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The Korean Financial Crisis of 1997—A Strategy of Financial Sector Reform

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Abstract

After years of strong performance, Korea's economy entered a crisis in 1997, owing largely to structural problems in its financial and corporate sectors. These problems emerged in the second half of that year, when the capital inflows that had helped finance Korea's growth were reversed, as foreign investors—reeling from losses in other Southeast Asian economies—decided to reduce their exposure to Korea. This paper focuses on the sources of the crisis that originated in the financial sector, the measures taken to deal with it, and the evolution of key banking and financial variables in its aftermath.

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I. INTRODUCTION

After many years of strong performance, Korea's economy entered a crisis in 1997, largely owing to structural problems in its financial and corporate sectors. These problems came into the open in the second half of that year, when the capital inflows that had helped finance Korea's economic growth were reversed, as foreign investors—reeling from losses in other Southeast Asian economies—decided to lower their exposure to Korea. This paper focuses on the sources of the crisis that originate in the financial sector, discusses the measures taken to deal with it, and reviews the evolution of key banking and financial sector variables in the aftermath of the crisis.

Several studies have tried to identify empirically the macroeconomic factors that precede a financial crisis in a country, within the theoretical framework of the first (Krugman 1979) and second (Obstfeld 1994) generation models of currency crises. Kaminsky and Reinhart (1996) examine episodes of banking and currency crises for 20 countries and identify variables that behave differently in tranquil and in crisis periods. They find that financial crises are generally preceded by recession, decline in the terms of trade, stock market crash, real exchange rate appreciation, lending booms, and increases in the money multiplier and the real interest rate. Demigurc-Kunt and Detragiache (1998) analyze banking crises for a similar sample of countries with a multivariate logit model and find that low GDP growth, excessively high real interest rates, high inflation and terms of trade shocks significantly increase the probability of a banking crisis. Kaminsky, Lizondo and Reinhart (1998) identify variables that, when they exceed a certain threshold, can signal the emergence of a currency crisis within the following 24 months. The variables that perform best in this role are exports, the real exchange rate, the ratio of broad money to gross international reserves, output, and stock prices.

In summary, variables associated with the existence of internal and external imbalances and with price and credit cycles appear to be the best candidates for a set of macroeconomic vulnerability indicators. Some authors, including Aldeman and Nak (1998) and Park (1998), have already discussed the macroeconomic environment in which the Korean financial crisis developed. With a view to provide the background for the discussion—and assess the relevance of the models discussed above for the case of Korea—we briefly review some of these indicators for the period 1993-1997 (see Table 1).

GDP grew strongly in 1994-96, fueled by the expansion in investment and exports. Activity moderated in late 1995 and 1996, in response to a tightening of monetary policy and less favorable export prospects, although GDP still posted a 7 percent growth rate in 1996. During 1994-96, unemployment remained low by OECD standards, averaging about 2 percent during the period. The fiscal position was strong, with a surplus of about 0.4 percent of GDP recorded during the period, and public debt was below 11 percent of GDP, of which only about one-fifth was foreign debt.

Table 1. Korea: Indicators of Macroeconomic Vulnerability

	1993	1994	1995	1996	1997
Internal balances					
Real GDP (percent change)	5.8	8.6	8.9	7.1	5.5
Consumption	5.3	7.0	7.2	6.9	3.5
Gross Fixed Investment	5.3	12.0	11.7	7.1	-3.5
Unemployment rate (percentage)	2.8	2.4	2.0	2.0	2.6
Consolidated Central government (in percent of GDP)					
Balance	0.3	0.5	0.4	0.3	0.0
Outstanding debt	10.1	8.0	6.9	6.2	10.9
Domestic	8.0	6.2	5.5	4.9	7.5
Foreign	2.1	1.9	1.5	1.3	3.3
Prices and Credit					
Prices (percentage change)					
Consumer Prices (end of period)	5.8	5.6	4.7	4.9	6.6
Stock Prices (end of period)	27.7	18.6	-14.1	-26.2	-42.2
Real Estate Prices (end of period)					
Residential Land	-5.7	-4.0	0.1	0.5	0.5
Commercial Land	-5.1	-3.6	0.2	0.7	0.5
Interest Rates (end of period)					
Call market Rate	11.5	14.1	11.0	12.5	21.3
Yield on certificates of deposit (91 days)	12.3	14.9	11.7	13.5	18.6
Yield on Corporate Bonds	12.2	14.2	11.7	12.6	24.3
Real Interest Rate	5.7	8.5	6.3	7.6	14.7
Exchange Rate (end of period)					
Won per U.S. dollar	808.1	788.7	774.7	844.2	1,695.8
Percentage Change	2.5	-2.4	-1.8	9.0	100.9
Won per Yen (percentage change)	15.4	8.6	-8.4	-3.4	79.3
REER (percentage change)	0.3	-1.3	4.0	-1.8	-36.0
Money and Credit (annual percentage change)					
M2	17.3	17.6	13.7	17.8	21.1
Domestic Credit	12.3	18.5	14.1	20.1	21.9
Money Multiplier (M2)	5.6	5.5	5.6	6.4	9.0
M2 Velocity	2.6	2.6	2.6	2.4	2.3
M2/Usable Gross Reserves	6.9	6.6	7.0	7.2	13.2
External balances					
Trade					
Export f.o.b. (in billions of US$)	82.1	95.0	124.6	130.0	138.6
Import f.o.b (in billions of US$)	79.8	97.8	129.1	144.9	142.5
Current Account balance (in percentage of GDP)	0.3	-1.0	-1.9	-4.7	-1.9
Terms of Trade (percentage change)	-1.1	1.5	-3.6	-12.3	-11.3
Capital Flows (in percentage of GDP)					
Net private capital flows	1.6	3.1	3.9	4.9	2.8
Net direct investment	-0.2	-0.3	-0.4	-0.4	-0.2
Net portfolio investment	3.2	1.8	1.9	2.3	-0.3
Usable gross reserves					
In billions U.S. dollars (end of period)	20.2	25.6	28.5	29.4	9.1
In months of imports of goods and non factor services	2.6	2.6	2.4	2.0	0.6
External Debt					
In billions of U.S. dollars	67.0	88.7	119.7	157.5	154.4
o/w short term (in percentage)	60.1	65.8	65.7	63.5	44.3
In percent of GDP	20.1	23.3	26.4	32.5	34.9

Sources: Bank of Korea, Monthly Statistical Bulletin; IMF, International Financial Statistics; data provided by the authorities; and staff estimates.

Prices were stable during the period, with no major fluctuations or boom-bust cycles. Consumer price inflation was low and stable, fluctuating around 5 percent per annum. Stock prices peaked in 1994, and remained stable until mid-1996, when a gradual decline started. Real estate prices dropped significantly in 1993-94, following the adoption of measures adopted to discourage speculation, but remained stable thereafter. Interest rates were also stable, with the yields on corporate bonds hovering around 12 percent. Real interest rates were positive during the period, fluctuating around 7 percent. The exchange rate was managed within a small daily band of fluctuation of +-2 ½, and oscillated around 800 won per dollar during the period.

Monetary aggregates grew rapidly. Broad money increased at an annual average rate of 17.5 percent, led by a strong expansion in domestic credit, whose rate of growth rose from more than 12 percent in 1993 to about 20 percent in 1996 (almost twice the rate of growth of nominal GDP). The ratio of M2 to international reserves reached 7.2 percent, from 6.6 percent in 1994. The M2 multiplier increased significantly in 1996l. Over the period, velocity slowed down gradually as a result of financial deepening.

Developments in the external sector followed closely the evolution of the yen. From 1993, the appreciation of the yen brought about a sharp increase in export earnings in Southeast Asia. However, the trend was reversed in 1995-96, and the subsequent deterioration of the terms of trade (about 12 percent in 1996) coincided with a widening of the current account deficit to the equivalent of almost 5 percent of GDP in 1996. This external deficit was financed by private capital inflows, attracted by the interest rate differentials. The ratio of total external debt to GDP increased significantly to reach 1/3 in 1996. More importantly, the proportion of short term debt to total debt increased, amounting to about 2/3 in 1996. These capital inflows were mainly short term portfolio investment, whereas net direct investment was negative during 1993-96. In this context, international reserves decreased from the equivalent of 2.6 months of imports in 1993 to 2 months in 1996.

The above discussion suggests that the indicators in Table 1 provided mixed signals about the imminence of a crisis. Internal macroeconomic fundamentals, such as GDP growth, the fiscal position, CPI inflation, and interest and exchange rate stability indicated strength. However, some indicators related to external imbalances—such as the widening current account deficit and the foreign borrowing boom—and to price cycles—such as the decline is stock prices—were an increasing source of concern. Nevertheless, none of the major leading indicators of crises, such as a recession, a volatile behavior in prices or a major decrease in external reserves was flashing a clear red light. Therefore, this evidence provides little support for the explanations suggested by Kaminsky and others on macroeconomic predictors of a crisis. In fact, Hardy and Pazarbasioglu (1998) apply a probit model to a similar set of variables and conclude that a model based only on macroeconomic variables would have largely missed the recent Asian crises.

Korea's apparent macroeconomic success deviated attention from emerging structural problems associated with the strategy of government-led development and directed lending that had been implemented since the 1960s. This strategy reduced the flexibility of the economy and eroded its ability to respond to a strong unexpected shock. In their analysis of banking crises, Demigurc-Kunt and Detragiache (1998) suggest that the structural characteristics of an economy in general, and of its banking sector in particular, play a fundamental role behind systemic banking problems. Indeed, lack of transparency in financial and corporate sectors, weak governance, and poor regulatory systems hampered the efficient functioning of markets in disciplining the Korean economy.

Thus, the rest of the discussion in this paper focuses on Korea's financial sector, its relation with the crisis, and the measures adopted to deal with the sector's problems. Structural factors, namely the weaknesses of the financial system and an imprudent corporate finance structure, are discussed in sections II and III as major contributors to the crisis. Section IV reviews the development of the crisis, and section V discusses the measures taken by the authorities to deal with the problem. Section VI analyzes the evolution of some variables typically associated with banking crises, such as the behavior of deposits, credits, and interest rates, within the broader macroeconomic background that followed the crisis. The final section presents the conclusions of the paper and the lessons learned from the crisis.

II. THE FINANCIAL SECTOR ENVIRONMENT BEFORE THE CRISIS

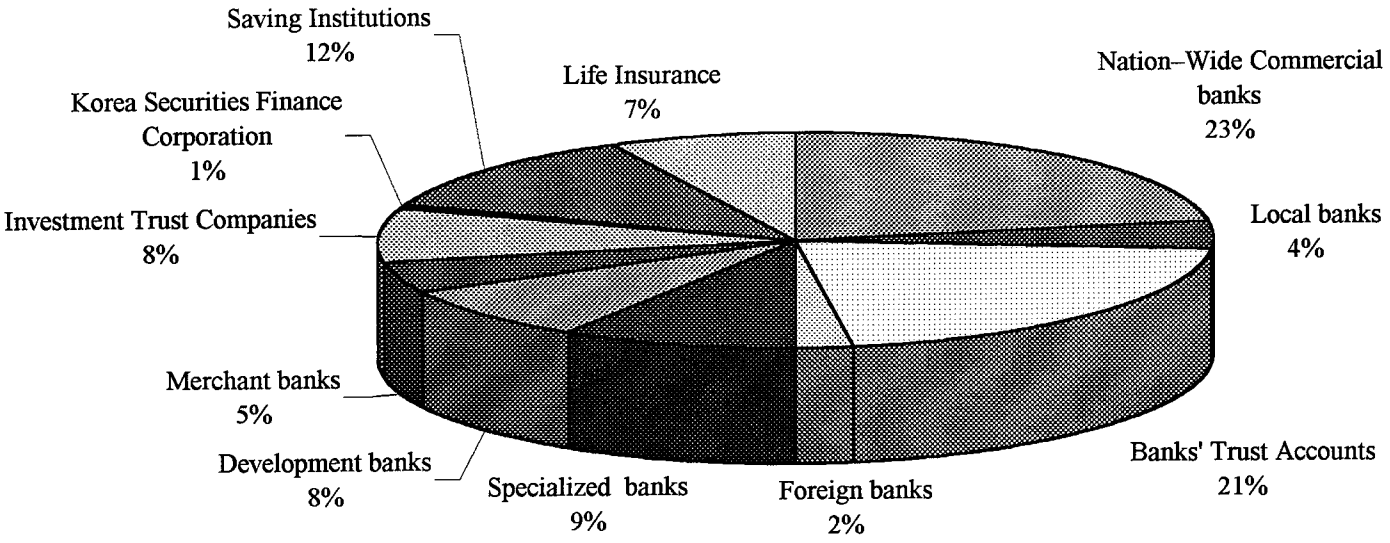
Because of its crucial role in the development of the economy as an instrument of the government for industrial policy, we review in this section the evolution of Korean's financial sector and its situation before the crisis. We analyze the structure of the financial system, the evolution and process of liberalization and the regulatory and supervisory stance.

A. The Financial System

The Korean financial system comprises three main types of institutions: commercial banks; the specialized and development banks; and nonbank financial institutions (NBFIs). In addition, there is an informal curb market. A notable feature of the financial system has been the growing importance of the relatively unregulated NBFIs and the off-balance sheet exposure of commercial banks to these institutions through the guarantee of corporate bonds and commercial paper.

Commercial banks account for over half the assets of the financial system (see Figure 1). They are owned by small shareholders (until recently, no shareholder could own more than 4 percent of a nation-wide commercial bank or more than 15 percent of a regional bank), and engage in both traditional short-term banking operations and long-term financing of the corporate sector, including leasing. Commercial banks comprise 16 nationwide banks, 10 regional banks, and numerous (52, as of September 1997) foreign banks. Commercial banking is highly concentrated, with the top eight banks accounting for about two-thirds of

Figure 1. Korea: The Financial System, Share in Total Assets, June 1997



Source: Bank of Korea.

commercial bank assets (excluding trust accounts). Five of these have been in business for a long time and used to provide most of the government-directed policy lending. Regional banks were established to develop regional economies, particularly to foster the growth of small- and medium-sized enterprises. Foreign banks have been allowed to open branches since 1967, although their market share is still very small. Until the creation of a consolidated supervisory body—the Financial Supervisory Commission (FSC)—as of April 1998, commercial banks were supervised by the Office of Bank Supervision at the Bank of Korea.

Commercial banks also operate trust accounts which are maintained separately from their banking business, but managed as one entity.[2] Trust accounts have grown rapidly in recent years (they accounted for close to 40 percent of total commercial bank assets as of end-1997) largely because they have been less regulated than regular commercial bank business.[3] While interest rates were fixed, banks could pay and charge higher interest rates on operations from the trust accounts than on operations from the bank account. Moreover, trust accounts are not subject to the same prudential and supervisory standards as normal banking business. For instance, there were no specific exposure limits or provisioning rules on loans from trust accounts, and they were not subject to reserve requirements. In addition, at least 40 percent of lending from banking books must be for small- and medium-sized enterprises. Hence, trust accounts, which are considered part of nonbank financial intermediation, have been commonly used to circumvent regulations on commercial bank lending.

Specialized and development banks, which are partly or wholly owned by government, were established in the 1950s and 1960s to provide funds to specific strategic sectors.[4] They account for about 17 percent of financial system assets. Although specialized banks can borrow from the government, deposits constitute their main source of funding. Funding for development banks, which are wholly government-owned, come mainly from government-guaranteed bonds which are issued in domestically and abroad. KDB, the largest development

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[2]In 1970, the trust business was assigned exclusively to Korea Trust Bank, which merged with Seoul Bank in 1976. By end-1995, all deposit money banks and development institutions with the exception of Export-Import Bank of Korea and foreign banks were allowed to engage in trust businesses.

[3] In principle, trust account are operated on the client's own account and not counted when computing a bank's capital adequacy ratio. In practice, however, a large segment of trust accounts in Korea are economically like deposits, for the bank guarantees both the principal and a predetermined yield. The deposit guarantee issued by the government in 1997 is regarded as covering trust accounts.

[4]There are four specialized banks—the Industrial Bank of Korea and three banks centered on agricultural, fisheries, and livestock cooperatives. Development banks comprise the Korean Development Bank (KDB), Korea Export-Import Bank (KEXIM), and the Long-term Credit Bank.

bank, was established in 1954 to supply long-term credit to major industries. Today, its assets are heavily concentrated in large corporations mainly financing fixed investment (including infrastructure projects). These banks have traditionally not been subject to the same prudential standards and supervision as commercial banks and were overseen by the Ministry of Finance and Economy until April 1998.

Nonbank financial intermediaries (NBFIs) comprised 30 percent of financial system assets at end-1997 and consist of three types of institutions: investment institutions, savings institutions, and insurance companies. Of these, investment institutions, which comprise merchant banks, investment trust companies, and securities companies, are the largest in terms of assets, followed closely by savings institutions. NBFIs have been directly or indirectly owned mainly by chaebols and other large shareholders. They are used to finance activities within the chaebol group and have become an increasingly significant source for intermediating chaebol notes and other paper. In addition, NBFIs, including trust accounts at commercial banks, have provided a means to circumvent the various restrictions on commercial bank lending (see next section).

- Most of the 30 merchant banks in operation in 1997 were owned by chaebols, although some were partly owned by foreign banks. Of these merchant banks, 24 were first established in the 1970s as short-term finance companies when the government attempted to reduce the importance of curb (informal) markets. These securities houses were converted to merchant banks during 1994-96. Merchant banks, and their predecessors, were subject to much laxer regulations than commercial banks and minimally supervised.[5] They attracted an increasing share of funds by offering cash management accounts, commercial paper, and other instruments and invested these funds mainly in short-term commercial paper and commercial notes. Merchant banks also buy and sell promissory notes and commercial paper, notably to the commercial banks' trust accounts.

- Investment trust companies, most of whom are owned by securities companies, were established in the early 1970s to develop the stock and bond markets. They raise funds through cash management accounts and by issuing their own paper. They purchase and trade commercial paper, government and corporate bonds, and other securities. Like other NBFIs, the activities of investment trust companies have grown rapidly in recent years.

- Securities companies are mostly owned by chaebols and act as underwriters, dealers for their own accounts, and brokers. They raise funds by offering cash management

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[5]Although merchant banks were, in principle, supervised by the MOFE, in practice, supervision was minimal; there were no asset classification, capital, or provisioning rules. Merchant banks are, since April 1998, supervised by the Financial Supervisory Commission (FSC).

accounts, and borrowing through repurchase agreements, and use these funds to trade and discount stocks, bonds, and commercial paper. Intermediation by securities companies (mainly the discounting of commercial paper) has risen rapidly since last December because they picked up the bulk of the business previously carried out by the closed merchant banks.

- Most savings and insurance companies were also established in the 1970s with the purpose of tapping small-scale curb market money and bringing new financial services to households and SMEs. Savings and insurance companies raise funds through installment savings and insurance policies, respectively.[6] The savings companies make loans to households and SMEs, but insurance companies have a portfolio structure markedly tilted towards corporate bonds and money market instruments.

In addition, there is the curb market. The main lenders in these informal market are believed to be rich individuals and lending brokers. The main borrowers are SMEs with weak credit-standing and individuals with limited access to formal financial institutions. The curb market is believed to have steadily contracted since the establishment of the NBFIs in the 1970s and deregulation of interest rates in the early 1990s.[7]

B. Financial Development and Reform Before the Crisis

During the 1960s and 1970s, Korea embarked on an outward-oriented industrialization strategy spear-headed by large industrial firms (chaebols) which were fostered by government policies. The financial system played a central role in this strategy by intermediating Korea's substantial household savings to finance investment and expansion by export-oriented firms.[8] In the 1970s, following the Presidential Declaration on Heavy and Chemical Industrialization Policy of January 1973, the government encouraged large companies to invest in industries it identified as strategic such as shipbuilding, petrochemicals, steel, consumer electronics, automobiles and construction (see Kihwan and Leipziger (1997) for a detailed description of the Korean government-led strategy). Government support for industry was massive,

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[6]Credit unions and mutual savings and finance institutions are part of savings and insurance companies. They have a long history, mainly receiving deposits and providing finance for their members. The aggregate assets of these three sectors account for about 5 percent of the total financial market.

