

## Interest Rate Deregulation and Money Market Development in Korea

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The Korean government launched a series of Economic Development Plans since the early 1960s aimed at growth and employment creation. During the early stage of economic development, when domestic savings were totally inadequate to meet the ambitious investment requirements, the government intervened extensively in mobilizing and allocating scarce financial resources to strategically important sectors in order to carry out the Plans. In this process, to facilitate systematic control of the financial sector by the government, commercial banks became de facto public enterprises, and various specialized banks such as the Industrial Bank of Korea and the Korea Exchange Bank were established. Moreover, a wide-ranging scheme of policy loans was introduced for the purpose of allocating the limited financial resources preferentially to specific industries and economic sectors with favorable provisions as to availability and cost.

Though this government-led development of the financial system contributed to the rapid economic growth during the 1960s and 1970s, it had also a number of negative effects. The maintenance of a low interest rate policy, the mobilization of the central bank's printing press, and credit creation by financial intermediaries brought about problems through the distortion of the market mechanism, including the inefficient allocation of resources, the deepening of sectoral imbalances, and chronic inflation.

From the early 1980s, therefore, a number of measures were taken to reform the financial sector, based on the premise that efficient financial markets improve financial intermediation and allow a higher level of sustainable economic growth. These included the privatization of commercial banks, expansion of their managerial autonomy, the lowering

of entry barriers, and the deregulation of interest rates. This paper sets out to describe Korea's experience with interest rate deregulation. Particular attention is given to the special factors considered in carrying out interest rate deregulation, such as the necessary preconditions and the sequencing of the process. The paper also provides an introduction to the money market development and the operational status of monetary policy management in Korea.

## **Interest Rate Deregulation in Korea**

The process of interest rate deregulation set out by the Korean government in the early 1980s was one aspect of its drive to shift the economic policy stance from regulation and protection by administrative direction to market-oriented management of the economy led by private sector initiative.

### **Process of Interest Rate Deregulation**

#### **The 1980s**

The first attempt at interest rate deregulation was the introduction of commercial paper at unregulated rates in June 1981. In January 1984, a band system of loan rates was introduced. Issue rates on guaranteed corporate bonds, financial debentures, and negotiable certificates of deposit were allowed to be set freely in March 1986. Even so, the main emphasis of the drive for gradual interest rate deregulation until the mid-1980s was on creating a more favorable environment by easing restrictions on the interest rates of financial products.

The following major steps were taken toward interest rate deregulation in the early 1980s.

- June 1981            Commercial paper introduced at unregulated discount rates.
- June 1982            Yields on corporate bonds allowed to fluctuate within certain limits.
- January 1984        Band system for banks' loan rates introduced; they are permitted to charge different rates based on borrowers' creditworthiness.
- July 1984            Banks allowed to set interest rates on deposits by maturity and on loans by type subject to certain maxima.
- November 1984     Interbank call rates and issue rates of unguaranteed corporate bonds freed.
- March 1986          Issue rates on certificates of deposit, guaranteed corporate bonds, and financial debentures freed.

The changing economic environment during the mid-1980s enabled the Korean economy to proceed further along the road to interest rate liberalization. Low and stable inflation narrowed the gap between market rates and regulated rates, and meant that real interest rates continued to be positive. Thanks to the current account surplus, corporations' liquidity conditions also improved. Against this background, a major deregulation of interest rates of banks and nonbanks took place in December 1988. Except for rates on some policy loans, most lending rates were deregulated. Rates on banks' long-term deposits were liberalized, including those on time deposits with a maturity of more than two years. At the same time, rates on various money and capital market instruments were freed up, including those on commercial papers, certificates of deposit, and corporate bonds, and on financial products whose dividends are performance based, including beneficial certificates and money-in-trust.

To sum up developments in the 1980s, in spite of interest rate deregulation efforts, most interest rates remained effectively regulated by window guidance. After the wide-ranging deregulation of 1988, economic conditions promptly deteriorated from early 1989 with the spreading of labor-management disputes and export stagnation, and market interest rates began to move upward sharply. This led to the reintroduction through the back door of *de facto* controls on liberalized interest rates. The first attempt at interest rate deregulation thus had to be abandoned. When drawing up and putting into effect their comprehensive plan for financial reform in the early 1990s, however, the authorities drew on the experience gained from this earlier reversal by adopting an incremental approach under which substantial progress has been achieved so far in the deregulation of interest rates.

### The 1990s

In August 1991, the government announced its second attempt at a plan to gradually deregulate interest rates. In view of the false start in 1988, this second plan called for a balance to be maintained between the deregulation of deposit and lending rates among different financial products and financial sectors to minimize any disruption to the systemic stability of the financial market.

The first step of the four-stage interest rate deregulation plan was put into effect on November 21, 1991 (see Table 1). Most of the short-term lending rates of banks and nonbank financial institutions, such as overdraft loans, commercial bill discounts, and trade bill discounts, were liberalized. Deposit rates, including those on deposits with maturities of at least three years, were partially liberalized. At the same time, interest

Table 1. Plan for Deregulation of Interest Rates

Stage	Lending Rates	Deposit Rates	Bond Issue Rates
First November 1991	Bank overdrafts and discounts on commercial bills, apart from loans assisted by Bank of Korea rediscounts. Discounts on commercial paper and trade bills of investment and finance companies, etc. Overdue loans.	Short-term, large denomination deposit instruments such as certificates of deposit, trade bills, commercial paper, and repurchases. Long-term time deposits and money-in-trust with a maturity of at least three years.	Corporate bonds with a maturity of at least two years.
Second November 1993	All loans of banks and nonbank financial institutions, apart from those provided through the government or Bank of Korea rediscounts.	Long-term deposits with a maturity of over two years.	Corporate bonds with a maturity of less than two years and all financial debentures. Monetary stabilization bonds and all government and public bonds.
Third December 1994	Loans financed by Bank of Korea rediscounts.	Deposits with a maturity of over one year. Further deregulation of short-term marketable products. Phasing out regulations on issues and maturities.	
July 1995 1995-96	Loans from banking funds on which the interest rate short-fall is compensated for from fiscal funds (special equipment loans, etc.).	Deposits with a maturity of at least six months. Deposits excluding demand deposits. Introduction of financial products linked to market rates such as money market certificates and money market mutual funds.	
Fourth 1997-onward		Setting up plan for gradual deregulation of demand deposits. Reviewing the abolition of restrictions on short-term marketable instruments.	

rates on various money and capital market instruments, including corporate bonds with maturities of over two years, were also freed.

The successful completion of the first stage of interest rate deregulation laid a firm basis for the more extensive second stage of deregulation, introduced on November 1, 1993. This freed up all lending rates of bank and nonbank institutions apart from loans financed by the government or by the Bank of Korea's rediscounts. It also deregulated rates on long-term deposits with maturities of two years or more, and the issue rates of all bonds including financial debentures.

In December 1994 and July 1995, most of the third stage of interest rate deregulation, which had originally been scheduled to be phased in from 1994 through 1996, went into effect. It extended the deregulation of deposit interest rates to those on time deposits with a maturity of at least six months. At the same time, banks were permitted to freely determine interest rates on certain loans<sup>1</sup> refinanced through the Bank of Korea's rediscounts.

