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9 Financial Liberalization: The Korean Experience

Won-Am Park

9.1 Introduction

Korea has achieved remarkable economic growth through an export-oriented growth strategy but has had pervasive government intervention in its credit markets. Korea's high growth was attained through the government's active role in financing industrial development. Policy loans made at preferential interest rates and direct credit control were the main tools used by the government.

Although it is certain that government intervention in the credit market played a role in accelerating Korean development, this strategy has not been without significant costs, borne mainly by financial institutions and depositors. Financial repression created an inefficient banking system, a weak corporate financial structure, and high inflation tax burdens. The benefits and costs of heavy government intervention in the financial sector have been, and still are, hotly debated topics in Korea.

This paper explores changes in financial markets and financial policies and their effects on and consequences for Korea since financial deregulation started in the early 1980s. Finding the causes for changes in financial markets and assessing the impact of financial policies is a very difficult task. The causes and consequences of any specific financial policy are often so multifarious and intertwined that we cannot easily identify them. Nonetheless, this paper will investigate Korea's experiences with financial deregulation since the early 1980s.

Section 9.2 provides an overview of Korea's financial deregulatory process

Won-Am Park is professor of economics at Hong-Ik University and a research associate of the Korea Development Institute.

since the early 1980s and its future plans. Section 9.3 investigates the effects of financial deregulation on the structure of the financial system, behavior of financial intermediaries, and monetary and exchange rate policies. Section 9.4 tests capital mobility in Korea by focusing on saving-investment correlations and interest parity conditions. Section 9.5 analyzes the movements of Korea's nominal and real exchange rates. Concluding remarks are provided in section 9.6.

9.2 Overview of Korea's Financial Deregulation since the Early 1980s

When Korea embarked on a policy of outward-oriented growth in the early 1960s, the government began to intervene heavily in financial markets to direct insufficient domestic savings toward investment in export industries. The government's intervention was intensified in the 1970s as its industrial policy shifted to the heavy and chemical industry drive. Bank interest rates were controlled at below the market-clearing level. Credit was also allocated by lending directives set up by the government.

Toward the end of the 1970s, the government's promotion of heavy and chemical industries gave rise to severe distortions in resource allocations and to internal and external imbalances in the economy. To make things worse, the oil price hike, social and political turmoil, and a bad rice crop during 1979–80 brought about serious stagflation in the Korean economy. This poor performance and great imbalances in the Korean economy provided momentum for reevaluating the industrial and financial policies implemented in the 1970s and for pursuing a new policy in the 1980s.

The new policy package aimed at achieving economic balance through economic liberalization. To correct the overinvestment in heavy and chemical industries and distortions created by the strong protectionist policies in the 1970s, the government had respect for the market mechanism and competition and as a result limited government intervention. The import liberalization ratio rose from 68.6 percent in 1979 to 91.6 percent in 1986. The average nominal tariff rate for all commodities declined from 35.7 percent in 1978 to 18.1 percent by 1988. The incentive system for strategic industries, such as preferential credit and tax treatment, was realigned into a system of more indirect and functional support. The tax reform of 1981 substantially reduced the scope of special tax treatment for key industries. This new industrial incentive system culminated in the Industrial Development Law effective from July 1986 that defined some areas of market failure in which the government might intervene for industrial rationalization. The financial deregulatory process that we will review was only part of the new policy package.[1]

1. See Nam (1992), Cho and Kim (1993), and Park (1994) for a recent review of Korea's financial deregulation and financial opening.

9.2.1 Domestic Financial Deregulation

Financial deregulation commenced with the removal of various restrictions on bank management and the privatization of commercial bank ownership in the early 1980s. Regulations on commercial banks in the spheres of the organization, budget, branching, and business practices were greatly loosened. During 1981–83, the government sold its shares in all nationwide commercial banks. To prevent bank ownership from being concentrated among Korea's large conglomerates, the *chaebol*, ownership by a single shareholder was restricted to 8 percent of the total. The government also chartered two joint-venture commercial banks with Korean and foreign partners and loosened regulations on chartering nonbank financial institutions (NBFIs) such as investment, mutual savings, and finance companies. In addition, it has continued to broaden and diversify services supplied by financial institutions.

The government's management of credit and interest rates has improved. Although the government continued to set ceilings for bank loans and deposits, it decided to switch from direct credit controls to indirect ones. Most preferential interest rates applied to various policy loans were abolished in June 1982, and further policy loans were restrained. In early 1984, financial institutions were allowed to set their own lending rates within a given range according to the creditworthiness of the borrowers. This action has been followed by a series of measures deregulating interest rates in the organized financial sector. Such measures include the lifting of the upper limit on call rates in 1984, the decontrol of yields on convertible bonds and debentures with bank payment guarantees in 1985, and the freeing of interest rates on certificates of deposit (CDs) and issuing rates for debentures with bank payment guarantees and financial debentures issued by deposit money banks in 1986.

This series of interest rate deregulations culminated in the decontrol of bank and nonbank lending rates in December 1988. These measures were a significant step toward financial deregulation. As interest rates rose after they were decontrolled, however, the government revoked the plan. Furthermore, economic slowdown and labor disputes in 1989 hindered progressive liberalization toward the end of the 1980s. Not until August 1991 did the government release the four-phase schedule for the full liberalization of interest rates in the domestic financial market.

The restructuring of the financial industry has been of concern as the new financial instruments that cross between banking and securities promote competition among financial intermediaries. Korea has not had any formal legal restrictions against a universal banking system since the decision was delegated to the Monetary Operation Board, but Korea generally has maintained a specialized banking system. Banks are limited in dual operations, but some are already in the securities business and involved in short-term financing through the acquisition of subsidiaries. In March 1991, Korea's eight short-

term finance companies were changed into two banks and five securities companies. Table 9.1 summarizes major events in Korea's financial deregulation since the early 1980s.

9.2.2 Financial Market Opening

Domestic financial deregulation since the early 1980s has been accompanied by a gradualist approach to financial opening. While deregulation in the domestic financial market proceeded faster than financial opening in the first half of the 1980s, the latter went faster in the latter half of the 1980s because the current account ran surpluses during 1986–89 after chronic deficits in the previous years.

Prior to Korea's current account surplus in 1986, some measures were implemented to open domestic financial markets gradually. The basket-peg exchange rate system was adopted in 1980. The forward exchange market was

Table 9.1 Highlights of Korea's Financial Deregulation since the Early 1980s

Financial liberalization program	
Introduction of corporate paper	1981
Privatization of nationwide commercial banks	1981–83
Abolition of beneficial interest rates on policy loans	1982
Alleviation of government intervention in the internal operation of banks	1984
Introduction of negotiable CDs	1984
Introduction of a band for bank loan rates	1984
Indirect opening of the stock market through the Korea Fund	1984
Introduction of cash management accounts by short-term finance companies	1987
Introduction of bond management funds by securities companies	1987
Relaxation of entry barriers to financial industry, including banks, life insurance, lease. and investment trust	1988
Opening of the life insurance industry to foreign firms	1988
Announcement of phased deposit and loan rate deregulation	Dec. 1988
Opening of the securities industry to foreign firms	1991
Announcement of a four-step interest rate liberalization plan	1991
Conversion of some short-term finance companies to securities companies or banks	1991
Opening of purchase of individual equity stocks on the Korea Stock Exchange to foreign investors	1992
Foreign exchange and capital account liberalization	
Switch to a basket-peg exchange rate system from a dollar-peg	1980
Foreign exchange forward transaction implemented	1981
Interest rate swap allowed	1984
Switch to a negative system in foreign direct investment policies	1984
Issuance of convertible bonds (CBs), warrant bonds (WBs), and depository receipts (DRs)	1985
Financial futures allowed	1987
Transition to an IMF article VIII country	1988
Foreign exchange call market established	1989
Switch to the Market Average Exchange Rate System	1990
Switch to a negative system in foreign exchange management	1992

created in 1980 as well. Interest and currency swaps were introduced in 1984. The Korea Fund, a closed-end mutual fund for foreigners who want to invest in Korean stocks, was established and listed on the New York Stock Exchange in 1984.