[7]Although an accurate measurement of the size of the curb market is difficult, OECD (1994) estimates suggest that in the mid-1990s, total lending in the curb market was between 2 to 5 percent of the total loans of the formal financial sector. In contrast, in the mid-1970s, the curb market was estimated to account for more that one-third of all credit extended in the economy.

[8]Korea's private savings exceeded 25 percent of GDP for much of the 1980s and early 1990s.

including import protection, fiscal preferences and, most importantly, preferential access to subsidized credit (so-called policy loans).[9] The potential for subsidization was large due to the complicated system of interest rate ceilings that prevailed in the 1970s, when real bank interest rates were negative during most of the period. The borrowing cost differential between protected and unprotected industries was about 2-3 percentage points (see Kiwhan and Leipziger, 1997) during 1972-1884, at a time when nominal lending interest rates averaged 16 percent.

The government intervened heavily in the banking system to channel credit to desired industries. Commercial banks had been nationalized in the early 1960s, and the government influenced the sectoral allocation of credit both directly through the appointment of bank management and credit controls, and indirectly through various regulations and incentives. Foreign borrowing was controlled and, in the late 1970s in particular, foreign financing of investment in heavy and chemical industries was guaranteed. In addition, interest rates were administered, financial innovation was restricted, and competition in the banking system was limited. These policies resulted in a tightly-controlled, government-administered financial system characterized by chronic excess demand for credit.

In the mid-1970s, the government imposed a credit control system on the chaebols in response to concerns over the concentration of economic power and to reduce their reliance on bank loans. Each chaebol was designated a main bank to examine its financial restructuring plans and to set ceilings on working capital.

The government also took some steps to develop capital markets in order to reduce corporate reliance on bank borrowing. Direct financing through the equity markets was given a boost when corporations that went public on the stock exchange were given more favorable tax treatment and preferential access to bank loans. The government directed large corporations to issue shares at below-market prices and use the proceeds to repay bank loans. It also encouraged the formation of investment trust companies to buy and hold stocks and bonds.

A program of gradual domestic financial-sector reform was introduced in the early 1980s.

- Commercial banks were privatized and allowed to expand into retail banking services. Entry into commercial banking was liberalized and six new commercial banks were established between 1980 and 1992. Entry barriers for nonbank financial institutions were also lowered.

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[9]The National Investment Fund (NIF) was created in 1974 for this purpose, and was funded by the compulsory deposit of savings from pensions, savings and postal savings accounts, and by other purchasers of NIF bonds, such as life insurers.

- In 1982, direct central bank controls on domestic credit were replaced by indirect control methods such as discount lending.[10]

- The development of bond and money markets was encouraged through the introduction of a number of new financial instruments such as repurchase agreements (RPs); certificates of deposit (CDS); and commercial paper (CPs). Securities houses were allowed to operate cash management accounts. The first Korean bond rating agency was established and securities companies were allowed into the Korea Stock Exchange.

- Banks were allowed to underwrite privately placed corporate bonds, and issue CDS, which were not subject to legal reserve requirements.

- Interest rates were partially liberalized. In 1987, many preferential lending rates were abolished, although most interest rates continued to be set administratively. Policy loans to six industries were discontinued.[11] Interbank (call) rates were unified and interest rates on corporate bonds were liberalized.

The reform of the financial system was, however, partial; many controls remained, particularly on commercial bank lending and interest rates. In an effort to reduce the reliance of the chaebols on bank borrowing, the government tightened the credit control system by setting a ceiling on the share of bank credit to chaebols. In addition, banks were required to meet minimum credit targets (initially set at one-third of new lending) for SMEs.

The deep recession of the early 1980s deteriorated the asset quality of banks when many conglomerates that had invested in heavy industry ran into debt servicing difficulties. In the mid-1980s, as part of a program to restructure troubled corporations, the government pressured banks to rescue troubled companies by restructuring their debt on favorable terms (by extending maturity, lowering interest rates, or granting new loans). It also mandated industrial consolidation by forcing sound corporations to take over ailing ones and requiring commercial banks to grant preferential loans to merging companies. In return, banks received subsidized policy loans from the BOK.[12]

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[10]Commercial banks were allowed to discount bills at below-market rates at the BOK's rediscount facility which had separate windows corresponding to various government priorities (e.g., for loans to import machinery and develop heavy industry).

[11]These were iron and steel, petrochemicals, nonferrous metal, textiles, machinery, electronics, and shipbuilding.

[12] The troubled corporation's main bank typically assessed the health of the company and the Office of Bank Supervision coordinated the terms of the financial support agreed between the

(continued...)

Attempts to deregulate interest rates were also thwarted. In December 1988, a comprehensive plan was announced to deregulate most bank and nonbank lending rates as well as interest rates on financial debentures and money market instruments. However, it was mostly reversed in subsequent years mainly because the strong rise in market interest rates during the economic upswing in 1988-1990 created political pressure from those who had previously benefited from preferential access to low-interest credit. A new deregulation plan was announced in 1991 which included many of the elements of the 1988 package. However, the downturn in the stock market in the beginning of 1992 slowed adoption of the plan.

Partial reforms in the domestic financial sector were accompanied by selective measures to open up the financial system to foreign competition and to ease restrictions on international capital movements. Indirect foreign investment in the Korean stock market through special investment funds was permitted on a limited scale. Restrictions on foreign direct investment as well as on the operations of foreign banks, life insurance companies, and securities firms were relaxed.

Financial system reform gained momentum in the early to mid-1990s.[13] In 1993, a far-reaching three-stage financial liberalization plan was announced, to be implemented over the next four years. Under this plan, interest rates were almost fully liberalized and restrictions on issue volumes and permissible maturities of a variety of financial instruments and securities were gradually eased.

- The first stage (taken in 1993) involved the deregulation of interest rates on all loans (other than policy loans), time deposits, and a wide range of bonds; a reduction in the interest rate subsidy on policy loans; simplification of credit control criteria for large corporations; increased transparency of regulations governing mandatory lending to SMEs; and introduction of auctions for certain public bonds. In addition, the practice of government appointment of commercial bank managers was discontinued.[14]

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[12](...continued)
main bank and the company. The MOFE approved the restructuring agreement. All measures related to this exercise have expired (Gobat (1998)).

[13] The preparation for accession to the OECD played a crucial role in accelerating the reform process.

[14] Nevertheless, shareholders remained but one party in the choice of bank authorities. In 1993, the Bank of Korea's Office of Bank Supervision established a procedure whereby the chairman of a commercial bank would be selected by a committee consisting of representatives of shareholders, corporate clients, general customers, and ex-bank presidents. Once chosen by the committee, the appointment of the chairman needed to be ratified by a general shareholder meeting.

- The second stage (1994-95) included further deregulation of interest rates; liberalization of restrictions on issuing CDS; substitution of an aggregate credit ceiling for the system of automatic rediscount of policy loans by the BOK;[15] and the elimination of credit controls on all conglomerates other than the top ten.

- the last stage (1996-97) involved deregulation of all deposits rates other than those on demand deposits; a lowering of mandatory lending ratios for SMEs applied to regional banks; further liberalization of restrictions on issuing CDS, CPs, RPs, and commercial bills; and allowing the establishment of bank branches by domestic and foreign financial institutions.

By November 1997, restrictions on short-term paper and all interest rates, other than those on demand deposits, had been liberalized. Maturity restrictions for CPs and corporate bonds had been scrapped, with only a 30-day minimum maturity requirement remaining for banks' CDS. Restrictions on issue volumes for CDS, RPs, and CPs had been eliminated. In addition, the bulk of Monetary Stabilization Bonds are issued through auction bidding.

Policy loans were substantially scaled back during the 1990s.[16] Certain policy loans such as equipment loans for export industries were transferred to the budget. The remaining policy loans at the Bank of Korea, the most significant being the aggregate credit ceiling (set at W 5.7 trillion as of June 1998), are being phased out. These loans amounted to less than 2 percent of GDP at end-1997 and were aimed primarily at supporting SMEs.

The capital account was also progressively liberalized, in tandem with the deregulation of the domestic financial system. The list of industries open to foreign direct investment was gradually expanded. In addition ceilings on stock investments by nonresidents were progressively raised, with the aggregate ceiling reaching 26 percent, and the individual ceiling 7 percent, by November 1997. Korean companies were allowed to borrow abroad in international bond markets for specific purposes—such as investment in export facilities—with prior notification. In addition, foreign investment was permitted in certain types of public bonds and nonguaranteed corporate and SME bonds. However, direct foreign borrowing by Korean firms remained subject to tight restrictions.[17]

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[15] Previously, the BOK had extended loans automatically in amounts corresponding to the proportion in which banks had provided loans to SMEs and the export sector. Under the new system, the BOK set individual credit ceilings for each bank, within an aggregate ceiling for the entire banking system.

[16]Policy loans are estimated to have declined from 60 percent of total bank loans in 1979 to 3 percent by end-1997.

[17]Access to foreign loans was restricted to selected public enterprises, and, on a limited basis,

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Although government involvement in bank lending decisions was gradually withdrawn, banks developed few skills in credit analysis or risk management. Lending decisions were still largely based on the availability of collateral rather than on an assessment of risk or future repayment capacity. Because of their large exposures and inadequate capitalization, banks were generally in a weak position relative to their chaebol clients. Reflecting the history of directed lending, banks did not insist on, or receive, full financial information from chaebols. In addition, basic accounting, auditing, and disclosure practices were significantly below international best practice.[18] Furthermore, the relative illiquidity of the bond market and the lack of transparency in the equity market (due to lax disclosure standards), impeded the capital markets' role in ensuring sound corporate governance. Prudential regulations and, specially, supervision were not strengthened as they should have been in tandem with banks being granted greater independence in lending decisions, and with the liberalization of domestic financial markets and the capital account. In a sense, in the absence of a concomitant strengthening of bank credit management skills and prudential supervision, the partial financial and capital account liberalization proceeded without appropriate mechanisms for the evaluation and the control of risk.

C. Prudential Regulation and Supervision Before the Crisis

The move towards a deregulated financial system and a liberalized capital market requires a coordinated and detailed attention to banking supervision and regulation, particularly to manage a situation of increasing capital flows and new lending opportunities. Korea's supervisory framework was ill prepared to meet such challenge.

Commercial banks were under the direct authority of the Monetary Board (the governing body of the Bank of Korea) and the Office of Banking Supervision (OBS). However, specialized banks and NBFIs were under the authority of the Ministry of Finance and Economy, although MOFE delegated on-site examination of NBFIs to the OBS. This lack of a unified system supervision and regulation comprising both bank and nonbank financial institutions, together with the weak supervision performed by MOFE on NBFIs, created the conditions for regulatory arbitrage and the development of risky practices, especially among commercial banks' trust business and merchant banks, that were crucial for the buildup of the crisis.

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[17](...continued)
to companies with foreign ownership. In mid-1997, the range of approved borrowers was expanded to include all enterprises, provided the borrowing was used to finance imports related to export activities.

[18] For example, practices such as consolidated accounting and marking to market were absent in Korea.

The 1992 reform plan contemplated several proposals to bring prudential regulations close to international standards. The BIS capital adequacy ratios were made compulsory for commercial banks, with the objective of reaching 8 percent by end-1995. This replaced the previous scheme, whereby a bank should always maintain an aggregate amount of equity capital equivalent to at least one twentieth of its outstanding liabilities. In 1995, the OBS introduced a reporting system based on the CAMEL framework, designed to give early warning of problems. In addition, the government introduced, effective January 1997, a deposit insurance scheme funded by low premiums contributed by banks. The scheme provided for full coverage of all insured deposits held by the depositor of the failed bank, not exceeding the amount of W20 million per individual depositor. However, despite these reforms, several aspects of the Korean supervision and regulations made some of these improvements, such as the introduction of a capital adequacy ratio, ineffective.

The standards for loan classification and provisioning were significantly laxer in Korea than in many OECD and developing countries. Nonperforming loans were defined as loans that had been in arrears for six months or more, compared to a standard definition of three months or more. Bad loans were defined as the portion of nonperforming loans not covered by collateral.[19] The classification system was based on the loan's servicing record and the availability of collateral without regard to the borrower's future capacity to repay. Banks were required to set up provisions for loans losses at the end of each fiscal year sufficient to cover 100 percent of expected losses. This was based on credit classifications and consisted of 0.5 percent of normal credits, 1 percent of precautionary credits, 20 percent of substandard credits, and 100 percent of doubtful and estimated loss credits. Losses were not expected to be over 2 percent of total loans; in fact loan loss reserves over 2 percent were not tax deductible, discouraging banks from provisioning in excess of that figure. The results of these regulations can be seen in Table 2, where aggregate provisions only exceed 2 percent as of 1998, well after the start of the crisis.

Provisioning rules for securities holdings and accounting standards also fell short of international best practice. Marketable instruments were recorded in the books of the bank at acquisition cost, and were provisioned only after their market value fell below that cost for three consecutive years, when the book value was classified as substandard and the difference between book and market value as doubtful. Accounting standards did not require consolidated statements encompassing the parent bank and its subsidiaries.

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[19]In fact, in many cases only bad loans were reported as nonperforming, giving an even more misleading image of the soundness of the Korean banking system. BIS (1997) reports that nonperforming loans as a percentage of total loans are only 0.8 percent in 1996, the figure corresponding to bad loans; however, the "real" figure, according to the Korean definition of NPLs, was 4.1 percent (see Table 2)

Table 2. Korea: Indicators of Financial System Soundness

	1993	1994	1995	1996	1997Q1	1997Q2	1997Q3	1997Q4	1998Q1	1998Q2
Vulnerability Indicators										
					(In billion US$)					
Foreign Exchange Position	...	...	...	62	56.4	67.1	74.4	62.6	...	...
On balance sheet	...	...	...	54.2	44.6	48.9	44.4	48.9	...	...
Off balance sheet	...	...	...	7.8	11.8	18.2	30	13.7	...	...
					(Percentage of total assets)					
Borrowing in Foreign Exchange										
Commercial Banks	4.7	5.9	6.6	7.3	8.0	7.9	7.0	4.0	6.1	6.7
Investment in Securities										
Commercial Banks	10.2	11.1	12.4	12.8	12.9	13.7	13.9	13.7	15.1	16.8
Merchant Banks	12.4	15.1	13.7	16.5	16.3	14.9	16.6	15.8	16.9	20.4
Credit guarantees										
Commercial Banks										
On balance sheet	19.6	17.8	15.1	14.7	...	...	...	12.9	...	10.0
Off balance sheet	...	...	9.2	8.0	...	...	...	5.1	...	4.5
Merchant Banks										
On balance sheet	...	...	...	...	...	...	...	...	...	...
Off balance sheet	36.8	45.8	57.5	49.3	55.7	48.4	51.6	36.4	...	25.7
Solvency Indicators										
					(In percentage)					
Return on capital	6.36	6.38	4.66	4.33	...	...	...	-18.2	...	-25.3
Return on assets	0.46	0.46	0.30	0.27	...	...	...	-0.81	...	-1.44
Capital Adequacy Ratio (CAR) 1/										
Commercial Banks	11.0	10.6	9.3	9.1	...	...	...	7.1	8.0	9.1
Merchant Banks	...	...	...	...	...	...	...	1.9	6.7	8.1
					(Number of banks)					
Institutions not meeting minimum CAR										
Commercial Banks	1	0	1	0	...	...	...	14	13	8
Merchant Banks	...	...	...	...	...	...	...	28	14	6
					(Percentage of total loans)					
Non performing loans 2/ 3/										
Commercial Banks	7.4	5.8	5.2	4.1	5.6	5.7	6.9	6.0	7.7	8.6
Merchant Banks	...	...	...	...	...	...	...	3.5	...	9.6
Bad Loans 2/ 4/										
Commercial Banks	1.7	0.9	0.9	0.8	1.4	1.6	2.3	2.7	3.4	3.2
Merchant Banks	...	...	...	...	...	...	...	2.1	...	5.4
Provision for loan losses										
Commercial Banks	1.2	1.2	1.4	1.4	...	...	...	1.9	1.5	3.0
Merchant Banks	1.5	1.1	0.9	0.6	0.5	...	...	0.8	...	3.2
Memorandum Items										
Number of institutions										
Commercial Banks	24	24	25	25	25	25	26	26	26	21
Merchant Banks	6	15	15	30	30	30	30	30	16	14

Sources: Bank of Korea, MOFE, OECD and staff estimates.

[1] Computed under Korean provisioning standards.

[2] Data for 1997Q4 is after loan purchases by KAMCO.

[3] Including loans classified as Substandard, Doubtful and Loss.

[4] Including loans classified as Doubtful and Loss.

The standards of concentration of risk and large exposures were very lax, which facilitated the highly leveraged corporate finance structure of Korean conglomerates. The revision of the General Banking Act of 1991 set the limits for single borrowers at 20 percent of the bank's equity capital for loans and 40 percent for guarantees, with a very generous grandfathering clause and a phase-in period of three years. Limits on lending to big conglomerates were set bank-by-bank under the "basket control system," under which the shares of loans to the top 5 and 30 business groups over total loans of the bank should not exceed the designated ratios set by the OBS. These limits were tightened in August 1997 and limit the lending to a single borrower (including guarantees) to 45 percent of the bank's equity capital for commercial banks, and 150 percent for merchant banks. These regulations remained, nevertheless, lax in comparison with other OECD countries.

Banks lacked good internal liquidity management controls, and regulations were not sufficiently stringent, in particular regarding foreign exchange. In order to ensure the liquidity of banks, the OBS required that long term loans, defined as those with a maturity between one and ten years, should be financed with funds with maturities of at least a year. In addition, banks were not expected to invest an amount equivalent to more than 100 percent of their equity capital in securities with maturities over three years. However, all of these calculations included only domestic liquidity positions, not taking into account positions of overseas branches and off-shore funds, which accounted for more than 60 percent of domestic financial institutions' short term external liabilities in 1996. Besides, despite the growing maturity mismatches in banks' balance sheets that resulted from the capital account liberalization process, no special consideration was given to the prudential regulation liquidity management in foreign exchange.

The lack of harmonization of supervision and regulation made many prudential rules ineffective. Trust accounts of commercial banks, the merchant banks and other financial institutions were subject to much laxer controls in terms of provisioning and exposures, and the lack of coordinated supervision encouraged the deviation of business towards these less regulated and riskier institutions. In addition, the supervisory authority had the power to waive requirements, which not only facilitated forbearance but also made enforcement nontransparent.[20]

In sum, the implicit government guarantee that was reflected in the fact that Korean banks had never been allowed to fail, together with the introduction of the deposit guarantee (that increased moral hazard) and the existence of weak prudential controls and supervision, created a strong incentive to risk taking and weak management in the banking sector. As we will see in the next section, this proved to be a crucial component of the subsequent crisis.

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[20]In fact, supervisors sometimes waived the full application of regulations, such as provisioning rates, to avoid weakening the earnings reports of banks.

III. THE CRISIS

A. The Origins of the Crisis

The seeds of the crisis that broke out in December 1997 were sown over many years. As discussed above, Korea's industrialization strategy was based on fostering the growth of the chaebols conglomerates which channeled household savings into investment and expansion into new export markets. Reflecting this strategy, by 1997, the Korean economy was dominated by large corporations which were highly dependent on borrowing, particularly from the banking system.[21] The high leverage ratios of the chaebols and their low profitability made them very vulnerable to any shock to their cash flow.[22] The health of the banking system, in turn, was extremely dependent on the viability of the chaebols. Banks were highly exposed to them, both directly through loans and discounts, and indirectly through the guarantee of corporate bonds and commercial paper.[23]

A history of government involvement in bank lending decisions had hampered the development of a commercially-oriented and sound banking system. As a result of a tradition whereby the government ensured the financing needs of corporations, and implicitly underwrote banking risks, banks had developed limited skills in credit analysis and risk management, and they financed the expansionary plans of corporations without provisioning adequately for possible loan losses.[24] Although the financial system had been gradually liberalized and the government had greatly reduced its involvement in bank lending decisions, substantial moral hazard remained, reflecting the implicit assumption that the government

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[21] For a discussion of the role of the chaebols in the Korean economy and the factors that led to high leveraging see Gobat (1998) and Wade and Veneroso (1998).