This brought the deregulation ratio (the percentage of deregulated claims or liabilities over total claims and liabilities) up to about 95 percent for loans and 77 percent for deposits. By the end of 1996, all interest rates apart from those on demand deposits are expected to be freed. Although there has been an increase in interest rate volatility following the effective enlargement of interest rate deregulation in the 1990s, the process is assessed as having been successful so far, given the following achievements.

First, the efficiency of financial intermediation has improved through more active competition among financial institutions. Effective February 7, 1994, the Bank of Korea established criteria for public announcements concerning the terms of deposit transactions in order to safeguard sound financial practices in a situation in which undue competition among financial institutions could spark disputes and lead to disturbances in financial transactions as a result of misleading advertisements. The main points of the criteria are:

1. In regard to the yield on a specific financial product, financial institutions are obliged to give specific details of the following items: the contracted interest rate, the annual rate of return, fees, restriction clauses including deposit ceiling and minimum balance, the calculation of interest at maturity or an early withdrawal, terms and details of bonus, the time of interest payment, and the period during which the announced offer is effective.

<sup>1</sup>Commercial bills discounted, loans for foreign trade, funds for small and medium-sized firms in the provinces, and loans for materials and parts industries.

2. For financial products offering floating yields or on which dividends are paid according to performance, financial institutions are obliged to set out the range of returns offered and the way in which the return is determined.

3. Where the terms of transaction are open to variation in part, financial institutions are obliged to state this fact clearly immediately above the related clause of the announcement.

The gap between money market rates and lending and deposit rates has narrowed and the interlinkages among various interest rates have become much closer, because financial institutions now adjust their lending and deposit rates in response to market conditions such as changes in market interest rates.

What is more, the linkages between the various market rates have also been strengthened by the expansion of interest rate arbitrage and the activation of the short-term financial market owing to increased interest rate sensitivity by participants.

## Preconditions for Interest Rate Deregulation

Although general theory says little about the macroeconomic preconditions for interest rate deregulation, this subsection examines a list of desirable economic preconditions for both the real and the financial sector, based on several other countries' experiences with interest rate deregulation, and with particular reference to Korea's experience.

### Macroeconomic Stability

In view of several countries' experiences, economic stabilization may be deemed essential for successful interest rate liberalization. It is particularly crucial in order to mitigate upward pressure on interest rates after liberalization. If interest rate deregulation is initiated in a phase when inflationary expectations are widespread and there is heavy corporate demand for funds as the economy overheats, the upward pressure on interest rate will be much more intense. In fact, full-scale interest rate deregulation has generally been carried out in advanced countries—in particular, Japan and Germany—during periods characterized by price stability and moderate economic growth.

### Phase of the Business Cycle

The state of business conditions does not appear to act as an obstacle to interest rate deregulation. This is because deregulation essentially acts to restore the automatic countercyclical function of interest rates.

However, the actual impact of deregulation on the economy may differ according to the phase of the business cycle in which it occurs. If interest rates are freed in a business expansion phase, when the increased demand for funds drives them up in the early stages of the deregulation process, the business expansion is slowed because investment and consumption demand fall as interest rates rise. On the other hand, if interest rate deregulation takes place in the contractionary phase of business cycle, the upward pressures on interest rates during the early stages of deregulation are relatively mild, but the increase in interest rates may deepen the business recession.

Also, considering that interest rate deregulation in Germany took place in the contractionary phase or trough of the business cycle, whereas in Japan it occurred in the expansionary phase, and in the United States they were timed without any regard for the period cycle, it is difficult to find any general link between the timing of interest rate deregulation and the business cycle.

### Capital Structure of Nonfinancial Companies

In addition, the capital structure of companies in the business sector, which are the principal borrowers in the national economy, should be sound, to minimize the upward pressure on interest rates at the early stages of deregulation. The more heavily companies are leveraged, the more their balance sheets may be worsened owing to increased interest payments and, also, the greater will be management's difficulties in coping with fluctuations in interest rates because of the inelasticity of their demand for funds.

### Preconditions in the Financial Sector

In the financial sector, account should be taken of the soundness and profitability of financial institutions. Interest rate deregulation usually brings about an increase in the cost of raising funds because of the more intense competition among financial institutions, thus weakening their management status and profitability. Therefore, it is essential that financial institutions be sound as regards both their net worth and profitability before the shock of deregulation is imposed on them.

### Korea's Two Deregulation Episodes Compared

The economic conditions that are necessary before the onset of deregulation can be evaluated by comparing the Korean experience in 1988 with that in 1991. In December 1988, there was heavy demand for

funds caused by the rapid growth in the years 1986 through 1988. Since 1987, steep wage hikes and rampant real-estate speculation had led to an upswing in prices, which had been stable for several years. The yield on corporate bonds, the representative market rate, had risen from 12.7 percent in the fourth quarter of 1987 to 15.5 percent in the third quarter of 1988, reflecting brisk investment demand and spreading inflationary expectations. In this unstable environment, interest rate deregulation triggered a sudden run-up in market interest rates. In addition, the widespread industrial unrest in early 1989 and the consequent business downturn caused by weak exports brought about growing concern as to the outlook for the economy. This is basically why *de facto* interest rate controls were reintroduced.

In November 1991, the picture was just the opposite. The economy was slowing down, the excess demand for funds had evaporated as a result of stabilization policies, and inflationary expectations had largely been mitigated. Notably, too, market interest rates had been easing continuously, causing the gap between them and regulated rates to narrow abruptly in early 1992.

On preconditions in the financial sector, it should perhaps be added that even though financial institutions in Korea suffered from poor performance, this was largely a result of a long period of financial repression. Without interest rate deregulation, it would have been very difficult to remedy this situation.

## Sequencing of Interest Rate Deregulation

The actual sequencing of interest rate deregulation has differed from country to country in accordance with each country's financial and economic conditions. For example, three major countries, the United States, Japan, and Germany, followed different paths in both deposit and loan interest rate deregulation, as may be seen from Table 2. But it is also possible to see some common threads in their approaches. Loan rates were deregulated at the same time, while deposit rates were gradually freed up by moving from long-term to short-term rates and large amounts to smaller amounts, and by introducing new financial products.

In the case of Korea, there were deep concerns about the shocks to financial markets and the economy in general that would occur if full-scale deregulation of interest rates took place at a stroke. Therefore, Korea deregulated interest rates step-by-step, moving from loan interest rates to deposit rates, and from long-term to short-term among deposit rates. Loan rates were all deregulated relatively early because they have a direct effect on the allocation of resources and aggregate demand.