The current account surpluses in 1986–89 provided further impetus to deregulate foreign exchange transactions in areas such as position management, documentation requirements, and the international use of the won. By deregulating a substantial portion of current account transactions, Korea accepted the obligations of the IMF's article VIII in November 1988. Furthermore, investments by foreigners in domestic securities were permitted and facilitated through the issuing of beneficiary certificates for foreigners and equity-linked overseas securities (CBs, WBs and DRs) by domestic firms, as well as through the additional establishment of overseas country funds—the Korea Europe Fund in 1987 and the Korea Asia Fund in 1991. The watershed was the introduction in March 1990 of the so-called Market Average Exchange Rate System for the determination of exchange rates, whereby rates were allowed to fluctuate daily in accordance with the changes in market supply and demand.

In promoting liberalization of capital account transactions, the government sought first to deregulate foreign direct investment in Korea and Korean direct investment in foreign countries. Since 1984, when the positive list system for approving foreign direct investment was replaced by a negative list system, the government has progressively liberalized Korea's foreign direct investment system by shortening the list of nonpermissible categories of business for foreign investments.

The significant step toward financial opening was taken in 1991. Effective from January 1992, foreigners are allowed to purchase Korean stocks, up to 3 percent of the outstanding shares of each company for each individual; no more than 10 percent of a company may be foreign-owned, however. The government also authorized the operation of foreign securities companies in Korea. In addition, the Foreign Exchange Management Act was revised in 1991 so that the positive system, whereby all foreign exchange activities are initially deemed prohibited unless stipulated otherwise, has been replaced by a negative system which permits in principle all activities except those specified. Table 9.1 also summarizes major events in the financial market opening since the early 1980s.

9.2.3 Blueprint for the Liberalization and Opening of the Financial Sector

The current account surplus in the latter half of the 1980s not only stimulated financial opening but also aroused trade and financial conflicts with the United States. Accusing Korea of "manipulating" its exchange rate, the United States demanded that Korea advance its trade and financial liberalization programs and make the liberalization programs more transparent. Korea and the United States, to settle pending issues in their financial conflicts, agreed in August 1989 to hold financial policy talks as needed. Having had several dis-

cussions since 1989, both parties agreed to set out the three-stage Blueprint for the Liberalization and Opening of the Financial Sector. The first-stage and second-stage blueprints were announced in March and June 1992, respectively. Extending these, the third-stage blueprint was announced in June 1993.

The third-stage blueprint covers crucial areas such as interest rate liberalization, control of bank loans to *chaebols*, short-term finance, and foreign exchange and capital account liberalization. Table 9.2 outlines the third-stage blueprint, which will be the cornerstone for Korea's financial liberalization. It aims to achieve substantial liberalization of Korea's financial sector by 1997.

9.3 Effects of Financial Liberalization

Korea's financial liberalization since the early 1980s can be characterized as cautious and slow in terms of its order and speed. The influence of government

Table 9.2 **Third-Stage Blueprint for the Liberalization and Opening of the Financial Sector (announced June 1993)**

Schedule	Items
Phase I (1993)	1. Liberalize all bank and nonbank lending rates (except for policy loans) and long-term deposits over two-year maturity. 2. Issue Monetary Stabilization Bonds and government bonds of close to market interest rates. 3. Operate M2 targets flexibly. 4. Liberalize call markets. 5. Widen the daily won-dollar trading margin from 0.8 to 1.0 percent. 6. Switch to the notification system for foreign direct investment into Korea.
Phase II (1994–95)	1. Liberalize all lending rates and rates for short-term marketable instruments. 2. Establish indirect monetary controls. 3. Deregulate loans to large conglomerates. 4. Develop short-term financial markets. 5. Further widen the daily won-dollar trading margin. 6. Further ease requirements for underlying documentation prior to foreign exchange transactions. 7. Expand limits on foreign investment in the stock market. 8. Allow foreign participation in primary markets for some bonds. 9. Ease requirements for opening branches of foreign securities companies.
Phase III (1996–97)	1. Liberalize all deposit rates except for demand deposits (allow money market certificates and money market funds). 2. Utilize open market operations as main monetary policy tool. 3. Operate the Loans Management System as a prudential regulation. 4. Introduce free-floating exchange rate system. 5. Eliminate requirements for underlying documentation for the usual foreign exchange transactions. 6. Allow foreign borrowing through commercial loans. 7. Allow foreign financial institutions to hold stock of domestic banks.

diminished gradually in financial markets as its industrial policies were not easily separated from financial policies. The cautious approach to financial opening was preferred to prevent external factors from creating additional disturbances in the process of domestic financial liberalization. Despite the slow pace of financial liberalization, Korea's financial market and financial policies have changed greatly since the early 1980s.

9.3.1 Changing Structure of the Financial System

The financial liberalization since the early 1980s stimulated financial intermediation as shown in figure 9.1. As economies grow, there is a tendency for the ratio of financial institutions' assets to GNP to increase. However, financial deepening stagnated in the 1970s as the ratio of domestic financial assets to GNP rose only modestly from 212 percent in 1970 to 240 percent in 1980. In contrast, the ratio doubled during 1980–93 with financial liberalization.

Financial deepening since the early 1980s has been driven by the growth of NBFIs. While the ratio of banks' financial assets to GNP has stagnated since the early 1980s, the ratio of the NBFI sector's financial assets to GNP has jumped remarkably (see table 9.3). The rapid growth of NBFIs can also be confirmed by the composition of financial savings in table 9.4. The share of bank deposits among the total financial savings declined from 46 percent in 1980 to 24 percent in October 1993. In contrast, the share of nonbank deposits increased from 38 percent to 68 percent during the same period.

The growth of NBFIs was possible because they operated under relatively free conditions with respect to interest rate control, burden of policy loans, entry barriers, and ownership regulation in order to absorb informal market funds into the organized financial market. The growth of NBFIs contributed to deepening the financial market, but it resulted in another disequilibrium in the financial market, that is, lack of competition between banks and nonbanks and slow progress toward a universal banking system.

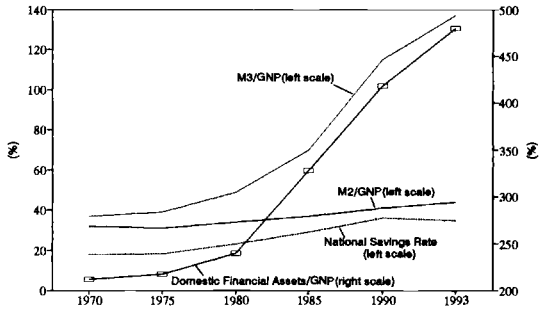

Fig. 9.1 Trend of financial deepening
Source: Economic Statistics Yearbook (Seoul: Bank of Korea, various issues).

Table 9.3 **Ratio of Financial Assets to GNP (%)**

Year	Financial Sector[a]	Deposit Money Banks	Life Insurance and Pension Funds	Other[b]	Nonfinancial Sector (domestic)
1975	72.7	53.3	2.7	16.7	136.4
1980	100.6	64.0	6.0	30.6	139.7
1981	107.6	64.8	7.1	35.7	147.6
1982	122.6	71.8	8.5	42.3	165.2
1983	129.2	73.2	10.0	46.0	165.7
1984	134.0	71.3	11.5	51.2	170.3
1985	144.9	74.8	12.8	57.3	172.8
1986	145.1	71.9	14.7	58.5	177.0
1987	150.7	70.5	16.4	63.8	185.4
1988	157.5	67.7	18.4	71.4	186.4
1989	183.7	73.5	21.4	88.8	212.0
1990	191.5	74.8	23.3	93.4	214.9
1991	198.2	75.0	24.4	98.8	214.2
1992	213.1	78.8	25.8	108.5	223.5
1993	226.3	79.6	26.5	120.2	234.2

Sources: Flow of Funds (Seoul: Bank of Korea, various issues); *National Accounts* (Seoul: Bank of Korea, various issues).

[a]Excludes the Bank of Korea.

[b]Includes nonmonetary financial institutions and securities companies.

Table 9.4 **Composition of Financial Savings (period end; %)**

Period	Bank Time and Savings Deposits Including CDs[a]	Nonbank Deposits	Securities	Intersectoral Transactions
1972	70.0 (82.2)	22.2	13.2	−5.4
1975	60.2 (65.8)	27.6	15.6	−3.4
1980	45.9 (51.5)	37.8	21.8	−5.4
1985	36.3 (42.3)	53.6	24.4	−14.3
1990	25.6 (38.8)	60.3	29.9	−15.8
1991	25.3 (38.9)	59.5	30.1	−15.0
1992	24.7 (40.9)	64.2	27.9	−16.7
Oct. 1993	23.6 (42.0)	67.8	26.5	−17.9

Source: Fiscal and Financial Statistics (Seoul: Ministry of Finance, various issues).