[22] The debt ratio of most chaebols exceeded 400 percent during the 1990s, compared to an average of 150 percent in the US, 210 percent in Japan and 90 percent in Taiwan. In 1997, 15 percent of the top 30 chaebols' affiliates had leverage ratios in excess of 500 percent. In addition, low profits decreased the ability to service this debt, and the operating cashflow as a percentage of interest payments was only 80 percent in 1996.

[23] At end-1997, the 30 largest chaebols accounted for half, and the 5 largest chaebols for one-third of the corporate debt outstanding. The top 30 chaebols were responsible for about 30 percent, and the top 5 chaebols for about 18 percent, of commercial bank loans at end-1997.

[24]In particular merchant banks which, despite the increasing riskiness of their operations, decreased their provisions for loan losses during the period (see Table 2).

stood behind the banking system and that large corporations were "too big to fail."[25][26] During the 1990s, the vulnerability of the sector rose, as banks turned to investments in the stock market, increased borrowing in foreign exchange markets, and assumed increasingly large off-balance sheet foreign exchange positions. Profits decreased significantly, because of growing competition in the banking sector, the important amount of nonperforming loans inherited from years of policy lending, and substantial losses on securities holdings resulting from the decline in stock prices. As a result, the solvency of the system worsened (see Table 2).

Weak regulatory and supervisory arrangements allowed banks to incur in excessive risk without building a capital base to withstand shocks. As seen in the previous section, inadequate accounting rules, lax prudential standards and supervisory forbearance were major deficiencies of the Korean financial system. Loan classification procedures and provisioning rules were backward-looking, attributing high value to the presence of collateral (normally real estate) and making the classification heavily dependent on the extent and duration of arrears. Assessment of future repayment capacity or potential problems, related for example, to large exposures to a single group, carried little weight. These loose prudential regulations allowed banks to build in risky portfolios and to report profits and capital adequacy ratios that did not fully reflect their true financial position. In addition, supervisory forbearance meant that bank problems were not immediately remedied when detected by bank supervisors.

Against this background, during 1994-96, Korean corporations undertook a major investment expansion with the goal of increasing their market share in critical export markets, at the expense of low profits.[27] They also diversified into new industries, often unrelated to the core business of the group. Investment and exports, as well as output, rose sharply during this period and an economic boom ensued. This expansion was financed mainly through borrowing

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[25]Bail-outs began in the 1969-70, when some of the firms whose foreign borrowing had been guaranteed by the government were in financial difficulties. In order to induce another business group to get involved, the government usually offered incentives in the form of new loans to be used as "seed money" and special tax treatment. This has been described as the "implicit socialized or shared risk between government and business on borrowed funds" (Kiwhan and Leipziger, 1997).

[26] In mid-1997, IBCA awarded a legal rating of 2 (next to highest) to 11 of the 16 major commercial banks, explicitly considering these banks as "too big to fail."

[27] Because of this market share strategy, chaebols' net profit margins had been declining since the late 1980s, a trend interrupted only by occasional peaks in the price of memory chips, Korea's most profitable export. As an example, in 1996, the average return on equity of Korean chaebols was 2.5 percent.

from domestic financial institutions.[28] In 1997, 50 percent of manufacturing firms outside financing was borrowing form banks, with NBFIs playing an increasingly important role. On the other hand, stocks represented a mere 6 percent (see Table 3).[29]

Korean banks met the increased demand for funds by increasingly turning to foreign borrowing, often at short maturities.[30] A large portion of the borrowing, particularly by merchant banks, was undertaken through overseas subsidiaries and foreign branches.[31] Several factors explain the reliance on short-term capital inflows:

- The capital account had been only partially liberalized, with intermediation through domestic banks favored over foreign direct investment and direct corporate borrowing.[32] Restrictions against short-term foreign borrowing by financial institutions were relaxed, while limits on long-term borrowing and foreign participation in domestic equity and bond markets were retained, encouraging the development of large maturity mismatches in banks' balance sheets. At end-December, 1997, short term assets covered only 55 percent of short term liabilities in commercial banks, and 25 percent in merchant banks.

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[28] Bank credit to the private sector increased during 1990-97 at an annual real rate of 12 percent, compared to 0.5 percent in the US and 4 percent in G-10 Europe (see BIS 1998)

[29] One of the reasons frequently suggested for this reliance in bank finance is the underdevelopment of the Korean stock market. In fact, in 1996, stock market capitalization was only 25 percent of GDP, compared with 67 percent in Japan, 108 percent in the US, 151 in the UK or 280 percent in Hong Kong (see BIS 1997).

[30] Foreign borrowing was obtained at increasingly low spreads, despite the increasing economic imbalances (see Figure 2). See McKinnon and Pil (1996), Corseti, Pesenti and Roubini (1998), Krugman (1998) and Levy Yeyati (1998) for a theoretical discussion of the causes of the "overborrowing" and "overlending" syndromes in the context of the recent crisis.

[31] Foreign debt of domestic financial institutions, including overseas subsidiaries and foreign branches, increased from US$ 40 billion at end-1993 to US$106 billion by end-September 1997. At end-September, 1997, short-term liabilities accounted for about 60 percent of the foreign debt of domestic financial institutions.

[32] Regulations limited international issuance of securities to corporations with international credit rating of BBB or higher, and to obtain loans at spreads higher than 100 over LIBOR. These regulations heightened the role of the major Korean banks (whose ratings benefited from implicit government support) as the conduits of external finance to domestic corporations.

Table 3. Korea: Trends in the Structure of Corporate Financing for all Industries
(In percent of total external financing)

	1993	1994	1995	1996	1997
Indirect financing	31.4	44.5	31.8	31.3	50.1
Deposit money banks	13.1	20.7	14.9	15.7	24.6
Nonbank financial institution	18.3	23.8	17.0	15.6	25.5
Direct financing	49.1	38.1	48.1	47.0	26.8
Stocks	14.7	14.8	14.4	11.3	6.4
Corporate bonds	14.5	14.2	15.3	16.9	15.4
Commercial paper	13.9	4.9	16.1	17.5	2.9
Financing from overseas	1.6	4.9	8.4	10.2	10.3
Others 1/	18.0	12.4	11.7	11.5	13.0
Total 2/	100.0	100.0	100.0	100.0	100.0
(In billions of won)	(64,982)	(89,041)	(100,016)	(118,201)	(62,102)

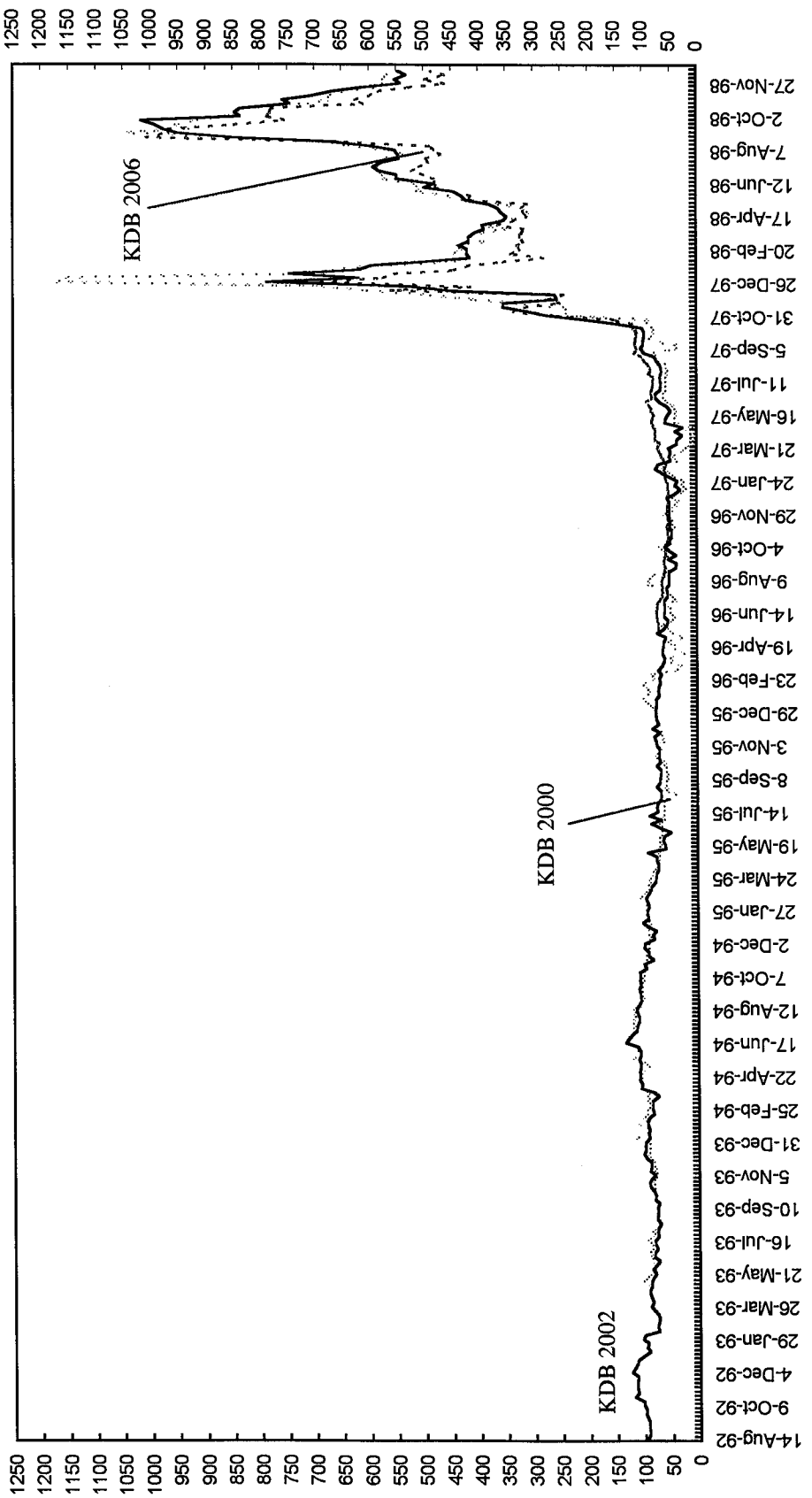
Sources: Bank of Korea; and Financial Statements.

[1] Inter-firm credits, borrowings from government, bills payable, etc.

[2] Figures in parenthesis represent total amounts of external financing in billions of won.

[3] Data for 1997 corresponds to averages of the first two quarters.

Figure 2. Korea: Korea Development Bank Bond Spreads 1/
(In basis points)



Source: Bloomberg.
1/ All spreads are for U.S. dollar fixed-rate issues, calculated as the difference between the bond yield and that on a U.S. Treasury issue maturing in the same period. The number (e.g. 2000) refers to the year in which the issue matures.

- The substantial interest differential in favor of dollar and yen borrowing, amounting to about 5 and 10 percentage points respectively in 1996 (Table 4) was reinforced by the expectation of a stable exchange rate resulting from the managed peg to the dollar. In addition, short-term foreign borrowing rates were lower than long-term rates;[33] moreover, short-term funds could be raised relatively easily through international money markets. [34] This resulted in domestic banks channeling external short term funds to long term loans financing investments by domestic corporations. This "carry trade" exposed the country to the risk of a bank crisis, since banks would be unable to liquidate assets rapidly without major losses in case foreign short term loans could not be rolled over because, e.g., of a change in market sentiment or foreign creditors becoming concerned about growing problems in Korean banks' portfolios.

- Increased access to trade credits and deregulation permitted the use of trade credits for working capital. In fact, the seven-fold increase in trade credits during 1994-96 was only partly accounted for by the rapid growth in trade volume.

- The lack of expertise in Korean financial institutions in risk management and international banking coupled with moral hazard led them to take greater risks than prudent management would have advised.[35] For example, as noted earlier, provisions for loan losses in commercial banks always remained below the tax-deductible 2 percent limit, despite the deteriorating economic situation; even worse, provisions for loan losses in merchant banks were a mere 0.5 percent in March 1997 (see Table 2). Figure 3 shows how the evolution of bankruptcies and dishonored bills and checks started to send warning signals about the deterioration of economic conditions in late 1996, and yet banks did not voluntarily fully provision for loan losses until the

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[33] The KDB issue, for example, was trading at end-September at 80 basis points spread over US treasuries for three year maturity, 100 basis points for five-year and 110 basis points for ten-year maturity (see Figure 2).

[34] International interbank lending to Korea soared, accelerating from an annual growth rate of about $15 billion in 1994 to about US$25 billion in 1995-96, and amounting to US$ 108.5 billion at end-1996 (see BIS 1997). Of this amount, about 70 percent had a maturity of less than a year. One of the reasons behind this boost was the more favorable capital ratio requirement associated with the country's entry into the OECD, which reduced the risk-weight for loans to Korean banks from 100 to 20 percent, thus raising international banks' returns on risk-adjusted capital and lowering spreads for loans to Korean banks.

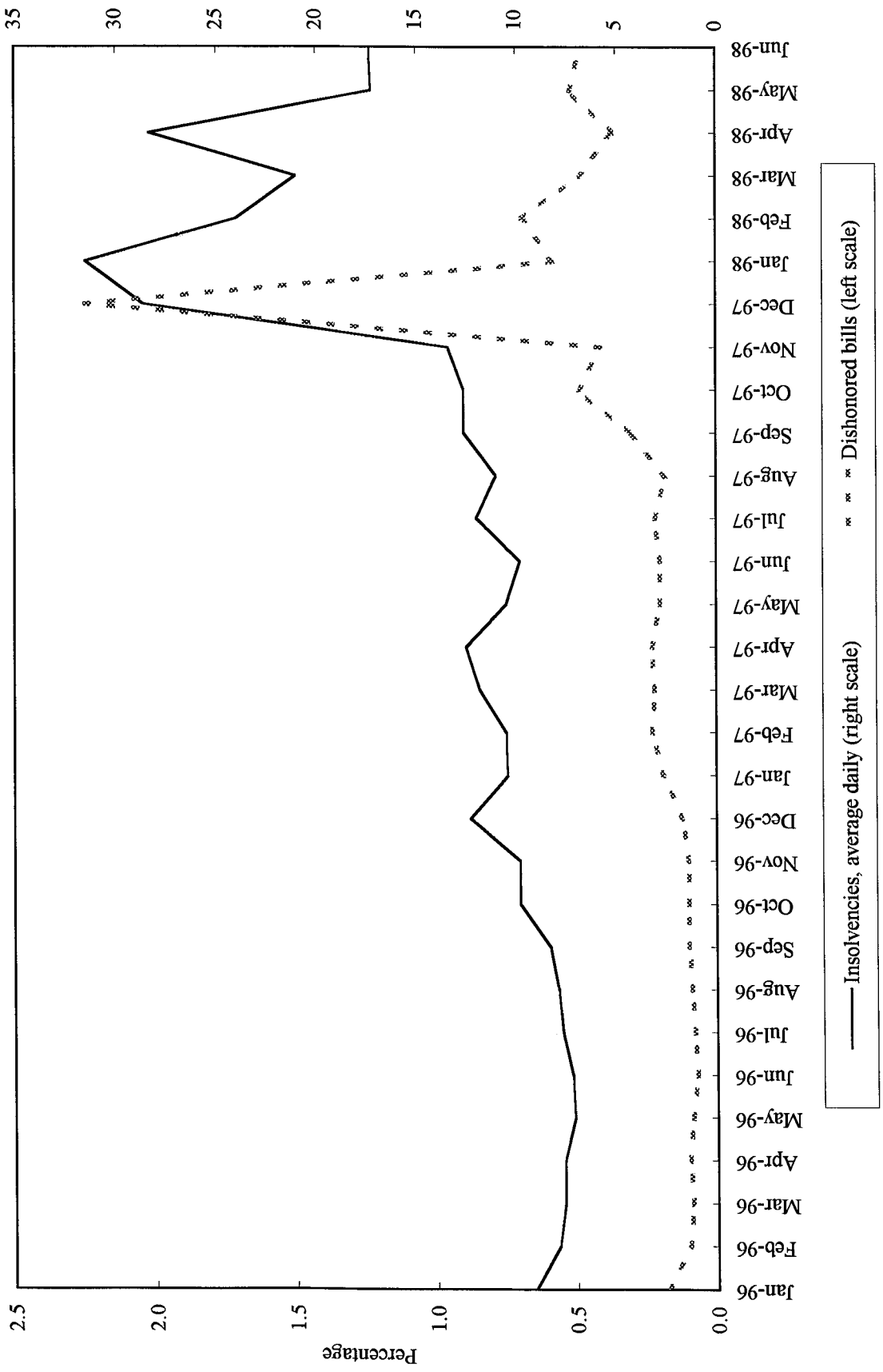
[35] Because of already high returns available domestically, Korean banks, particularly merchant banks, ventured abroad to invest heavily in high-risk high-yield instruments in emerging markets. For example, Korean banks are reported to have accounted for about 40 percent of the debut Eurobond issue of the Russian Republic in 1996. They also invested extensively in the region, especially in Thailand and Indonesia.

Table 4. Korea: Selected Interest Rates
(In percent per annum; end of period)

	1993	1994	1995	1996	1997Q1	1997Q2	1997Q3	1997Q4	1998Q1
Deposit Rates									
Savings deposits	3	3	3	3	3	3	5	5.1	4.8
Installment Saving Deposits	8.5-10.0	8.5-9	8.5-12	10.4	10.46	10.3	10.5	10.3	11.1
Money in Trust									
Corporations (1 year)	11.1	11.5	11.1-12.6	11.3	11.39	11.4	11.4	11.7	11.9
Households (1 year)	13.1	12.7	12.3-13.5	12.5	12.32	12.2	12.2	12.5	13.6
Cash Management Accounts (180 days)	11.9	12.9	13.3	11.8	11.86	11.8	11.6	12.7	17.8
Loan Rates									
Nationwide Commercial Banks									
General Loans	9-12.5	9-12.5	9.25-12.5	11.3	11.47	11.7	12	13.8	17.2
Overdrafts	9.5-13.0	10.0-14.0	12.8-15.5	14.7	14.95	13.4	15.8	37.5	24.9
Trust Accounts									
Loans to enterprises	10.1-13.5	10.1-13.7	10.3-14.5	10.2-14.5	10.3-14.4	10.2-14.5	10.2-14.5	12.5-17.6	13.1-18.3
Loans to households	12.2-13.0	12.1-13.4	12.7-14.5	12.2-14.4	12.1-14.5	12.0-14.3	12.1-14.4	14.8-17.6	15.4-18.3
Market Rates									
Call Market Rate	11.5	14.1	11	12.5	12.9	11.2	13.2	21.3	22.5
Yield on Certificates of Deposit (91 days)	12.3	14.9	11.7	13.5	13.23	11.8	13.4	18.6	22.6
Rates on Intermediated bills	11.6	12	11.8	11.8	12.1	11.2	11.7	18.4	...
Yield on Corporate Bonds (3 years)	12.2	14.2	11.7	12.6	12.69	11.7	12.4	24.3	18.9
International Rates									
US Call Rate	3.02	4.20	5.84	5.30	5.28	5.52	5.53	5.51	5.52
US 3-5 year bond	5.82	7.11	6.58	6.44	6.56	6.70	6.24	5.91	5.59
Japan Call Rate	3.06	2.20	1.21	0.47	0.50	0.49	0.49	0.46	0.43
Japan 3-5 year bond	3.69	3.71	2.53	2.22	1.77	1.93	1.61	1.44	1.37

Source: Bank of Korea, Monthly Statistical Bulletin, and IMF, International Financial Statistics.

Figure 3. Korea: Insolvencies and Dishonored Bills



Sources: Bank of Korea Monthly Bulletin; and Korean authorities.

Financial Supervisory Commission made it compulsory as of the December 1997 financial returns.