Table 2. Paths to Interest Rate Deregulation in Major Countries

	Loan Rates	Deposit Rates
United States	Already freed	<p>June 1970: deregulation of large-denomination certificates of deposit (more than \$100,000) with maturities less than 90 days deregulated.</p> <p>November 1971: introduction of money market mutual funds for securities companies</p> <p>May 1973: deregulation of all large-denomination certificates of deposit</p> <p>June 1978: introduction of money market certificates (more than \$10,000 at six-month maturity) for banks</p> <p>December 1980: NOW accounts allowed for all institutions</p> <p>May 1982: introduction of short-term money market certificates (at least \$7,500 and 91-day maturity); deregulation of interest rates on time deposits with a maturity of at least three years and six months</p> <p>December 1982: introduction of money market deposit accounts (at least \$2,500) for banks</p> <p>March 1986: removal of ceiling on interest rate of NOW accounts</p>
Japan	<p>April 1975: abolition of Bank of Japan guideline on loan rates</p> <p>January 1989: new short-term prime-rate-related average cost of funds introduced</p>	<p>May 1979: introduction of large-denomination certificates of deposit (CDs) (more than ¥500 million)</p> <p>March 1985: introduction of large-denomination money market certificates (¥50 million)</p> <p>October 1985: deregulation of large-denomination time deposits (more than ¥1 billion)</p> <p>June 1989: introduction of smaller-denomination money market certificates (more than ¥3 million)</p> <p>October 1989: deregulation of large-denomination time deposits and money market certificates (more than ¥10 million)</p> <p>June 1992: introduction of saving deposits at free, floating interest rates</p> <p>June 1993: deregulation of smaller time deposits and money market certificates (less than ¥10 million)</p> <p>October 1994: deregulation of all deposits except demand deposits</p>

Table 2 (*concluded*)

	Loan Rates	Deposit Rates
Germany	April 1967: Decree Concerning Interest Rate Regulation abolished	<p>March 1965: deregulation of deposits with maturities of more than 2 years and 6 months</p> <p>May 1966: deregulation of large denomination deposits (more than DM 1 million) with a maturity of at least three months</p> <p>April 1967: overall deregulation of deposit rates (but members of each federation of financial institutions offered standard interest rates)</p> <p>July 1969: abolition of standard interest rates for time deposits</p> <p>October 1973: abolition of standard interest rates for savings deposits</p>

Particularly in Korea, the banks had raised the effective loan rate by compensating balances, negating the effectiveness of controls. If the deregulation of loan rates had been carried out differently, by term or by sector, this might have distorted resource allocation between manufacturing and other sectors, or that between affiliates of large conglomerates and small and medium-sized enterprises.

Interest rates on policy loans, which are supported by fiscal funds or rediscounts of the Bank of Korea, have long been set below market rates. They have not only hindered interest rate deregulation and greater flexibility in interest rate policy, but have also diversified the structure of interest rates. Therefore, it was necessary to reduce the policy loans and to shift their provision from banks to fiscal funds. In March 1994, the Bank replaced the automatic rediscount facility necessitated by policy loans with an aggregate credit ceiling system. And these loans are now restricted to enfeebled sectors or enterprises such as agriculture or small and medium-sized enterprises that find it difficult to access finance for themselves.

In principle, deposit rates should be deregulated in parallel with loan rates to harmonize the demand for and supply of funds. In Korea, though, the authorities feared that overall deregulation might spark a steep run-up in deposit interest rates through competition among banks, undermining their profitability and pushing up loan rates. Thus deposit rates are being deregulated step-by-step. Deposit rate deregulation has expanded from the long-term to the short-term and from a large amount to a smaller amount so as to prevent sudden portfolio shifts and stabilize interest rates. Issue rates on financial market prod-

ucts such as corporate bonds have been freed up in keeping with loan rate deregulation.

## Money Market Development in Korea

The money market refers to the market that provides economic entities, such as financial institutions, business firms, governmental units, and individual participants, with various kinds of instruments to intermediate their short-term demand for and supply of funds. In general, the behavior of the money market provides the most immediate indication of the current relationship between the supply of and demand for funds through changes in yields on instruments in response to shifts in market conditions. This helps the monetary authorities control liquidity.

In Korea, the money market embraces the call market and a wide range of other financial markets, including those for treasury bills, monetary stabilization bonds, negotiable certificates of deposit, repurchase agreements, and commercial paper. Table 3 summarizes the trends in the recent evolution of the money market.

The beginnings of the organized money market in Korea date back to the 1960s, when monetary stabilization bonds and treasury bills were first issued in 1961 and 1967, respectively. It was not actively developed until the early 1970s though, when the government took a series of measures designed to channel curb-market funds into financial institutions and to organize the short-term financial market more systematically.

In 1972, with the promulgation of the Short-Term Financing Business Act and the establishment of investment and finance companies, the sale of paper issued by nonfinancial business firms and investment and finance companies was initiated, which was a first step toward the formation of the modern money market.

In 1974, negotiable certificates of deposit, that is, large time deposits at banks with a specified maturity, were introduced. In addition, call transactions, which had previously taken place between individual banks, were formalized by the establishment of the Call Transaction Office in accordance with "The Agreement on Call Transaction Office of Banking Institutions" in 1975. In 1977, the Korea Securities Finance Corporation initiated transactions in bonds under repurchase agreements with securities companies on a short-term basis.

Along with the expansion in the number of financial institutions, various new financial instruments have been introduced since the early 1980s and have contributed to broadening and activating the money market. Among them were commercial paper, new types of repurchase agreements, and certificates of deposits.

Table 3. Money Market Trends<sup>1</sup>  
(In billions of won)

	1991	1992	1993	1994
Call <sup>2</sup>	3,904.8 (6.7)	3,037.8 (4.2)	4,003.3 (4.5)	2,579.2 (2.5)
Commercial paper <sup>3</sup>	20,752.2 (35.8)	22,559.5 (31.5)	30,740.4 (34.4)	35,559.2 (34.5)
Repurchase agreements <sup>4</sup>	5,371.2 (9.3)	5,296.7 (7.4)	4,144.4 (4.6)	4,815.5 (4.7)
Certificates of deposits <sup>5</sup>	9,940.0 (17.1)	11,943.2 (16.7)	16,500.4 (18.5)	21,408.6 (20.8)
Treasury bills <sup>5</sup>	2,207.2 (3.8)	1,579.7 (2.2)	630.1 (0.7)	100.0 (0.1)
Monetary Stabilization Bonds <sup>5</sup>	13,496.5 (23.3)	20,264.1 (28.3)	24,201.8 (27.1)	25,340.3 (24.6)
Commercial bills <sup>4</sup>	7.3 (—)	78.7 (0.1)	90.3 (0.1)	47.5 (0.0)
Bankers' acceptances <sup>3</sup>	1,471.8 (2.5)	3,201.1 (4.5)	3,341.9 (3.7)	2,031.4 (2.0)
Cover notes <sup>4</sup>	881.5 (1.5)	3,706.7 (5.2)	5,618.7 (6.3)	11,276.9 (10.9)
Total	58,032.5 (100.0)	71,667.5 (100.0)	89,271.3 (100.0)	103,158.8 (100.0)
Total current GDP	26.9	29.8	33.4	33.8

<sup>1</sup>Figures in parentheses indicate percentage of the total.

<sup>2</sup>Daily average transactions during December.

<sup>3</sup>Balance of discounts.

<sup>4</sup>Balance of sales.

<sup>5</sup>Outstanding amount of issuance.