[a]Numbers in parentheses are bank time and savings deposits including both CDs and money in trust (the latter being formally classified as nonbank deposits).

9.3.2 Behavior of Financial Intermediaries

Deregulation also affected the behavior of financial institutions. First, financial deregulation resulted in the reduction of policy loan burdens, causing the share of policy loans in total domestic credit to decline markedly from 47 percent in 1980 to 25 percent in 1991 (table 9.5). This fall was mainly achieved

Table 9.5 **Share of Policy Loans (ratio to domestic credit; %)**

	Monetary Institutions							
Year	Subtotal	Government Funds	Credit to KDB and KEXIM	Foreign Currency Loans	Trade Financing	Housing Loans	Other Financial Institutions	Total
1973	48.2	5.3	3.4	6.6	11.5	3.1	52.8	49.3
1975	40.9	3.5	1.8	8.6	8.5	2.8	52.4	43.5
1980	49.1	3.0	1.5	15.5	10.3	5.6	43.9	47.4
1981	45.7	2.9	1.5	12.6	10.0	4.2	41.1	44.1
1982	40.3	3.0	1.0	11.5	8.3	5.7	38.8	39.7
1983	41.2	3.2	1.0	9.8	8.2	6.3	36.6	39.4
1984	40.7	3.5	1.0	8.7	7.7	6.4	31.7	36.8
1985	39.3	3.5	0.9	7.7	7.4	5.9	30.2	35.3
1986	40.6	3.6	1.0	7.5	7.0	5.5	24.1	33.1
1987	45.7	3.5	5.8	9.7	4.2	5.5	20.5	33.6
1988	46.4	3.6	7.9	8.9	1.9	8.2	17.3	31.9
1989	46.4	3.8	7.9	8.2	1.7	6.6	14.1	29.2
1990	46.3	3.6	7.7	8.5	2.0	7.0	12.7	27.8
1991	41.9	3.7	6.9	8.8	1.9	7.1	12.0	24.9

Source: Korean Economic Indicators (Seoul: National Statistical Office, various issues).

by the swift development of NBFIs such as investment and insurance institutions whose loans were not directed by the government and the shrinkage of some NBFIs such as development institutions whose loans are mostly policy-related. In contrast, the portion of policy loans by deposit money banks in total domestic credit showed a slight decrease. That figure declined from 49 percent in 1980 to 39 percent in 1985, but rose again to 46 percent during the latter half of the 1980s. The jump in the share of policy loans during 1987–90 stems from increased credit to development institutions such as the Korea Development Bank (KDB) and the Korea Export Import Bank (KEXIM) and increased agricultural and housing loans, which more than offset the drastic decline of export financing.

Second, while financial deregulation encourages banks to manage their assets and liabilities more carefully, we do not find any significant changes in the composition of bank assets as shown in table 9.6. The loans and discounts of banks continued to occupy almost 50 percent of total assets which exclude acceptances and guarantees, securities about 10 percent, and so forth. The sectoral composition of bank loans extended each year also did not change distinctively in the way that is expected with financial deregulation (table 9.7). Although more than half of all bank loans extended went to the business sector, there is no clear evidence that the business sector received a larger or smaller share of bank loans with the progress in financial liberalization. Rather, the sectoral composition varied each year according to macroeconomic conditions and financial policies.

Table 9.6 **Accounts of Deposit Money Banks (%)**

	Domestic Assets							
Year	Cash	Due	Securities	Loans and Discounts	Loans in Foreign Currency	Foreign Assets	Other	Total
1970	3.7	14.9	2.4	49.3	6.9	13.8	9.0	100.0
1975	3.7	14.4	2.6	41.8	4.9	9.4	23.1	100.0
1980	8.0	7.1	7.8	46.4	9.9	11.4	9.5	100.0
1981	11.0	4.7	9.8	46.8	8.1	10.4	9.2	100.0
1982	10.5	7.2	8.3	48.0	7.5	8.3	10.1	100.0
1983	9.3	3.7	10.9	48.9	6.3	8.4	12.4	100.0
1984	12.0	5.3	10.2	47.0	5.3	7.9	12.3	100.0
1985	9.9	9.9	6.8	49.4	4.8	7.4	11.9	100.0
1986	8.4	9.0	7.9	51.3	4.9	6.5	12.1	100.0
1987	11.7	8.3	8.3	47.8	6.1	5.8	12.0	100.0
1988	13.6	8.9	8.1	46.6	5.4	5.6	11.7	100.0
1989	12.3	6.8	8.5	50.1	5.2	4.3	12.8	100.0
1990	14.9	5.5	9.1	46.7	5.2	4.3	14.3	100.0
1991	13.2	5.7	9.6	47.8	5.5	4.4	13.9	100.0
1992	10.2	5.9	10.3	48.7	4.9	4.8	15.3	100.0
1993	7.5	6.0	11.6	49.5	4.5	5.6	15.3	100.0

Source: Monthly Bulletin (Seoul: Bank of Korea, various issues).
Note: Figures are ratios to total assets excluding acceptances and guarantees.

Table 9.7 **Sectoral Composition of Bank Loans Extended (%)**

Year	Financial Sector	Government	Business	Individuals
1970	0.0	0.6	63.5	35.9
1975	1.5	3.7	68.1	26.7
1980	2.5	0.8	63.4	33.1
1981	6.9	0.0	52.5	40.6
1982	1.4	2.2	61.9	34.4
1983	1.1	4.2	49.8	44.9
1984	4.9	0.9	66.9	27.3
1985	−0.9	3.4	76.3	21.1
1986	−0.5	−1.2	75.9	25.8
1987	11.4	−1.0	49.0	40.6
1988	12.9	−1.2	52.5	35.8
1989	31.9	0.7	40.6	26.8
1990	−6.3	2.7	60.9	42.6
1991	−1.1	1.8	66.2	33.1
1992	14.7	1.0	57.8	26.4
1993	3.1	1.6	64.9	30.4

Source: Flow of Funds (Seoul: Bank of Korea, various issues).
Note: Figures are ratios to the total bank loans made each year.

Third, financial deregulation did not bring about a rapid expansion in lending, as shown in figure 9.2. This result is in contrast with experiences of other countries in which bank loans grew rapidly as the activities of financial institutions were decontrolled. The boom-bust cycles due to eased credit with financial liberalization are well documented even in the case of advanced countries such as the Scandinavian countries (Åkerholm 1994) and Australia (Lowe 1994).

The mechanism for boom-bust cycles is as follows. Financial liberalization eases credit via the removal of most quantitative restrictions on bank lending, interest rate decontrol, the relaxation of control over foreign capital inflows, and a scramble for market share among financial intermediaries. The eased credit goes to households as well as to businesses. The boom in lending, which happens to coincide with the boom in the economy, soon turns into an asset boom as lax credit is used to finance consumption and asset purchases, which in turn can be used as collateral against which to borrow. An excessive consumption boom and soaring asset prices make an economy highly vulnerable to adverse changes in economic conditions. A credit-supported boom must end in crisis as the authorities adopt tight monetary policy to control rampant inflation and the asset bubble explodes. The longer and more substantial the boom is, the more deep and damaging the crisis.

In Korea, there was close correlation between the growth in financial loans and increases in land prices. Thus credit-supported boom-bust cycles after financial liberalization could have been possible, if the financial repression of the 1970s had been followed by rapid and drastic financial liberalization in the early 1980s. In fact, the cautious and gradual approach to financial liberalization hindered financial intermediaries from engaging in excessive loans to households or investments in asset markets. The actual asset market boom in Korea in the latter half of the 1980s is attributable to the yen and won appreciation vis-à-vis the U.S. dollar rather than to credit expansion.[2]

9.3.3 Monetary Policy

The Korean government supplied a large amount of loans to priority sectors to sustain high growth and at the same time tried to control inflationary pressure caused by these loans. To achieve the conflicting goals of economic growth and inflation control, the government had to intervene directly in financial markets by using direct interest rate controls, preferential credit to priority sectors, high reserve requirements, and other direct controls on monetary aggregates and domestic credit.