In the event, the 1994-96 investment boom turned out to be unsustainable. During 1996-97 Korea's terms of trade deteriorated by more than 20 percent cumulatively (Table 1). The sharp fall in export prices, mainly reflecting the glut in the semiconductor market and a decline in foreign demand, resulted in substantial losses in the export sector. As a result, commercial banks moderated their credit expansion. However, corporations, instead of downsizing, shifted much of their borrowing to the merchant banks, which had recently been permitted to engage in international financial transactions. Table 3 shows how nonbank financial institutions increased significantly their share in corporate financing during 1996-97. Moreover, Table 5 shows that, in 1996, short term liabilities of merchant banks accounted for almost 54 percent of their total liabilities, compared to only 21 percent in 1993.

Prudential regulation and supervision failed to keep up with the increasing concentration of risk in the domestic financial system. In 1995, provisioning requirements for unrealized losses on securities holdings and deterioration in loan quality were relaxed: the provisioning requirement for doubtful loans was lowered from 100 percent to 75 percent and for securities losses from 100 percent to 30 percent. Moreover, reflecting the lack of consolidated supervision, the increasingly risky activities of the merchant banks and other nonbank financial institutions as well as the overseas subsidiaries and foreign branches of domestic financial institutions were largely overlooked. Although the financial system was increasingly exposed to maturity mismatches and currency risk arising from funding long-term domestic investment with short-term foreign borrowing, additional prudential measures (to strengthen liquidity management of foreign exchange books) were introduced only in July 1997 and were limited to commercial banks. Supervisory forbearance, together with lax prudential standards and less than fully transparent accounting, provided Korean commercial banks little encouragement to take speedy action to restore profitability and improve solvency.[36]

The government stopped automatically bailing out chaebols and left the banking sector with the task of providing the external disciplinary force. Starting from the beginning of 1997, an unprecedented number of the highly- leveraged chaebols went into bankruptcy, dragged down by excessive investment, declining profits, and a substantial debt burden. By end-November, six of the top 30 chaebols had filed for court protection; a seventh went into bankruptcy in December. These large bankruptcies, together with rising bankruptcies among small and medium sized enterprises, significantly damaged the asset position of financial institutions.

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[36]At end-June 1997, accumulated loan loss provision accounted only for 83 percent of expected losses, and provisions against securities losses accounted only for 37 percent of expected losses. These ratios were in compliance with OBS rules.

Table 5. Korea: Foreign Liabilities of Deposit Money Banks
(End of period, mil US$ and percentage)

	1993		1994		1995		1996	
Deposit Money Banks								
Short Term Liabilities	4222	64.42	8635	78.92	14642	77.30	19582	73.32
Deposits	92	1.40	80	0.73	127	0.67	177	0.66
Call Money	467	7.13	1062	9.71	1581	8.35	2026	7.59
Borrowings from Banks	3663	55.89	7493	68.49	12934	68.28	17379	65.07
Long Term Liabilities	2332	35.58	2306	21.08	4300	22.70	7126	26.68
Borrowings from Banks	1503	22.93	1159	10.59	1129	5.96	758	2.84
Foreign Securities Issued	572	8.73	778	7.11	2872	15.16	6141	22.99
Inter Office Accounts	119	1.82	220	2.01	115	0.61	57	0.21
Others	138	2.11	149	1.36	184	0.97	170	0.64
Total External Liabilities	6554	100.00	10941	100.00	18942	100.00	26708	100.00
Merchant Banks								
Short Term Liabilities	303	20.90	654	35.93	1966	50.77	3190	53.69
Deposits	19	1.31	0.00	0.00	0.00	0.00	0.00	0.00
Call Money	1	0.07	46	2.53	56	1.45	58	0.98
Borrowings from Banks	283	19.52	608	33.41	1910	49.33	3132	52.71
Long Term Liabilities	1147	79.10	1166	64.07	1906	49.23	2752	46.31
Borrowings from Banks	727	50.14	491	26.98	435	11.23	327	5.50
Foreign Securities Issued	419	28.90	674	37.03	1470	37.96	2388	40.19
Others	1	0.07	1	0.05	1	0.03	37	0.62
Total External Liabilities	1450	100	1820	100.00	3872	100.00	5942	100.00

Sources: Bank of Korea, Foreign Exchange Statistics, various issues.

By the fall of 1997, the balance sheets of Korean financial institutions had deteriorated severely. The share of nonperforming loans in total assets of commercial banks had increased by about 70 percent between December 1996 and September 1997, and amounted to about 80 percent of banks' capital (see Table 2).[37] As a result, the net worth of many financial institutions fell perilously low and a significant shortfall in capital adequacy emerged.[38] Of the 26 commercial banks, 14 had capital adequacy ratios below 8 percent, of which two were deemed to be technically insolvent (with zero or negative capital). In addition, 28 of the 30 merchant banks had capital adequacy ratios below 8 percent and 12 were deemed technically insolvent.

B. The Breakout of the Crisis

Increasing economic turmoil in the region brought Korea's financial and corporate sector problems into sharper focus. Starting in late summer international creditors began to reduce their exposure to Korean financial institutions and to withdraw their short-term credit lines owing to concerns about Korea's financial situation and the soundness of its financial system. The collapse of the Thai bath peg in July 1997, the subsequent contagion to other regional currencies pegged against the U.S. dollar,[39] and the crash of the Hong Kong stock market in late October 1997, sent shock waves to the Korean financial system as market confidence dropped sharply and Standard and Poor's downgraded Korea's sovereign status (see IMF 1997 for a comprehensive description of the Asian crisis). In August 1997, the Korean authorities announced that they would ensure that Korean financial institutions would meet their foreign liabilities. Nonetheless, the withdrawal of credit lines intensified in the ensuing weeks. Faced with increasing difficulties in meeting their short-term foreign obligations, banks turned to the Bank of Korea for foreign exchange liquidity support.

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[37] Nonperforming loans are normally a lagging indicator of the soundness of the banking sector, and more so when loans are only classified as non performing after having been in arrears six months, rather than the usual three months. A more contemporaneous indicator is the ratio of dishonored bills and checks, which more than doubled during the same period and increased fivefold in the last quarter of 1997 (see Figure 3)

[38] One measure of balance sheet deterioration is the shortfall in capital adequacy represented by the amount of funding needed to bring a bank's ratio of capital to risk weighted assets to the minimum of 8 percent recommended by the Bank of International Settlements. Estimates based on end-September 1997 balance sheet data showed, under Korean provisioning and loan classification rules, a shortfall of some W 11.3 trillion (3.0 percent of 1997 GDP) for commercial banks, merchant banks, development and specialized banks.

[39]For a detailed analysis of the contagion effects during the crisis, see Baig and Goldfajn (1998).

During October-November 1997 the Bank of Korea placed some US$20 billion of official reserves in deposits at overseas subsidiaries and foreign branches of domestic financial institutions, making these reserves "unusable": Withdrawing those deposits would have made those financial institutions illiquid (since they did not have enough liquid assets that they could liquidate to repay the deposits). Moreover, banks had to use them to repay their short-term debt that was not being rolled-over, and thus the liquid official reserves were quickly depleted. On November 19, the government attempted to calm markets by announcing a reform package which included a widening of the daily exchange rate band to +- 10 percent (from +-2 1/4 percent that had been in place for several years) and measures to support the disposal of nonperforming loans. However, market concerns remained and, during the last week of November, the drain on international reserves intensified to some $1-2 billion a day, driving usable reserves to only US$5 billion by end-November.

IV. The Reaction to the Crisis

On December 4, 1997, Korea committed to a program of macroeconomic adjustment and structural reform supported by a stand-by arrangement from the Fund for SDR 15.5 billion. The authorities' strategy to restore the solvency of, and hence market confidence in, the financial system has comprised three basic elements. First, restructuring and recapitalizing the banking system to address the problem of the stock of bad loans and the weak capital base. Second, increasing the commercial orientation of the financial system and strengthening its supervision and management to prevent the recurrence of similar problems in the future. Third, starting an ambitious program of corporate restructuring, which is closely linked to the restructuring of the financial sector, and that implied addressing the problems of the corporate sector, in particular those of the major chaebols.

As an interim measure, and to maintain public confidence in the banking system during the period of restructuring and recapitalization, the government guaranteed all deposits of financial institutions until the year 2000 and provided temporary liquidity support to banks when needed.[40] The government also undertook important reforms of the institutional setup. Laws passed in December 1997 significantly strengthened the independence of the Bank of Korea, consolidated all financial sector supervision (for banks, nonbank financial institutions, insurance and securities markets) in a single Financial Supervisory Commission (FSC), separate from the government, and merged all deposit insurance protection agencies into the Korea Deposit Insurance Corporation (KDIC), a new agency. Some of these measures had already been discussed in the reports of the Presidential Commission on Financial Reform issued during 1997.

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[40]This was decided in November 1997, as part of an emergency package prepared by the Korean authorities but which failed to restore market confidence and had to be substantially strengthened the next month.

A. The New Institutional Setup

The FSC has the power to regulate and supervise financial institutions. It established a Financial Restructuring Unit to oversee and coordinate the financial restructuring. In the exercise of its supervisory powers, the FSC can order to recapitalize and structure their operations. It is also involved in the restructuring of the chaebols. The KDIC is in charge of the repayment of deposits in failed institutions and can also provide recapitalization funds. A Bridge Bank (Hanaerum Bank) was created to take over the assets and liabilities of closed merchant banks. The Korean Asset Management Corporation (KAMCO) was in charge of purchasing impaired assets from all financial institutions covered by the deposit guarantee.

B. The Restructuring Process

A key first step in the recapitalization process was to identify and deal with unviable institutions separately from weak but viable institutions. This has involved a systematic evaluation of credit institutions, including merchant banks, commercial banks, and specialized and development banks. Exit strategies have been developed for unviable institutions including mergers, sales, and as a last resort, liquidation.[41] For viable institutions, recapitalization plans that involved fresh capital contributions from new or existing shareholders, or other stakeholders (such as creditors and major borrowers) were devised.

A second key step was to adopt a differentiated approach that based on the differing systemic importance of various types of institutions. Thus, a differentiated approach, both in the timing and in the provision of public support, was adopted with respect to merchant banks, commercial banks, development and specialized banks, and nonbank financial institutions (NBFIs).

While in late 1997 and early 1998 KAMCO purchased NPLs with no conditions from banks that wished to sell them, conditions under which public funds will be used for bank recapitalization were also defined. To coordinate the use of public funds with the financial restructuring process and to make for more equitable burden sharing, the government has undertaken to commit public resources for bank recapitalization only under limited circumstances. After June 30, 1998, public resources would be committed through subscription of capital instruments and NPL purchases only in the context of approved

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[41]The resolution of distressed financial institutions through closure, merger, or the injection of government resources was facilitated by legislation passed in December 1997. However, the legislation fell short with respect to rules by which the supervisory authorities can write down the equity of failed banks. While the amended legislation authorizes the write-down of existing shareholder equity, it does not permit a reduction in capital below W 100 billion for commercial banks and W 50 billion for merchant banks, even if the institutions have zero or negative net worth. The authorities corrected this by reforming the legislation in August, 1998.

recapitalization plans and on the condition that adequate contributions be made by shareholders and other stakeholders (exceptions would be made only under well-specified conditions).

C. The Implementation Strategy

Given the magnitude of the task, the program had to be implemented in stages, starting with the most serious problems. Moreover, in light of the past tradition of regulatory and supervisory forbearance, it was critical for the authorities to give clear signals of forceful action in order to restore confidence. Thus, at the start of the program, the problem of clearly insolvent merchant banks was addressed. Simultaneously, the government announced a timetable for merchant banks and commercial banks to be evaluated and to attain minimum capital adequacy requirements. Measures were adopted to strengthen prudential regulations and supervision, particularly in the areas of loan classification and provisioning, foreign exchange liquidity, large exposures, and connected lending.

A year after the process of financial sector restructuring started, the Korean banking sector has been significantly consolidated (see Table 6).[42] Since December 1997, 7 of the 26 commercial banks and 16 of the 30 merchant banks have been either closed or merged (see Box 1). The share of assets of the financial sector held by nation-wide commercial banks has increased by about 21 percent, while the share of merchant banks has decreased by 30 percent. Moreover, a substantial recapitalization effort has taken place, including foreign capital. However, it is too early to say whether this consolidation will result in an increase in efficiency

Commercial Banks

In December 1997, the government took over two large commercial banks, Korea First Bank and Seoul Bank, which were technically insolvent. Given their systemic importance, the government recapitalized them, and following the approval of requisite legislation, wrote down the equity of existing shareholders by a factor of about 8:1, and removed managers responsible for the losses. The government and the KDIC injected capital, acquiring a stake of about 94 percent in each bank. The banks were prepared for privatization with the help of foreign advisors, and the government expects to privatize them in early 1999 (See Box 1).

Twelve commercial banks that did not meet the minimum capital adequacy ratio of 8 percent at end-1997 under full provisioning, were required to submit recapitalization plans, which the FSC evaluated with the help of internationally-recognized accounting firms which also

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[42] The number of bank employees decreased by 34 percent as of end-1998, compared to end-1997, and the number of branches decreased by 17 percent during the same period.

Table 6. Structure of the Korean Financial System Before and after the Crisis
(In percentage of total assets)

	June 1997	June 1998
Commercial banks	**53.4**	**54.2**
Nation-wide commercial banks 1/	22.4	27.1
Trust accounts of commercial banks 2/	21.1	20.6
Regional commercial banks	4.3	3.8
Foreign bank branches	2.2	2.7
Specialized and Development Banks	**16.5**	**15.7**
Specialized banks	9.2	6.2
Development Institutions	8.1	9.5
Nonbank Financial Institutions	**30.1**	**31.1**
Investment Institutions	13.5	13.8
Merchant Banks	4.9	3.4
Savings Institutions	12.0	11.1
Life Insurance Institutions	7.1	6.2
Total Financial System	**100.0**	**100.0**
(In trillion of won)		
Memorandum item:		
Total Assets of the Financial System	1225.7	1454.4

Source: Bank of Korea

1/ Includes the Korea Housing Bank, that became a commercial bank in August 1997.

2/ Trust account business is carried out by the commercial banks but classified as nonbank financial intermediation. Supervision responsibility of trust business was transferred from MOFE to the Bank Supervision Authority on April 1, 1998.

Box 1. Mergers and Foreign Investment in the Financial Sector

The process of financial consolidation induced voluntary mergers and foreign investments. On July 31, 1998, two large banks that had received conditional approval (Hanil and Commercial Bank of Korea) announced their merger, which would create a bank with combined assets of W96 trillion. The government announced a contribution of W5.5 trillion to purchase NPLs and improve the capitalization of the banks, and will own 95 percent of the merged bank. On August 20, 1998, two medium sized banks, (Hana and Boram) announced their merger to create a bank with assets of W 41 trillion. This is the first merger between two relatively sound banks in recent Korean history. This was followed by the announcement, on September 11, 1998, of the merger between Kookmin bank, a commercial bank, and Korea Long Term Credit Bank (KLTCB), a development bank, to create the largest Korean bank with assets of W100 trillion. In December 1998, Chohung, Kangwon, Hyundai Merchant Bank announced their merger to create a commercial bank with assets of W62 trillion, the third largest Korean bank; the government will also contribute W7.75 trillion to the recapitalization process through the purchase of NPLs and recapitalization of the bank, and will own 90 percent of the merged bank.

Foreign investors contributed to the recapitalization of the banking system. In June 1998, The International Finance Corporation (IFC) invested $152 million in Hana bank, and US$25 million in KLTCB. Germany's Commerzbank invested $249 million in Korea Exchange Bank, acquiring a stake of 30 percent chiefly by converting existing credits to this banks into equity. In December 1998, a U.S. consortium purchased a 51 percent stake in the previously nationalized Korea First Bank. In February 1999, HSBC Holdings agreed to purchase a 70 percent stake in Seoul Bank.

conducted diagnostic reviews on these banks. On June 28, 1998 the FSC announced the decisions on the recapitalization plans. Five small to medium sized banks were closed,[43] with their assets and liabilities transferred to five stronger banks in purchase and assumption (P&A) operations. Four large banks and three small regional banks received conditional approvals for the rehabilitation plans, and were requested to submit revised plans by end-July 1998.[44]The three small regional banks will not be expected to engage in foreign exchange business.

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[43]The five closed banks had end-March 1998 capital adequacy ratios between -4 and -11 percent and a negative net worth totaling W920 billion, and represented 7 percent of total assets of the banking sector.

[44]One small regional bank was given conditional approval despite receiving a negative evaluation from the Evaluation Committee because the Korean regulation does not allow for the closure of a bank with positive net worth. The authorities amended this legislation in August, 1998.

The process of financial consolidation resulted also in voluntary mergers and foreign investment. At least six banks have announced mergers since the end of July, 1998. The government has assisted this process with NPL purchases and, in the case of two of them, with a capital injection that has resulted in the de facto nationalization of the merged bank. Substantial amounts of capital have been promised from private sources, including from overseas (see Box 1).

Merchant banks

In mid-December 1997, at the height of the crisis, the Government announced the suspension of 14 merchant banks, of which ten were closed the following January. A bridge merchant bank was formed to take over and liquidate their assets.[45] The remaining 20 merchant banks were required to submit rehabilitation plans to strengthen capital adequacy according to a time schedule. On the basis of a second-round evaluation of these plans, four merchant banks were closed by end-April. The remaining 16 merchant banks were require to meet capital adequacy ratios of 6 percent by end-June 1998 and 8 percent by end-June 1999. As a result of the end-June evaluation, two more banks were closed. In light of the risky nature of their business, merchant banks will be expected to progressively strengthen their capital beyond the 8 percent minimum after mid-1999. The Government has not directly committed resources to recapitalize merchant banks in view of their small size and the fact that many are owned by chaebols.

Other Financial Institutions

The government has also recapitalized the specialized and development banks, whose portfolios had deteriorated significantly, and plans to make them subject to regulations in line with those applied to commercial banks.

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[45] The bridge bank (called Hanaerum Merchant Bank) was established at the end of December 1997, financed by the KDIC. In January, it took over the deposits of the suspended merchant banks along with most of their performing assets. After a due diligence process, the value of assets and liabilities transferred is W8.7 trillion and W12.1 trillion respectively. Shortly upon intervention, depositors were offered cash reimbursement, with households being compensated first, followed by enterprises and then other financial institutions. As of end-June 1998, 95 percent of private and institutional depositors had been repaid, as well as all financial institutions call money deposits, for a total amount of W8.2 trillion. A further W4.2 trillion remains to be repaid, mainly deposits of financial institutions. Loans have been rolled-over at market rates until a strategy for the disposal of assets is devised. The two suspended merchant banks that reopened will repay the bridge bank the deposits repaid to their customers by January 1999.

Once the strategy for bank restructuring was in place, the authorities targeted the restructuring of the NBFI. The soundness of these institutions had deteriorated significantly because of the severity of the crisis and the laxity of supervision. According to FSC estimates, the sector had about W30 trillion in nonperforming loans in March 1998, about 7 percent of the NBFIs' total assets. In June 1998 the FSC announced a restructuring plan for insurance companies, investment trust companies (ITCs), leasing companies and securities companies. As a result, four small life insurance companies were closed and another 18 were requested to submit rehabilitation plans, and new loan classification and provisioning rules similar to those of commercial banks and a solvency standard margin were introduced in the insurance business. The two large fidelity/surety insurance companies have been merged. Two ITCs were closed, and management improvement orders and capital increases were requested to the other six. Five leasing companies were closed and their businesses transferred to a bridge leasing company. Two securities companies were closed, and regulations to ensure the full segregation of accounts are to be introduced.

D. Provision of Public Support for Financial Sector Restructuring

Financial restructuring in Korea has involved a considerable amount of public funds. These funds have been provided through the issuance of bonds by KAMCO and KDIC, budgetary allocations and exchange of asset, and has been channeled to financial institutions by means of four main instruments: (1) purchase of shares, ordinary and preferred, (2) purchases of subordinated debt, (3) purchases of nonperforming loans, and (4) repayment of depositors (see Table 7).