Several additional measures have been taken to realign and activate the money market in accordance with financial deregulation, including the integration of the segmented call market and the liberalization of the discount rate of commercial paper.

## Call Market

The call market was established in 1975 when the Call Transaction Office was opened to adjust temporary shortages or surpluses of funds among financial institutions. Participants in the call market are banking institutions, including foreign bank branches in Korea, as well as non-bank financial institutions, such as investment and finance companies, insurance companies, and the Korea Securities Finance Corporation. However, the market became segmented into an interbank market and an over-the-counter market between nonbank financial institutions, as a result of differences in the patterns of transaction behavior.

To promote the smooth adjustment of surpluses or shortages of short-term funds among financial institutions, including nonbank financial institutions, the segmented market was integrated in October 1989 into a single market. Six investment and finance companies and the Call Transaction Office were nominated as brokers and dealers of call transactions. Later, the obligation for banking institutions to transact through the Call Transaction Office was abolished and all transactions were permitted to be conducted either directly or through the brokers, which consisted of eight investment and finance companies. However, for all intents and purposes, direct transactions between banks continued as before. In February 1992, a "Blind Brokerage System," designed to ensure perfect competition between participants, was introduced. In July 1992, transactions backed by the security of government or commercial bonds were introduced to allow small institutions to participate. The interest rate, previously applied uniformly to all transactions, could now be freely determined for each transaction. The various maturity periods of the two segments were standardized to 16, that is, 1–15 days and 30 days. Call transactions are made in multiples of W 100 million. In May 1995, the daily average transactions volume amounted to W 2.8 trillion, of which W 1.8 trillion was transacted through brokers.

In a further development, a U.S. dollar call market was launched in December 1989 to foster the foreign exchange market. Thereafter, Japanese yen, deutsche mark, and sterling markets were inaugurated in 1991, 1992, and 1994, respectively. Participants are foreign exchange banks including merchant banking corporations. The maturities are classified as overnight, tomorrow/next, spot/next, 1 week, and 1 month

to 12 months, with interest rates being determined freely in relation to rates prevailing in international financial markets such as the London interbank offered rate (LIBOR). The volume of foreign currency call transactions has grown very rapidly, at over 20 percent a year. In May 1995, the daily average transactions amounted to US\$145.7 million, ¥1.1 billion, DM 3.8 million, and £0.4 million, respectively.

## Commercial Paper Market

Commercial paper refers to short-term promissory notes issued on a discount basis by nonfinancial companies on the strength of their own credit. For business firms, the issuance of commercial paper serves as an alternative to short-term borrowing from banks.

The commercial paper market currently consists of four types of paper: (1) resold notes with recourse issued by business firms whose payment is guaranteed by the dealing companies; (2) resold notes without recourse, that is, paper issued by business firms whose payment is not guaranteed by the dealing companies; (3) "intermediate paper" issued by business firms and bought directly by investors through the mediation of investment and finance companies; (4) "own paper" issued by the investment and finance companies and merchant banking corporations themselves, the issue of which has diminished with the adjustment of the investment finance companies' functions since 1992.

Maturities for commercial paper range from 1 to 180 days. Discount rates are deregulated, while for the selling rates only those on the paper with a maturity of 91–180 days and a minimum par value of W 30 million or more are allowed to fluctuate freely. Commercial paper can be redeemed from dealers prior to maturity against a specified loss of interest.

The investment and finance companies and merchant banking corporations have long been engaged in this short-term financing business as dealers for the various types of paper. (Between April 1984 and December 1988, six large securities companies with paid-in capital of W 20 billion or more were also allowed to handle commercial paper business.)

Since most commercial paper is unsecured, the quality rating is of particular importance. The borrowers, whose creditworthiness is evaluated by the individual investment and finance companies and by professional credit rating companies, are usually graded into one of four ranks: A, B, C, or D. There are three professional credit-rating companies: the Korea Investors' Service Inc.; the National Information & Credit Evaluation Inc.; and the Korea Management & Credit Rating Co. Intermediate notes are only permitted with a rank of A or B. At the end

**Table 4. Commercial Paper Outstanding**  
(End of period: in billions of won)

	1980	1985	1991	1992	1993	1994	Feb 1995
Own paper	1,012.0 (48.2)	1,804.0 (34.2)	1,346.3 (11.5)	784.9 (4.8)	411.8 (1.5)	318.4 (1.2)	393.0 (1.2)
Resold notes							
With recourse	186.0 (8.9)	301.0 (5.7)	1,789.5 (15.3)	4,034.3 (24.7)	5,776.2 (21.5)	171.1 (0.6)	164.0 (0.5)
Without recourse	901.0 (42.9)	3,067.6 (60.1)	8,579.7 (73.2)	11,540.9 (70.5)	20,727.5 (77.0)	27,157.6 (98.2)	31,442.5 (98.3)
Total	2,099.0 (100.0)	5,281.0 (100.0)	11,715.5 (100.0)	16,360.1 (100.0)	26,915.5 (100.0)	27,647.1 (100.0)	31,999.5 (100.0)

Note: Figures in parentheses indicate percentages of the total.

of February 1995, the outstanding amount of commercial paper stood at W 32 trillion, of which resold notes without recourse accounted for 98 percent (see Table 4).

## Bond Repurchase Agreement Market

A repurchase agreement involves the acquisition of immediately available funds through the sale of bonds with a simultaneous commitment to repurchase the same bonds on a date at a specified price. So a repurchase agreement is essentially a secured means of short-term borrowing and lending, even though the instruments used in repurchase agreement transactions are bonds.

Repurchase agreements were first introduced in February 1977, when the Korea Securities Finance Corporation undertook such transactions with securities companies. Securities companies were allowed to engage in this business from February 1980 and banks from September 1982. In addition, post offices began to engage in the repurchase agreement business from March 1983.

The nature and scope of the business, however, is somewhat different at these three kinds of institutions.<sup>2</sup> The maturities differ by institution: for the Korea Securities Finance Corporation and securities companies they are between 1 and 364 days; for banking institutions, 91–364 days;

<sup>2</sup>Before August 1990, the Korea Securities Finance Corporation and securities companies could both purchase and sell bonds under repurchase agreements, while banks and post offices were permitted to handle only the sale of government and public bonds under repurchase agreements.

Table 5. Outstanding Amounts of Sales Under Repurchase Agreement by Institution  
(In billions of won)

	1985	1990	1991	1992	1993	1994	Feb. 1995
Korea Securities Finance Corporation	8.3	20.0	12.3	9.2	13.2	10.2	9.4
Securities companies	837.3	520.9	1,438.1	2,480.3	1,665.8	815.5	786.4
Deposit money banks	1,053.9	1,337.6	2,453.0	1,351.4	981.4	2,199.1	2,177.4
Post offices	663.2	1,458.6	1,467.8	1,455.8	1,484.0	1,790.9	1,905.6
Total	2,562.7	3,337.1	5,371.2	5,296.7	4,144.4	4,815.7	4,878.8

and for post offices, 1–90 days. The minimum denominations are also different: for post offices, W 50,000, and for other participants, W 100,000. In December 1988, a new type of repurchase agreement was permitted for securities companies and banking institutions; it had a minimum value of more than W 50 million and a maturity of from three months to one year. In September 1993, its minimum denomination was lowered to W 30 million.