Until the 1970s, the underdeveloped financial market limited the effectiveness of indirect monetary controls. The rediscount policy was ineffective because rediscounts were almost automatically approved and supplied at preferential rates. The reserve requirements were quite high until 1980, but the high

2. See Park and Park (1994) for a discussion of this issue.

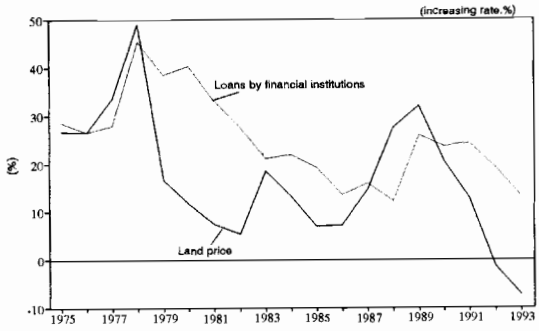

Fig. 9.2 Loans and land price
Sources: Economic Statistics Yearbook (Seoul: Bank of Korea, various issues); *Land Price Trends* (Seoul: Ministry of Construction, various issues).

reserve requirement ratio was not effective because the reserve deficiencies of the banks were replenished with their borrowings from the central bank. Instead of controlling monetary expansion, the high reserve requirements decreased the profitability of banks. Open market operations, the most important tool for indirect monetary control, were carried out in a limited way because the fiscal deficits were financed through money creation rather than through bond issues and, moreover, interest rates for bonds were significantly below the market-clearing level.

Financial liberalization brought with it important changes in monetary policy from direct monetary controls to indirect ones. First, in 1982, the authorities replaced direct control over bank lending with an indirect reserve control system. Since 1982, there has been no formal direct control of bank credit except for measures to restrict loans to large conglomerates.

Second, efforts were made to restore such traditional central bank policies as the rediscount policy, reserve requirement policy, and open market operations. The emphasis of the rediscount policy has been on setting the rediscount ratios and changing the eligibility criteria of bills presented to the Bank of Korea. The reserve requirement ratio was lowered markedly during 1980–82 because the authorities recognized the ineffectiveness of the high reserve requirement policy and the increased financial burdens of banks caused thereby. The authorities also tried to use open market operations more frequently by financing fiscal deficits more through bond issues and offering Monetary Stabilization Bonds at interest rates close to market rates.[3]

Third, even with financial liberalization, the authorities have been using M2 growth as the intermediate target variable since 1979. The practice of monetary targets had both good and bad aspects in Korea. Monetary targeting certainly

3. See Kang (1993) and Ro (1993) for the details of Korea's monetary policy.

served to curb inflationary pressure when the economy was on the verge of overheating. At the same time, however, rigid monetary targets encouraged the government to rely on direct monetary controls. Sometimes the M2 amount was managed by adjusting the balance sheets of financial institutions.

The progress toward indirect monetary controls was interrupted by huge current account surpluses in the latter half of the 1980s, since the monetary expansion through the foreign sector created additional burdens in controlling the money supply (see table 9.8). On one hand, the excessive money supply necessitated more rapid foreign exchange and capital account liberalization and even a floating exchange rate system. Thus monetary policies in the latter half of the 1980s were concerned mainly with the balance of payments and exchange rates. The current account surpluses accelerated the progress in financial opening and exchange rate floating, leading to the won's appreciation.

On the other hand, the monetary expansion from the foreign sector hindered the deregulation of domestic financial markets. For instance, the measure deregulating lending rates in December 1988 was revoked quickly for fear of a rise in interest rates in the process of monetary contraction. Also the Bank of Korea has had to issue such large amounts of Monetary Stabilization Bonds as to assign them to NBFIs at interest rates below market rates. Furthermore, the money growth targets became more important than any other indicators that could be used to assess domestic economic conditions and the stance of policies.

9.3.4 Exchange Rate Policy

Korea maintained a de facto dollar-peg system until 1980 although the system was officially named the unified floating exchange rate system. Under this system, Korea's real exchange rate tended to appreciate. Recognizing the adverse effects of real appreciation on its trade account, Korea adopted the Multiple Currency Basket Peg System in February 1980. The new system was insti-

Table 9.8 **Sectoral Increases in the M2 Supply (end of year; billion won)**

Year	Government Credit	Private Credit	External Sector	Other	Total
1985	40	6,462	−1,595	−1,047	3,860
1986	170	6,765	2,424	−4,091	5,268
1987	−1,656	6,115	9,030	−7,043	6,446
1988	−2,174	8,642	10,212	−8,021	8,659
1989	−1,993	16,871	2,365	−7,543	9,699
1990	−1,458	19,068	118	−7,660	10,070
1991	778	20,840	−3,117	−3,463	15,038
1992	−271	14,060	4,066	−5,342	12,513
1993	−1,919	18,136	5,397	−5,654	15,961

Source: Monthly Bulletin (Seoul: Bank of Korea, various issues).

tuted to stabilize the real effective exchange rate of the won. Indeed, the real effective exchange rate has tended to depreciate since 1980 (figure 9.3). Overall, it could be said that Korea's exchange rate policy evolved from a nominal anchor approach in the 1970s into a real target approach in the 1980s.

The real target approach helped to reduce the current account deficit and the huge external debt in the early 1980s. Many international institutions, such as the International Monetary Fund, supported Korea's real depreciation because they thought that real depreciation was required to prevent financial liberalization from being stalled in its beginning stages by the expanded current account deficits and the aggravated external debt problem. However, once the current account began to show surpluses starting in 1986 due mainly to enormous yen appreciation, the situation developed in a different way. Many international institutions including the U.S. Treasury accused Korea of "manipulating" its exchange rates. In response to foreign pressure and an excess supply of foreign exchange, real appreciation of the won occurred during 1988–90.

Korea adopted a new exchange rate system called the Market Average Exchange Rate System in March 1990 to make exchange rates better reflect market fundamentals. Under the new system, the won-dollar exchange rate changes to reflect the demand and supply of foreign exchanges, albeit within a daily trading margin. The daily won-dollar trading margins have been widened several times, from the initial 0.4 percent above and below the base exchange rate to 1.0 percent in October 1993. Under the Market Average Exchange Rate System, the real effective exchange rate of the won tended to depreciate.

Figure 9.3 also shows that Korea was lucky to face sustained improvement in the terms of trade during its financial deregulation. In fact, the improvement in the terms of trade was substantial enough to offset the won's real depreciation.

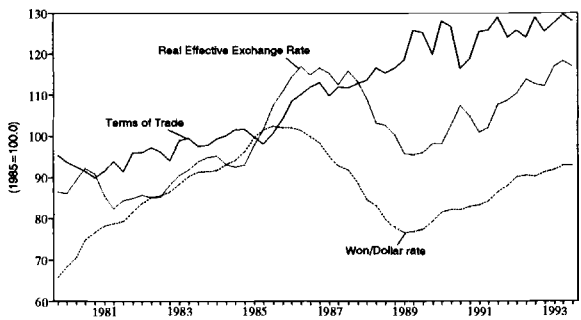

Fig. 9.3 Exchange rates and terms of trade

Source: International Financial Statistics (Washington, D.C.: International Monetary Fund, various issues).

Note: Dotted curve shows won's real effective exchange rate with Korea's seven major trading partners (the United States, Japan, Germany, the United Kingdom, France, Canada, and the Netherlands). Higher values mean real depreciation.

9.4 Tests of Capital Mobility in Korea

As reviewed in the previous section, Korea's financial liberalization was extended to financial opening to make it more comprehensive. The package of financial market opening policies includes the liberalizing of foreign exchange transactions, opening of domestic capital markets, and floating of exchange rates.

Table 9.9 shows developments in Korea's capital account since the early 1980s. The capital account was in surplus in the first half of the 1980s to accommodate the large current account deficit. Public and commercial loans were the major source of capital inflows during this period. As the current account registered massive surpluses in the latter half of the 1980s, however, public and commercial loans served as the major source of capital outflows causing capital account deficits. Entering the 1990s, the capital account once again began to register surpluses as capital account liberalization brought in large portfolio investments from abroad. As stated in section 9.2, foreigners were allowed to invest in the Korean stock market starting in 1992.

