and manage the risks in the banking system.

The above chronology of financial reforms and crisis episodes has only limited value. This is, in part, because, in many cases the weaknesses of problem banks that surfaced during the crisis had originated much earlier, but it took some time for the problems to be discovered by the supervisory authority due to the normal tendency of banks to reduce the transparency of their accounts in situations of distress. 2/

However, in order to analyze the linkages between financial sector reform and financial crisis in the sample countries, it is useful to examine the evidence on some of the channels through which financial sector reforms might increase the fragility of both financial and non-financial firms, thereby setting the stage for a crisis.

First, increased freedom of entry into the financial sector and freedom to bid for funds through interest rates and new instruments could lead to excessive risk taking, if such freedom were not tempered with adequate prudential supervision and regulation. For example, implicit guarantees of a government bailout of depositors (and to some extent bankers), together with weak prudential legislation and supervision permitting unsound lending patterns, could trigger excessive risk taking following deregulation. Deregulation could also facilitate a too rapid growth of some financial institutions, and allow unqualified persons to enter into financial business. Examples of such effects were found in all sample countries.

Second, the institutional structure of the banking system that emerges from regulatory changes could lead to concentration of power in banking, interlocking ownership and lending patterns. Such an environment is particularly vulnerable to market failures--due to moral hazard, adverse selection and oligopolistic pricing, all reinforced by the regulatory environment. This could favor excessive risk taking on the part of banks (particularly following deregulation of interest rates), and also on the part of nonfinancial firms. This point is illustrated by the large share of credits to related firms in the private banking system of Chile and in the banking groups that failed in Spain. How-

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1/ Some restrictions still apply to lending rates. The central bank approves the base lending rate (BLR) of banks and finance companies after analyzing their cost of funds. Actual lending rates can only deviate from the BLR by a margin set by the central bank.

2/ For an elaboration of this point, see De Juan (1987) and Long (1988).

ever, loans to directors and insiders, fraud and mismanagement, loans to political interests, etc. have been a perennial source of risk concentration, banking difficulties and bank failures, and there is no reason why deregulation per se should increase the incidence of such practices.

Third, deregulation could lead to excessive increases in interest rates if euphoric expectations coupled with unsound liability structures of firms caused a sharp increase in credit demand. With high debt-equity ratios, an initial increase in real interest rates, among other things, could lead to distress borrowing and hence fairly inelastic demand for credit (artificial demand for credit) which perpetuates the high rates. This seems to have been the situation in the Southern Cone countries. 1/ High debt-equity ratios of nonfinancial firms developed in the pre-reform period of negative real interest rates and directed credits, leading to distress borrowing when real rates turn strongly positive. 2/ Distress borrowing aggravated the financial crisis in many of the sample countries, (e.g., Chile, Philippines), but its influence in starting the crisis is unclear.

Fourth, following the deregulation of interest rates, the authorities might lack an adequate set of instruments of monetary control to influence interest rates or might follow a hands-off policy in the erroneous belief that domestic interest rates would automatically converge to international rates over time. 3/ Or, they might follow targets for monetary and credit aggregates based on past behavior, despite massive shifts taking place in income velocity and the money multiplier in response to deregulation and other measures. These factors would cause excessive increases in real interest rates and

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1/ Sometimes this was coupled with borrowers' stripping their enterprises of most valuable assets, leaving creditors little on which to foreclose.

2/ Distress borrowing is typically associated with strong liquidity problems of individual banks, and this, in turn, is a factor weakening monetary control.

3/ Following deregulation, domestic interest rates would depend upon both domestic monetary conditions and external factors (foreign interest rates plus exchange rate expectations) and the relative importance of the domestic and external factors is a function of the extent of openness to capital flows. Even in fairly open economies, monetary policy can have a strong effect on interest rates in the short run, and an automatic and immediate convergence to foreign rates cannot be assumed.

precipitate a crisis, particularly if the policy error persists. 1/ Also, tighter credit policies could widen the interest margin and contribute to excessively high real lending rates, insofar as they are implemented by raising unremunerated reserve requirements, or by forcing banks to hold low-yield government securities. Such outcomes are readily corrected through appropriate refinements of instruments, and timely reversals of policy stance (if macroeconomic conditions permit such reversals). In the sample countries there is little evidence of inappropriate monetary policies contributing to the crisis, except insofar as in some cases the authorities let interest rates become too high (e.g., Chile and Uruguay). In all cases, monetary policy was complicated by the large portfolio shifts in the banking system. 2/

Fifth, following deregulation, instability in the credit markets could arise not only from an inelastic demand for credit, but also from credit rationing. For example, in times of perceived high risk and uncertainty, or merely of tight financial policies, real interest rates could rise sharply. However, beyond a certain point a rise in interest rates will be seen by lenders as counterproductive because of the higher risks associated with it, and the markets could resort to credit rationing. This inelastic or even perversely elastic supply of credit could result in instability, characterized by bankruptcies of firms and banks. In some cases this credit rationing behavior would show up in persistently high real interest rates, possibly rising interest margins, and a simultaneous fall in loan/deposit ratios of the banking system. There is evidence of these phenomena in some countries notably in the Philippines. 3/

Six, the supervisory authority might be ill-prepared to deal with a financial system, or that segment of it, which operates with much more freedom than in the past. Both the regulations and the administrative infrastructure might need to be overhauled in order to focus them on the analysis of bank solvency and credit risk rather than on monitoring compliance with interest rate ceilings, selective credit regulations

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1/ Often, nominal interest rates could remain high even in times of price stability owing to temporary uncertainties and stubborn exchange rate expectations. If this is the case even after major corrections to the real exchange rate, then non-accommodating credit policy would soon alter exchange rate expectations and reduce real rates. However, if the situation of high real rates persists long enough it could precipitate a crisis.

2/ See Section 4 for further details.

3/ Evidence on this topic should be evaluated carefully in order to distinguish between shifts in the credit supply function from changes in its shape. For instance, a shift in the supply of credit could also lead to most of the phenomena attributed to credit rationing above, higher rates and margins, and a lower loan/deposit ratio.

etc. 1/ While this was the case in some of the sample countries, there were others where, despite adequate supervisory apparatus, the enforcement was weak and indecisive due to political interference. In all the countries considered in this paper poor risk diversification, inadequate loan evaluation, and plain fraud were the major factors in most of the financial institutions that were liquidated or intervened. Sometimes, these factors were related to the fact that more liberal entry into financial intermediation allowed people with little or no experience in the field to set up, or take over a financial institution.

Finally, the deregulation of interest rates could adversely affect financial institutions which have a large exposure to long-term assets at fixed interest rates funded by short-term liabilities. This could precipitate a crisis for some segments of the industry, and for the whole system if appropriate action is not taken. This was not a significant factor in the sample countries.

The above discussion suggests that the connection, if any, between financial reform and financial crises derives from an unstable macro-economic environment, the development of unsound liability structures of nonfinancial firms (prior to or after the reform), and weaknesses in the institutional structure for banking. Therefore, sound financial policies, vigilant bank supervision, and well designed prudential regulations would limit financial crises and help reduce the vulnerability of a financial system to the vagaries of the macro environment.

#### 4. Banking crises and monetary conditions 2/

Banking crises are often associated with substantial portfolio shifts. The demand for money can rise owing to the uncertainties and asset liquidations created by the crises, or fall insofar as savers shift to safer assets such as foreign currency assets, treasury bills and nonmonetary instruments. The impact on velocity due to the "flight to quality" by savers and investors, and that due to credit and asset market disturbances work in opposite directions, and the net effect is an empirical question. Moreover, different aggregates are likely to suffer different impacts. Demand will shift in favor of financial liabilities of institutions that are perceived as having a zero or negligible default risk--such as the central bank, and state and foreign banks--and against those of institutions perceived as risky. For instance, sharp--albeit temporary--increases in currency demand occurred in most of the sample countries at the time of bank liquidations. Also, the interest elasticity of the demand for various monetary aggregates

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1/ For the case of Argentina, see Baliño (1987), and Banco Central de la Republica Argentina (1980).

2/ The analysis of this and the next section excludes Malaysia since the intensity of the crisis--in terms of the share of problem assets to total assets in the financial system--was low compared to other countries.

might also change--often permanently--due to the greater awareness of risks and returns built up in times of crises. Such portfolio shifts naturally complicate the conduct of monetary policy. The actual effect of these shifts on monetary aggregates will also depend on the policy response. For example, implementation of interest rate controls will diminish the attractiveness of time and savings deposits.

Some portfolio and parameter shifts took place following banking crises in the countries analyzed in this paper. There is evidence of a significant shift into currency or a decline in the interest elasticity of currency demand following the banking crises in Argentina, Chile, Uruguay, Philippines and Thailand (Table 3). <sup>1/</sup> Also, in almost all of the sample countries the demand for M2 showed an upward shift, and interest elasticities increased following the banking crisis. The shift in money demand in some cases reflected a portfolio switch from nonbank institutions and deposit substitutes into bank deposits. For example, in Thailand, deposits switched from finance companies to banks following the crisis among the finance companies. A similar phenomenon was observed in the Philippines following the bill market collapse in 1981.

The behavior of the money multiplier and the stability of the monetary base might also be significantly affected by a banking crisis. The money multiplier would fall due to increased demand for currency, and a precautionary rise in banks' excess reserves prompted by greater volatility in deposits and increased riskiness in lending. <sup>2/</sup> While further work is needed on this topic, preliminary examination of data suggests that multipliers (for M2) tended to decline, or their historic patterns changed significantly in crisis periods (Chart 1). <sup>3/</sup> For example, in Spain, despite the progressive reductions in statutory cash reserve ratios, the multiplier declined fairly sharply during 1977/79 before resuming its upward trend. Sharp declines in multipliers are observed in Uruguay and the Philippines following the crisis periods and a mild decline and greater volatility are evident in Argentina. Part of these declines is attributable to changes in reserve requirements. However, even after allowing for those changes, a notable fall, or a pause in the growth of the multiplier could be detected in most of the sample countries. In the Philippines, the sharp increase in currency demand contributed to the decline in the multiplier.

As regards the growth in reserve money, quarterly growth rates showed no significant changes in their level, variability or seasonality

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<sup>1/</sup> The decline in income velocity of money during the Great Depression in the United States has been studied by several authors.

<sup>2/</sup> In the case of Argentina, the behavior of excess reserves during the crisis period did not seem to deviate significantly from historic patterns.

<sup>3/</sup> In the charts included in this paper, shaded areas correspond to crisis periods.