The first wave of provision of public funds attempted to solve the most pressing problems at the beginning of the crisis. The government undertook the following actions: (1) Recapitalization of the two distressed large banks, Korea First and Seoul Bank, by exchanging banks' equity for government shares in public enterprises and KDIC bonds; (2) Recapitalization of commercial banks, through the exchange of banks' subordinated debt for government shares in public enterprises; (3) Recapitalization of specialized and development banks, through an exchange of bank equity for government shares in public enterprises; (4) Purchase of Table 7 nonperforming loans by KAMCO (see Box 2); and (5) Capitalization of the Bridge Bank, through a loan from KDIC. To finance these operations, KDIC and KAMCO issued government-guaranteed bonds.

The initial official estimates of the capitalization needs to bring the banking system, under Korean classification and provisioning rules, to the minimum 8 percent capital adequacy ratio, was about W11 trillion, or 2.6 percent of GDP. However, Korean provisioning rules are significantly backward looking, and are therefore likely to underestimate the probability of loan losses in periods of financial distress. Hence, under more realistic assumptions on loan

Table 7. Korea: Cost of Financial Sector Restructuring

(In trillion of won and percentage of GDP)

Action	Financing	Amount
December 1997-January 1998 measures		
Equity Injections	Exchange of Shares	4.5 (1.1)
	KDIC bond	1.5 (0.3)
Sub Debt	Exchange of Shares	4.4 (1.1)
Purchase of NPLs	KAMCO bond	7.5 (1.2)
Deposit Insurance	KDIC bond	5 (1.1)
May 20 Plan		
Recapitalization	KDIC bond	16 (3.7)
Purchase of NPLs	KAMCO bond	25 (5.8)
Deposit Insurance	KDIC bond	9 (2.1)
August 1998 Supplementary Budget		
Recapitalization	Government budget	1.3 (0.3)
	Total	**74.2** (17.5)
Memorandum Item: GDP 1997: W425.8 trillion		

Box 2. KAMCO Operations

The Korean Asset Management Corporation (KAMCO) was established in 1962 to collect nonperforming loans for banks. In November 1997, legislation was passed to dissolve the old KAMCO and create a new entity with increased capital (financed in part from the commercial banks, the KDB and the KDIC). The new KAMCO was initially funded by loans from the BOK, KDB and the government's budget, and by a government guaranteed bond issue. Future financing plans includes further domestic bond issues, foreign-exchange denominated bonds and dollar-denominated asset-backed securities. KAMCO's mandate was considerably expanded to permit the purchase impaired loans from all financial institutions covered by a deposit guarantee.

In the period November 1997 –September 1998, KAMCO purchased nonperforming loans with a face value of W39 trillion for a total of almost W17.7 trillion, more than a third of which was in support of the P&A operation and mergers. Disposal of these assets has been minimal and, by December 1998, KAMCO had only realized about W240 billion on these loans on a face value of about W930 billion. Disposal has been delayed by price adjustments and court procedures. Once these processes are completed, KAMCO's strategy for asset disposal contemplates three possibilities: (1) asset-backed securitization; (2) outright sale of assets and loan portfolio; and (3) M&A or direct investments, including the possibility of debt/equity swaps.

KAMCO initially purchased classified loans at a discount that roughly corresponded to the mandated provisioning levels; the discount was then adjusted after KAMCO had a chance to have the collateral on the loans appraised. However, this process was cumbersome and created a disrupting contingent liability for the selling bank. In the context of the P&A operation and in order to speed up the process, KAMCO purchased the nonperforming asset at a fixed price, 36 percent of book value for secured loans and 1 percent for unsecured loans, based on historical estimates of loan recovery. Further purchases of NPLs will also be at a firm price.

On August 10, 1998, a major reorganization of KAMCO as a "bad bank" was completed with a view to strengthening its asset management and disposition capabilities. KAMCO adopted a structure similar to the U.S. Resolution Trust Company (RTC), providing additional business functions such as workout programs for nonperforming loans and more efficient asset disposal. In order to enhance the transparency and the efficiency of its operations, KAMCO will audit its accounts semiannually, and publish the results.

losses,[46] the capitalization needs of the Korean banking system were estimated to be about W24 trillion, or 5.6 percent of GDP.

The deterioration in the economic situation and the credit crunch that emerged after the crisis further deteriorated further the balance sheets of Korean banks (see next section).

Nonperforming loans of commercial banks had increased by June 1998 to about 8.6 percent of total loans, from about 7.7 percent in March and 6 percent in December 1997.[47][48] The number of bankruptcies, especially among SMEs, soared as banks reduced their lending while struggling to improve their capitalization, which in turn deteriorated further the banks' balance sheets.

On May 20, 1998, the Government released a progress report and future plans of the strategy to deal with the restructuring of the financial and corporate sectors that included the estimated cost of the remainder of the restructuring process. It estimated that the total amount of troubled loans (defined as loans classified as precautionary or worse) of all financial institutions as of end-March, 1998 was about W118 trillion (about 28 percent of GDP), of which W68 trillion were loans classified as substandard or worse (nonperforming loans in Korean terminology). The government targeted W100 trillion worth of troubled loans for immediate disposal, at an estimated market value of about 50 percent of their book value. Hence, the losses incurred by financial institutions would be about W50 trillion. The government planned the disposal of troubled loans through two channels: (1) half of the loans will be disposed of by financial institutions, by either selling off collateral or calling in loans, and (2) KAMCO would purchase the remaining half at the estimated market price of 50 percent of book value. Financial institutions had set provisions for W9 trillion, and were expected to provide an additional W6 trillion during 1998. Hence, the estimated provisioning shortfall of financial institutions would about W35 trillion. The government also estimated that financial institutions would need about W4 trillion to reach the minimum 8 percent capital adequacy ratio. Thus, the total capital shortfall of financial institutions would be about W39 trillion.

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[46] The assumption was that 20 percent of precautionary loans, 40 percent of substandard loans and 100 percent of doubtful loans will become a loss.

[47]These number do not include loans that were already sold to KAMCO in December 1997. If this is taken into account, nonperforming loans of commercial banks would be about 10.7 percent of total loans, or 8.5 percent of 1997 GDP.

[48]This figure was perceived by the market as a gross underestimate of the true amount of nonperforming loans. For example, the Korea Institute of Finance, a government think tank, estimated the amount of nonperforming loans of commercial banks as of June 1998 at about 18 percent of total loans, or 13.6 percent of GDP.

The government plan to meet this additional funding requirement is to follow three steps. First, for the disposal of nonperforming loans, KAMCO will issue W25 trillion in bonds. Second, to cover the W39 trillion needed for the recapitalization of financial institutions, KDIC will issue W16 trillion in bonds to inject capital in financial institutions, and financial institutions will raise W20 trillion in the market; the remainder W3 trillion correspond to the capital injection into Korea First and Seoul Bank, already disbursed in January 1998. Finally, KDIC will issue an additional W9 trillion in bonds to meet the expected demand for depositor protection that will result from this process. Thus, the total amount of public resources to be mobilized will be W50 trillion. The government will provide a guarantee on bonds issued by KAMCO and KDIC and will bear the interest cost.

If these estimates are accurate, the total provision of public funds for the financial restructuring process will reach about W75 trillion, about 17.5 percent of 1997 GDP (see Table 7), of which about 60 percent has been already spent as of October 1998.[49] The fiscal cost associated with the interest cost of bond issuances is estimated to be W3.6 trillion in 1998 and W8 to W9 trillion in 1999.[50] The government expects to recover this cost by sales of collateralized assets, divestment of acquired equity shares of financial institutions and by liquidation of insolvent institutions.

Lender of Last Resort Support

As lender of last resort, the Bank of Korea provided temporary liquidity support during the crisis. In September 1997, it provided a special liquidity support to merchant banks and to Korea First Bank and, in December 1997, another facility was established for commercial banks and other financial institutions that had been affected by the suspension of merchant bank operations.[51] With respect to foreign exchange obligations, in August 1997 the authorities announced that they would guarantee the foreign liabilities of Korean financial institutions. Nonetheless, the roll-over of short term commercial loans to Korean banks sank to a low of about 10 percent in late December. The BOK ensured that commitments were met by placing foreign currency overnight and term deposits with the commercial banks at

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[49] More pessimistic unofficial estimates point to a final amount of public funds reaching about W140 trillion, or 33 percent of 1997 GDP.

[50]The assumption for the calculation of the interest cost is that bond issues are spread evenly over the second half of 1998 and 1999 and the annual interest rate is 16 percent.

[51]The initial maturity of BOK's support was three months, but it has been rolled-over because the Bridge Bank has no funding to repay commercial banks their claim on the closed merchant banks, and has not been fully repaid. BOK charges commercial banks the average call rate minus 100 basis points, but commercial banks receive interest payments from KDIC at the average call rate *plus* 50 basis points. Hence, this liquidity support has an element of subsidy to commercial banks amounting to 150 basis points.

increasingly penal interest rates, reaching LIBOR plus 1500 points. As of end-December 1997, this facility amounted to W27 trillion, and borrowing under this facility is expected to be fully repaid by July 1999[52]. Approximately one sixth of these funds were earmarked for on-lending to merchant banks. In January 1998 roll-over rates improved and on January 29 the authorities reached an agreement with foreign commercial banks on debt restructuring.[53] A total of $21.3 billion was agreed to be exchanged by the deadline of March 31, 1998.

E. Measures to Strengthen the Banking Environment

To prevent the recurrence of banking system problems in the future, the financial reform strategy calls for improving the supervision and management of banks. The main elements are shifting to consolidated bank supervision and strengthening prudential regulations and supervision, liberalizing restrictions on foreign ownership and management of banks; and strengthening the credit evaluation and risk management capabilities of banks.

As noted earlier, the FSC is responsible for supervising and setting regulatory standards and prudential standards for all financial institutions.[54] Regulations are being phased in to bring merchant banks and other financial institutions under the supervisory umbrella and to subject these institutions to the same prudential standards as commercial banks. Supervision will also be enhanced to cover the full range of banking risks of financial institutions on a consolidated basis, including consolidating trust accounts with regular commercial banking business and consolidating domestic banks with their overseas subsidiaries and foreign branches, for supervisory purposes.[55]

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[52] The BOK made a profit with these interventions. Considering the opportunity cost of funds to be the yield on MSBs for domestic currency and LIBOR for foreign currency, the BOK made an accumulated profit of about W6 trillion in the period December 1997-June 1998.

[53]The agreement consisted in the exchange of short term debt into government guaranteed transferable loan certificates maturing in one, two and three years at floating interest rates of 2.25, 2.25 and 2.75 over six month LIBOR respectively. The agreement includes a plan to enable Korean banks to renegotiate the loans at lower rates if the country's international credit ratings improve, and a call option on loans with extended maturities of two and three years exercisable on July 1998.

[54]The law does not apply to specialized and development banks. However, the responsibility for examining these institutions has been delegated by the MOFE to the FSC, although the legal responsibility will be retained by the MOFE.

[55]In particular, all trust accounts with guarantee will be regarded as on-balance sheet for supervisory and accounting purposes. For capital adequacy calculations, assets in such accounts will be weighted at 50 percent as of January 1999 and fully as of January 2000.

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The authorities strengthened prudential standards and supervision procedures—with special emphasis on strengthening the regulations on foreign exchange activities —to bring them in line with the *Core Principles for Effective Banking Supervision* recommended by the Basle Committee. On June 30, the authorities introduced new loan classification standards and provisioning rules whereby loans more than 3 months overdue will be classified as substandard. Also, the provisioning requirement for precautionary assets has been increased from the current 1 percent to 2 percent. The FSC also introduced regulations to require the provisioning for securities losses, and to deduct from Tier 2 capital all provisions for nonperforming loans (effective January 1999).

The FSC also announced the strengthening of prudential supervision and regulation in the area of foreign exchange operations for commercial and merchant banks.[56] These new regulations will become effective on January 1999 for commercial banks and during 1999 for merchant banks. The main area of strengthening is liquidity management, in three main areas: First, compliance with the guidelines that require short term assets (less than 3 months) to cover at least 70 percent of short term liabilities and long term borrowing (more than 3 years) to cover more than 50 percent of long term assets will be enforced for commercial banks as of January 1999 and for merchant banks as of December, 1999. A maturity ladder approach will be implemented for commercial banks (January 1, 1999) and merchant banks (July 1, 1999), which will be monitored by FSC on a monthly basis.[57] Overseas branches and subsidiaries will be included in the calculations. Second, banks will introduce overall foreign currency exposure limits per counterparty, including foreign currency loans, guarantees, security investments and

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[55](...continued)
Rules will be introduced to provide full disclosure of trust beneficiaries and preclude any possibility of payment by managing banks to make good or guarantee any loss, and to ensure segregation of management and accounting.

[56] Under the current arrangement, the supervision of foreign exchange activities is under the jurisdiction of MOFE, with some aspects delegated to the BOK. The government will introduce amendments to the Foreign Exchange Act to entrust all responsibility for the setting of foreign exchange limits and the supervision of foreign exchange risk to the FSC, with information provided regularly by the BOK.

[57]This will require banks to report maturity mismatches for different time buckets (sight to 7 days, 7 days to 1 month, 1 to 3 months, 3 to 6 months, 6 months to 1 year and over 1 year), and maintain positive mismatches for the first period. From sight to 1 month, any negative mismatch should not exceed 10 percent of total foreign currency assets, and from sight to 3 months it should not exceed 20 percent

off-shore finance. Finally, the government removed the limit on spot foreign exchange transactions of banks, leaving a global limit on spot and forward positions.[58]

The large exposure of banks to the big conglomerates is a major reason underlying the present difficulties that Korean banks are experiencing. Despite the tightening of these rules in August 1997, these limits remained far too generous, and the authorities have announced plans to phase in a further tightening of limits on large credit exposures. Single borrower and group exposure limits will be redefined to include all off-balance sheet exposures. Both single borrower and group limits for commercial and merchant banks will be progressively reduced to 25 percent of total capital by 2004, and aggregate exposures in excess of 10 percent of total capital will be gradually reduced to 500 percent of total capital. Connected lending will be limited to 25 percent of equity capital and will be phased in until January 2001.[59]

Increasing foreign ownership and management of banks is recognized as a means to help recapitalize banks, increase competition in financial markets, and improve the management of banks. Starting in December 1997, full foreign ownership of merchant banks has been allowed. Nonresident purchases of equity in banks and other financial institutions (excluding merchant banks) are subject to the laws governing equity ownership of Korean companies by foreigners. Currently, the individual foreign ownership limit is set at 50 percent and the aggregate limit at 55 percent of equity; the latter limit is scheduled to be eliminated by the end of 1998. In addition, the government has submitted legislation to abolish regulations prohibiting foreigners from becoming bank managers. Finally, the debt workout unit within banks, and voluntary creditor committees (among banks and other creditors) that are formed in the context of corporate restructuring, as well as the diagnostic reviews currently under way, are expected to contribute to strengthening credit analysis and risk management capacity within domestic banks.[60]

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[58]This measure is expected to induce some increase in turnover in the foreign exchange market, one of the lowest among developed countries, and enhance the pricing of the forward market so as to reflect interest rate differentials. It will also encourage higher swap market activity, so as to provide a closer link between won and dollar money markets.

[59]Excesses in aggregate exposures and connected lending will be published regularly.

[60] Korea followed a model similar to the "London Approach" to corporate restructuring. A Corporate Restructuring Agreement (CRA) has been signed by 200 financial institutions, under which financial institutions agree to follow specific procedures for debt workouts and to subject themselves to binding arbitration by a private agency specially set up for the purpose, the Corporate Restructuring Coordinating Committee (CRCC). These procedures include the creation of creditor committees to deal with the restructuring of individual corporations or conglomerates. Lead banks or groups of institutions holding more then 25 percent of a corporation's debt can call a creditor's committee meeting. An automatic standstill on debt

(continued...)

Banks have also been encouraged to adopt operational improvements. Banks' rehabilitation plans have included specific benchmarks to improve their profitability and the quality of their portfolios. Moreover, in a move facilitated by the reform of restrictive labor legislation, banks are seeking to reduce their staffing by more than 30 percent. At the same time, banks have closed down uneconomical branches domestically and overseas, and sought partners and alliances that would improve their competitiveness.

Corporations have also begun their restructuring, which includes both the restructuring of their financing as well as of their operations. The discussion of this process exceeds the scope of this paper; however, the decisions in this area remain one of the sources of uncertainty as to banks' capital needs at the time this paper is being written.

V. Monetary and Financial Developments

Korea's economic crisis erupted as a speculative attack on the won in a context of very low foreign exchange reserves. Once reserves were replenished with external assistance and the exchange rate began to stabilize following the tightening of monetary policy, the crisis was transmitted to the real economy mainly through developments in the financial and banking sectors.

After an initial response to the crisis based on the intervention in foreign exchange markets to defend the exchange rate and hikes in interest rates, the Korean authorities adopted a comprehensive macroeconomic stabilization program aimed mainly at restoring the confidence in foreign exchange markets while minimizing the disruption to the real economy.[61] Monetary policy was tightened to stem capital outflows, discourage speculation, and curb inflationary pressures that could stem originate in the exchange rate depreciation.

The exchange rate was allowed to float freely on December 16, 1997, and reached a trough of W1,962 per dollar on December 23, 1997 (see Figure 4). After the announcement of the acceleration of foreign official financing, the won recovered to W1,500 per dollar on December 26, 1997, and fluctuated around W1,600-1,700 during January, as confidence was bolstered also by the agreement with Korea's foreign bank creditors. Since then, the won appreciated steadily, stabilizing around W1,200 per dollar, compared to about W800 before

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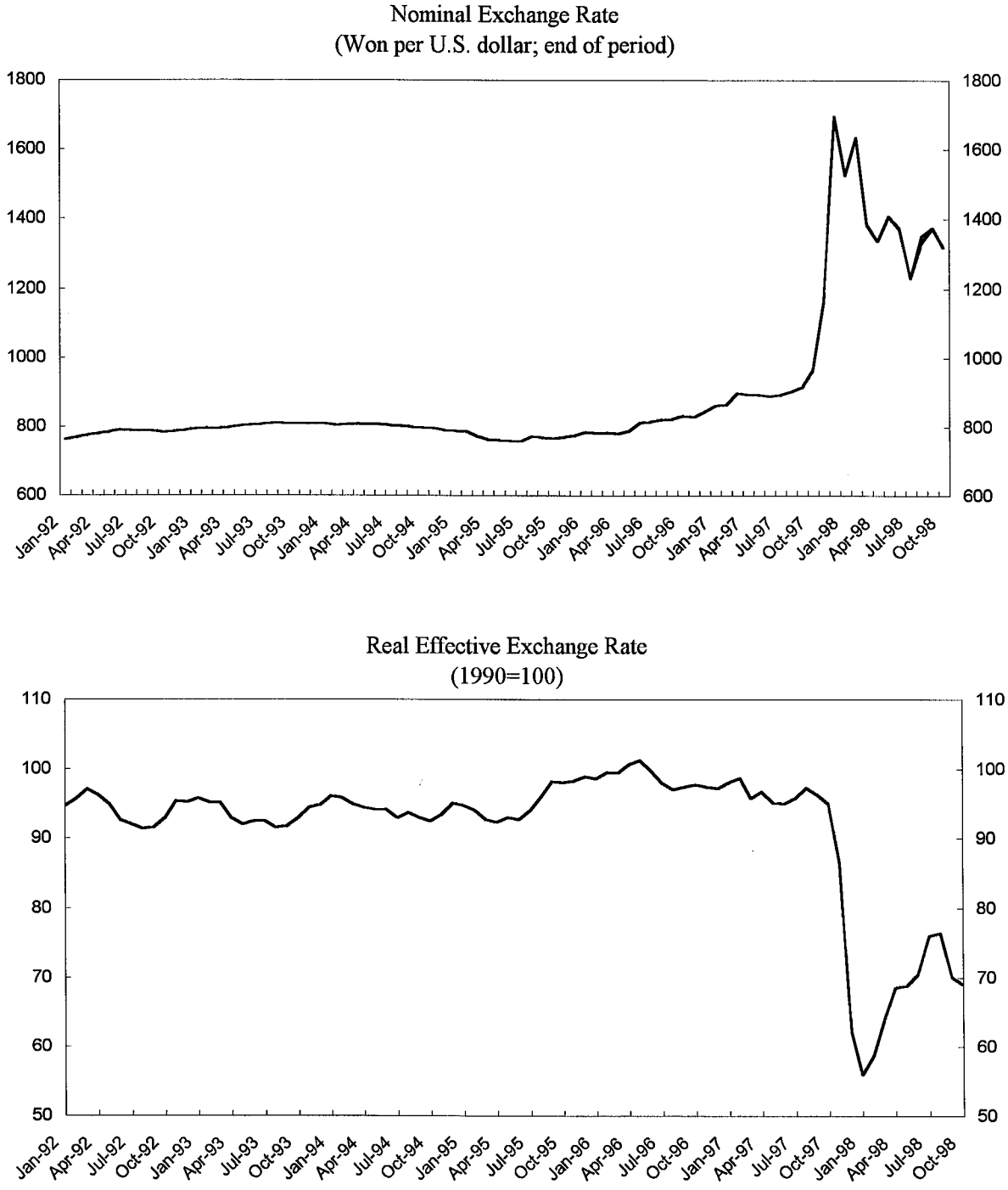
[60](...continued)
payments applies while the committee negotiates. Upon agreement upon banks, the Lead Bank will negotiate with the debtor corporation. In all of the cases, arbitration by the CRCC will solve bottlenecks in the negotiations.