Repurchase agreement rates are freely determined by the handling institutions subject to a ceiling set by the Chairman of the Securities and Exchange Commission. The large denomination repurchase agreement mentioned above, however, has no maximum limit imposed on its interest rate. The main borrowers of funds in the repurchase agreement market are securities companies, banks, post offices, and business corporations, while the main investors are individuals and nonprofit corporations.

Repurchase agreements have functioned mainly as an alternative form of interest-bearing demand deposit at banks, post offices, and securities companies. Recently, however, the financial institutions have gradually begun to use them as a means of adjusting their short-term liquidity for longer periods than those of call transactions. The outstanding volume of sales under repurchase agreements stood at W 5.1 trillion as of the end of April 1995. By institution, banks' repurchase agreements made up the largest share, accounting for W 2.4 trillion, followed by post office repurchase agreements at W 2.0 trillion (see Table 5).

### Negotiable Certificates of Deposit Market

Negotiable certificates of deposit are large time deposits at banks with a fixed maturity date and a specified interest rate. The certificates are negotiable and can be traded on the secondary market.



Nationwide commercial banks and local banks once again began to handle certificates of deposit business in June 1984, having given it up in December 1981 mainly because of their lackluster performance, which reflected their lower interest rates compared with those on other financial instruments. In March 1985, the certificates of deposit business was opened to all banking institutions except for foreign bank branches in Korea, who were permitted to issue certificates of deposit in September 1986.

The introduction of certificates of deposit was designed to promote banking institutions' competitiveness against nonbank financial intermediaries for short-term deposits and, through their higher interest rates compared with those of time deposits, to encourage the mobilization of short-term funds otherwise left idle.

The minimum denomination of certificates of deposit was initially W 100 million but this was lowered to W 50 million in February 1987 and to W 30 million from September 1993. The interest rate was deregulated from November 1991, and the rates since then have tended to be a little above those of time deposits. The maturity period was expanded from 91–270 days to 60–270 days in July 1994. The banks have also been allowed, since October 1989, to issue certificates of deposit with maturities from 30 days to 180 days for interbank transactions only, with the aim of adjusting short-term liquidity in the interbank market. The ceiling on issuance was set from March 1995 at 150 percent of capital for nationwide commercial banks and local banks, 400 percent for specialized banks, and W 35 billion or 400 percent, whichever is higher, for foreign banks. In the secondary market, investment and finance companies and securities companies are engaged in the brokerage of certificates of deposit. The volume of certificates of deposit outstanding has grown very rapidly, shooting up from W 1.1 trillion at the end of 1985 to W 23.6 trillion at the end of April 1995. And the volume of secondary transactions has expanded to quadruple its outstanding balance in 1994.

## Monetary Stabilization Bond Market

Monetary stabilization bonds have been issued since 1961. They are special negotiable obligations of the Bank of Korea issued to control monetary growth, and serve as one of the most important instruments in the open market operations of the Bank of Korea.

Monetary stabilization bonds are issued by public offerings (including subscription, competitive auction, and sale) to individuals and financial institutions and by assignment to specific financial institutions. However, they are usually underwritten by banks, securities companies,

Table 6. Monetary Stabilization Bonds Outstanding  
(In billions of won)

	1985	1990	1991	1992	1993	1994	Feb. 1995
Issuance	2,100	20,262	18,900	24,853	29,796	34,879	9,388
Redemption	2,159	22,327	20,644	18,086	25,858	33,741	11,990
Outstanding	504	15,241	13,497	20,264	24,202	25,340	22,738

insurance companies, investment and finance companies, and merchant banking corporations. Monetary stabilization bonds have five face values: 1, 5, 10, 50, and 100 million won, and the maturities are no more than 2 years, but those of 182 and 364 days are most common.

Their issuance expanded rapidly in the period 1986–89, as the government sought to absorb excess liquidity resulting from the large current account surpluses. The outstanding balance of monetary stabilization bonds soared from W 504 billion at the end of 1985 to W 22.7 trillion at the end of February 1995 (see Table 6).

### Short-Term Government Bond Market

Short-term government securities in Korea are those with maturities of less than one year. The most important types of short-term government securities are the following (see Table 7):

1. Treasury bills, issued by the government to cover short-term deficits in the fiscal balance or to control the monetary aggregates;
2. Foreign Exchange Equalization Fund bonds, issued by the Foreign Exchange Equalization Fund to enhance the efficiency of liquidity control and to stabilize the nation's foreign exchange markets; and
3. Grain Management Fund bonds, issued by the Grain Management Fund to stabilize the price of grain.

Treasury bills were issued intermittently in 1967–68 and 1977–82 after being introduced in March 1967. The issuance of treasury bills ceased in 1983 as a result of the improvement in the fiscal balance achieved through strict restraint of government expenditures and a large increase in tax receipts. However, from 1986 to 1989, the issuance of the bills was resumed as an instrument to control the rapid expansion of the money supply resulting from the large surpluses in the balance of payments. Treasury bills have three face values: W 1 million, W 10 million, and W 100 million. The maximum maturity is 364 days but now only bills of that maturity are being issued. They are issued on a discount basis and are underwritten by financial institutions, which either sell them to investors or hold them as assets. With the widening of

Table 7. Outstanding Amounts of Government Bonds  
(in billions of won)

	1985	1990	1991	1992	1993	1994	Feb. 1995
Treasury bills	—	2,500	2,207	1,580	630	100	100
Foreign Exchange Equalization Fund Bonds	—	3,000	4,483	5,483	4,483	4,200	4,500
Grain Management Fund Bonds	750	3,742	4,492	5,051	6,201	6,021	6,234
Total	750	9,242	11,182	12,114	11,314	10,321	10,834

the current account surplus, treasury bills outstanding increased from W 200 billion at the end of 1986 to W 2.5 trillion at the end of 1989, but then decreased again to W 100 billion as of February 1995.

The Foreign Exchange Equalization Fund was founded in 1968 under the management of the Bank of Korea, but was not activated until 1986. A rapid increase has also taken place in the volume of the Fund's bonds issued in recent years. The bonds, which are issued on a discount or at par basis, have three face values of W 1 million, W 10 million, and W 100 million. For some time, the most common maturity was 364 days. However, in December 1989, to alleviate the pressure of reissuance and the burden on redemption after maturity, the maximum maturity was extended from three years to five years. The yield on bonds is fixed at a level equal to that of monetary stabilization bonds. The outstanding balance stood at W 4.5 trillion at the end of February 1995.

Grain Management Fund bonds are issued under the Grain Bond Act of 1972. Their maturities range between three months and five years, and they are usually underwritten by financial institutions. At the end of February 1995, the outstanding balance registered W 6.2 trillion.