CHART 1  
BANKING CRISES: MONEY MULTIPLIER

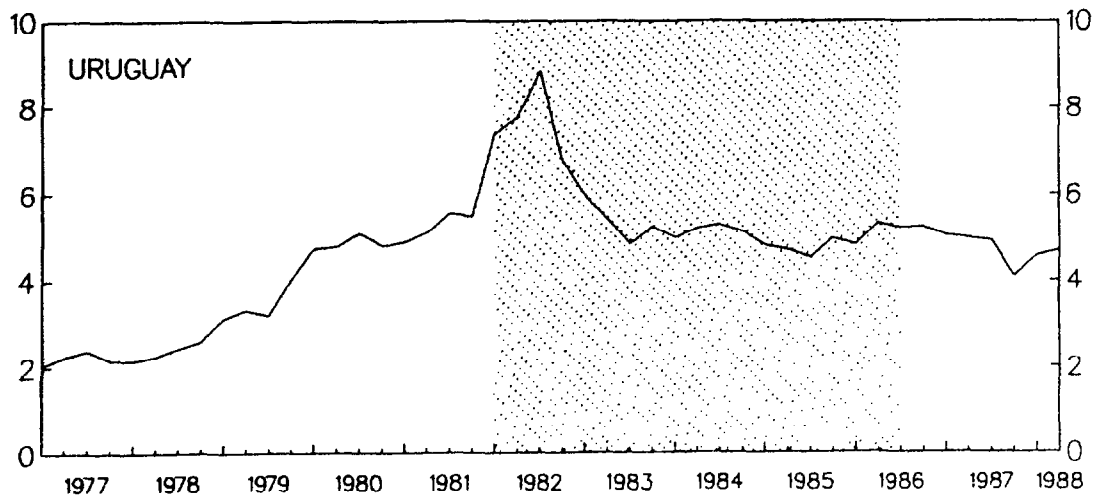
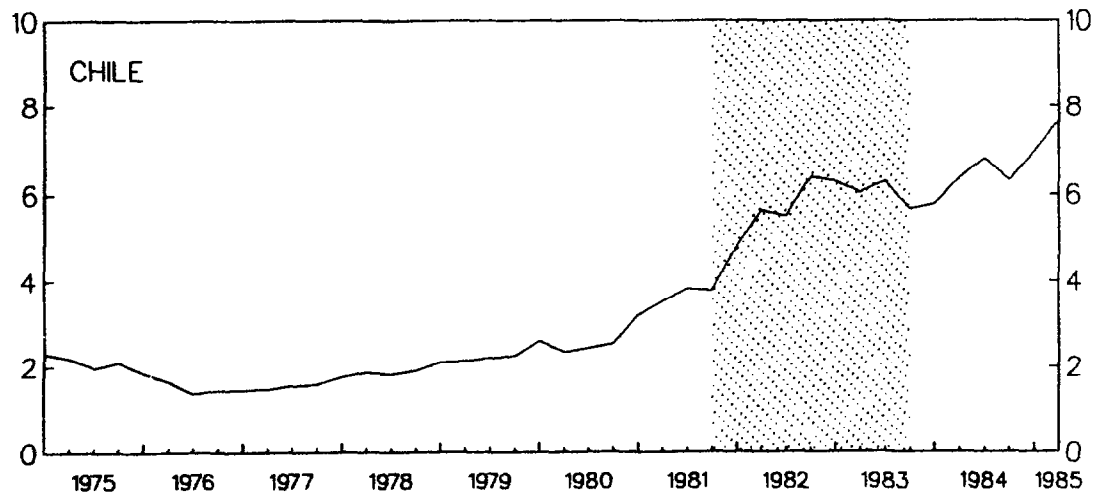
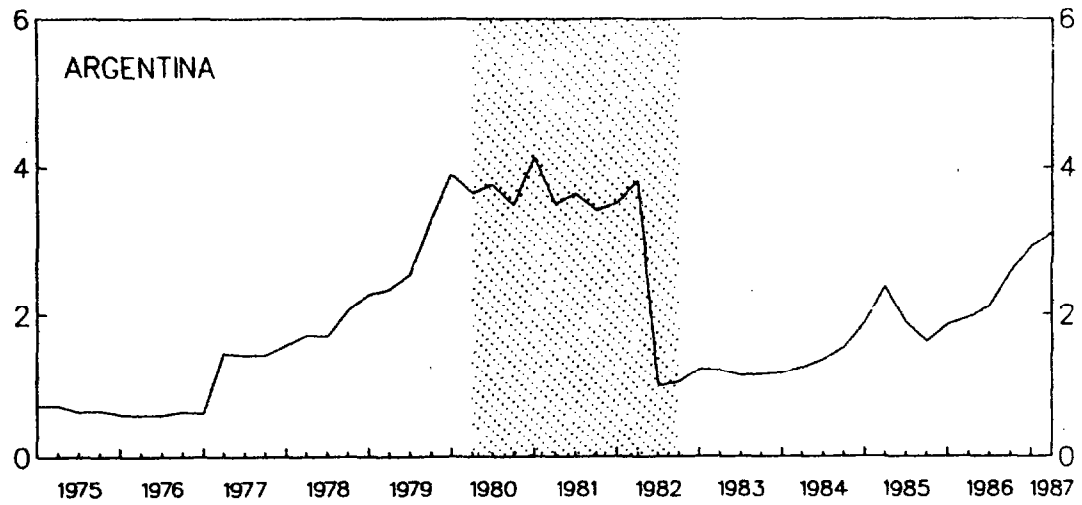


CHART 1  
BANKING CRISES: MONEY MULTIPLIER

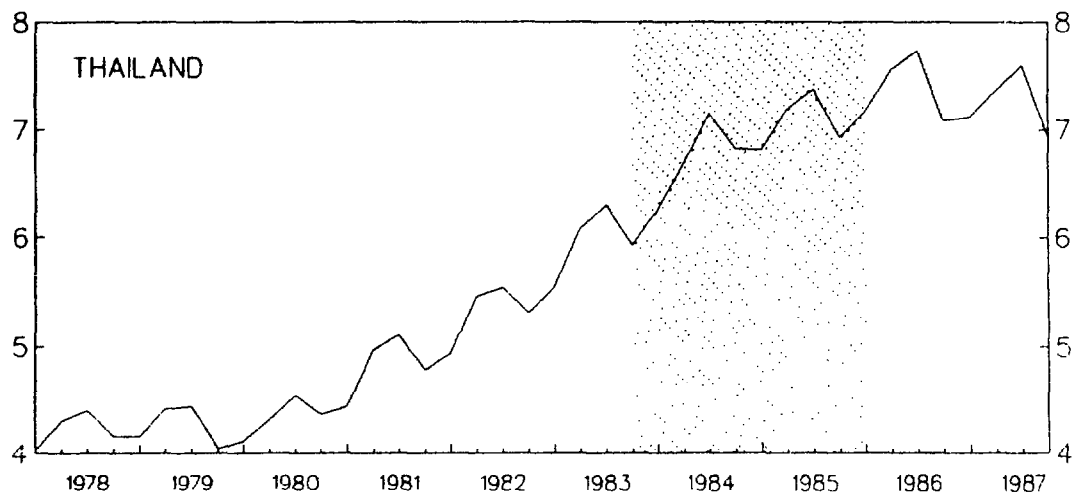
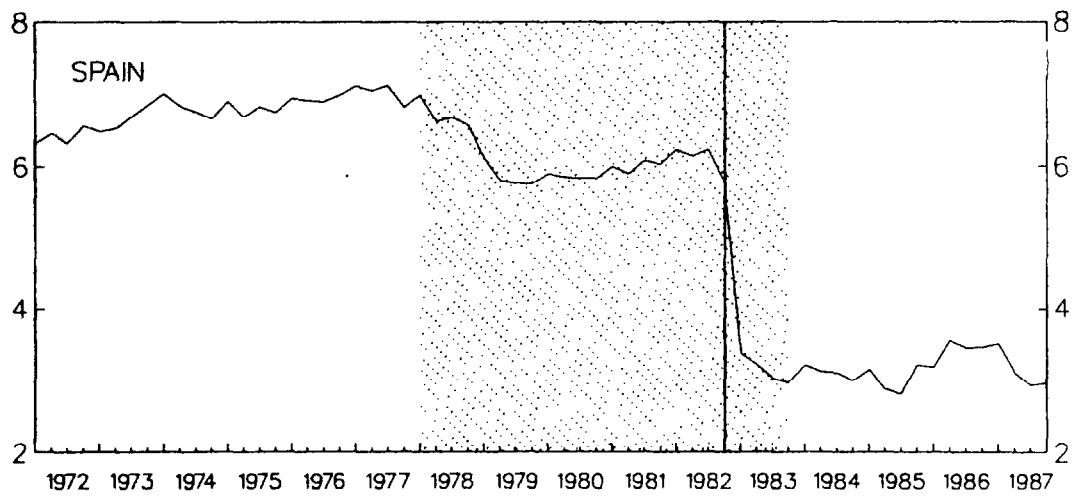
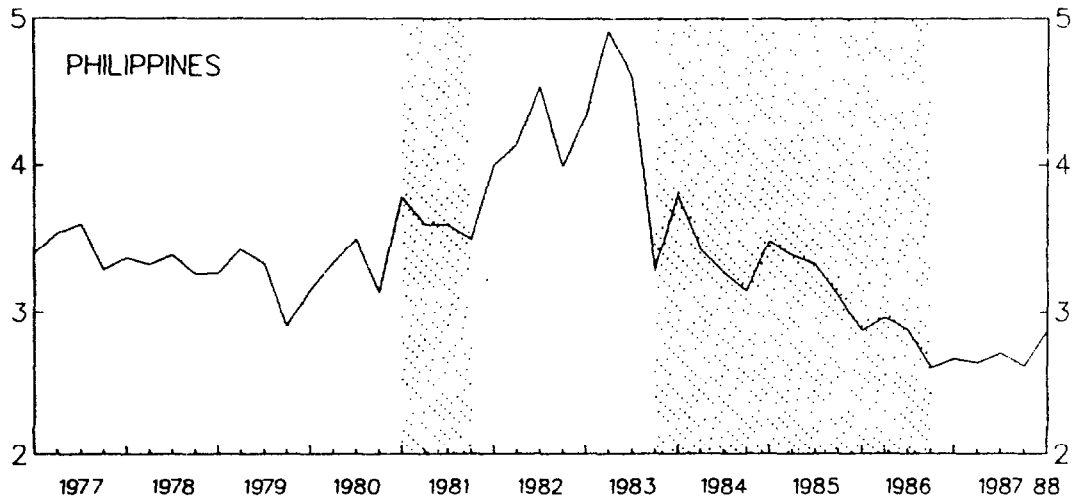


Table 3. Tests of Shifts in Demand and Interest Elasticities

Country	<u>Shift in Intercept</u>		<u>Shift in Interest Elasticity 2/</u>	
	Currency	M2	Currency	M2
Argentina	+ 0.070 (2.4)	- 0.035 (-3.1)	neg.	pos.
Chile	Not significant	+ 0.053 (3.7)	neg.	pos.
Uruguay	Not significant	+ 0.018 <sup>1/</sup> (1.26)	neg.	pos.
Philippines	+ 0.153 (5.3)	+ 0.032 (3.8)	neg.	pos.
Spain	Not significant	Not significant	Not significant	pos.

Note: Based on regressions of quarterly changes in the log of currency or M2 on prices, output and interest rates, using general distributed lags in these variables and lagged values of the dependent variable. Figures in parentheses are t-values.

<sup>1/</sup> Becomes insignificant when shifts in interest elasticities are allowed.