[61]See Kochhar, Loungani and Stone (1998) for a review of macroeconomic developments in east Asia during the first year of the crisis.

Figure 4. Korea: Exchange Rates



Sources: IMF, Information Notice System; and IMF, International Financial Statistics.

the crisis. The substantial level of debt denominated in foreign exchange of Korean banks and corporations amplified the negative effect of these fluctuations on the real sector.

On December 22, 1997, the statutory ceiling on interest rates was raised from 25 percent per annum to 40 percent, and call rates reached 32 percent on December 26, 1997 (see Figure 5). Since then, following the stabilization of the foreign exchange market, short term rates were eased cautiously, balancing the need to ensure the stability of the won and contain inflation with the need to minimize the disruption in the highly leveraged corporate sector. Call rates were about 18 percent in early May, fell below 10 percent in early August, lower than the pre-crisis level, and declined further to about 7 percent in December 1998. Inflation increased sharply in the first months of 1998 peaking at 9.5 percent (year-on-year) in February 1998, from 4.5 in December 1997, but was contained thereafter and averaged 7.5 percent in 1998 (see Figure 5). Thus, real interest rates peaked at about 19 percent in January 1998, and subsequently declined gradually to below pre-crisis levels (real interest rates averaged about 8 percent in 1996-1997).

The credit channel, in particular through bank lending, played a crucial role in the transmission of the stance of monetary policy to the real sector. The contraction was exacerbated by a combination of the high interest rates needed to stabilize the exchange rate and the sharp decrease in bank lending that ensued the recognition of the huge volume of nonperforming loans and the consequent deterioration in their reported capital adequacy ratios, in the context of already weakly capitalized financial institutions.[62]

The short term structure of corporate finance accelerated the transmission of the high interest rates to the real economy. Three-month promissory notes are widely used in Korea as a means of payment among enterprises, especially among SMEs, and hence 35 percent of domestic corporate debt has an average maturity of less than 3 months, and about 70 percent is under a year. Discount rates on these notes almost doubled between October 1997 and January 1998, and therefore the transmission to the corporate sector of interest rate shocks, even if short lived, was very fast.

Interest rate spreads widened significantly: the spread between lending and deposit rates rose to an average of almost 4 percent during the first half of 1998, from close to 3 ½ percent in 1997; the spread between government bonds and corporate bonds reached 900 basis points in December 1997, compared to about 100 basis points before the crisis; At the same time, the spread between lending rates on overdrafts and yields on corporate bonds soared to about 1300 basis points, affecting mainly the SMEs heavily depending on bank credit (see Figure 6). Later in the year, when interest rates declined, the banks' perception of risk because of the recession and the ongoing corporate restructuring process, their need to increase profits in

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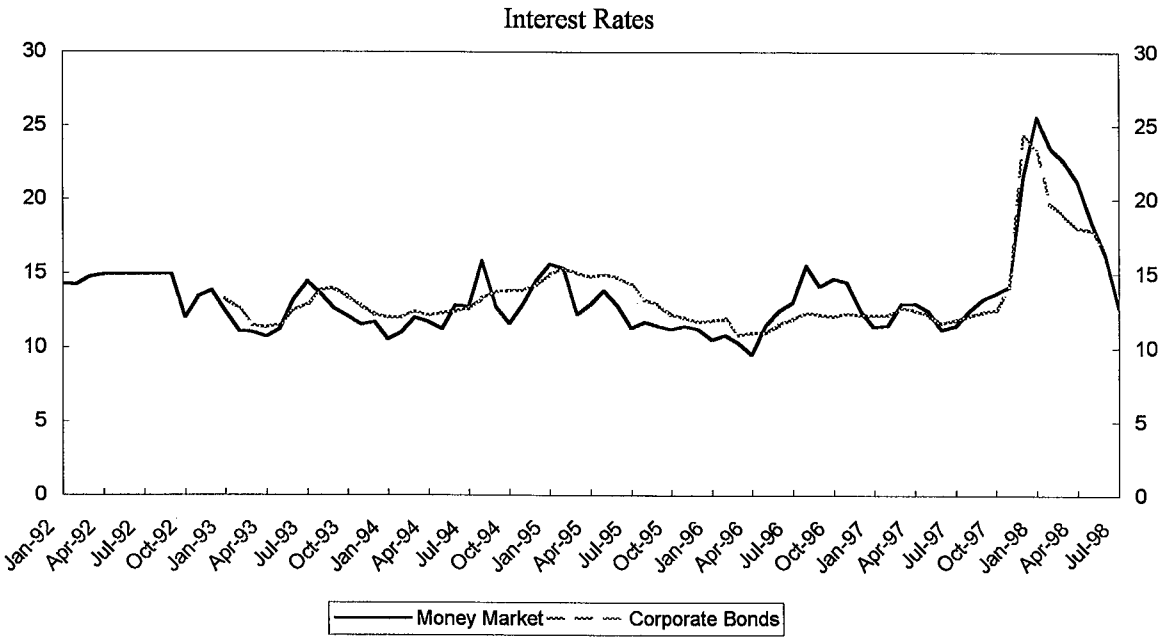
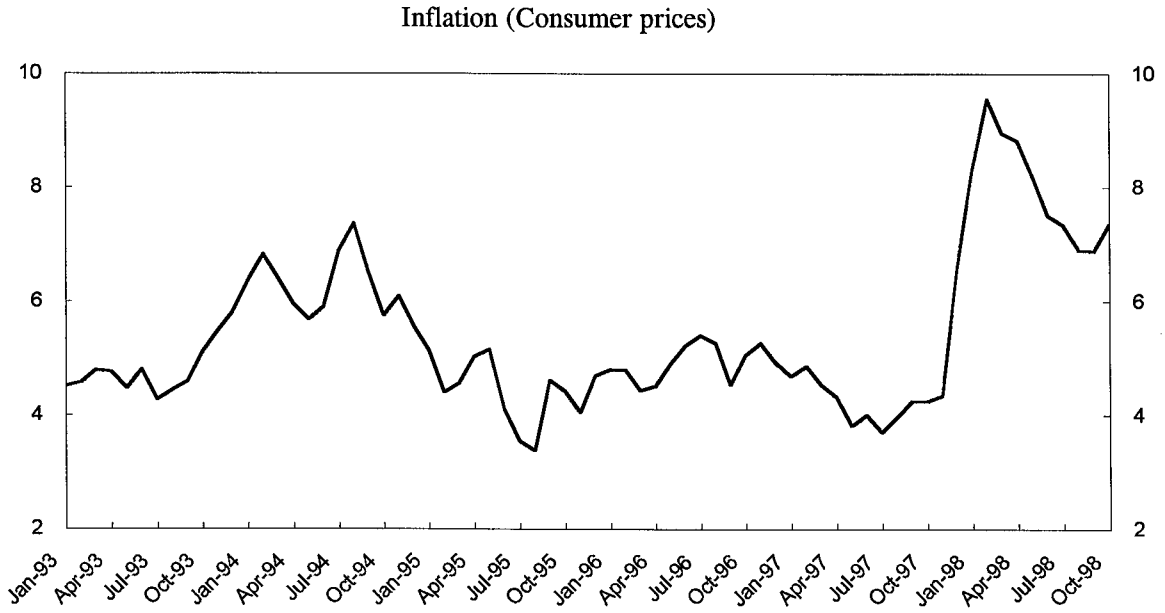
[62] This phenomenon, namely the amplification of an adverse shock by worsening credit market conditions, has been referred to in the literature as the "financial accelerator", see Bernanke, Gertler and Gilchirts (1996)

Figure 5. Korea: Interest Rates and Inflation
(In percent per annum)

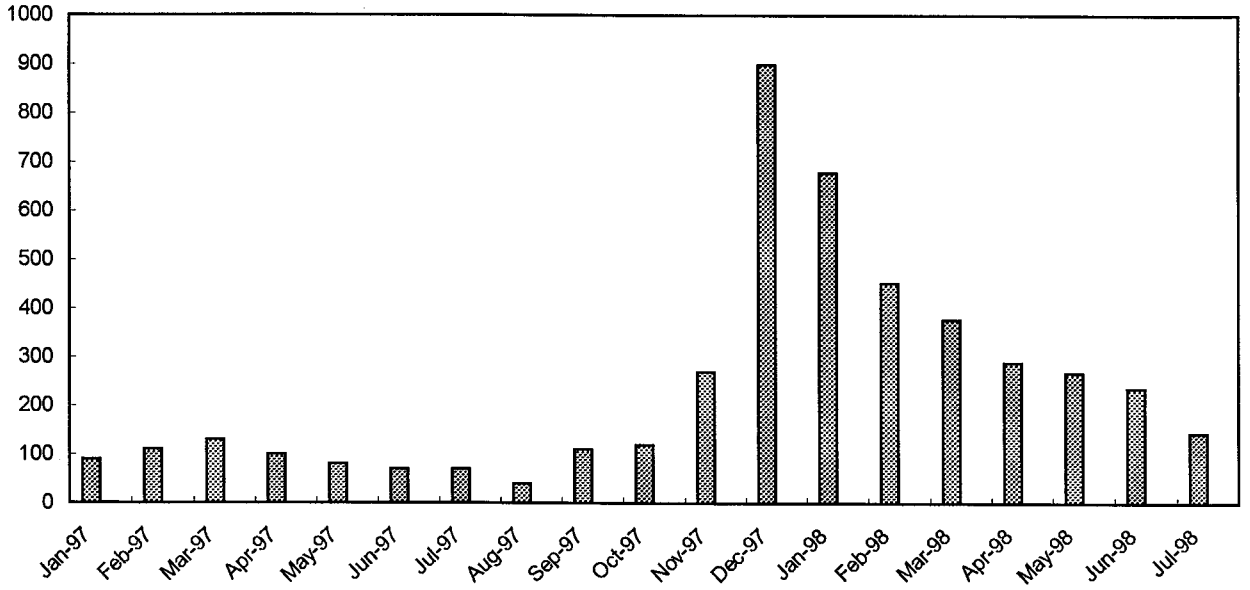




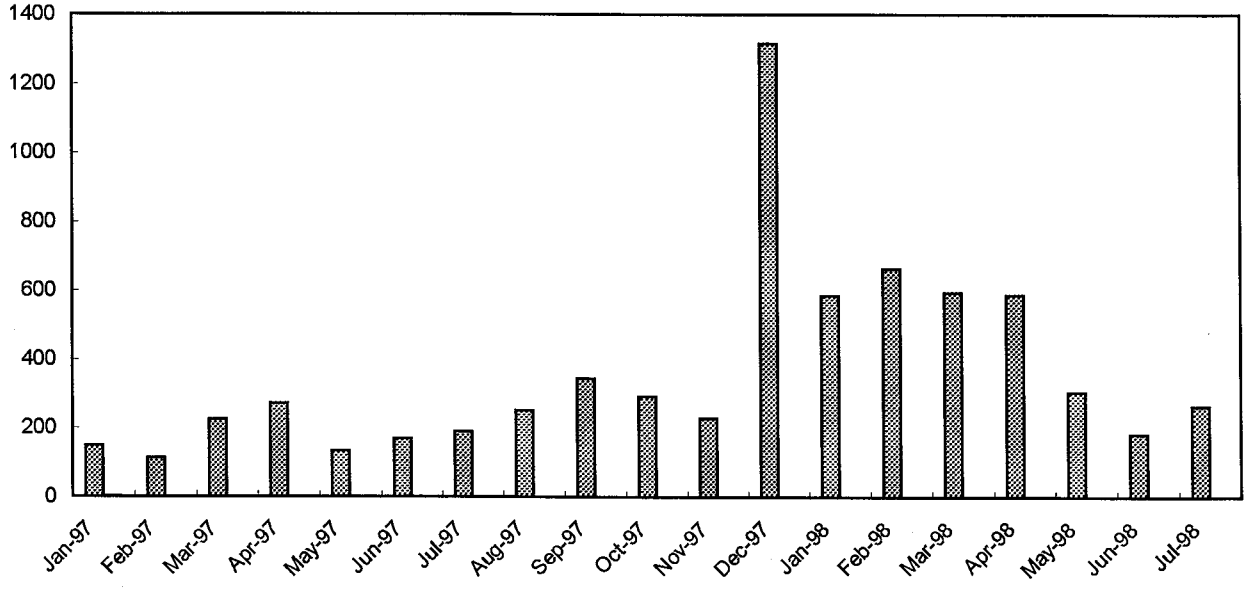
Source: IMF, International Financial Statistics.

Figure 6. Korea: Interest Rate Spreads

Spread Corporate Bonds vs. Government Bonds
(In basis points)



Spread Overdrafts vs. Corporate Bonds
(In basis points)



Source: Bank of Korea Monthly Bulletin.

order to recapitalize, and the slow recovery of the corporate bond market made the transmission of lower short term rates to lending rates very sluggish, hence further damaging the financial structure of the Korean corporate sector.

Credit availability declined.[63] The rate of growth of private sector credit decreased significantly during the first half of 1998 to about 8 percent in June 1998, compared to about 18 percent in June 1997, and the loan/deposit ratio of commercial banks declined by about 20 percent from October 1997 to June 1998 (Figure 7).[64] Banks shrank their loan portfolios owing to sharply worsened credit-risk expectations and the need to recapitalize after the surge in nonperforming loans and operational losses in the aftermath of the crisis.[65] The interbank market became segmented between strong and weak banks,[66] and excess reserves in commercial banks ballooned (see Figure 8).

Limited private capital interest in recapitalizing the banking sector exacerbated banks' risk averse behavior, further disrupting the functioning of the financial markets and deviating credit away from small firms. Banks preferred customers perceived as safer, such as large conglomerates with good supply of collateral, seriously curtailing credit to SMEs and the trade sector.[67] This "flight to quality" behavior of banks and the subsequent shift of short term debt away from small firms has been characterized as the "broad credit channel" (Bernanke, Gertler and Gilchrist (1996)). To alleviate the credit crunch, particularly as it affected SMEs, the authorities have provided banks with liquidity support and a grace period of two years to reach the minimum capital adequacy ratios, enhanced the BOK's rediscount window for

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[63]The credit crunch dimension of the crisis spurred the development of new theoretical models of financial crises (see, among others, Caballero and Krishnamurthy (1998) and Chan-Lau and Chen (1998)) where inefficient financial intermediation and lack of adequate international collateral play a fundamental role in understanding the developments that follow the unraveling of the crisis.

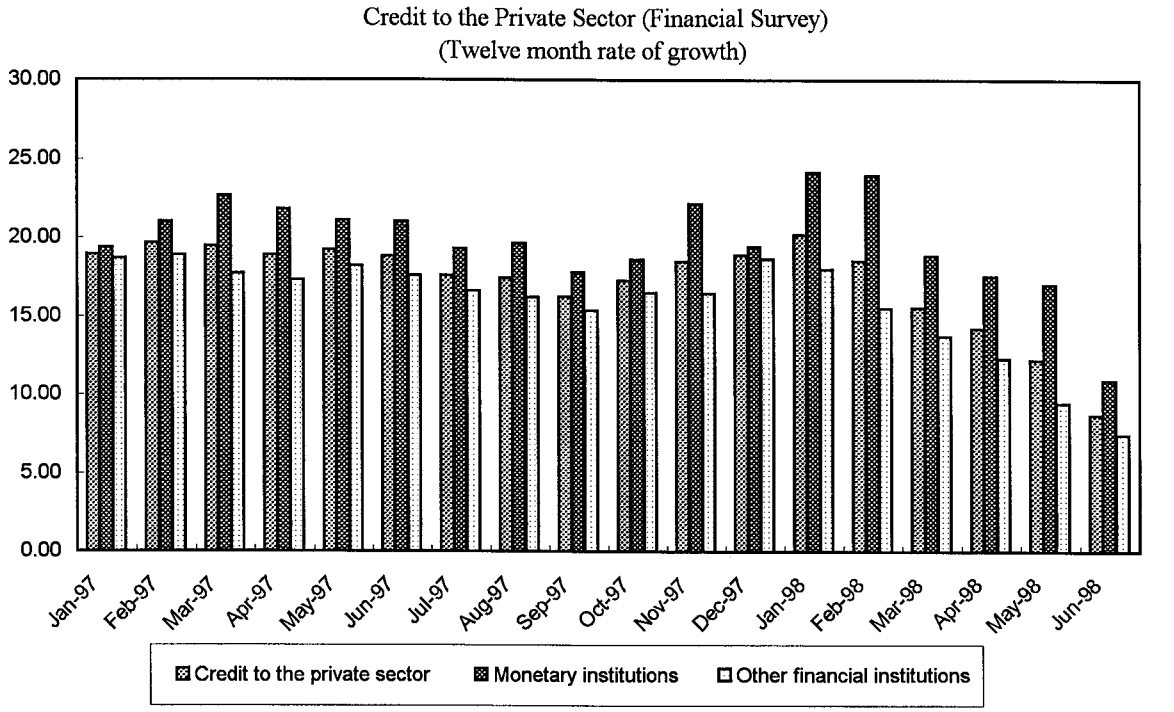
[64]These figures, however, must be interpreted with caution because of the impact of KAMCO purchases and debt write-offs on banks' portfolios, especially during the periods December 1997-January 1998 and September-October 1998.

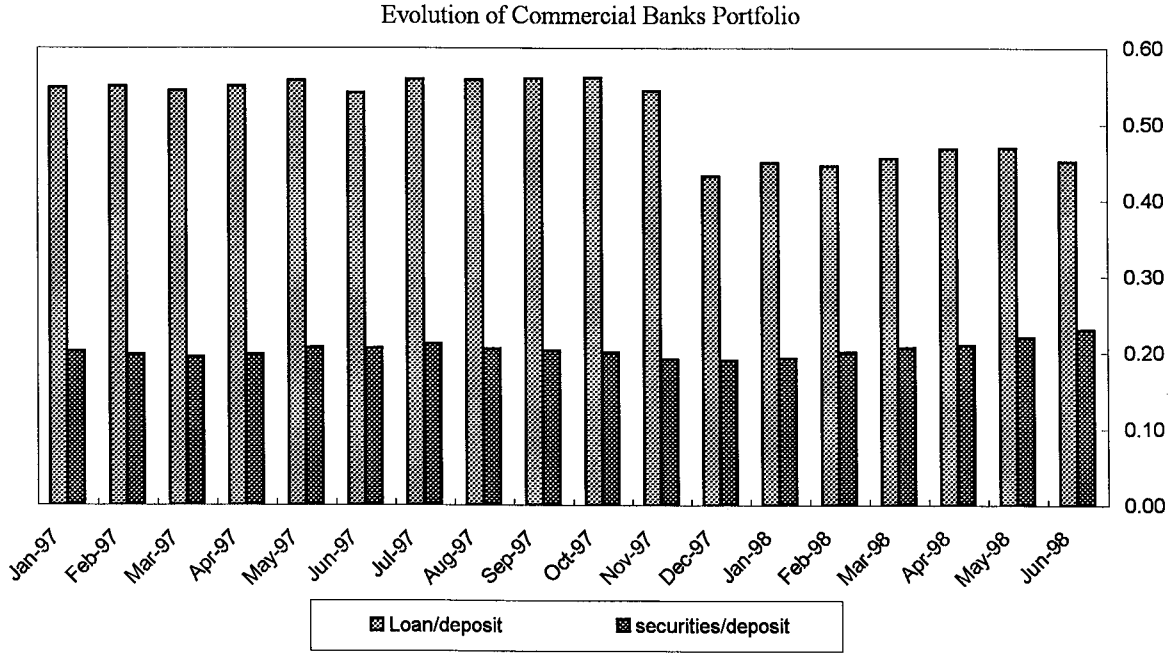
[65] Korean commercial banks posted losses of about W4 trillion in 1997 and W67 trillion (about 3 times bank's total end-1997 capital) in the first half of 1998.