## Other Financial Instruments

In September 1982, deposit money banks were permitted to sell commercial bills to investors, both individuals and corporations. Bills eligible for sale were confined to those supported by underlying commercial transactions and were on a discount basis. Sales in the secondary market, however, remained inactive, mainly because banks could only rediscount the bills at the Bank of Korea. But in 1994, the Bank of Korea introduced an aggregate credit ceiling system and allowed banks to sell cover notes. This caused the outstanding balance of sales of commercial bills to leap from W 90.3 billion at the end of 1993 to W 2.4 trillion at the end of February 1995.

Trade bills were introduced in Korea in August 1989 to help export firms raise funds. This market is similar to the Banker's Acceptance market. Banks, investment and finance companies, and merchant banking corporations are all permitted to engage in the acceptance, discount, and sale of trade bills. The institution that discounts trade bills can either sell them to investors or hold them on its own books. Their maturity must be of no more than 180 days and their face value must be at least W 5 million. At the end of 1994, the outstanding balance of trade bills discounted stood at W 2.0 trillion, of which only W 189 billion were resold.

Cover notes are securitized or packaged bills that financial institutions issue under their own name, with denomination or maturity factored to meet investors' wishes. In September 1989, cover notes were introduced for investment and finance companies, and expanded to include factoring bills in July 1992. In July 1994, banks were also permitted to sell cover notes on the basis of commercial bills, trade bills, and factoring bills for the purpose of easing their difficulty in raising the funds to discount small and medium-sized enterprises' bills. Their maturity must be less than the original bills and the selling rates are also determined in relation to the rate on the original bills. In February 1995, the outstanding balance of cover notes registered W 12.2 trillion, which included W 2.5 trillion in notes by banks, and W 8.2 trillion in those issued by investment and finance companies.

## Conclusions

As a key part of comprehensive financial reforms, interest rate deregulation in Korea adopted the strategy of introducing new money market instruments, while at the same time gradually deregulating the rates and terms on existing products. This strategy is assessed as having been followed successfully so far. Also, given that, in keeping with the spirit of interest rate deregulation, monetary and interest rate policy ought to be conducted on the basis of market principles, Korea has also worked to improve the environment for monetary control through the activation of the money market and the reform of the rediscount system of the Bank of Korea and so forth. These efforts have enabled the Bank of Korea to proceed further in its shift toward indirect monetary control. However, there are still several problems in practising monetary control through indirect methods. For example, the behavior of the Korean money market does not provide adequate information on the current relationship between the supply of and demand for funds; therefore, the interest rate does not yet function satisfactorily as an information variable. Accordingly, the Korean government will

continue to devote considerable attention to improving the financial sector infrastructure and broadening and deepening the money market as well as pursuing the successful completion of interest rate deregulation.

In conclusion, I should like to repeat that interest rate deregulation is the key to improving the effectiveness of monetary policy and developing the financial sector. Therefore, even if difficulties and complications occur in the course of carrying it out, it is important to push ahead with deregulation dynamically and consistently.

The successful pursuit of interest rate deregulation calls for determined stabilization policies, which will prevent wild fluctuations or steep run-ups in market rates. And the authorities need to show strong resolve together with mediation skills because deregulation may spark conflicts of interest between financial institutions, enterprises, and households. In short, to cushion the shocks to the financial market and real sector, interest rate deregulation should be gradually phased in hand in hand with the achievement of stable economic fundamentals.

## Appendix

### Monetary Policy Management

#### Objectives and Intermediate Targets

There is a general consensus that the final objectives of monetary policy are stabilization of prices, appropriate expansion of output, attainment of full employment, and the maintenance of external equilibrium. In general, policies designed to achieve these objectives inevitably involve some trade-offs. Among these objectives, however, price stability is widely accepted to be not only an end in itself, but also a necessary condition for achieving the other objectives. Stable implementation of monetary policy helps to foster the process of steady economic growth, removes a source of endogenous disturbance, and reduces the effects of exogenous shocks.

In carrying out monetary policy, central banks set and operate various forms of intermediate targets so as to work effectively toward their final objectives. The Bank of Korea has focused on the management of a chosen monetary aggregate rather than interest rates since 1957 in its two-stage monetary control procedure to grapple with the persistent high inflation accompanying rapid economic growth. From 1979 onward, the Bank adopted M2, consisting of currency in circulation plus total deposits of banking institutions, as the main intermediate target of its monetary policy.

The rationale behind the adoption of M2 as the main intermediate target is based on empirical findings of a stable relationship between M2 and macroeconomic variables such as nominal income and price level. In addition,

M2 has been found to be superior to other aggregates in terms of predictability and controllability.<sup>3</sup> Other monetary aggregates, however, such as M1 and M3, which respectively represent the narrow monetary aggregate and the broadest monetary aggregate, are used as supplementary monetary indicators.

However, following the improvement in the price function of interest rate with interest rate deregulation, ways to enhance the extent of the use of the interest rate as an information variable in monetary policy have recently been examined. Also, if interest rate deregulation is to be successfully completed, it is expected that the extent to which interest rate targets are utilized will be progressively increased.

### Monetary Policy Instruments

The Bank of Korea is currently trying to keep money supply within a target range through indirect monetary control instruments that affect the reserve position of banking institutions.

In addition to these policy instruments of an orthodox nature, the Bank is empowered to utilize such policy instruments as setting and altering interest rates and controlling the volume of bank credit directly in periods of pronounced monetary expansion, although these powers are nowadays seldom actually used.

### Open Market Operations

Compared with other policy instruments, such as changes in the discount rate or reserve requirements, open market operations are suitable for day-to-day monetary management because they are more flexible in time and in magnitude. For open market operations to be effective, there should be a developed money market in which a substantial volume of outstanding securities are traded, and the central bank should be able to manage skillfully the sale and purchase of securities at a level consistent with its reserve target.

The Bank of Korea is authorized to buy or sell both securities representing government obligations (or other securities fully guaranteed by the government) and monetary stabilization bonds in the open market. Monetary stabilization bonds are issued under terms and conditions determined by the Monetary Board, the supreme policymaking organ at the Bank of Korea, and may be repurchased before maturity depending on monetary and credit conditions. The amount that can be issued is limited by the Monetary Board to a certain percentage of the target monetary aggregate (M2), currently 50 percent. At pre-

<sup>3</sup>Generally, three practical criteria based on the structure of the intermediate target strategy itself are suggested to analyze the relative usefulness of each aggregate as an intermediate target. First, the target should be closely and reliably related to economic activity (the closeness-of-fit criterion). Second, movements of the target should contain information about the future movements of monetary policy goals (the exogeneity criterion). Third, the target should be at least potentially controllable by the monetary authorities (the controllability criterion).

sent, monetary stabilization bonds are the principal instrument used in open market operations. To a certain degree, though, operations involving them cannot be regarded as fully market based.

The Bank of Korea introduced free competitive bidding for monetary stabilization bonds in April 1993, with the main bidders being nonbank financial institutions. It aims to realize, in time, a truly market-based pricing of monetary stabilization bonds and to minimize restrictions on nonbank financial institutions' asset management.

As of the end of May 1995, the outstanding balance of monetary stabilization bonds had reached W 20.9 trillion, equivalent to 15.6 percent of the money supply in terms of M2, and the yield on monetary stabilization bonds with a one year maturity in the primary market was 14 percent a year.