<sup>2/</sup> Direction of change in the absolute value of interest elasticity (sum of all lag coefficients).

following the crisis in most countries, although a brief acceleration in the growth of reserve money or a breakdown of normal seasonal patterns was evident in crisis periods for some countries (Chart 2).

A major monetary development in most countries--at least for brief periods--was the change in the sources of growth in reserve money. Central bank credit to banks and other financial institutions rose sharply following the crisis, and its share in reserve money naturally rose (Chart 3). This increase of central bank credit typically served a dual purpose: to assist ailing institutions or borrowers, and to offset the contractionary impact of reductions in the money multiplier. In some cases this growth in central bank credit jeopardized the attainment of monetary and balance of payments targets, forcing the authorities to use other instruments of monetary control to absorb the excess reserve money expansion. While in some countries the initial spurt in central bank credit was reversed within a short period, in others the share of central bank credit to reserve money increased permanently (Table 4).

#### 5. The crisis and the credit markets

This section discusses the relationship between financial crises and credit markets by focusing on three key questions: (a) What was the role of credit market conditions in initiating or aggravating the crisis? (b) Did the causality run from credit to the real sector or in the opposite direction? (c) What were the main determinants of credit demand in the countries that suffered a crisis?

##### a. The role of credit market conditions

The role of credit market conditions in aggravating the crisis needs further study. The extent to which caution on the part of bankers, and the resulting credit rationing, accelerated firm bankruptcies is not fully clear, although there is some evidence to this effect in the sample countries. In all cases, nonperforming loans rose sharply just prior to and during the crisis periods. The effect of high real lending rates on the financial conditions of already highly leveraged borrowers, and the perpetuation of such high rates due to the resulting distress demand for credit and increased riskiness of lending were important factors in Argentina, Chile, Uruguay, and the Philippines. High nominal lending rates in relation to growth of credit--a result of tight monetary policy in response to the needs of macroeconomic adjustment--in some periods aggravated the crises in both the Philippines and Thailand. <sup>1/</sup> The behavior of lending rates had no significant effect on the crisis in Spain, in part reflecting the gradual nature of the liberalization process. In the Philippines, bank

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<sup>1/</sup> Also, a high or rising nominal loan rate (due to inflation) on adjustable-rate loans implies a faster loan repayment, which caused hardship to borrowers in some countries. Also, uncertainty tends to reduce the maturity of loans, which means that most financing carries a de facto adjustable rate.

CHART 2  
BANKING CRISES: RATE OF GROWTH OF RESERVE MONEY  
(In percent)

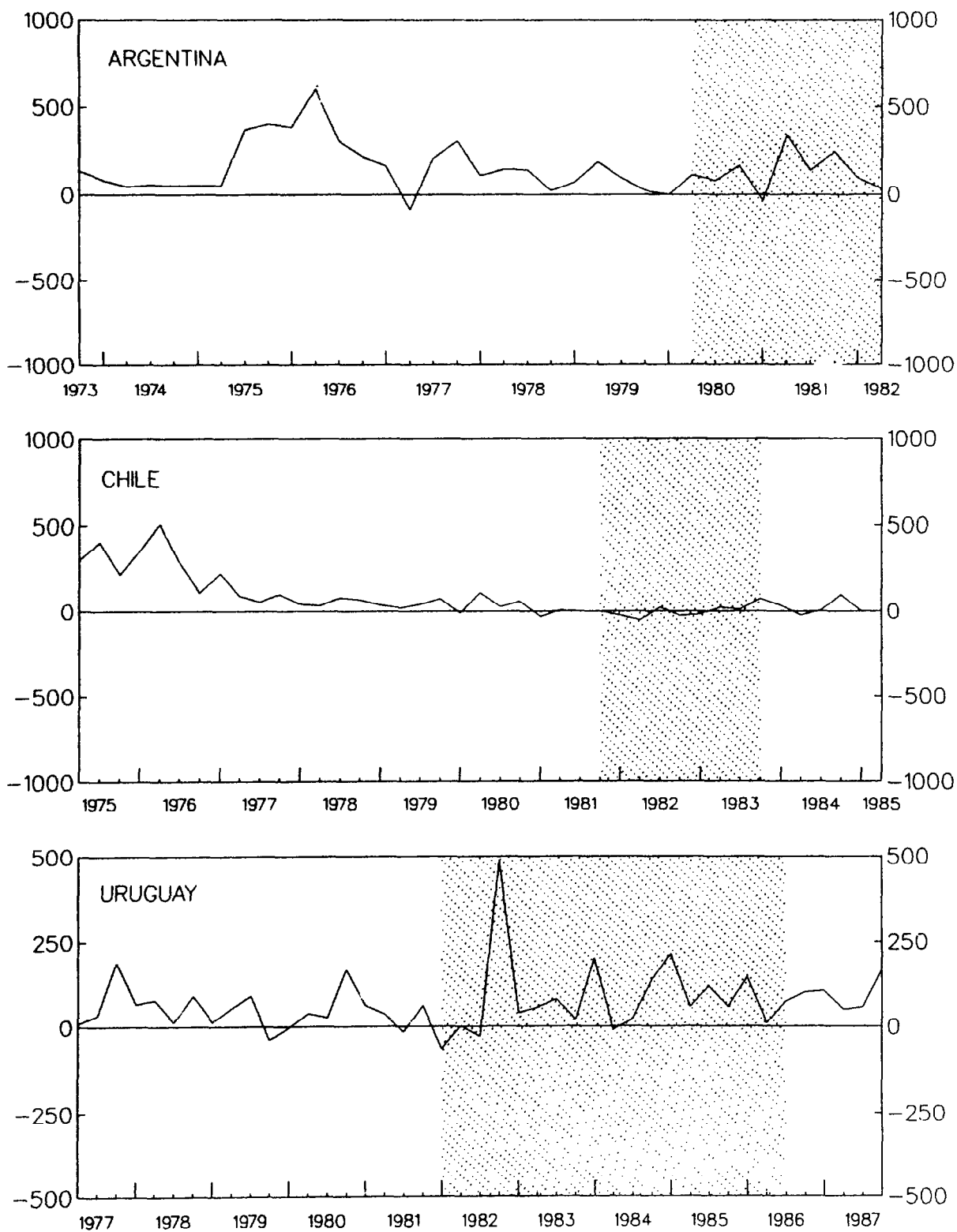


CHART 2  
BANKING CRISES: RATE OF GROWTH OF RESERVE MONEY  
(In percent)

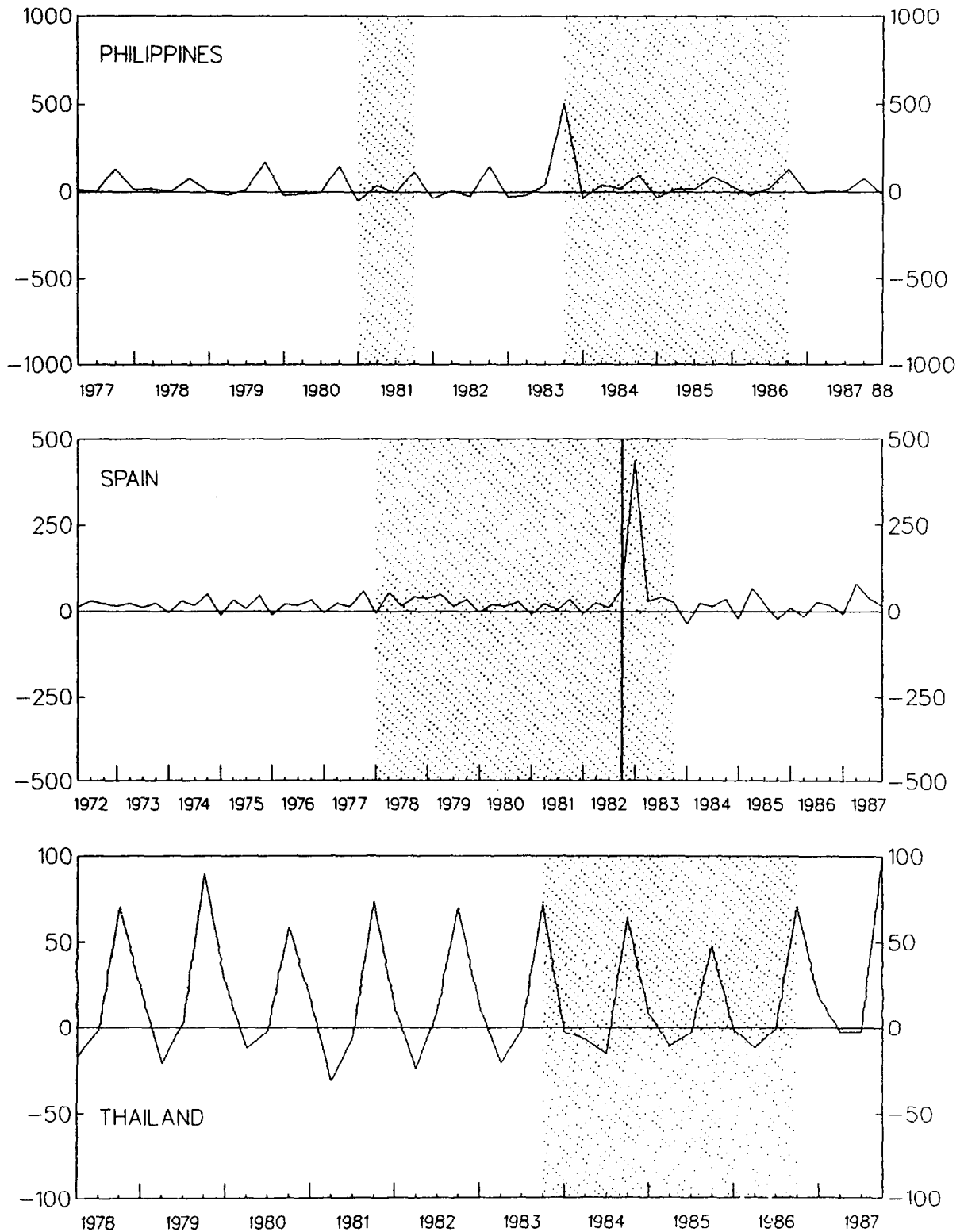


CHART 3  
BANKING CRISES: CENTRAL BANK CREDIT TO  
NON-GOVERNMENT AGENTS

(In real terms)