Table 9.9 raises at least two questions regarding Korea's capital mobility. One is how open Korea's financial markets are in a weak or strong sense. The other is whether the degree of financial openness increased with financial liberalization even though Korea's financial markets are not completely opened. The casual answers to the two questions can be inferred from figure 9.4. Since ex post differences in won returns between won deposits in Korea (measured by corporate bond yields) and dollar deposits abroad (measured by LIBOR) are substantial, one can easily conclude that uncovered interest parity does not hold in Korea and consequently that Korea's financial markets are not completely opened.[4] Regarding degree, Korea's financial opening seemed to deteriorate in the latter half of the 1980s as ex post differences in won currency returns between domestic and foreign assets widened but the capital account registered net outflows during the same period. This stems from the huge current account surplus which in turn led to the won's appreciation vis-à-vis the U.S. dollar and active capital account policy for net outflows, such as advance payments of foreign loans.

Rather than depending on casual empiricism, this section intends to measure and test international capital mobility in Korea. One can measure capital mobility by investigating asset price arbitrage conditions, risk diversification,

4. The interest rate differentials here incorporate the problem of measurement errors. The returns on won deposits are represented by the yield on corporate bonds of three-year maturity while the won currency returns on dollar deposits are represented by the three-month LIBOR plus the won's annual depreciation vis-à-vis the U.S. dollar. These measurement errors were inevitable because (uncontrolled) three-month interbank loan rates are not available in a long series and corporate bond yields used to represent market interest rates in Korea. A one-year horizon for the won's depreciation was chosen arbitrarily by considering the difference in maturity of Korea's corporate bonds and dollar deposits at the London interbank market.

Table 9.9 **Korea's Capital Account (annual average; million U.S. dollars)**

Item	1981–85	1986–90	1991–93
Current account	−2,232	6,301	−4,269
Capital account	1,596	−1,807	6,440
Long-term	1,702	−2,673	6,739
Liabilities	2,250	−1,771	7,328
Public loans	981	−907	−1,001
Commercial loans	−81	−741	−720
Direct investments	117	676	728
Portfolio investments	315	131	6,646
Assets (increase, −)	−540	−902	−589
Short-term	−106	866	−299
Liabilities	−133	1,043	499
Assets (increase, −)	27	−176	−799

Source: Balance of Payments Statistics (Seoul: Bank of Korea, various issues).

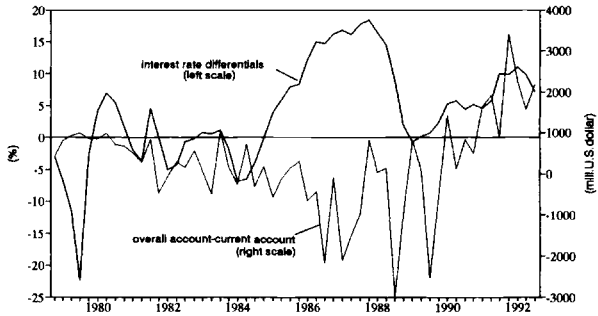

Fig. 9.4 Interest rate differentials and capital flows in Korea
Note: Korea's corporate bond yield − dollar LIBOR.

saving-investment correlations, or effectiveness of sterilized invention.[5] Among them, this section concentrates on the saving-investment correlations and asset price arbitrage conditions.

9.4.1 Saving-Investment Correlations

Feldstein and Horioka (1980) proposed saving-investment correlations as a barometer of capital mobility. They argued that if domestic savings are free to flow to their most productive uses in the world, a change in domestic savings will seldom affect domestic investment. However, this approach raised many questions concerning interpretation and econometric estimation (Obstfeld 1993; Montiel 1993).

5. A good survey on capital mobility is provided in Obstfeld (1993) for advanced countries and Montiel (1993) for developing countries.

Despite many challenges to the Feldstein-Horioka approach, saving-investment correlations are still one of the ways to measure international capital mobility. Table 9.10 presents the regression results of investment ratios with respect to saving ratios in Korea, using quarterly data for 1980.1–1992.4. This time-series estimation has the crucial limitation that it captures only the short-run relationship between national saving and domestic investment without explaining the true long-run relationship. The long-run relationship can be captured by estimating cross-sectional data averaged over a sufficiently long period. Despite these limitations, the saving-investment correlation coefficient was estimated to be small or even slightly negative in table 9.10.

Although the estimates are insignificant, little correlation between saving and investment might suggest high capital mobility in Korea. However, the interpretation and econometric problems involving the Feldstein-Horioka approach could be applied to Korea's saving-investment correlations. Considering that Korea was able to finance its very high investment with foreign funds, one may obtain small estimates even if Korea's financial markets are not sufficiently integrated with world financial markets. The time-series results of only small correlations between national savings and domestic investment should not be interpreted to mean that only small fractions of increases in national savings remain at home or that the saving retention coefficient is low in Korea.

9.4.2 Interest Rate Parity Conditions

The degree of financial integration has typically been measured by the extent to which asset price arbitrage takes place. Numerous studies have examined covered or uncovered interest rate parity conditions, but only a few have investigated the Korean case. This lack of interest seems to stem from the observation that uncovered interest parity does not hold in Korea, as shown in figure 9.4.

Rather than testing whether uncovered interest parity holds, Reisen and Yèches (1991) directly estimated the degree of capital mobility following the method of Haque and Montiel (1990), which takes the influence of foreign

Table 9.10 **Saving-Investment Correlation in Korea**

	$\hat{\beta}$		
Period	Level-OLS	Level-IV	Difference-OLS
1980–92	0.15 (1.85)	0.18 (2.12)	−0.07 (−1.20)
1980–85	−0.22 (−1.89)	−0.26 (−2.13)	−0.23 (−1.63)
1986–92	0.12 (0.31)	0.45 (0.96)	−0.09 (−0.60)

Notes: "Level" estimates are based on the OLS regression $(I/Y)_t = \alpha + \beta(S/Y)_t + u_t$. IVs are ratio of government consumption to GNP. "Difference" estimates are based on the OLS regression $\Delta(I/Y)_t = \alpha + \beta\Delta(S/Y)_t + \Delta u_t$. Seasonal dummies are included. Numbers in parentheses are *t*-values.

interest rates on domestic interest rates as a barometer of capital mobility. Reisen and Yèches (1991) show that the degree of capital mobility was low and declined gradually in the second half of the 1980s in Korea. Their results were challenged by Jwa (1994), who shows that their results could change depending on how one specifies the counterfactual interest rates in the absence of capital mobility. On the other hand, Faruqee (1991) obtained the same results as Reisen and Yèches (1991) by employing the autoregressive conditional heteroskedasticity (ARCH) technique of Engle (1982).

We also examine Korea's capital mobility by applying the ARCH technique to interest rate differentials between domestic and foreign assets. Using monthly data for Korea's three-year corporate bond yields and dollar LIBOR for three-month deposits over January 1980-December 1993, the ARIMA (1,1,0) specification was chosen as the appropriate time-series representation for the interest rate differentials. To correct for conditional heteroskedasticity, an ARCH three-lag model was implemented. The results are contained in table 9.11 and figure 9.5.

Figure 9.5 shows that the conditional variance of shocks to interest rate parity declined drastically after it peaked in 1982. But it rose again during 1988–89, indicating that the degree of Korea's capital mobility declined to a certain degree toward the end of the 1980s. The results are little affected by whether the expected rate of the won's depreciation vis-à-vis the U.S. dollar is assumed under perfect foresight to be the actual depreciation rate or the won-dollar exchange rate follows a random walk (expected rate of the won's depreciation is zero). Thus we can conclude on the basis of the ARCH test on interest parity conditions that, although Korea's capital mobility increased significantly in the latter half of the 1980s compared to the early 1980s, it declined more or less in the latter half of the 1980s compared to the period of 1983–86.

Table 9.11 **ARCH Estimation for Interest Rate Differentials (model: ARIMA (1,1,0))**

			ARCH Lag			
rd[a]	Constant	Δrd_{t-1}	α_0	α_1	α_2	α_3
$i - i^* - (\log S_{t+12} - \log S_t)$[b]	0.10	0.43	0.20	0.43	0.32	0.06
	(2.57)	(9.58)	(11.74)	(5.97)	(5.63)	(6.19)
$i - i^*$	−0.01	0.38	0.21	0.61	0.17	0.21
	(−0.14)	(4.63)	(3.95)	(3.31)	(1.42)	(2.14)

Note: Numbers in parentheses are *t*-values.

[a]rd, interest rate differentials; i, Korea's corporate bond yields (three-year maturity); i^*, dollar LIBOR (three-month deposits); S, won-dollar exchange rate.