[66]The spreads of call interest rates between strong and weak banks reached 9 percentage points in late December 1997- early January 1998.

[67]Part of the difficulties of SMEs in obtaining credit arose from the closure of 16 of the 30 merchant banks, which had been an important source of credit for them. In addition, banks extended an important amount of rescue loans to big conglomerates (about 15 percent of new lending in the first quarter of 1998).

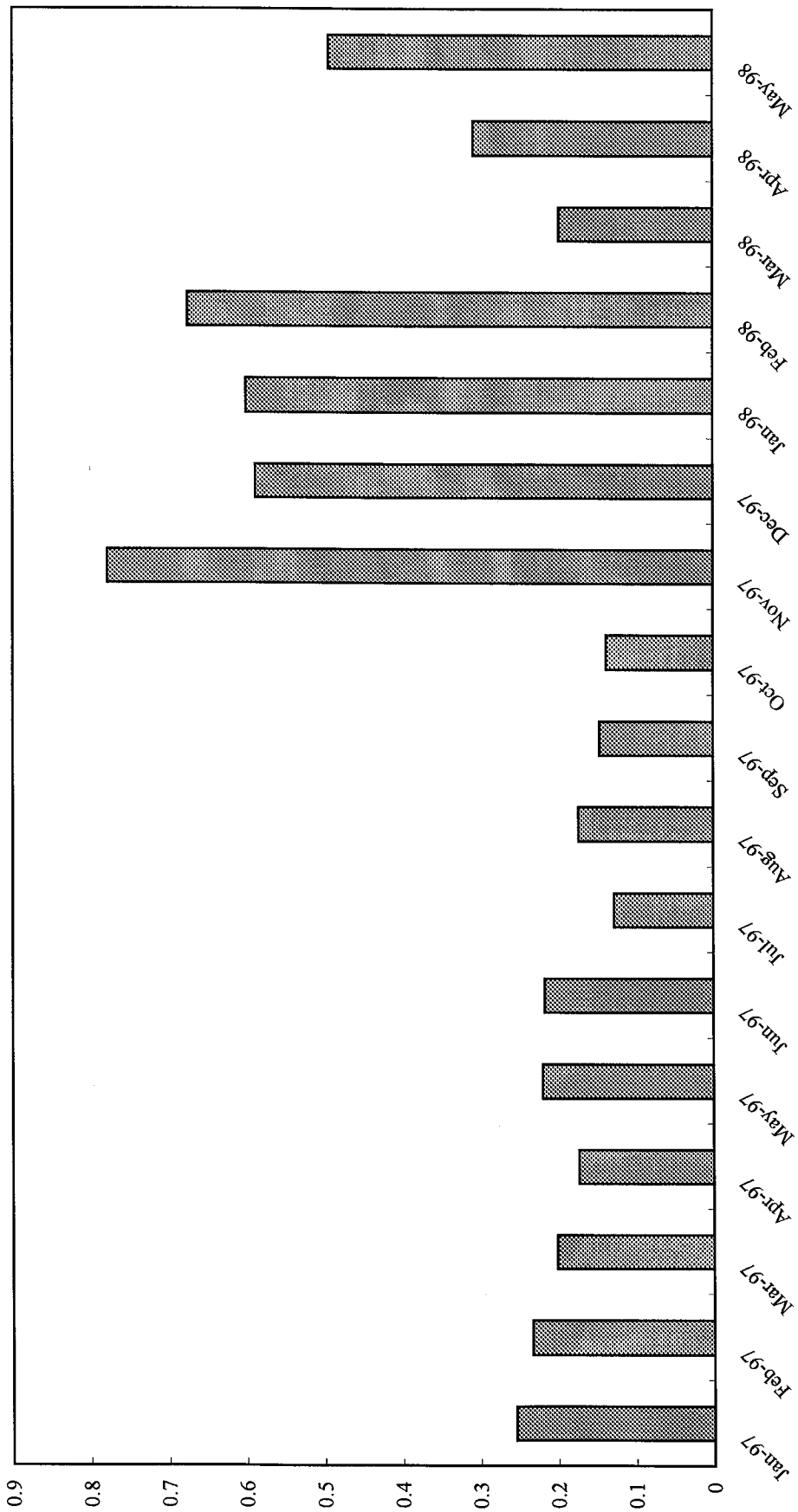
Figure 7. Korea: Evolution of Credit





Source: Bank of Korea.

Figure 8. Korea: Commercial Banks' Excess Reserves
(In percentage of required reserves)



Source: Bank of Korea.

SMEs, established several trade financing facilities, and increased the amount of guarantees provided to nonchaebol companies through the Korea Credit Guarantee Fund. They also resorted to moral suasion to encourage banks to rollover SME credit.

The process of financial reform and bank closures was carried out relatively smoothly. Probably because of the blanket deposit guarantee, neither the suspension of 14 merchant banks and the placement of two large commercial banks under intensive supervision in December 1997 nor the purchase and acquisition operations in June 1998 did provoke a run of depositors, despite some delays in repaying bank deposits in closed or suspended banks. Confidence in the banking sector was maintained, as suggested by the fact that the deposit base remained broadly stable and that the ratio of currency to deposits declined during 1998 (see Figure 9). However, because of the uncertainty about the evolution of the exchange rate, the share of foreign currency deposits in total deposits increased in December 1997 and January but has stabilized—and has tended to fall—in later months (see Figure 10).

Because of concerns about moral hazard arising from weak banks offering high interest rates to attract deposits, the authorities decided in July 1998 to limit the blanket deposit guarantee.[68] However, this change did not alter the confidence in the banking system as evidenced in the evolution of deposits.

In the absence of a run on deposits, public sector support was aimed chiefly at improving banks' solvency rather than their liquidity. Thus it did not disrupt monetary control (see Tables 8a and 8b).

Since the crisis broke out, net domestic assets were a major source of growth in reserve money only in the last two months of 1997; at that time, falling net foreign assets largely offset the net domestic assets' expansionary effect on reserve money.[69] The growth in M2 and M3 was not due to an increase in credit to the economy (see also Figure 7) but rather to increases in net foreign assets. Because of the high yield offered and their much lower risk, banks preferred holding the bonds they received in payment for their sale of nonperforming loans to KAMCO, rather than seeking to sell them to (or use them as collateral to borrow from) the central bank and use the proceeds to increase lending. This helped in avoiding the

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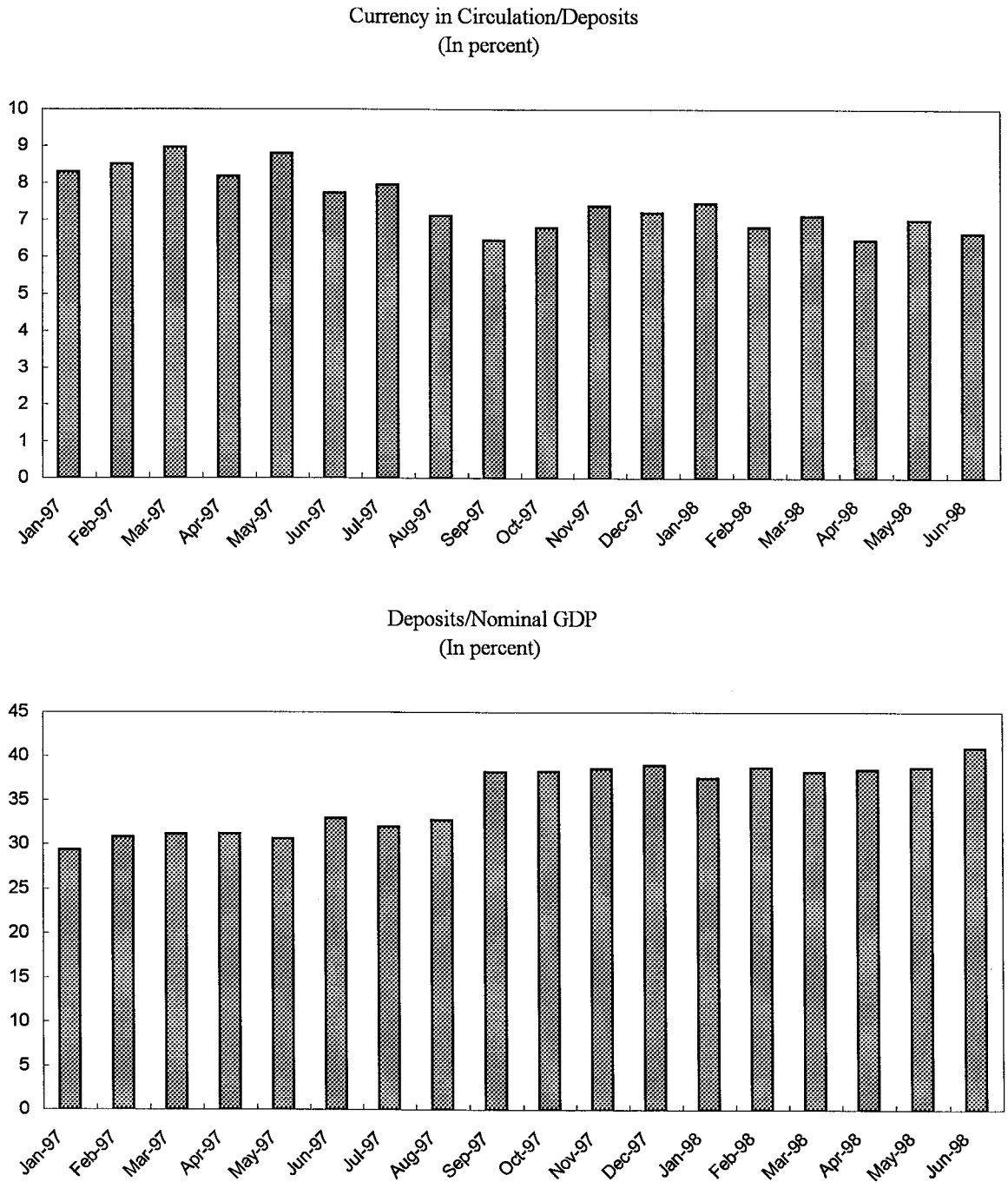
[68]The modification was as follows: If a financial institution defaults before end-2000, the depositors with deposits of more than W20 million will be paid the amount of the principal, whereas depositors with deposits of W20 million or less will receive the principal plus a payment calculated on the basis of market interest rates (rather than the deposit's contractual interest rate).

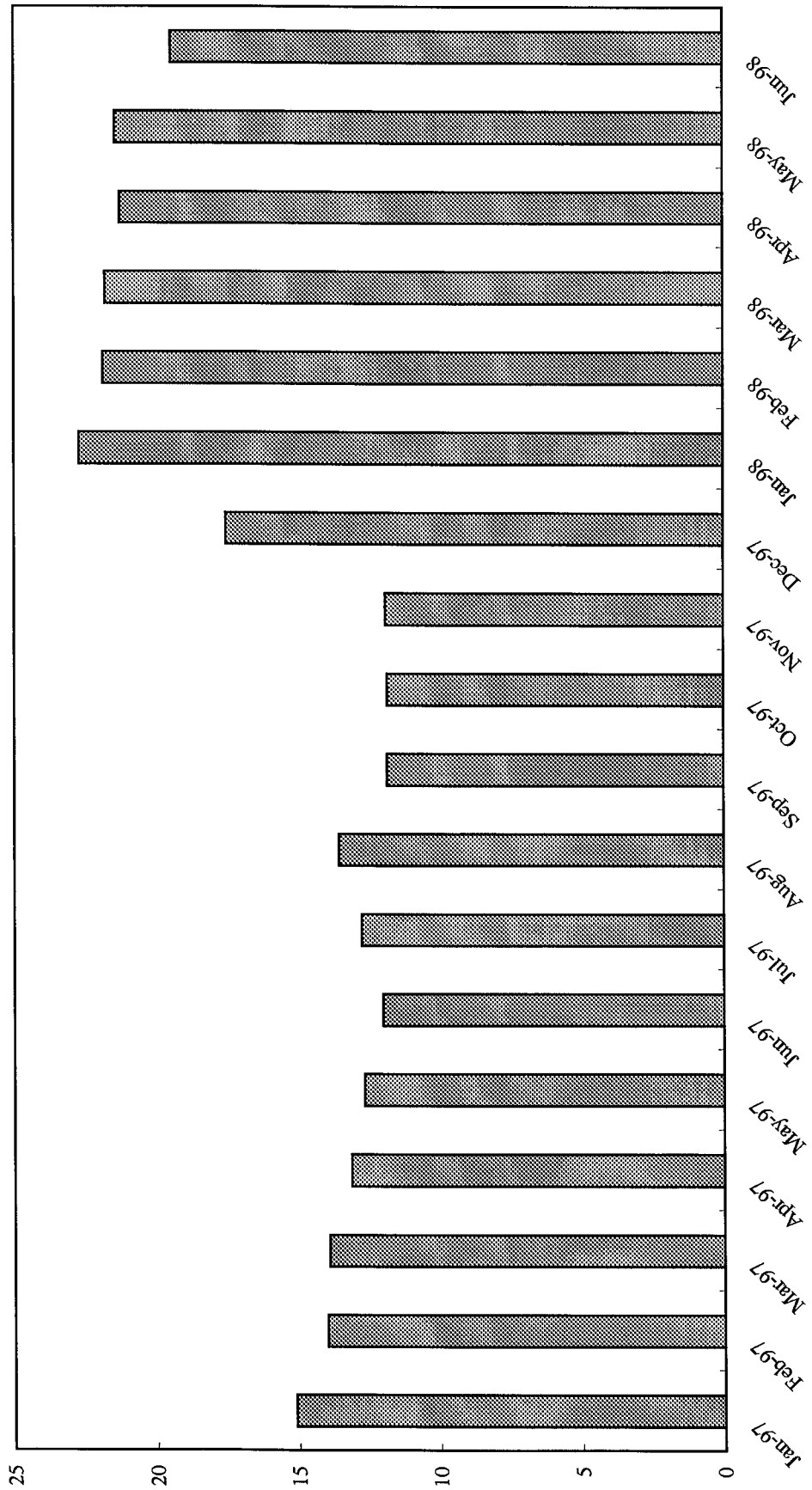
[69] Credit to banks were a major expansionary source in December 1997 and January 1998, at the height of the crisis.

Figure 9. Korea: Evolution of Deposits



Sources: Bank of Korea; and IMF, International Financial Statistics.

Figure 10. Korea: Foreign Currency Deposits/Total Deposits
(Deflated by W/$ index; in percentage)



Source: Bank of Korea.

Table 8a. Korea: Evolution of Monetary Aggregates 1/
(In percent)

	1997						1998					
	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.
Reserve money	-16.2	-16.0	-21.8	-18.7	-3.4	-12.5	4.4	-7.8	7.7	-9.3	-9.4	0.3
M2	18.4	20.7	16.4	18.9	19.9	14.1	15.4	14.6	12.1	12.9	18.3	16.3
M3	16.4	16.6	15.2	16.2	16.3	13.9	15.5	14.9	14.3	15.4	14.8	13.2

Sources: IMF, International Financial Statistics; and Bank of Korea Monthly Statistical Bulletin.

1/ Calculated as the year on year percentage change.

Table 8b. Korea: Sources of Variation of Monetary Aggregates
(Monthly changes)

	1997												1998					
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.
Bank of Korea																		
							(In percent of reserve money)											
Net foreign assets	-3.0	-5.7	-2.9	4.9	5.8	12.4	5.4	-12.5	-4.8	0.0	-31.9	-28.3	15.1	10.0	27.5	39.2	21.5	-20.8
Net domestic assets	-8.5	0.5	-2.3	-4.5	-9.4	-7.9	-8.2	13.0	14.6	-6.4	37.8	30.3	-9.6	-26.3	-16.7	-54.6	-25.2	36.6
Private financial sector	-3.5	-19.2	1.1	-0.6	-1.0	7.1	-0.9	5.3	3.4	1.0	1.5	180.8	14.2	-2.1	-9.6	-14.5	-12.0	-22.8
Change in Reserve Money	-11.5	-5.2	-5.2	0.5	-3.5	4.6	-2.8	0.5	9.9	-6.4	5.9	2.0	5.5	-16.3	10.8	-15.4	-3.7	15.8
Monetary Survey																		
							(In percent of M2)											
Net foreign assets	-0.6	-1.4	0.1	-0.1	0.6	1.7	0.7	-1.0	-0.9	-1.2	-3.3	6.9	1.3	4.4	4.1	3.5	2.6	-3.6
Net domestic assets	0.0	4.5	-0.4	1.0	-0.7	0.6	0.2	4.5	2.0	2.5	5.9	-7.5	-0.8	-1.7	-7.0	-1.6	2.8	4.2
Total private sector	2.2	1.8	3.5	2.4	1.3	1.5	3.0	2.8	1.3	3.5	7.0	0.4	10.9	1.7	-2.8	1.4	1.6	-5.9
Change in M2	-0.7	3.1	-0.3	0.9	-0.1	2.3	0.8	3.3	1.0	1.2	2.3	-0.5	0.4	2.4	-2.4	1.7	4.6	0.5
Financial Survey																		
							(In percent of M3)											
Net foreign assets	-0.1	-0.6	-0.2	-0.1	0.1	0.3	0.1	-0.3	-0.3	-0.6	-1.1	1.4	0.0	1.1	1.6	0.2	0.3	-0.5
Net domestic assets	0.9	2.1	1.1	1.0	1.1	1.1	1.4	1.8	0.6	2.5	2.4	-1.6	2.2	-0.1	-1.2	1.7	0.4	0.4
Change in M3	0.8	1.5	0.9	0.9	1.2	1.4	1.5	1.6	0.3	1.8	1.3	-0.2	2.2	1.0	0.4	1.9	0.7	-0.1

Sources: IMF, International Financial Statistics; and Bank of Korea Monthly Statistical Bulletin.

sharp acceleration in monetary aggregates' growth (particularly reserve money) that often occurs in banking crises.[70]

During this process of financial reform, stock market confidence was very volatile, reflecting both the considerable uncertainties of the process and the turmoil in neighboring countries. The stock market index sank to a minimum of 351 in December 24, 1997 from the mid-May 800 peak (see Figure 11). In January, 1998 confidence was restored and the market recovered, reaching a peak of 580 in early March, 1998. Since then, concerns about the depth of the recession, the uncertainty surrounding the financial and corporate restructuring process, labor unrest and the deterioration of the international environment related to other emerging markets crises, led to a deterioration in market sentiment and the index declined sharply, fluctuating around 300-320 in early September. This deterioration in market confidence also affected spreads in sovereign bonds, which skyrocketed to about 700 points after the Russian crisis in September, 1998, compared to 500 points in August and about 350 in April (see Figure 2). However, confidence was restored during the latter part of the year, with the stock exchange hovering around 500 and the spreads back to about 500 points by December 1998.