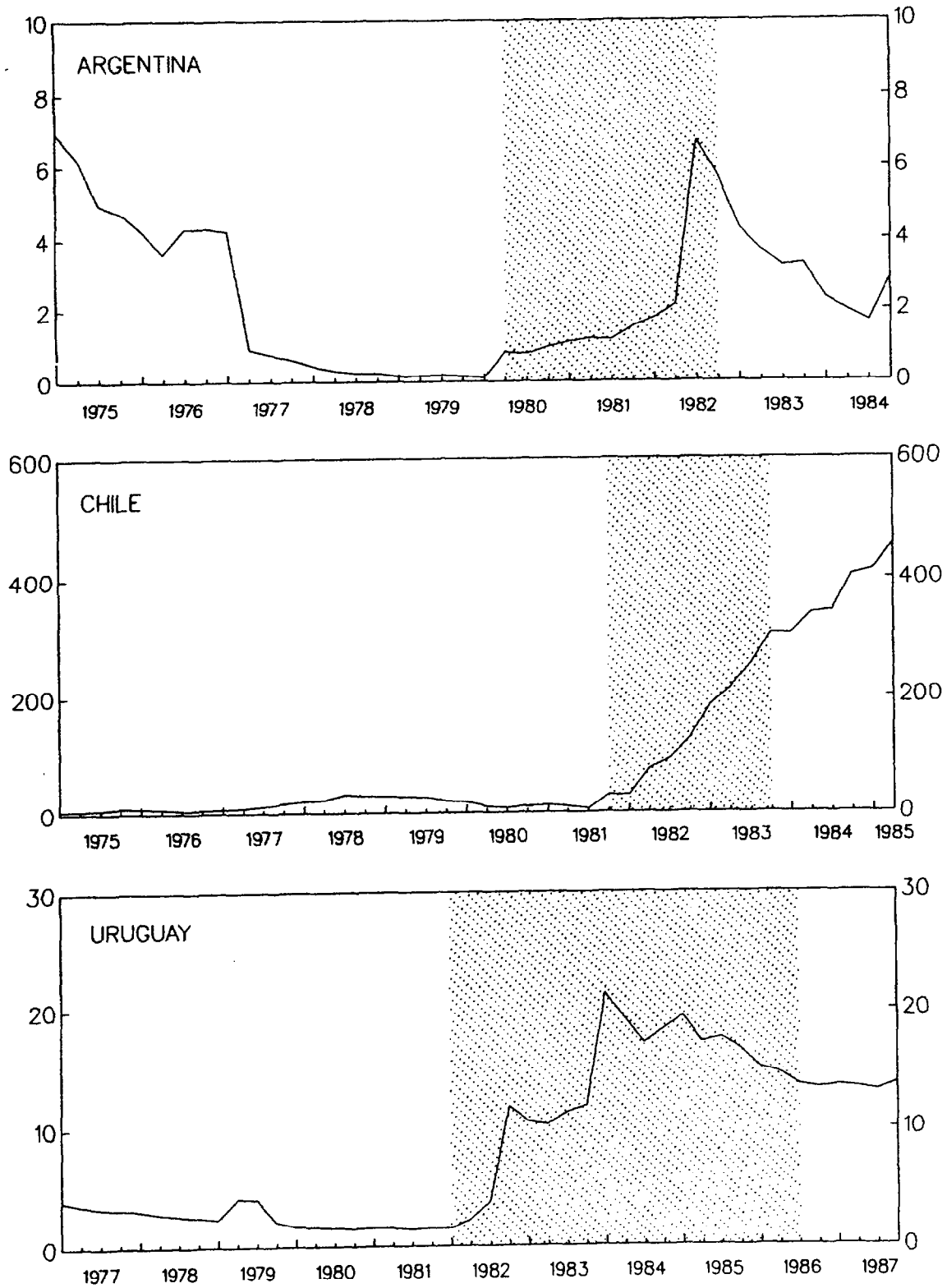


CHART 3  
BANKING CRISES: CENTRAL BANK CREDIT TO  
NON-GOVERNMENT AGENTS  
(In real terms)

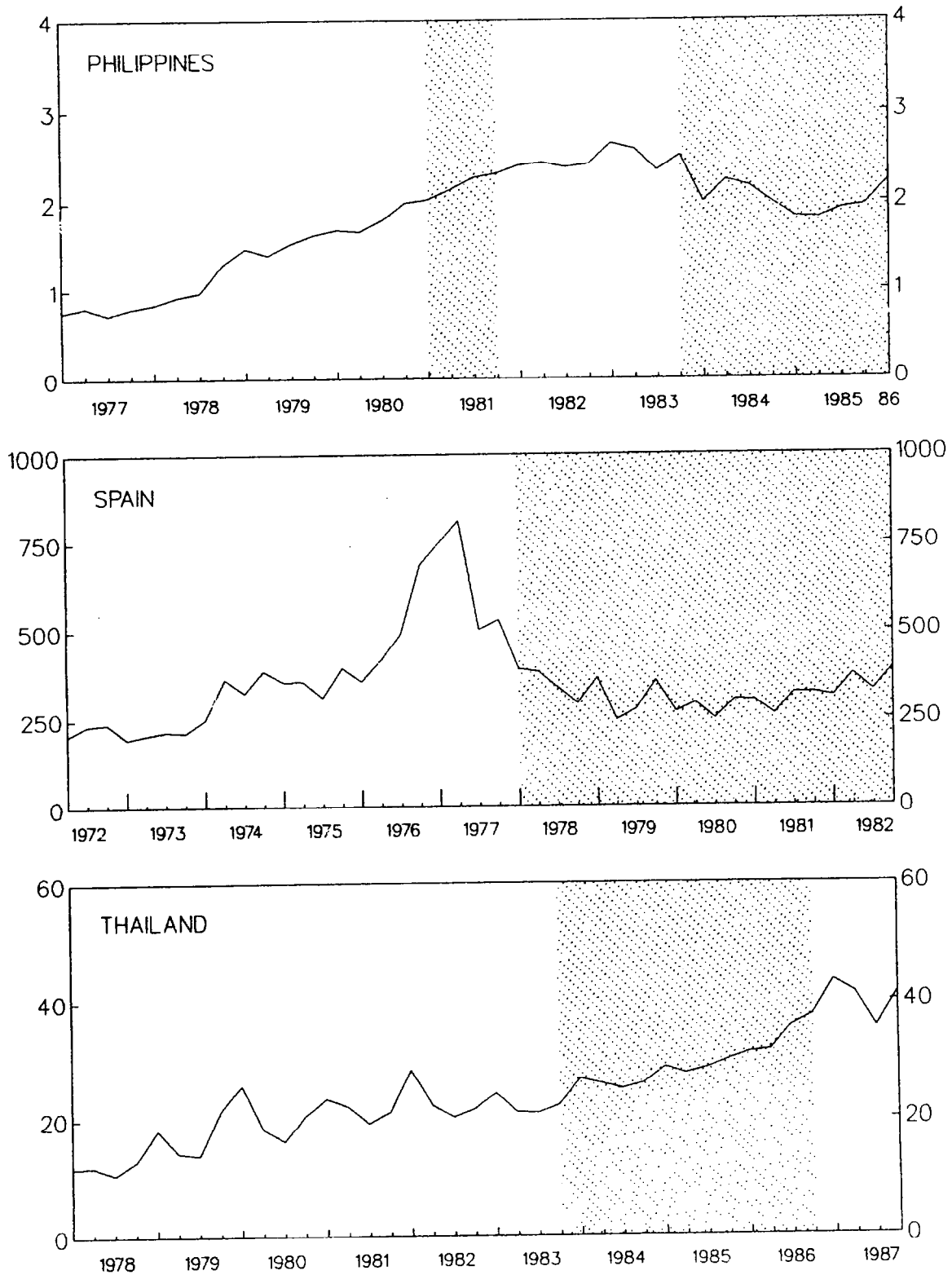


Table 4. Total Central Bank Credit as Percent of Reserve Money

Year	Argentina	Chile	Uruguay	Philippines	Thailand	Spain
1974	96.0	398.2	179.8	124.7	69.8	53.5
1975	100.7	552.2	139.6	160.9	73.5	61.0
1976	81.9	327.6	109.1	138.6	78.4	76.7
1977	54.7	328.9	79.5	109.3	90.2	74.9
1978	51.2	280.0	59.7	132.5	105.9	58.7
1979	39.8	245.9	75.1	143.0	126.4	63.2
1980	103.9	171.9	76.5	165.6	142.9	73.2
1981	176.2	156.1	69.8	213.4	157.1	93.2
1982	143.6	452.7	304.3	255.2	166.3	112.3
1983	154.9	907.1	407.5	237.8	170.2	80.7
1984	169.3	1,279.1	648.0	238.0	160.7	67.1
1985	...	...	473.1	219.8	167.9	72.9
1986	...	...	541.6	153.7	155.0	68.9

Source: IMF, International Financial Statistics.

1/ While Chart 3 shows central bank credit to nongovernment agents, this table focuses on total central bank credit. This is because in many countries the central bank supported the problem institutions indirectly, with the budget providing the actual support but financing it through central bank credit to government. This was a particularly significant factor in the Philippines.

credit to the private sector declined precipitously in nominal terms between 1983 and 1986 (by over 50 percent in real terms), while nominal bank lending rates averaged 23 percent during this period; the real lending and deposit rates were significantly positive during most of 1983-86--a period marked by asset liquidations and a fall in output. The decline in credit to the private sector in the Philippines could not be attributed to demand factors alone, or simple crowding out by the Government, but also reflected credit rationing by bankers owing to the increased riskiness in lending. 1/

Table 5 presents for all the sample countries the change in the average level of some credit aggregates, in real terms, between the three-year periods immediately before and after the year in which the crisis emerged. 2/ It also presents the variation in the level of international reserves during the same period.

Table 5. Change in Real Credit Balances  
(Percentage change)

Country	Total domestic credit	Domestic credit to the private sector	International reserves
Argentina	98.6	73.0	-52.4
Chile	85.0	147.0	24.1
Malaysia	35.3	46.1	37.9
Philippines	-14.2	-29.0	-45.0
Spain	3.6	-2.4	98.7
Thailand	62.8	67.5	57.6
Uruguay	89.5	27.8	-43.1

Source: IMF, International Financial Statistics.

The data above show that, with the exception of the Philippines and (marginally) Spain, credit continued to grow strongly in real terms after the crisis began, despite a fall in real output or real growth in

1/ See Nascimento (1990) for further details.

2/ The starting dates correspond to those indicated in Table 1 above; the year 1978 was chosen for Spain.

the crisis period. 1/ In some cases, the increase in real domestic credit was accompanied by a sharp fall in the country's total foreign reserves. This development in part reflected the fact that in some countries the central bank ensured the provision of credit to the economy at the cost of losing substantial amounts of reserves. 2/ The strong growth in credit in some countries also represented the rollover of nonperforming loans, interest accrual on them, and new work-out loans to try to rescue ailing borrowers. In addition, continued strong credit expansion following the crisis might have been facilitated by the increased demand for M2 noted earlier.

b. Causality between credit and GDP in the short run

While the previous section dealt with medium-term behavior of credit, short-run disruptions in credit flows--a common phenomenon during a banking crisis, emphasized by some authorities--could have a serious effect on short-run economic performance. This raises the question of whether the fall in real credit was supply-determined (and thus a possible cause of the fall in real growth) or demand-determined (and thus a possible result of the fall in real growth).

In order to shed some light on this question, we present below (in Table 6) Granger causality tests to analyze the relationship between real domestic credit and real GDP (both quarterly and seasonally adjusted) for Argentina, Chile, and the Philippines. 3/ The data corresponds to total domestic credit and domestic credit to the private sector. Four lags for each variable were used in the tests.