[b]One-year horizon for the won's depreciation has been chosen arbitrarily considering the difference in maturity of Korea's corporate bonds and dollar deposits at the London interbank market.

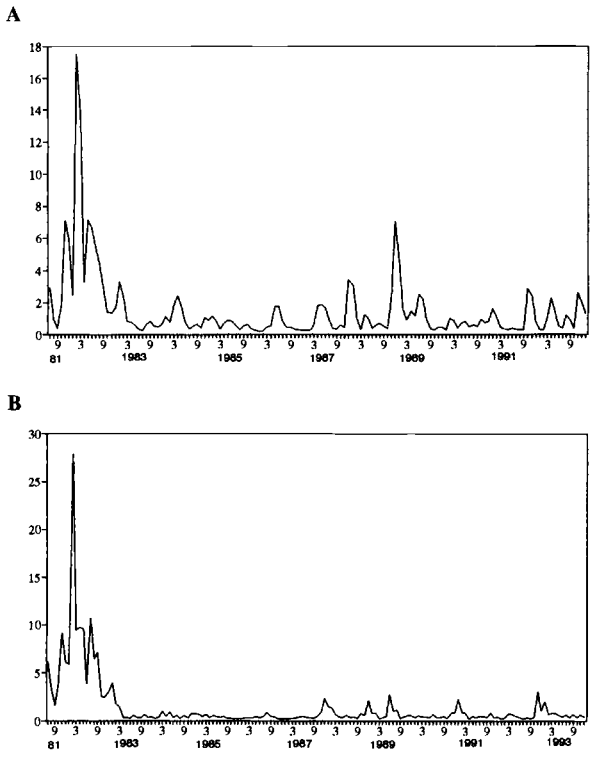

Fig. 9.5 Deviations from interest rate parity (ARCH variance): (*A*) ex-post interest difference in won currency; (*B*) nominal interest differentials

9.5 Korea's Nominal and Real Exchange Rate

As shown in figure 9.3, Korea's nominal and real exchange rates have fluctuated under different regimes since financial deregulation began in the early 1980s. In this section, we present a very simple model to explain the movements of Korea's real exchange rate and also pay attention to the volatility of the won-dollar exchange rate under the different regimes of the basket-peg and market average rate systems.

9.5.1 A Model for Korea's Real Exchange Rate

We formulate a two-sector general equilibrium model to explain changes in Korea's real exchange rate, particularly under the Multiple Currency Basket Peg System during 1980–89. The model is modified from that of Calvo and Rodriguez (1977) and much simpler than that of Edwards (1988). The model assumes a variant of a dual exchange market, where the official exchange rate is separated from the market exchange rate. For simplicity, the model assumes full employment, purchasing power parity, rational expectations, and two

assets of domestic and foreign money. We further assume that real transactions take place at the official exchange rate and financial transactions take place at the market exchange rate.

The real exchange rate (q) is defined by the relative price of tradable goods (EP^{T*}, for E the official exchange rate and P^{T*} the foreign currency price of traded goods) and home goods (P^{H}):

$$q = \frac{EP^{T*}}{P^{H}} \tag{1}$$

Production (Y) and consumption (C) for both goods are specified as functions of the real exchange rate (q) and real wealth (a):

$$\begin{aligned} Y^{T} &= Y^{T}(q),\ Y^{T}_{q} > 0; \\ Y^{H} &= Y^{H}(q),\ Y^{H}_{q} < 0; \\ C^{T} &= C^{T}(q,a),\ C^{T}_{q} < 0,\ C^{T}_{a} > 0; \\ C^{H} &= C^{H}(q,\ a),\ C^{H}_{q} > 0,\ C^{H}_{a} > 0; \end{aligned} \tag{2}$$

where a subscript denotes differentiation with respect to that variable.

The real wealth of the public in terms of tradable goods comprises domestic money (M) and foreign money (F):

$$a = \frac{1}{P^{T*}}\left(\frac{M}{E} + \frac{\delta}{E}\right) = \frac{1}{P^{T*}}(m + \rho F)\ , \tag{3}$$

where δ represents the market exchange rate, $m = M/E$, and $\rho = \delta/E$.

Equilibrium in the market for home goods ($Y^{H} = C^{H}$) requires a negative relationship between the real wealth of the public and the real exchange rate:

$$a = V(q),\ V_{q} < 0. \tag{4}$$

We assume that domestic money changes according to changes in international reserves or the current account balance, which is more likely in the Korean case of a foreign exchange concentration system:

$$M = EP^{T*}\,(Y^{T} - C^{T}) = EP^{T*}f(a),\quad f_{a} < 0. \tag{5}$$

The demand for each asset depends on the expected relative rates of return on the two monies:

$$\dot{\rho} = \rho L\left(\frac{m}{\rho F}\right),\quad L' < 0. \tag{6}$$

The system can be represented by the state variables of the real balance m and the difference between the market exchange rates and the official exchange rate ρ. Figure 9.6 portrays the phase diagram. When $\dot{m} = 0$, equation (5) deter-

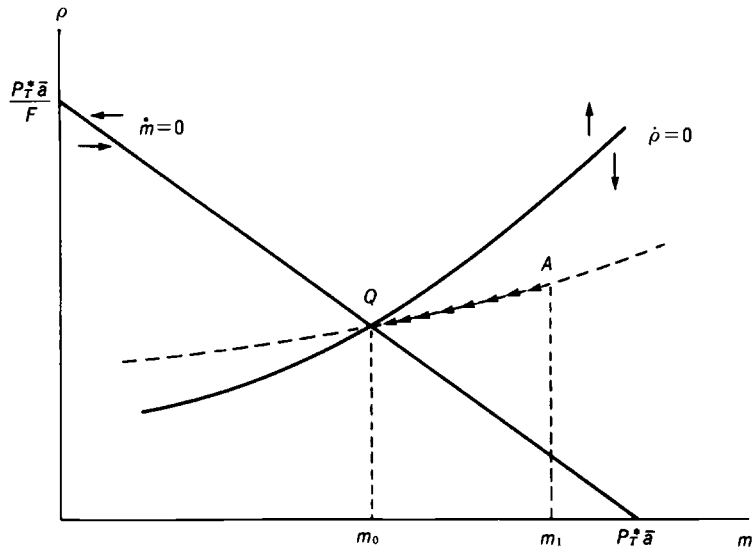

Fig. 9.6 Impact of money increase and won appreciation

mines the unique steady state value of real wealth at $\bar{a}$. We know from equation (3) that $P^{T*}\bar{a} = m + \rho F$. Thus the $\dot{m} = 0$ locus is downward sloping. The $\dot{\rho} = 0$ locus is upward sloping from equation (6). The saddle path should be upward sloping in figure 9.6.

We now consider the impact of domestic monetary expansion and nominal appreciation of the domestic money using figure 9.6. Either the increased supply or the nominal appreciation of domestic money raises the real balance of domestic money. The market exchange rate depreciates immediately to point A on the saddle path, thereby increasing real wealth and causing real appreciation if the official exchange rate does not adjust.

Figure 9.7 illustrates the impact of an increase in the foreign currency price of traded goods (P^{T*}). With an increase in P^{T*}, $\dot{m} = 0$ shifts upward. The market exchange rate depreciates immediately to point B on the new saddle path. As the economy moves toward the new steady state, the market exchange rate continues to depreciate, but the official real exchange rate starts to appreciate. Although this exercise uncovers many interesting points related to changes in the foreign price of traded goods, it has a crucial limitation in that the model assumes the law of one price for traded goods or no changes in the terms of trade. Once the model is extended to the three-sector model of exportables, importables, and nontradables (Edwards 1988), then the shift of the $\dot{m} = 0$ locus depends on how much the production and consumption of traded goods are affected by changes in the terms of trade. Thus the initial impact of changes

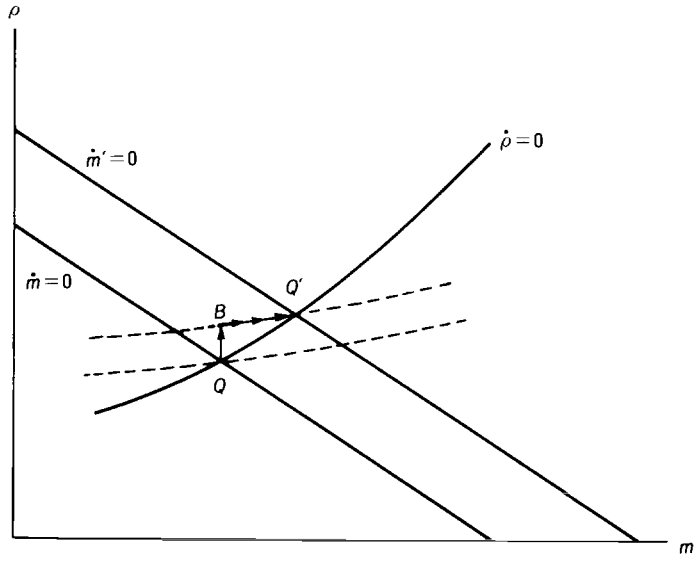

Fig. 9.7 Impact of an increase in foreign currency price of traded goods and fiscal expansion

in the terms of trade on the real exchange rate are generally uncertain (Edwards and van Wijnbergen 1987). The same conclusion can be reached in the case of tariff changes.