Treasury bills and Foreign Exchange Stabilization Fund bonds have also been used in open market operations, but their share in the Bank of Korea's overall open market operations has remained only trivial. This relatively insignificant usage of government debt instruments is mainly attributable to the Korean government's own anti-fiscal deficit stance. For many years, the government insisted on keeping expenditures within the scope of revenue and there was little need to issue large amounts of debt to finance its spending.

Because of the lack of availability of government debt instruments in sufficient volume or range of maturities, neither the primary nor the secondary market for these instruments has been developed. However, in the long run, the importance of government securities will increase. First, the supply of government debt securities will be increasingly expanded, because central bank financing of de facto government projects through, say, policy loans will be rapidly phased out. Second, the workings of the debt market will also be significantly improved with the twin processes of interest rate liberalization and capital market opening. Hence, the Bank of Korea plans to activate its open market operations, putting emphasis on the use of government debt securities in the foreseeable future.

In a related development, the Bank has, since 1989, employed repurchase agreements involving government and public bonds as an increasingly important means of controlling the short-term liquidity of banks.<sup>4</sup>

The total volume of the Bank's repurchase agreement operations in 1994 amounted to W 171 trillion, all of which was related to sales of securities under repurchase agreements designed to absorb excess bank reserves (see Table 8).

### Discount Policy

Lending through the discount window of a central bank is one of the principal instruments used to change the level of bank reserves and, thereby, control money supply. A central bank can affect the volume of discount loans

<sup>4</sup>In Korea, repurchase agreements are mainly operated as an instrument for the fine-tuning of banks' reserve positions. Repurchase operations have a direct effect on banks' reserve positions, altering liquidity conditions of financial institutions and thereby affecting market rates, in particular, the call rate.

Table 8. Repurchase Agreements Involving Government and Public Bonds  
(During the period; in billions of won)

	1989	1990	1991	1992	1993	1994
Purchases	5,601.7	118,930.9	36,641.9	3,208.7	33,975.0	—
Sales	11,943.7	8,300.0	53,929.5	173,471.6	121,841.4	171,443.5
Total	17,545.4	127,230.9	90,571.4	176,680.3	155,816.4	171,443.5

in two ways: by affecting the price of loans (the discount rate) or by affecting access to the quantity of the loans through its administration of the discount window.

In addition, changes in the price dimension or quantity dimension of lending policy can be an effective way of announcing the stance of monetary policy to both banks and the public. The effect of discount rate changes is generally greatest when the market views the adjustment as signaling a shift in the central bank's evaluation of underlying economic conditions and of money and credit demand.

The Bank of Korea, like most central banks, employs discount and lending policy to control the availability of banking institutions' funds in order to affect overall monetary and credit conditions.<sup>3</sup> Until recently, however, a significant proportion of loans through the discount window was operated as automatic rediscount facilities in support of policy and quasi-policy loans. As a result, the discount policy's original function of controlling the availability of credit had been substantially weakened.

The Bank can also raise or lower interest rates on discount window loans to control the credit operations of banking institutions. However, changes in the discount rate in Korea have had only limited influence on the volume of bank credit. The main reasons for this are that the discount rate was set at very low levels regardless of the movements of market interest rates, and as a result of many years of financial repression, there was no well-organized structure of interest rates. Thus, the traditional interest rate policy mechanism of a central bank, through which a change in discount rates ultimately affects firms' demand for bank credit by bringing about changes in the loan rates of banking institutions, has not functioned well in Korea. The emphasis of discount policy has, therefore, been placed on the quantity dimension, altering the eligibility and discount ratios of the central bank credit facilities, and thereby affecting the availability of banking funds.

In accordance with the progress of financial liberalization, in March 1994, the Bank replaced the automatic rediscount facility necessitated by policy loans with

<sup>3</sup>Many industrialized countries have tended to reduce their reliance upon the discount window as a tool to manage short-term bank reserves, but there are still many countries, including most developing countries, where central bank credit facilities play an important role in controlling bank reserves.



enhancing competition among various types of institutions and increasing the overall efficiency in resource mobilization and allocation.

### Strengthening Prudential Supervision

During the same period that financial liberalization and deregulation were carried out, prudential supervision was also upgraded to ensure the soundness of financial institutions. Following financial liberalization and deregulation, financial institutions had to be more competitive in all areas of business. They were compelled to engage in more risky businesses (which, on average, yield higher returns) to maintain profitability. The BOT upgraded its internal standard of bank supervision and examination to ensure that the solvency problem experienced in the early 1980s would not repeat itself. The guideline on capital adequacy and asset quality of the Basle Committee on Banking Supervision was applied to both commercial banks and finance companies.

### Developing Financial Instruments and Markets

A wider variety of financial instruments than before was necessary to support long-term economic growth in Thailand. The Securities and Exchange Commission Act was enacted in 1992 to correct several weaknesses in the regulatory settings regarding the issuing of debt instruments and trading in the secondary market. The Securities and Exchange Commission was established to supervise all aspects of securities business, as well as public offerings of all types of securities. The Act specifies that the mobilization of funds from the public by issuing stocks or equity instruments is limited to public companies, but debt instruments can be issued by both public companies and limited companies. On the initiative of the BOT and the Ministry of Finance, the Thai Rating and Information System was established in 1993 as a limited company in order to support investment decisions.

### Improving the Payment System

As the financial system becomes more developed, a more efficient payment system is needed to facilitate a growing volume of transactions. The BOT has developed electronic systems for fund transfers and check clearing, namely, the Bahtnet for large-value transfers and the Thaiclear for small-value transfers and check clearing. The Bahtnet has already started operation, while the Thaiclear is expected to operate soon.

In June 1995, the first Financial Master Plan, drafted by the Ministry of Finance, the BOT, and the Security and Exchange Commission of

tives were subject to preferential ratios considerably lower than those for other banks, reflecting efforts to strengthen financial support for the relatively underdeveloped agriculture and fisheries sector. However, in July 1981, the Bank of Korea unified the ratios with the aim of countering the phenomenon whereby a shift of funds between financial assets with different reserve requirements resulted in added instability of the money multiplier. During the period from May 1989 to January 1990, the Bank temporarily introduced marginal reserve requirements to cope with the rapid growth of claims on the private sector. Under this measure, a marginal reserve requirement of 30 percent was imposed on the average increment of demand deposits and time and savings deposits. Currently, the common ratio is 11.5 percent, while lower ratios are applied only to a few long-term time and savings deposits and nonresidents' deposits.

A change in reserve requirements affects both the amount of excess reserves available and the money multiplier, which determines the amount of potential money expansion per unit of excess reserves. Adjustments to reserve requirements are not, however, well-suited to the day-to-day implementation of monetary policy because the initial impact of even a small adjustment is substantial. Thus, when there is a change in reserve ratios, the large and sudden impact often has to be at least partially offset by open market operations or rediscount policy.

Another reason for the infrequent use of reserve requirement policy may be the recognition that reserve requirements directly affect the profitability of commercial banks. Required reserves earn no interest in general. So, when reserve requirements are increased, banks must hold an increased proportion of their assets in non-interest-bearing form.