The results in this table are generally inconclusive. Only in the case of the Philippines is there evidence of statistically significant causality, which is uni-directional for total credit (running from credit to GDP) and bi-directional for private sector credit. These results are somewhat surprising, given the importance that credit has in financing economic growth and the substantial variability in both credit and output in the three countries under consideration. It may be concluded that shocks from other variables overshadowed the importance of credit as a determinant of output--and of output as a determinant of credit--in the countries and the period considered here. This interpretation appears plausible, bearing in mind that the timing of some of those other shocks (e.g., the collapse of the exchange rate regimes in Argentina and Chile) did not coincide with the timing of shocks to the supply of credit. Moreover, a recent study concludes that

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1/ This does not reject the possibility of short-term credit disruptions in the months following the onset of the crisis. See the next section for further discussions.

2/ As discussed later in this paper, central banks provided large sums of credit to ailing institutions and, in some cases, to final borrowers.

3/ Data availability allowed the analysis of only these three countries.

Table 6. Granger Causality Tests

Country	Period	F-statistic for causality going from:	
<hr/>			
A. <u>For the relationship between domestic credit (DC) and GDP</u>			
		<u>DC to GDP</u>	<u>GDP to DC</u>
Argentina	1975(I)-1987(IV)	F(5,38) 0.88	F(5,38) 1.66
Chile	1975(I)-1985(II)	F(5,28) 1.51	F(5,28) 0.09
Philippines	1981(I)-1988(III)	F(5,17) 3.32*	F(5,17) 0.68
B. <u>For the relationship between private sector credit (PSTC) and GDP</u>			
		<u>PSTC to GDP</u>	<u>GDP to PSTC</u>
Argentina	1975(I)-1987(IV)	F(5,38) 1.09	F(5,38) 2.44
Chile	1975(I)-1985(II)	F(5,28) 1.16	F(5,28) 0.42
Philippines	1981(I)-1988(III)	F(5,17) 5.63*	F(5,17) 3.18*
* Statistically significant at the 5 percent level			

Source: IMF, International Financial Statistics.

the data do not support the hypothesis of a simple or unidirectional relationship between bank runs and economic performance for the case of the United States. 1/

c. Effects of financial crisis on the demand for credit

The question arises whether the demand for credit is affected by financial crisis. As mentioned before, some authors have suggested that borrowers become unwilling or unable to pay their loans, and are happy to roll over these loans, even at high real rates, since they expect to be eventually bailed out. A way to test this is to estimate a simple model of the demand for credit and see what effect, if any, the crisis had on interest elasticities. While such analysis is not available for all countries, studies with Argentine data suggest that the demand for loans rises in real terms when real cost of credit goes up, confirming the hypothesis that demand for credit included a large fraction of loans that was insensitive to interest rates and on which interest was accrued and capitalized but not paid, i.e., effectively nonperforming loans. 2/

6. Dealing with the crisis

The measures to deal with failing and ailing institutions during a banking crisis have to be designed to achieve the immediate objectives of arresting the propagation of the crisis, restoring depositor confidence, and protecting the payments system and to bring about an orderly restructuring and recapitalization of problem banks. These measures should also take into account the following factors: their monetary and budgetary effects, moral hazard considerations (their effects on future risk-taking behavior), the distribution of losses among borrowers, depositors, the banking system and the government, the effectiveness of loan recovery, and the side effects of measures on solvent borrowers and banks, which should be protected. However, details of the measures undertaken in the sample countries varied a good deal, reflecting differences in the legislative framework and the macroeconomic and political constraints. Measures to deal with the crisis fall into the following four categories:

- (1) Emergency measures
- (2) Measures to deal with failing banks
- (3) Measures to assist borrowers
- (4) Reforms of banking regulations and legislation.

A stylized framework of these measures and the objectives and constraints governing them is shown in Appendix III.

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1/ Dwyer and Gilbert (1989).

2/ See Appendix II for further details.

a. Emergency measures

The emergency measures were aimed at stabilizing the financial system as rapidly as possible. They always included use of lender-of-last-resort facilities, often to replace the loss of deposits of the affected institutions. In many instances, normal lender-of-last-resort facilities were not adequate for a major crisis requiring the setting up of special credit facilities. In some cases, the government had to pass emergency legislation to broaden the institutional coverage of the lender of last resort, and to put in place other arrangements to on-lend funds through stronger institutions (Philippines) or through special ad hoc funds (Thailand). Central bank intervention in the management of ailing institutions also helped to restore confidence (Argentina, Chile, Malaysia and Spain). Explicit deposit guarantees, sometimes with retro-active effect, were found useful in Argentina and Chile.

In none of the countries studied could the disclosure of information about individual institutions have helped, since the problem was one of insolvency on a wide scale, rather than isolated instances of failure.

The traditional prescription that a central bank should lend freely at a penalty rate in times of panic fully applies to situations of illiquidity arising from sudden surges in the demand for reserves. By itself, the willingness to lend freely is often enough to prevent the propagation of a financial crisis. The penalty rate serves to reduce moral hazard, and in open economies helps to induce capital inflows. However, in the crisis episodes considered here, insolvency was of such a scale that in most countries initial emergency lending at market or penalty rates had soon to be replaced by longer-term lending at a concessional rate. Thus, the central bank or the government ended up actively subsidizing many financial institutions. Therefore, to minimize moral hazard, other nonpecuniary penalties were often employed--such as replacing management, requiring the surrender of shares, preventing dividend distribution, etc.

b. Measures to deal with failing banks

The fate of failing banks chiefly depended on each country's legislative framework, <sup>1/</sup> the structure of the banking system, the presence or absence of a deposit insurance agency, and the magnitude of each bank's losses. In Argentina, most failed institutions were eventually liquidated, even after the legislation had been amended to allow the Central Bank to arrange for their merger or sale. In Thailand, a variety of disposition decisions were employed for finance companies,

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<sup>1/</sup> Particularly the range of enforcement actions available in the legislation.

including liquidations, mergers, restructuring of activities, recapitalization, and support through long-term, soft loans from the central bank. No bank was liquidated, but most troubled banks received subsidies in the form of soft central bank loans, and in one case the government assumed the ownership of the bank.

In Chile, following some initial liquidations of smaller institutions, troubled banks were recapitalized and assisted through various subsidy schemes. In the Philippines, liquidations were commonly used for rural and thrift banks, which were numerous and small. For the larger commercial banks, however, the preferred method was takeover by a government-owned financial institution, or acquisition by the Government combined with central bank support and intervention. In Spain, the deposit insurance agency (or a similar agency) typically took control of the problem bank by buying shares at a nominal price, assumed the bad debts, and sold off the clean bank through competitive bidding. 1/ As an exception, a large banking group was temporarily nationalized, together with other enterprises belonging to the same conglomerate (RUMASA).

The disposition method and the legal environment affected the shares of bankers, depositors, borrowers, and the government in the substantial losses caused by the various financial crises. Owners experienced the greatest losses when the bank was liquidated or when they had to surrender ownership for a nominal price, and the smallest when they were allowed to hold on to their shares and the bank received subsidies from the central bank or the government. The loss to depositors was minimal in most countries, except where negative real interest rates were reinstated to reduce the debt burden. 2/ A scheme to pay off depositors partly with equity in the institutions being recapitalized was a feature in Malaysia, and in one case in Uruguay. 3/ In most cases, however, the government or the central bank assumed the bulk of the losses. These losses are difficult to measure, depending inter alia on the chosen method of disposition. 4/ In countries with deposit insurance, or with other arrangements requiring contributions and loans from other banks (e.g., the Rehabilitation Fund in Thailand to which all banks contributed), other banks--and indirectly their bank clients--shared the losses to the extent that the deposit insurance fund or the equivalent agency had insufficient own resources to cover the losses. A stylized description of different approaches to deal with failing banks and borrowers is presented in Appendix IV.

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1/ This is similar to the purchase and assumption procedure used in the United States.

2/ In Argentina, holders of foreign currency deposits in failing banks lost everything.

3/ For Uruguay, see Cikató (1989).

4/ Partial figures for these losses suffered by Argentina are presented in Baliño (1987).

The methods of recapitalization of banks typically involved various forms of subsidization. Under one approach, the central bank (or a separate government agency) purchased bad loans at par paying with central bank securities (or government bonds) that carried market rates. 1/ Such purchases entail recovery risks for the central government or the central bank. In order to minimize those risks, in Chile the selling bank had to buy back the bad loans from the central bank according to a schedule stretching over to ten years. 2/ Thus the central bank did not assume the commercial risk or management of those loans, but the approach still carried the risk that the continuation of old linkages between the bank and the debtor could weaken loan recovery. But in Uruguay the central bank assumed the bad loans, while collection responsibility kept switching between the central bank and a state commercial bank, thereby hampering loan recovery. In the Philippines, some staff of the commercial banks were placed on secondment to the fiscal agency that assumed the bad loans in order to facilitate loan recovery.

It can be argued that the central bank should not assume the administration of bad loans of banks being recapitalized or restructured. 3/ Under normal circumstances, both incentives for repayment by the debtor and loan recovery efforts by the creditor are likely to be much higher if the owner of the loan is a functioning commercial bank or a separate specialized agency, or if the commercial banks are given incentives to work with the debtor in asset restructuring and recovery. The debtor will have greater incentives to restructure and resume normal credit relationships if a lending agency, which offers opportunities for new credit relationships, is involved in loan recovery instead of a pure asset recovery agency or a central bank. A central bank usually lacks the expertise in loan administration that a commercial bank or a specialized agency has. Also, the central bank losses on account of bad loans would compromise monetary control, in addition to making the losses less transparent.

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1/ For some operations, the Central Bank of Uruguay issued U.S. dollar claims to purchase bad loans, some of which were denominated in domestic currency.

2/ This essentially converts the operation into a rediscount credit against the collateral of bad loans, with the proceeds reinvested in central bank securities. Thus the objective is to support the profits of the bank for an extended period of time, with a part of the profits being used to repurchase bad loans. This method, based on a pre-specified schedule of repurchases, could pose difficulties for bank operations if the profits are not adequate to cover the repurchases. This was not, however, a relevant consideration in the case of Chile, because the repurchases were stretched out over a long period.

3/ In the case of liquidations, however, it is common for the central bank or the deposit insurance agency to assume the bad loans.

The country experiences clearly point toward certain significant advantages--and some constraints--in shifting the bad assets to a separate agency with explicit funding sources. This, as already argued, is preferable to shifting bad assets to the central bank. Also, the purchase of bad loans by a separate government agency, as in the case of the Philippines or Spain, had the advantage of not only making the losses transparent, but also serving to break off the linkages between problem banks and problem borrowers, which had contributed to the problems in the first place. The resulting restructuring of banks' balance sheets also facilitated the implementation of monetary policy. Moreover, a separate fiscal agency--together with the so-called "bad" or "collecting" banks such as those found in the United States--could offer greater flexibility and capability to mobilize staff with expertise in loan administration and recovery than a central bank or in some cases even commercial banks. Also, a separate agency could specialize in industrial restructuring and the related technical assistance in support of loan recovery and workout, which a central bank or a commercial bank is ill-equipped to handle. The possible disadvantage of a separate fiscal agency in some countries could be the insufficient availability of skilled professional staff to pursue loan recovery and the need to fall back on the available commercial bank staff. This situation would call for administrative safeguards to ensure the professional independence of such staff from the influence of debtors.