Figure 9.7 can also be used to show the impact of increased government spending. As government expenditures give rise to additional demand for traded goods and increases in domestic credit, the steady state is achieved with real appreciation. Thus steady state real wealth ($\bar{a}$) must increase, shifting the $\dot{m} = 0$ locus upward. With increases in government spending, the real exchange rate appreciates immediately.

9.5.2 Determinants of Korea's Real Exchange Rate

According to the model of the real exchange that was presented in section 9.5.1, the movement of the real exchange rate shows saddle-path stability. In the short run, the real exchange rate is affected by both real and monetary variables, but in the long run only the real variable affects the real exchange rate. Dynamic changes of the real exchange rate could be formulated as follows:

$$\log q_t - \log q_{t-1} = \theta(\log q_t^* - \log q_{t-1}) + \lambda x_t , \tag{7}$$

where θ is the coefficient for the adjustment speed, q_t^* equilibrium real exchange rate, and x_t initial disturbance. According to equation (7), the impact of the monetary disturbances x_t must disappear in the long run. But in the estimation we do not emphasize the long-run neutral effects of monetary determi-

nants for the real exchange rate because the monetary and real determinants are correlated and because the impact of monetary disturbances can last a long time if monetary disturbances occur when the actual real exchange rate deviates greatly from the equilibrium level. Thus the estimation equation runs as follows:

$$\begin{aligned} \log \text{REER}_t = {} & \beta_0 + \beta_1 \log \text{TOT}_t + \beta_2 \log \text{GEDP}_t + \beta_3 \log \text{TFF}_t \\ & + \beta_4 \text{RGDP}_t + \beta_5 \text{CAP}_t + (1 - \theta) \log \text{REER}_{t-1} \\ & + \beta_6 \text{RM2}_{t-1} + \beta_7 \text{REX}_t + \beta_8 \text{REFX}_t , \end{aligned} \tag{8}$$

where REER is the won's real effective exchange rate with Korea's seven major trading partners (the United States, Japan, Germany, the United Kingdom, France, Canada, and the Netherlands). We have chosen terms of trade (TOT), ratio of government consumption to GDP (GEDP), tariff (TFF), real GDP growth (RGDP), and capital account balance (CAP) as real determinants. M2 growth (RM2), the won's depreciation against the U.S. dollar (REX), and the dollar's depreciation against Korea's seven major trading partners (REFX) are the monetary determinants for real exchange.

Table 9.12 shows the estimation results. The unique features in Korea's real exchange rate adjustments are in order. First, the terms of trade improvement or the tariff increase caused real depreciation in the 1980s. This result contrasts with experiences of other developing countries in which a terms of trade improvement or a tariff increase induced real appreciation. Second, the real appreciation impact of real GDP growth, representing the Ricardo-Balassa ef-

Table 9.12 **Determinants for Korea's Real Effective Exchange Rate, 1980.1–1989.4**

Variable	OLS		IV[a]	
Constant	1.40	(2.44)	0.64	(0.83)
log TOT	0.14	(1.73)	0.15	(1.77)
log GEDP	−0.19	(−3.24)	−0.16	(−2.45)
log TFF	0.11	(3.08)	0.09	(2.26)
RGDP	−0.17	(−1.06)	−0.02	(−0.10)
CAP	−0.015	(−3.09)	−0.012	(−1.75)
log REER_{-1}	0.36	(2.98)	0.55	(3.22)
RM2_{-1}	−0.10	(−1.29)	−0.08	(−1.00)
REX	0.16	(1.69)	0.25	(2.19)
REFX	−0.60	(−4.35)	−0.37	(−1.84)
R^2	0.98		0.98	
D-W	1.70		1.75	

Notes: Seasonal dummies are included. RGDP, RM2, REX, and REFX are the ratios, not the percentages. CAP is in billion U.S. dollars. Numbers in parentheses are *t*-values.

[a]The instrumental variables are the constant, seasonal dummies, four lags of each explanatory variable except for TFF and REFX, and log TFF.

fects of real growth, was not significant in Korea, quite contrary to expectations. Third, monetary and fiscal expansion and capital inflows caused real appreciation as expected. Last, 10 percent nominal depreciation of the won vis-à-vis the U.S. dollar was estimated to have caused real depreciation of 2 percent in the current quarter and 4 percent within one year under the Multiple Currency Basket Peg System in the 1980s.

With the institution of the Market Average Exchange Rate System, the nominal exchange rate better reflects the market conditions. Accordingly, the relevance of the model diminishes as the official rate is not separated from the market rate. Considering these aspects, we reestimated equation (8) without REX variables over 1980.1–1992.4. But the qualitative results were unaffected when we assumed that the won-dollar exchange rate is determined by other real and monetary factors.

9.5.3 Exchange Rate Volatility

As financial markets are gradually opened and the volume of capital flows increase under the floating regime of the Market Average Exchange Rate System, it is generally expected that exchange rate volatility will increase compared to that under the basket-peg regime. To compare exchange rate volatility between the two different regimes, we applied the ARCH technique to the monthly won-dollar exchange rate. The ARIMA (1,1,0) model with ARCH four lag was chosen, respectively, to investigate exchange rate movement during the basket-peg period of March 1980-February 1990 and the market average period of March 1990-December 1993. Quite surprisingly, figure 9.8 shows that won-dollar exchange rate volatility declined under the market average system when measured either by movements of ARIMA residuals or by the conditional variance of ARIMA residuals.

One might interpret this result as evidence that under the Market Average Exchange Rate System the Bank of Korea intervened in the foreign exchange market in order to prevent capital flows from appreciating the won (Park 1994). On the other hand, the less volatile movements of dollar-yen exchange rates during 1990–93 may be one reason for the less volatile movements of won-dollar exchange rates during the same period. In the latter case, the less volatile movements of won-dollar exchange rates do not necessarily imply less free-floating won-dollar exchange rates.

9.6 Concluding Remarks

Korea's financial deregulation since the early 1980s has brought about great changes in the financial market and in financial policies. This paper has reviewed the deregulatory process and examined the effects of financial liberalization. Despite a series of deregulatory measures, Korea's financial market still has structural problems and is expected to face difficulties when the market is fully liberalized.

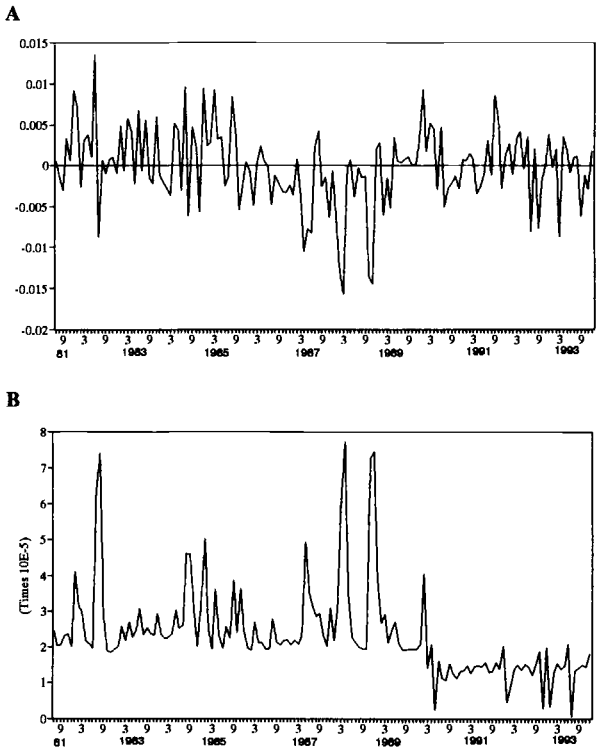

Fig. 9.8 ARCH variance in won-dollar exchange rate: (*A*) ARIMA (1,1,0) residuals; (*B*) ARCH variances

Since domestic financial liberalization was mostly based on the deregulation of NBFIs, the reform of the banking sector is still an urgent goal. A gradual shift to a universal banking system seems inevitable to promote competition among financial institutions and to enhance the efficiency of Korea's financial markets.