## Operating Techniques for Monetary Management

As described earlier, the Bank of Korea imposes relatively high reserve requirement ratios on banks. Nevertheless, its reserve control has not been easy, because its discount window loans were largely directed toward supporting policy loans and, under such conditions, it was quite difficult to control the monetary base smoothly. Therefore, the characteristics of the Bank of Korea's liquidity management differ somewhat from those of advanced central banks.

The Bank of Korea has three tools for liquidity management: repurchase and resale agreements involving government bonds, monetary stabilization bonds, and the monetary stabilization account. The monetary stabilization account is an account at the Bank of Korea that was introduced in 1978 so that banks' excess reserves could be easily absorbed. This account was used as one of the main tools for short-term fine-tuning of bank reserves, while the volume of government bond issuance remained rather small. But, since the Bank of Korea unilaterally determines the quantity of reserves that should be deposited in and withdrawn from the monetary stabilization account, this severely restricted banks' asset management. Therefore, the Bank suspended its use from May 1989. The other two tools will now be explained in detail.

## Repurchase Agreement Operations

The Bank of Korea sets the target for total bank reserves in line with its monthly M2 growth target, every half-month. It also forecasts the expected level of reserves in the same period on the basis of information from various sources and the historical trend of reserve movements. In doing so, it takes into account such elements as the demand and supply of fiscal funds, schedules for government bond issuance and redemption, and inflows and outflows of overseas money.

Once all this targeting and forecasting has been done, the Bank determines the volume of its repurchase and reverse transactions. If the level of M2 is (or is expected to become) too high, it tries to absorb liquidity and, in the opposite case, it tries to ease banks' reserve positions through repurchase agreement operations. After the operation, the Bank of Korea checks whether the actual level of bank reserves coincided with its original forecast and determines whether or not it should undertake an additional operation.

There are two kinds of operations: so-called long-term (7–15 day) repurchase agreements, which are intended to absorb (cover) nontemporary reserve surpluses (reserve shortages); and 2–3 day very short-term repurchase agreements for fine-tuning day-to-day fluctuations of banks' reserve positions. The Bank forecasts the level of bank reserves on the first day of the maintenance period and when it detects a clear tendency of reserve surplus (shortage), it decides to use long-term repurchase agreements to tighten (ease) banks' reserve positions. The underlying reason for adopting mainly long-term repurchase agreements is that, in so doing, the Bank can signal clearly its intention to financial institutions so that they can adjust their reserve position smoothly.

Long-term repurchase agreements are executed through competitive bidding, which was adopted in March 1993, and the Bank determines the lowest (highest) tender rate, considering mainly the level of the current call market rate. As it adopts what is called the Dutch method, the rate (lowest or highest) applied to all successful bidders is equal. The operation desk of the Bank of Korea notifies bidders, that is, banks, by phone about the details of the offer, including the volume of forthcoming repurchase agreements, one day before the bidding day. The actual bid takes place at 10:30 a.m. at the Bank. The successful bidders must clear their settlement balance within banking hours that same day.

In case the volume of successful bids is not large enough to meet the Bank's original intention, the gap is covered by an additional allocation of repurchase agreements on an assignment basis. The interest rate applied then will be less favorable to banks because there is a certain spread (usually 0.05 of a percentage point) between this and the free bidding rate. The Bank decides the amount of the allocation to each bank, calculated on the basis of each bank's reserve requirement size and other factors.

As mentioned before, two- to three-day repurchase agreement operations are implemented mainly to smooth out very short-term fluctuations in reserve positions and their use is confined to reserve surpluses or shortages arising for reasons that are both unexpected and unavoidable.

## Sales of Monetary Stabilization Bonds

Monetary stabilization bonds are issued by the method of competitive bidding or direct sale to 64 primary dealers.<sup>7</sup> The rate on monetary stabilization bonds issued by competitive bidding applies equally to all successful underwriters through the Dutch method as with repurchase agreements, and the level is slightly below the market interest rate, reflecting the standing of the Bank as well as the possibility of instigating a rise of market interest rates. The direct sale rate is set at a slightly lower level than the competitive bidding rate.

Despite the relatively low yield on monetary stabilization bonds, financial institutions are willing to participate in the auction process of monetary stabilization bonds because a certain ratio of deposits should be allocated to buying them by regulation, and those bought by financial institutions are counted toward their reserve requirements.

Auctions of monetary stabilization bonds are usually announced every Wednesday on the bulletin board and they are carried out at 2:00 p.m. on the Friday of that same week. The Bank informs all participants of the auction outcome by telephone or BOK-Wire,<sup>8</sup> and the successful participants should deposit funds in the Bank by the following Monday in response to their underwriting. However, instead of drawing physical securities in the bearer form, most financial institutions register their monetary stabilization bonds in book-entry form and leave them in the custody of the Bank. The weekly scale of issuance of monetary stabilization bonds is determined in consideration of factors, such as monetary stabilization bond redemption and money and reserve conditions.

Although there are, in principle, 11 types of monetary stabilization bond maturities, from 14 days to 2 years, only 7 of these have been issued in practice: 63 days, 91 days, 182 days, 364 days, 371 days, 392 days, and 546 days. Among them, the 364-day is mainly issued and it is distinctive in being issued only by the method of competitive bidding.

Nowadays, as described earlier, the Bank of Korea is trying to decrease the issuance of monetary stabilization bonds because, with the progressive expansion of outstanding instruments, the interest payments required on them appear on the Bank's balance sheet, as well as acting to expand money supply still further.

## Measures Taken in Case of a Reserve Shortage

In case the reserves of a banking institution fall short of the legal reserve amount, the Bank of Korea may impose a penalty of 1 percent of the amount of the average deficiency or extend the bank a liquidity loan, termed a B2 loan, on

<sup>7</sup>Thirty deposit money banks, apart from foreign bank branches; 8 investment and finance companies; 17 securities companies; 6 life insurance companies; and 3 investment and trust companies.

<sup>8</sup>The Bank of Korea has introduced a real-time gross settlement system, known as BOK-Wire, for large value transactions, which went into operation in December 1994. At present, 138 financial institutions, including foreign bank branches, that maintain operational accounts with the central bank can use BOK-Wire as a communication network as well as an electronic fund transfer system.

which a penalty interest rate, equivalent to the call rate plus 2 percent, is applied.

Imposing a penalty when the actual growth rate of money greatly exceeds the target range may be undertaken only within certain limits, because it has a significant influence not only on the international credit-standing of the banks involved but also the domestic financial markets. Thus, the imposition of penalties can be used only sparingly.

B2 loans can be extended to banks where they are manifestly doing their best to decrease their lending though the actual money growth is slightly over the target growth. The extension of a B2 loan is as strong a sanction as imposing a penalty in that it signals a stern warning, which increases implicit surveillance costs, rather than adding an interest rate burden. It is usually extended on the last day of the reserve maintenance period when short-term interest rates, such as the call rate, are inclined to rise. The Bank of Korea permits short-term interest rates to rise temporarily with a view to signaling the policy stance of the monetary authority. After receiving a B2 loan, banks typically show self-control in lending, bringing about the decline of monetary growth to within the target range.