In some cases, rather than purchasing bad loans, the central bank would offer a soft loan with which the troubled bank would acquire a government bond or a central bank security at a market-related rate, thereby receiving a stream of subsidies. Chile offered cheap government loans to facilitate the purchase of bank stock, and tax credits for subscriptions of new issues of bank stock. In Chile and the Philippines, a government agency was charged with underwriting issues of new stock for the intervened banks.

c. Measures to assist borrowers

Measures to assist borrowers included financial support, technical assistance, and debt-equity conversions. Under a typical arrangement, the central bank provided medium-term refinance credit to commercial banks at subsidized rates (or other forms of subsidies) in order to encourage them to consolidate and reschedule their clients' loans. <sup>1/</sup> The rate charged to final borrowers was not concessional in most cases. In Uruguay, special legislation was enacted requiring banks to refinance all "insolvent" borrowers, with the terms of refinance depending upon the classification of borrowers based on various solvency and sectoral

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<sup>1/</sup> In many developing countries, banks are reluctant to provide long-term loans, given the short maturity of deposits and the lack of liquidity facilities.

criteria. The classification was to be decided upon by a special government commission, and a debt moratorium applied while the application for classification was pending. Experience with this approach has not been satisfactory in terms of loan recovery and administrative costs.

Other types of measures involved assistance to borrowers that had contracted loans denominated in foreign exchange. These included preferential exchange rates, interest subsidies on foreign exchange swap transactions, and exchange insurance schemes. These schemes often resulted in sizeable subsidies to borrowers and hence losses to the central bank--because of large devaluations. A notable feature in Malaysia was the effort to facilitate technical assistance to borrowers for restructuring their operations. The Philippines relied extensively on the takeover of ailing nonfinancial companies by government financial institutions (GFIs) (which converted part of the outstanding debt into equity), an action that postponed hard solutions and accelerated the insolvency and restructuring of some of the GFIs themselves.

A key issue in formulating an assistance program for borrowers is whether it should be on a case-by-case basis, or a blanket program that covers all those who request assistance in a given industry or sector. While care and selectivity can maximize the cost effectiveness of assistance, on occasion, practical considerations might require choosing a blanket program. Ideally, debt restructuring should be left to the individual banks and their clients. However, in the uncertainty surrounding a major banking crisis, market decisions may be subject to subjective fears and more than the socially optimal amount of caution, and this would justify some temporary government intervention.

The most powerful and probably also the most costly method to help insolvent borrowers and banks is to reimpose interest rate controls, and produce negative real interest rates that would transfer wealth from depositors to borrowers. This was the solution adopted in Argentina, and for a limited period of time in Uruguay. However, this solution discourages depositors, which over time results in a shrinking of the banking system in real terms.

d. Regulatory and legislative reforms induced by the crises

The emergence of crises highlighted the weaknesses in legislative and regulatory frameworks, and triggered substantive regulatory reforms in most of the sample countries. For example, significant changes in regulations occurred in Thailand, whereby central bank supervision was extended to finance companies in addition to banks, the central bank's powers of intervention and enforcement options were broadened, and regulations to limit concentration of ownership and portfolio were also strengthened. In Chile, comprehensive measures to tighten bank supervision were adopted in late 1981 and 1982, and major legislative reforms were accomplished in 1986, and in recent years. Measures

included a more precise definition of the limit on loans to a single borrower, taking into account the interlocking ownership of firms; a formal rating system for financial institutions; public disclosure of information on the nature and quality of the assets of financial institutions; tighter capital requirements; a formal deposit insurance for small savers to replace ad hoc guarantees, and full insurance protection of sight deposits, with the restriction that sight deposits exceeding 2.5 times a bank's capital should be invested in central bank and government securities. In Malaysia, formal guidelines on suspension of interest on nonperforming loans and provisions for bad and doubtful debts were more forcefully implemented and industry practices standardized in order to promote consistent and prudent lending policies. Other measures included expanded powers to the central bank to intervene in all deposit-taking institutions; establishment of Board Audit and Examination Committees to strengthen supervision of bank management, 1/ and tighter lending limits per borrower. In the Philippines, regulations on bill market practices and dealer supervision were strengthened following the 1981 crisis, and prudential accounting standards, and bank liquidation procedures began to be strengthened.

7. Some lessons from the crises and concluding remarks

A key question in the study of financial crises is what can be done to prevent them, or at least to minimize their consequences. The answer must address three main problems posed by crises: how to keep the system liquid; how to restore its solvency; and how to keep it solvent? The structural measures to deal with these questions cannot be fully effective in the presence of major macroeconomic instability and relative price distortions. Thus, a return to reasonable stability in the macroeconomic environment is necessary, but the needed adjustment measures can be very costly in the presence of major portfolio weaknesses in the financial sector.

The first problem of maintaining liquidity has been resolved through the lender-of-last-resort function of the central bank. However, given the unstable macroeconomic conditions prior to and during the banking crisis in many sample countries, this posed difficult questions for the design of financial policies--particularly monetary policy. Specifically, central banks had to balance the objective of preserving monetary stability with the fulfillment of their lender-of-last resort obligations, and at the same time, had to contend with significant shifts in money demand and money multiplier in times of crisis.

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1/ All financial institutions were required to establish such a committee chaired by a non-executive director to evaluate internal and external audit reports and pursue follow-up action to remedy any inadequacies discovered.

The restoration of solvency of the system in crisis involved a variety of disposition decisions for problem banks, problem loans and problem borrowers. Since the widespread losses in the financial system had to be dealt with in some fashion--in order to protect the depositors, and ensure the sound future functioning of the financial intermediaries that would remain--the key issue was how to apportion the losses between depositors, borrowers, the banking system, and the government. In most cases, however, the government or the central bank assumed the bulk of the losses, since their magnitude was such that the banking system could not be expected to outgrow them with only limited initial support. This complicated the design of monetary and fiscal policies. However, in order to ensure monetary policy independence, promote effective loan recovery and industrial restructuring, and minimize moral hazard considerations, there would be advantages in solutions that encompass the following elements: concentrate all major losses in a single fiscal agency (rather than in the central bank), so as to make the losses transparent and underscore the government's role; work out institutional arrangements that maximize the professionalism in loan recovery, asset liquidations, and asset restructuring; and ensure that original shareholders lose and the old management is replaced in the problem financial institutions subject to the authorities' intervention. 1/

Following the initial recapitalization and restructuring of weak institutions, complex issues arose in the development of regulatory and supervisory framework to preserve solvency of the financial system.

First, the effectiveness of banking supervision was influenced by the uncertainties in the quality of the loan portfolio of financial institutions in the course of adjustments to macroeconomic instability. The quality of loan portfolio depends on both general business conditions and factors specific to each financial institution. Sharp changes in general business conditions (relative prices, policy regimes, etc.) played a major role in some of the crises discussed here (Argentina, Chile, Philippines, and Uruguay), and this caused cash-flow problems to businesses and raised loan defaults. Even loans that were sound when they were granted became bad loans; thus, in the presence of major macroeconomic instability and sharp changes in relative prices, the effectiveness of vigilant bank supervision was somewhat constrained and the identification and treatment of problem loans became more complex. Nevertheless, in all the countries, factors specific to some institutions (e.g., weak management, fraud, risk concentration, etc.) also contributed to the poor quality of the assets of the financial

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1/ This raises the question of whether the agency involved in loan recovery should also be given powers to intervene in management and takeover of problem institutions. If so, such an institution should probably be owned jointly by banks and the government instead of the government alone.

system <sup>1/</sup> and highlighted the importance of tighter prudential regulations and enhanced bank supervision.

Second, reforms of bank supervision and regulation raised difficult issues in defining the appropriate roles for the government and the market in maintaining the stability and soundness of the financial system. This is directly related to the discussion on the need for, and form of deposit insurance. Some authors have felt that stricter supervision entails excessive government intervention in private business, or that it will be ineffective. Their concerns are reinforced by the moral hazard problem that most deposit insurance schemes pose. Reflecting these concerns, the Chicago plan for monetary reform--which originated in the 1930s, and was espoused subsequently by Friedman (1959)--suggested splitting up banks into two types of institutions, one allowed to receive demand deposits but subject to a 100 percent reserve requirement, and the other, totally free from state regulation that would be able to receive time deposits and any other type of deposit from the public to be invested in loans or any other assets. The authors of this plan argued that this would ensure that demand deposits (and hence the narrow money definition they were interested in) would not be subject to the contractions that had taken place during the financial crises. Depositors in the second type of institution would bear the risk of the investments, since the government would not bail out these institutions nor their depositors.

A similar idea lies behind proposals for financial reform that have been triggered by financial crises in the eighties. For instance, Fernández (1983) advocates changing the nature of banks, so that they would no longer undertake to guarantee a certain yield to their depositors. Also, the recent reform of the banking legislation in Chile distinguishes demand deposits from other deposits from a regulatory point of view. The former have a state guarantee which as a counterpart requires banks to invest demand deposits in securities issued by the Government or the Central Bank. Other deposits have no guarantee and no restriction over their use. In the event of insolvency, a bank may enter into agreements with the holders of nonguaranteed deposits to settle their claims on the bank, who are treated like any other creditors of the bank. Reforms along these lines aim at preserving the integrity of the payments system--which explains why they severely restrict the assets in which banks can invest demand deposits--while allowing other types of deposits to bear the full market risk. Rather than structurally reforming the financial system, other writers have suggested ways to reduce moral hazard problems and minimize losses to deposit insurance schemes within the existing institutional framework. These ideas include: banks should be required to value their assets at

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<sup>1/</sup> This is clear from the fact that quite a few financial institutions in all the country studies emerged from the crisis virtually unscathed.

market rates; large depositors should share in the losses of a liquidation or reorganization mandated by the regulator; banks should be required to partly fund themselves through the issuance of subordinated debt; 1/ risk-based deposit insurance premia should be set; more information should be provided to the market on the financial condition of individual banks, etc. 2/ These proposals reflect the view that with enough information the market will be able to assess, largely on its own, the relative soundness of the financial system. 3/ Moreover, market reactions would help the regulator to detect problems in financial institutions and act before their net worth becomes zero, thus avoiding losses to the deposit insurer. Unfortunately, there is little evidence so far regarding the market's ability to judge a bank's soundness. 4/

To summarize, during a financial crisis prompt support from the monetary authorities and the government can prevent problem banks from causing major and lengthy disruptions to the payments system and the economy at large. However, an effective restructuring and recapitalization of the problem banks and the banking system calls for significant fiscal adjustment, prompt structural reforms of the nonfinancial sector, and progress toward macroeconomic stability. The effectiveness of such stabilization and structural policies needs to be supported by adequate supervision and prudential regulations, which are also necessary to make financial crises less likely and less costly. However, regulatory authorities must balance their concerns for the safety of the financial

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1/ Proponents of this requirement believe that it can reduce moral hazard, since holders of subordinated debt would suffer a loss in the event of liquidation (unlike insured depositors), and would not gain from extraordinary profits arising from risky behavior (unlike bank shareholders).