Both the test of capital mobility and the investigation of Korea's nominal and real exchange rates revealed that Korea still has a long way to go toward the goals of free mobility of capital and floating of exchange rates. Although Korea's cautious approach to financial liberalization succeeded in avoiding the unexpected pitfalls of deregulation and in reaping good results, efforts must yet be made to further deregulate the domestic financial market and increase the scope of financial opening.

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Comment Shin-ichi Fukuda

Won-Am Park has written an interesting paper. After surveying Korea's financial deregulatory process since the early 1980s, the paper empirically examines the effects of Korean financial deregulation on the financial structure, capital mobility, and exchange rates. The paper is informative and contains a lot of interesting results on the Korean financial market liberalization. I have three comments.

My first comment is on the interpretation of saving-investment correlations in Korea. Using quarterly time-series data from 1980 to 1992, Park estimates Feldstein-Horioka-type equations which regress investment ratios on saving ratios. His result is striking because it shows little correlation between saving and investment. If we follow the Feldstein-Horioka–type interpretation, this weak correlation implies high official capital mobility in Korea in the 1980s. However, as Park notes, this interpretation is probably not correct.

One possible interpretation is that the weak correlation was caused by high capital inflows from foreign countries but not by capital outflows to foreign countries. This interpretation might be partly true because regressions for different sample periods showed that saving-investment correlation was lower when the capital account was in surplus than when it was in deficit. However, I think that this paradoxical correlation comes from short-term current account fluctuations. By the statistical identity, low correlation between saving ratios and investment ratios implies that domestic investment has a strong negative correlation with the current account. Since high investment usually implies a boom in the economy and a boom in the economy implies the rise of imports, it is quite possible that low correlation between saving and investment comes from a high negative correlation between a high national output level and current account surplus.

My second comment is on the empirical study of interest rate parity conditions. The paper first looks at interest rate differentials between domestic and foreign assets and then applies the autoregressive conditional heteroskedasticity (ARCH) technique to examine the degree of Korea's capital mobility. The estimation result of the ARCH model shows that the conditional variance of

Shin-ichi Fukuda is associate professor at the Institute of Economic Research, Hitotsubashi University.

shocks to interest parity declined after 1982 but rose again during 1988–89. The paper interprets this result as indicating that the degree of Korea's capital mobility declined at the end of the 1980s. However, I am skeptical about this conclusion. In fact, when I look at figure 9.4, I find a sharp structural change at the end of the 1980s. That is, figure 9.4 clearly shows that at the end of the 1980s, interest rate differentials dropped sharply from 20 to −20 percent. I think that the rise of conditional variance in the ARCH model during this period is caused by this sharp drop of interest rate differentials.

My final comment is on the similarity between the Japanese and Korean experiences with controls on cross-border capital flows. In Japan, the liberalization of international capital controls happened in the 1970s. Let me briefly summarize several characteristics of Japan's experience during the liberalization process. First, the process of capital market liberalization was not monotone. In Japan, regulations that were relaxed were reregulated again several times. The main reason for this reregulation was current account fluctuation. That is, current account deficits (surpluses) led to more restrictions on capital outflow (inflow), which were then relaxed when the current account turned to surplus (deficit). Second, Japan's economic environment in the late 1970s was helpful for capital market liberalization. In this period, huge budget deficits created the need to develop a market for government bonds. This led to the liberalization of many domestic interest rates and helped to establish a precondition for free international capital movements. In addition, except for the two oil shock periods, Japan was starting to record large structural current account surpluses. These surpluses relatively reduced the governments' concern about the effects of capital account opening on the balance of payments. Third, there was political pressure from the United States to open Japanese markets. This so-called *gai-atsu* accelerated the capital market liberalization in Japan. I think that contrasting these Japanese experiences with Korean experiences may provide some interesting lessons for understanding the process of capital market liberalization in Korea.

Comment Huw Pill

Park's very interesting and informative paper describes the twin processes of financial liberalization and financial opening in Korea and the interactions between them. In the light of the earlier failed liberalization attempt of the mid-1960s, this program is shown to have been both gradual and cautious. Something akin to McKinnon's "optimal" order of economic liberalization was followed; fiscal stabilization preceded deregulation of the domestic banking sys-

Huw Pill is assistant professor of business administration at Harvard Business School.

tem and capital markets, which, in turn, preceded the opening of the capital account of the balance of payments.

The paper also attempts to measure the degree of "financial openness" on a number of criteria. Somewhat surprisingly given the descriptive section of the paper, it is suggested that capital mobility through Korea was reduced in the latter part of the 1980s despite the liberalization program.

The paper's tenor is to suggest that the Korean liberalization program, although only partial, should be judged successful. The comments offered are in the form of assessing the success of the program and wondering how exportable it may be to other countries.

Park notes that the role of directed credit and other "financially repressive" measures in the Korean development process is the subject of considerable ongoing controversy. It has been argued that "a little financial repression may be a good thing," citing the Korean experience as an example. The paper remains agnostic on this issue.

However, it is difficult to assess the success or otherwise of the program if one does not take a stand on this issue. Liberalization has not led to loss of macroeconomic control—as has been common in other countries and previously in Korea—because of the gradualism of the program adopted. Yet one can only assess the optimality of the program if one can compare this benefit with the cost of reaching the desired liberalized state less rapidly than may have been possible.

The paper discusses only the financial consequences of liberalization. There is no assessment of the real effects. Has the program been successful in allocating resources more efficiently? Has it improved the growth potential or performance of the real economy? Such an assessment is required to genuinely evaluate whether the program has been successful.

Moreover, it is unclear what the desired liberalized state is. The paper notes that deregulation of the banking system and the capital account of the balance of payments remains partial. These have been the problematic issues in many other countries. Are the potential gains from such liberalization worth the risk of incurring potentially large costs? Is Korea voluntarily extending liberalization to these areas or is it being coerced into so doing by the United States?

If we agree that the program adopted by the Korean authorities has been successful, can it be exported to other countries? In assessing this, one issue stands out where the Korean experience appears exceptional. A common feature of financial liberalization in other countries has been that, once initiated, it creates a momentum of its own. The British experience is instructive, although not unique. The abolition of capital controls allowed dis-intermediation from the domestic banking system to evade controls on the size of onshore banks' balance sheets. Because they were essentially unenforceable, these direct controls were abolished. This allowed banks to expand their domestic activities, notably through aggressive entry into the market for mortgage loans.

The building societies (mutually owned thrifts) which had previously dominated the market for home loans were more strictly regulated than banks and thus felt they were subject to unfair competition—they demanded deregulation for themselves. Thus the process generated a self-sustaining momentum.

How did the Korean authorities prevent these internal pressures for deregulation from emerging and maintain the gradualistic nature of the liberalization program? Presumably, the sequencing of reform is important. An important part of the British experience was the early abolition of capital controls, which was avoided in Korea. However, many countries have found administrative controls of the international movement of capital hard to implement once current account convertibility is established. For example, importers and exporters can manipulate the timing of trade invoicing and payments to generate sizable capital flows in the form of trade credit (which is exempt from restriction under the convertibility clause of IMF article VIII).

Moreover, the paper describes in detail how the main effect of financial deregulation thus far has been to expand the nonbank financial sector at the expense (relatively) of the banking system. The latter remains much more heavily regulated than the former, putting it at a disadvantage in competing for funds. Why have the commercial deposit banks been content to tolerate the consequent erosion of market share? How have the Korean authorities been able to withstand the pressure from the banking system for deregulation to "level the playing field"? Only when these issues have been addressed will it be possible to assess whether the Korean gradualistic approach is genuinely applicable in other contexts.