The impact of the crisis was quickly felt in the real sector. Economic activity slowed down significantly in 1998, and real GDP declined about 7 percent in 1998. Bankruptcies soared during the first half of 1998 (see Figure 3), the losses of Korean listed companies reached historical records (about W14 trillion in the first half of 1998) and the unemployment rate rose to more than 7 percent in the third quarter of 1998, the highest in the last 30 years. Domestic demand contracted sharply, especially among small and medium enterprises, whose industrial production index declined by 20 percent in the first quarter of 1998 (see Figure 12). Imports declined sharply, and Korea's external position improved significantly, and the level of usable reserves peaked at US$49 billion in December 1998, from a low of US$5 billion in late November 1997. Also, the maturity structure of foreign debt improved, and in June 1998 only about 25 percent was short term, compared to 63 percent by end-1996.

Despite the serious economic downturn, a year after the crisis Korea's foreign exchange reserves have been rebuilt, the exchange rate has stabilized, and interest rates are below pre-crisis levels. Inflation and monetary growth have been kept under control and, despite the severity of the contraction expected for 1998, activity and growth are projected to begin to recover in 1999. The initial stage of the process of recapitalization and rehabilitation of the banking system has been completed, and financial markets are slowly going back to normality. Because of the rebuilding of reserves, the Korean authorities announced the repayment of part of the emergency finance received from the IMF, for an amount of about $2.8 billion, in December 1998. Probably reflecting all of the above, both IBCA and Standard and Poor's announced in January 1999 the upgrade of Korea's sovereign rating to investment grade.

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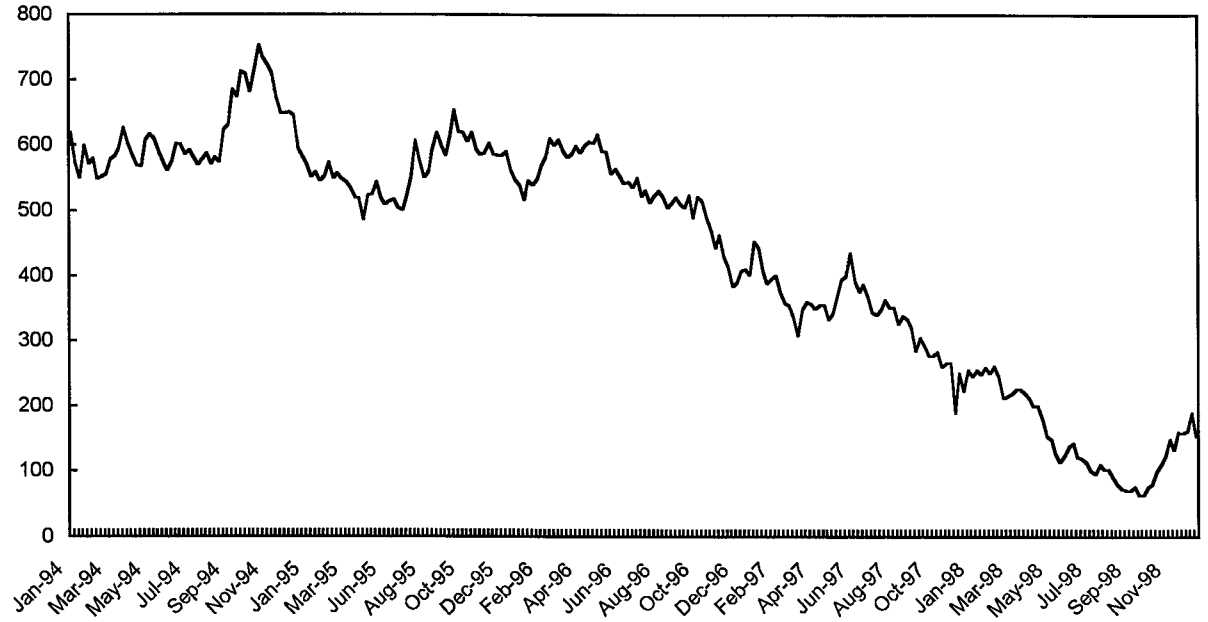
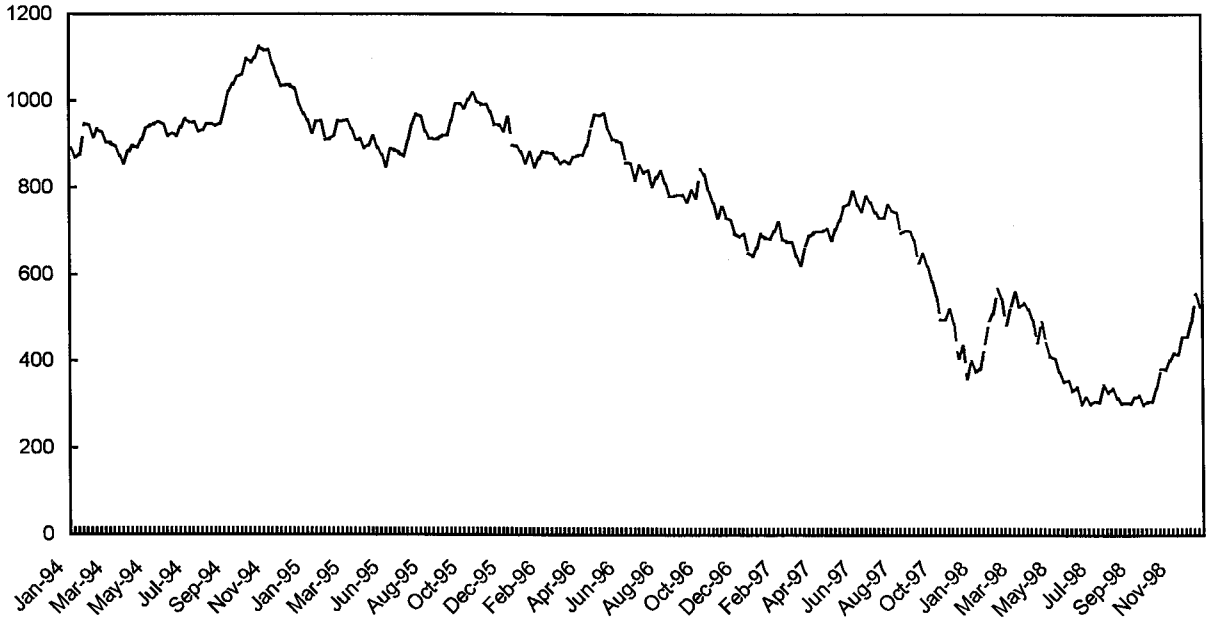
[70] Sundararajan and Baliño (1991) and García Herrero (1997) provide several examples of this type of problem, which was also observed in Indonesia's crisis of 1997.

Figure 11. Korea: Evolution of the Stock Exchange
(1994-1998, Weekly)

Korea Stock Exchange Index

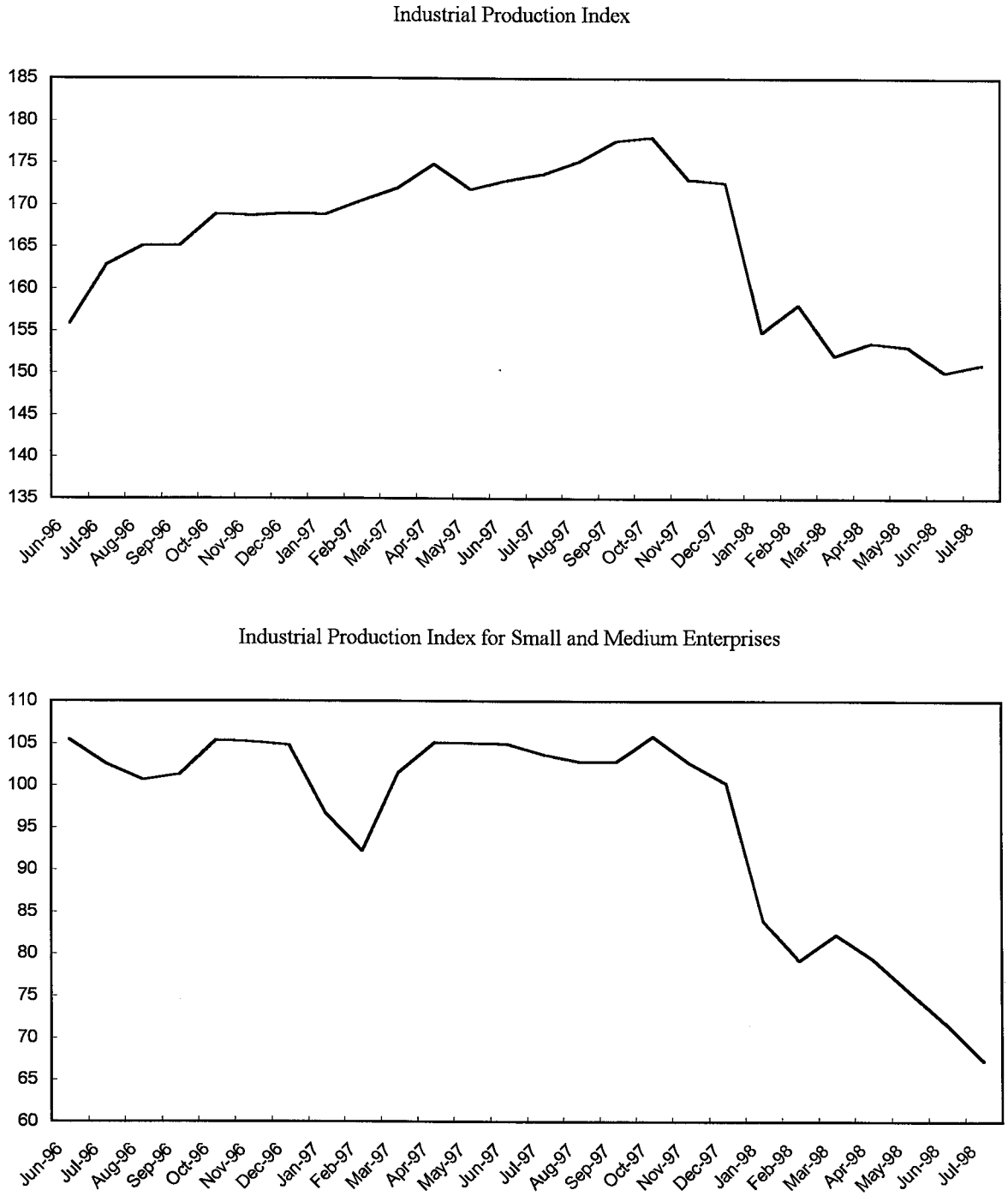


Banking Subindex of the Korean Stock Exchange



Source: Bloomberg.

Figure 12. Korea: Industrial Production Indices



Source: Bank of Korea Monthly Bulletin.

VI. CONCLUSIONS AND LESSONS FROM THE CRISIS

Korea's financial crisis had both long-term and short term causes. Weaknesses in both the corporate and the financial sectors, and a poorly implemented capital account liberalization were key long-term causes. A terms of trade deterioration in 1996, the bankruptcy of important chaebols, and a change in international market sentiment were the proximate causes.

Korea's corporate sector was weak. During the 1970s and early 1980s, the government encouraged the growth of the chaebols, putting pressure on banks to lend to them. The use of cross-guarantees and chaebols' emphasis on growth rather than profits led to significant investment in economically unviable projects. Banks financed such investment, having the comfort of collateral and an expectation of government support if needed. This made it possible for Korean corporations to have gearing ratios much higher than in other OECD members.

Despite Korea's high saving rate, much of the financing came from foreign sources. Also, a large part of that financing came in the form of short-term capital, which made the system vulnerable to changes in international capital market conditions. The fact that foreign short-term financing was liberalized ahead of long-term financing and foreign direct investment further biased financing towards the short-term.

The regulation and supervision of Korea's financial system was weak. Loan classification and provisioning standards were below international best practice. Limits on large exposure and connected lending were excessively generous, which together with the practice of the main bank, facilitated risk concentration. Capital standards were lax. Banks were also able to build up large liquidity mismatches, which became particularly problematic in the case of foreign exchange operations. Moreover, enforcement of existing norms, particularly in the case of merchant banks and nonbank financial institutions was weak. As a result, little discipline was provided by the financial supervisors. Also, the fact that the supervisors often belonged to government bodies which gave guidelines on credit allocation created a conflict of interest inimical to efficient supervision.

The market also failed to impose discipline on financial institutions and enterprises. Economic agents had little incentive to do so in the first place, owing to the tradition of the government coming to the rescue of troubled corporations and financial institutions. Furthermore, inadequate accounting and auditing practices resulted in financial statements providing insufficient (or misleading) information about the actual soundness of corporations and financial institutions.

The conditions summarized above made the Korean corporate and financial sector highly vulnerable to shocks, in particular those coming from abroad. Such a shock began in 1996, when Korea's terms of trade fell sharply, which deteriorated Korean enterprises' already slim profit margins. The failure of some large chaebols the next year began to raise doubts in the

market about the validity of the previous perception that the government would bail out troubled major corporations or financial institutions. Moreover, turmoil in East Asia, particularly in Indonesia and Thailand in 1997, started to make foreigners wary of maintaining their exposure to Korea. As they started to cut down their lines of credit, banks had to obtain support from the Bank of Korea—commonly in the form of deposits, to be able to honor their commitments.

The crisis came fully into the open in the last quarter of 1997. To deal with it, the government took some measures in November that had important implications for the financial sector, in particular the setting of an unlimited guarantee for deposits with banks and other financial institutions. In December, a comprehensive program of macroeconomic stabilization and structural reforms was adopted, which has been supported by the IMF and other international financial organizations.

In the financial sector, key elements of the program have been the exit of unviable financial institutions, restructuring of others, and the strengthening of banking supervision and regulation aimed at meeting international best practice. A new supervisory agency was established, endowed with significant operational independence and with a mandate to supervise a broad range of institutions. This agency has been put in charge also of the restructuring of financial institutions and of the domestic debt of major corporations. It has started tightening prudential regulations in areas such as risk concentration, connected lending, maturity and currency mismatches, and use of cross guarantees. In addition, efforts are being made to make financial statements more transparent. Substantial public resources have been committed to the restructuring process, and most likely additional funds will be needed in particular as the process of corporate restructuring moves forward.

Despite the inevitable turmoil of successive waves of bank closures, the public maintained confidence in the Korean banking system. Contrary to experiences in other countries, there were no massive flights of depositors triggered by the closures. The blanket deposit guarantee succeeded in reassuring depositors, despite the delays in repaying depositors at the start of the process. Thus, a strategy of phased restructuring of the financial sector proved feasible in Korea. This strategy started focusing on the most urgent problems, namely insolvency and undercapitalization of merchant and commercial banks, and the serious weakness of the supervisory and regulatory institutional setup. Over time, the reforms were intended to comprise the restructuring of other important financial institutions, strengthening the regulatory and supervisory framework, improving the mechanisms to deal with troubled institutions and managing troubled loans, increasing the transparency of financial sector information, facilitating the entry of new shareholders (including foreigners) into the system, and addressing the weaknesses of the corporate sector.

The problems in the banking sector did not result in major monetary disturbances, again contrary to the experience of other countries. The BOK support was to substitute for outflows in foreign exchange, owing to the capital outflow early in the crisis. Despite the significant restructuring of the financial sector, depositors maintained their funds in the system

(those funds were often transferred from the exiting institution to the one that was purchasing it). Relatively small amounts of BOK domestic liquidity support were needed, which the BOK was easily able to sterilize through sales of its Monetary Stabilization Bonds.

Korea's experience illustrates several important points, regarding financial crisis prevention. First, transparency in financial statements of both financial institutions and corporations is needed to identify risks promptly. Eliminating practices such as the widespread use of cross guarantees would have made it easier to identify lending risks appropriately. Wider use of consolidated financial statements would have helped also. Better disclosure would have discouraged continued financing of unviable institutions and corporations.

Second, tighter regulation of financial institutions risks would have helped. This should have included monitoring both on- and off- balance sheet risks, setting much lower limits on exposure to a single borrower or related group of borrowers and on connected lending, requiring appropriate management of maturity mismatches between assets and liabilities in foreign exchange. Strict loan classification and provisioning rules would have forced banks to improve their lending practices and to recognize potential losses in a timely manner. Moreover, higher capital adequacy ratios would have provided banks with a better cushion to absorb shocks.

Third, supervisory forbearance allows problems in the financial system to become larger and more costly to solve. Korean financial institutions (in particular merchant banks) were allowed to continue normal operations well after their capital had fallen below minimum requirements and, in some cases, even after they had become insolvent. Timely adoption of prompt corrective action measures, including exit of financial institutions when appropriate, would have reduced excessive risk taking on the part of such institutions. Similarly, banks should have been required to manage their foreign currency liquidity positions more prudently, which would have lowered the risk of illiquidity when changed market sentiment reversed capital flows.

Fourth, in dealing with financial sector problems, it is crucial to identify and address the problems of the corporate sector. Banking regulation and supervision can assist in this area also, limiting financing to overindebted corporations.

Fifth, the government can contribute to financial distress, if it directs financial institutions to lend to particular sectors or enterprises; avoidance of such interference helps in ensuring that lending decisions are based on a sound analysis of borrowers' capacity to repay.

The handling of the crisis in Korea also offers some lessons, which are consistent with experience in other countries. First, in such crises, initial estimates of portfolio problems are likely to underestimate the size of the problem. In-depth analysis of bank portfolios and of enterprises' financial prospects will uncover portfolio problems substantially higher than those identified initially on the basis of the banks' own financial statements and other forms of off-site analysis. Thus, the level of resources needed to recapitalize banks and to reimburse

insured depositors in failed banks will likely amply exceed initial calculations. Second, linkages between corporations and between financial institutions will result in a rapid transmission of risks and costs across financial institutions. Third, failure to meet best international practice in the area of regulation, supervision, and disclosure not only encourages excessive risk taking but it also undermines market confidence in the soundness of the financial system and discourages the injection of funds into the system. Thus, upgrading these practices should be a key part of the financial reform package.

Two peculiarities of the strategy followed in Korea to deal with the crisis merit special mention. One is the granting of a temporary blanket guarantee to cover deposits with financial institutions. This choice is open to the usual criticism that it encourages excessive risk taking by financial institutions, as depositors will not be concerned with the riskiness of their bank. However, this guarantee made it possible to carry out the financial reform gradually, while avoiding the deposit runs that could well have taken place if depositors had been afraid of suffering losses. On balance, the choice seems to have been appropriate in Korea's case, provided it is replaced in due course with a partial, carefully designed, guarantee. The second peculiarity is the heavy use of nonperforming loan purchases as a mechanism for delivering official support for bank restructuring. There are advantages and disadvantages to that strategy, as compared to using the public funds to recapitalize banks directly, through the subscription of equity or purchase of subordinated debt. One advantage is that the selling bank's management can focus on the analysis of new loans and other operational issues rather than on collecting on distressed loans. Also, there may be economies of scale (e.g., if collateral is in the form of real estate) in having a single agency manage the assets that several banks own in a given location rather than having each bank doing so separately. In addition, it may facilitate the restructuring of troubled corporations' debt if they have to deal with a single creditor (KAMCO) rather than with several banks. There are, however, several disadvantages. The provider of funds does not get managerial rights when it buys nonperforming assets, as would be the case if it acquired equity in the bank. Thus, its ability to require the bank to undergo a thorough operational restructuring is much more limited. Also, if the bank's condition improves, KAMCO will not benefit from that, while an owner of the bank's equity will. In addition, borrowers are likely to assign a lower priority to repaying a loan to an institution that cannot make new loans (like KAMCO) than to a bank from whom they can get new financing. Also, collecting on loans is a normal part of banks' duties; allowing them to transfer that responsibility to another agency does not help in building banks' capabilities in this area. A final evaluation of the Korean strategy in this area will need to wait until KAMCO disposes of its assets, at which point the direct costs of the scheme to the public purse will be known.

Finally, at a broad level, Korea's crisis illustrates once again that delay in addressing problems in the financial sector only makes those problems worse. Prompt and decisive action, coupled with actions to maintain the private sector's confidence in the financial sector are crucial to the resolution of financial crises in a way that minimizes the social cost of such episodes.

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