2/ Some of these ideas are discussed in Kuprianov and Mengle (1989). For detailed proposals on "puttable" subordinated debt, see Wall (1989). A comprehensive discussion of options to make the banking system more resilient is presented in Benston, Eisenbeis, Horvitz, Kane and Kaufman (1986).

3/ Chile's recent legislation mandates the supervisory authority to publish indicators of the financial condition of individual institutions as a way of facilitating the market's assessment.

4/ A recent article, Randall (1989), casts some doubt on the market effectiveness in this regard. The author suggests that the stock market and bond rating agencies were too late in identifying the problems in large bank holding companies in the 1980s, and even then they underestimated the seriousness of those problems. Moreover, he argues that it would be impractical to give the market the kind of information required for a proper evaluation of the quality of bank assets. In his view, many of the market-oriented proposals discussed above would only make the financial system more vulnerable and would fail to protect the deposit insurer.

system--which requires appropriate regulation and supervision--against the need to maximize the efficiency of that system--which requires that market forces play the main role in shaping the structure and operations of the system. Discussion on ways of attaining that balance is still wide open.

# APPENDIX 1

## Financial Reform, Financial Crises and their Dimensions--Overview

Interest Rate and Regulatory Reforms	Openness to Capital Flows	Exchange Rate System	Deposit Insurance	Financial Crisis
<u>ARGENTINA</u>				
Under the financial reform of 1977, interest rate controls were eliminated, branching and entry regulations eased, and most selective credit controls abandoned. Interest rate controls reintroduced during 1982-83	Foreign borrowing was liberalized during 1976-81, with almost no barriers by 1979. Measures to restrict external debt repayments adopted in 1982.	Preannounced schedules of devaluation during December 1978-March 1981. Dual exchange market introduced in June 1981, scrapped at end of the year, and reintroduced in July 1982. Commercial rate set by the Central Bank, and financial rate free, with central bank intervention as a buyer.	Before 1979, the Central Bank fully insured depositors and bore all costs. Partial coverage introduced in November 1979. The maximum amount of insured deposits was indexed, and insurance premiums were set. Participation was voluntary. Amounts above the ceiling were insured only up to 90 percent. The maximum amount was adjusted retroactively following the crisis.	Began with the failure of a large private bank in <u>March 1980</u> , leading to runs on three other banks that had to be intervened soon thereafter. Crisis spread rapidly to other banks and nonbank financial institutions; over 70 institutions were liquidated or intervened during 1980-82, accounting for 16 percent of total assets of commercial banks, and 35 percent of total assets of finance companies.
Prudential regulations were comprehensive and somewhat strengthened during the reform. Supervision of asset quality and on-site inspections were inadequate and were strengthened following the crisis.				

Financial Reform, Financial Crises and Their Dimensions--Overview (Continued)

Interest Rate and Regulatory Reforms	Openness to Capital Flows	Exchange Rate System	Deposit Insurance	Financial Crisis
<u>CHILE</u>				
<p>The financial reform began in late 1973. Banks were privatized in 1984 and acquired by major conglomerates. Controls on interest rates were lifted in 1975, selective credit controls were abolished. Entry and branching restrictions were removed. System moved toward multipurpose banking with distinctions among commercial, investment, mortgage, and development activities abolished. Regulations on capital requirements were tightened and adjusted in line with inflation. Regulations, legislation, and supervisory apparatus aimed at controlling excessive risk taking and unsound lending patterns--given the interlocking ownership of financial and nonfinancial firms--were weak or nonexistent until 1980. These were rectified following the crisis. Also, since 1983 a suggested maximum interest rate on 30-day deposits has been used.</p>	<p>Capital flows liberalized gradually. Quantity and term controls were relaxed between 1979 and 1980. Limits on bank borrowing abroad abolished in 1980. Minimum maturity requirement abolished in 1982.</p>	<p>Preannounced schedules of exchange rate devaluation between December 1977 and June 1979, and the nominal exchange rate kept unchanged from June 1979 to June 1982. Following maxi-devaluations in the latter half of 1982, exchange rate has been adjusted in line with a set of indicators.</p>	<p>Explicit deposit guarantees were granted in January 1983, initially for a limited period. They were extended periodically until a formal deposit insurance scheme was instituted in 1986. Partial insurance coverage for small depositors, with sight deposits fully protected.</p>	<p>Began with the acceleration of firm bankruptcies in 1980, with a prominent sugar refining company failing in early 1981. Following bank runs in late 1981, the Government assumed control of three banks, a development bank and four financieras, accounting for over one third of the loan portfolio of the financial system. Again, in January 1983 seven banks and one financiera, accounting for 45 percent of total assets, were put under government control, of which three were liquidated immediately. Central bank inspectors were placed in seven other financial institutions.</p>

Financial Reform, Financial Crises and Their Dimensions--Overview (Continued)

Interest Rate and Regulatory Reforms	Openness to Capital Flows	Exchange Rate Systems	Deposit Insurance	Financial Crisis
<b><u>MALAYSIA</u></b>				
<p>All interest rates were formally liberalized in 1978, but effectively so in 1982. Controls on short-term deposit rates temporarily imposed during October 1985-February 1987. A ceiling on interest rate margins over the base lending rates was set in late 1987.</p> <p>Prudential regulations and supervision of banks generally strengthened during reform. Weaknesses in enforcement, coverage of institutions and intervention options were remedied following the crisis.</p>	<p>Capital flows are fairly free in practice. Foreign borrowing by residents and holding of accounts abroad are subject to approval. Banks' foreign exchange operations are subject to open-position limits.</p>	<p>Floating with intervention by the Central Bank using a set of indicators.</p>	<p>No form 1 deposit insurance system.</p>	<p>Crisis began in July 1985 when short-lived runs appeared against some branches of a large domestic bank, due to rumors following the collapse of a related bank in Hong Kong. A spell of sporadic runs against weak institutions persisted throughout late 1985 and 1986, culminating in the failure of deposit-taking cooperatives (DTC) in July/August 1986, which led the Bank Negara Malaysia (BNM) to intervene in 24 DTCs with total deposits of MS\$1.5 billion. Also, in 1987 the BNM intervened in an apex cooperative with deposits of MS\$1.5 billion. In addition, in 1985/86, the BNM had to intervene and inject capital into three ailing commercial banks with total deposits of MS\$3.9 billion. However, the turnaround in monetary policy in late 1986, economic recovery, regulatory adaptations, and support measures to ailing businesses all helped to restore the health of financial institutions. The BNM has begun to recover its credits to formerly ailing institutions.</p>

Financial Reform, Financial Crises and Their Dimensions--Overview (Continued)

Interest Rate and Regulatory Reforms	Openness to Capital Flows	Exchange Rate System	Deposit Insurance	Financial Crisis
<u>PHILIPPINES</u>				
<p>Financial reform began in mid-1980. In July 1981, all interest rate ceilings except on short-term loans were lifted. In 1982, short-term loan rates were also freed. Before the reform (1972-81) interest ceilings were raised and adjusted on several occasions, but fees charged to circumvent ceilings were common.</p> <p>During 1972-80, entry of domestic banks was tightened and mergers encouraged by higher capital requirements, while foreign bank entry was eased. In 1980, universal banks were authorized and activity restrictions on thrift banks were relaxed.</p> <p>Prudential regulations and supervisory apparatus were generally comprehensive. Regulations strengthened in some areas (capital adequacy) but relaxed in others (e.g., loans to related interests) during the reform period. However, the enforcement of powers and regulations were weak.</p>	<p>Capital flows are fairly free in practice, although some controls remain. Capital flows were facilitated during 1972-80 by the introduction of foreign currency deposits (1972), and offshore banking units (1976). All foreign borrowing except short-term borrowing by Philippine commercial banks has been subject to prior approval by the Monetary Board. Commercial banks' holdings of foreign assets are subject to limits relating to L/Cs, export bills purchased and other foreign exchange receipts. Restrictions on external debt repayments in late 1983 and early 1984.</p>	<p>Floating with intervention by the authorities.</p>	<p>Formal deposit insurance scheme has existed since 1970. The scheme experienced difficulties in settling the growing claims in 1981. It was recapitalized in 1985. As of June 1987, only 52 percent of all claims on insured deposits had been settled.</p>	<p>First episodes of the crisis began in 1981 when the commercial paper market collapsed owing to the dishonored bills left behind by the textile magnate, Dewey Dee, who fled the country; this caused a major confidence crisis, triggered failures and takeovers of nonbank money market institutions, and a spread of distress among nonfinancial firms. Also during 1981-83, failures among rural and thrift banks (this segment of banks accounts for only 9 percent of the assets of the financial system) accelerated; government and central bank assistance to troubled financial and nonfinancial firms continued at high rates during 1982-83. Failures of thrift banks accelerated in 1984-85.</p>

Financial Reform, Financial Crises and Their Dimensions--Overview (Continued)

Interest Rate and Regulatory Reforms	Openness to Capital Flows	Exchange Rate System	Deposit Insurance	Financial Crisis
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PHILIPPINES (Continued)

Three private banks were liquidated during 1985-86. In all, between 1981 and 1987, 126 rural banks, 32 thrift banks, and 3 commercial banks closed down. These, however, accounted for only 3.5 percent of total financial system assets. In addition, two large state-owned banks and 5 private commercial banks accounting for 32 percent of total financial system assets had to be intervened during 1985-86 with financial support, subsidies, and restructuring. The two government-owned banks were effectively liquidated and bailed out with their nonperforming loans (about 30 percent of the banking system's assets) transferred to a separate agency in 1986. The five intervened banks are undergoing rehabilitation under CBP supervision.

## Financial Reform, Financial Crises and Their Dimensions--Overview (Continued)

Interest Rate and Regulatory Reforms	Openness to Capital Flows	Exchange Rate System	Deposit Insurance	Financial Crisis
<p>Financial reform began in 1974. Interest rates were gradually liberalized, starting with the longer maturities. By the beginning of 1981, all interest rates were free, except for some specified priority categories, and short-term deposit rates. The latter were freed in 1987.</p> <p>Activity regulations were eased, entry regulations were streamlined and liberalized. Bank secrecy laws were drastically modified, commissions and fees were freed.</p> <p>Prudential regulations were comprehensive and in some cases very detailed, but proved difficult to implement. Supervision was weak.</p>	<p>Capital flows are fairly free.</p>	<p>Floating with interventions by the Bank of Spain.</p>	<p>In November 1977, deposit guarantee funds were established--one for each group of institutions--within the Bank of Spain, offering protection to small depositors based on contributions from financial institutions. Separate Guarantee Funds were organized on March 28, 1980 with Bank of Spain matching the premiums contributed by banks. The maximum size of an insured deposit was adjusted several times.</p>	<p>A protracted banking crisis began in 1978, when the Bank of Spain had to rescue one of the smaller banks in distress. During 1978-83, a total of 51 problem banks, accounting for about 19 percent of total assets of the banking system as of end 1977, had to be intervened and appropriate disposition decisions made. The peak of the crisis came in 1982 and 1983, when two large banking groups, owned by large industrial conglomerates had to be taken over or temporarily nationalized. In all, two banks were closed, all others were either sold by the Deposit Guarantee Fund or taken over by a stronger institution.</p>

SPAIN

Financial Reform, Financial Crises and Their Dimensions--Overview (Concluded)

Interest Rates and Regulatory Reforms	Openness to Capital Flows	Exchange Rate System	Deposit Insurance	Financial Crisis
<u>URUGUAY</u>				
<p>Interest rates began to be liberalized in 1976, and all interest rate ceilings were abolished in 1979. Strong moral suasion was used in 1983 to bring about interest rate reductions, and interest ceilings were reintroduced in 1984, and abolished again in 1985, with the Banco República (state commercial bank) playing a major role in setting market interest rates.</p> <p>Prudential regulations were relaxed in some areas (e.g., limit on credit to individual borrowers) and strengthened in others (capital adequacy) during 1974-81. Asset quality supervision was inadequate, and somewhat strengthened following the crisis.</p>	<p>Capital flows were completely freed in 1974. Open position limits were introduced for all banks in 1984 to limit exposure to exchange rate risk.</p>	<p>In 1974, the peso became fully convertible.</p>	<p>No formal insurance scheme exists. De facto insurance was provided in some bank bailouts prior to the crisis.</p>	<p>Began in 1982 when many banks were incurring losses and liquidity problems. Three banks were rescued by the Central Bank in that year. Banking distress became more pronounced from 1984 onward. One bank was liquidated in 1984; the two largest private banks were intervened and taken over by the Banco República in 1985. The largest private bank became insolvent in 1987 and was recapitalized with the Banco República subscribing the bulk of the equity. Also in 1987, following a bank run, another bank was taken over by a subsidiary of the Banco República. These interventions, liquidations, and takeovers affected banks' accounting for over 30 percent of total deposits of the banking system.</p>

Financial Reform, Financial Crises and Their Dimensions--Overview (Continued)

Interest Rate and Regulatory Reforms	Openness to Capital Flows	Exchange Rate System	Deposit Insurance	Financial Crisis
<u>THAILAND</u>				
<p>Deposit rates are subject to ceilings. Money market rates, bill rates, and secondary market rates for government debt are relatively free.</p> <p>Central Bank lacked adequate supervisory and regulatory powers; this was remedied following the outbreak of the crisis.</p>	<p>Capital inflows are fairly free with significant scope for foreign borrowing by prime companies. Banks' foreign exchange operations are subject to open-position limits.</p>	<p>Determined on the basis of a basket of currencies.</p>	<p><u>No formal</u> deposit insurance system.</p>	<p>A serious crisis among finance companies--accounting for about 12 percent of total assets of the financial system--began in the autumn of 1983. Between 1983 and 1985, 19 finance companies were closed accompanied by runs. Subsequently, 25 companies were intervened, of which 6 were rehabilitated with soft loans, and others merged; support has continued for several others. Weaknesses of the banking sector--rising loan losses and declining net profits began to surface in the early 1980s. In 1984/87, this culminated in regulatory interventions government or central bank takeover, soft loans, recapitalization, and other support arrangements involving 5 banks that accounted for about 25 percent of total assets of the banking system.</p>

Demand for Credit in Argentina

A simple partial adjustment model was postulated for the demand for credit of the private sector:

$$(1) \quad (L/P)^*_t = a_0 + a_1 y_t + a_2 r_t + a_3 \text{inf}_t$$

$$(2) \quad (L/P)_t = v((L/P)^*_t - (L/P)_{t-1})$$

where L is the outstanding stock of loans; P is the wholesale price index; y is real GNP; r is the bank nominal lending rate; inf is the inflation rate (measured by the wholesale price index); and v is the speed of adjustment. The basic equation estimated was:

$$(3) \quad (L/P)_t = b_0 + b_1 y_t + b_2 r_t + b_3 \text{inf}_t + b_4 (L/P)_{t-1}$$

In addition, dummy variables were introduced for the crisis period and for the period in which interest rates were subject to controls. The dummy for the crisis period was statistically insignificant but the dummy for interest rates controls (D) was significant. The data used corresponded to the period beginning in the third quarter of 1975 and ending in the fourth quarter of 1987. The reduced-form equation was estimated using instrumental variables and it yielded the following results:

$$(4) \quad (L/P)_t = -4776 + 0.142y_t + 15.285r_t - 20.851\text{inf}_t - 430.230D +$$

$$\quad \quad \quad (-2.65) \quad (3.38) \quad (2.87) \quad (-4.44) \quad (-2.56)$$

$$0.916(L/P)_{t-1}$$

$$\quad \quad \quad (36.62)$$

(t-values shown in parentheses)

$$D.W. = 1.89$$

$$R^2 = 0.976$$

The signs for the interest rate and inflation coefficients are the opposite of what would normally be expected; the estimated coefficients indicate that demand for loans rises in real terms when the real cost of credit goes up. This finding is consistent with the hypothesis advanced by some authors, that the demand for credit in Argentina included a large fraction of loans that was insensitive to interest rates and on which interest was accrued and capitalized but not paid--i.e., effectively nonperforming loans. Thus, when nominal interest rates went up, the real stock of credit increased because interest accrued at a faster pace on those loans; when inflation increased, the value of those loans was eroded--which would account for the negative sign for the inflation rate. Estimates also reveal that interest rate controls had a negative effect on the real value of that debt, insofar as real interest rate

were negative over that period. Finally, the low speed of adjustment (0.084) suggests that the outstanding stock of debt was largely determined by the previous period stock--as could be expected in a case in which banks make few new loans and simply accrue interest on a large fraction of their portfolio.

# APPENDIX III

## Dealing with Banking Crises--A Stylized Framework

### OBJECTIVES

- Restore depositor confidence and protect some or all depositors
- Prevent hasty liquidation of assets
- Avoid undue monetary fluctuations
- Prevent moral hazard
- Protect solvent banks and debtors
- Protect the payment system
- Minimize budgetary costs (or costs to the insurance agency)
- Ensure equitable distribution of losses

### CONSTRAINTS

- Legislation
- Limits on budgetary resources
- External imbalances and constraints on foreign borrowing
- Political considerations in distributing the losses between Government, central bank, bank owners, depositors and borrowers
- Public interest and employment considerations, e.g., impact on competition and banking concentration, etc.

### Emergency measures

- Financial support and other lender-of-last-resort actions
- Guarantee deposits
- Disclosure of information (e.g., to dispell rumors or to revive confidence)
- Central bank intervention in management of weak banks

### Long-term measures

- New institution
- New legislation
- Strengthened supervision

### Measures to deal with failing banks

- Liquidation
- Merger
- Sale
- Recapitalization
- Restructuring

### Measures to deal with Borrower

- Assistance to reschedule domestic debt
- Technical assistance
- Subsidies and assistance to dollar debtors
- Negative real interest rates

Measures to Deal with Banks and Borrowers in Distress  
in the Sample Countries

I. Banks

Liquidation

- Bad loans managed by the central bank or supervision agency acting as receiver and liquidator.
- Bad loans assumed by deposit insurance agency
- Bad loans taken over by a separate government agency

Mergers

- With tax and regulatory incentives
- With special lines of subsidized credit for the central bank
- Information service to facilitate mergers

Sales

- Takeover by government
- Takeover by another bank or government financial institution, sometimes with medium-term credit from the central bank (for acquisition and investment)
- Sales after bad loans are assumed by the central bank, or deposit insurance agency (purchase and assumption)

Recapitalization

- Cash infusion from government or deposit insurance agency, or the central bank, or a special fund created with subscriptions from financial institutions.
- Capital contribution paid with government securities or central bank securities yielding market rates.
- Government agency (sometimes the central bank) underwriting new stock issues supported by fiscal and financial incentives
  - cheap loans to buy banks' shares
  - tax credit based on value of shares purchased
- Purchase of bad loans at par by a government agency with government funds or government securities
- Unconditional purchase of bad loans by the central bank which pays for it with central bank securities at market rate (or with central bank obligations in foreign currency)

- Purchase of bad loans by the central bank subject to various conditionality (on dividend distribution, repurchases of bad loans, provision of foreign currency loans to the central bank, etc.)
- Soft loans from the central bank to be invested in government or central bank securities

Restructuring

- Change in management, internal controls, and operating procedures
- Authorization of new product or service lines

II. Borrowers

- Central bank credit to banks at low rates to encourage consolidation and stretching out of firm debt
- Government subsidies to banks to facilitate rescheduling of firm debt
- Credit guarantee schemes
- Preferential exchange rate for dollar debtors, interest subsidies on foreign exchange swap operations, exchange insurance programs
- Controls on interest rates, to bring about negative real rate for borrowers and depositors (a reversal of previous deregulation)
- Technical assistance to borrowers
- Conversion of firm debt into equity held by the commercial bank
- Legislation on debt refinancing and temporary debt moratorium
- Partial write-off of accrued interest or principal by the central bank (or the government agency) after assuming the problem loan.

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INTERNATIONAL MONETARY FUND

MAURITIUS

1990 Staff Report on the Interim Article IV  
Consultation Discussions

Prepared by the Staff Representatives  
for the 1990 Interim Article IV Consultation

Approved by Jacques R. Artus and Hiroyuki Hino

July 5, 1990

I. Introduction

The discussions for the interim Article IV consultation with Mauritius were held in Port Louis during the period April 24-May 9, 1990. The mission <sup>1/</sup> held discussions with the Deputy Prime Minister and Minister of Finance, Mr. Lutchmeenaraidoo; the Minister of Trade and Shipping, Mr. D. Gungah; the Governor of the Bank of Mauritius, Mr. Ramphul; and the Financial Secretary, Mr. Baguant. The mission also met with other senior officials from government ministries and with representatives of various public agencies and the private sector.

Mauritius is on the bicyclic consultation procedure; the last Article IV consultation discussions were held during April 20-May 4, 1989; the staff report (SM/89/135) was issued on July 5, 1989; and the consultation was concluded by the Executive Board on August 14, 1989 (EBM/89/104). On that occasion, Directors noted that economic and financial performance in 1988/89 had been less favorable than anticipated, as inflation had risen and the rate of economic growth had slowed. While noting that tight labor markets and weather-induced shortages of certain food crops had played a role, they observed that wage awards and the fiscal stimulus had been too large. Directors endorsed the policy to shift to more capital-intensive production and urged a closer linkage of wage awards to productivity, in view of the importance of maintaining competitiveness. Directors stressed the need to reduce the fiscal stimulus and underscored the contribution to be made by reducing subsidies and restoring the revenue/GDP ratio. They endorsed the authorities' intention to introduce indirect monetary controls and to strengthen bank supervision. Directors felt that continuing with a flexible exchange rate policy would be important, especially in view of the need to further increase international reserves.

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<sup>1/</sup> Consisting of Messrs. Gibson, Franks, Alter, Harris (EP), and Miss Duane (assistant) (all AFR).