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CONTENTS

FROM CRISIS TO RECOVERY: KOREA'S POLICY RESPONSE TO THE GLOBAL FINANCIAL MELTDOWN, AUGUST 2007–JUNE 2009

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CONTENTS

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I. Introduction

During the two-year period since the outbreak in August 2007 of the U.S. subprime crisis, Korea has felt its severe effects: Korea's economy contracted sharply and experienced a liquidity crisis. In 2008, Korea's economy grew 2.2 percent, less than half of its average growth since the 1997 Asian financial crisis. The International Monetary Fund (IMF) in a recent forecast (2009b) expected shrinkage of Korea's economy by about 1 percent, although the crisis had bottomed out by the end of the second quarter of 2009. During the six-month period beginning in October of 2008 Korea suffered through U.S. dollar liquidity shortages, which at one point set off a run on central bank foreign exchange reserves. In retrospect there is little doubt that the crisis was mostly panic driven. It is not clear whether Korea's policymakers diagnosed the overreaction on the part of international financial market participants as the main cause of the crisis and acted accordingly to deal with it, but they set out to thwart a liquidity crunch spiraling into a currency crisis by restoring the confidence of the global financial community in the Korean economy.

Since April 2009, there have been signs indicating a sharp rebound of Korea's economy. A consensus is now emerging that Korea is likely to recover from the current global crisis well ahead of many other developed and emerging economies. According to the OECD (2009b), Korea will be the fastest-growing economy among its members in 2010. The purpose of this paper is to delineate macroeconomic developments that began from the economic downturn early in 2008, which was in turn exacerbated by a liquidity crunch, and ended with a return to financial stability in the second quarter of 2009. Section II discusses macroeconomic developments leading to the eruption of the liquidity crisis in the third quarter of 2008. Section III focuses on the causes and consequences of the liquidity crisis, and section IV describes the manner in which Korea's policy authorities responded to it during this period. Section V looks into future prospects of the Korean economy. Concluding remarks are in a final section.

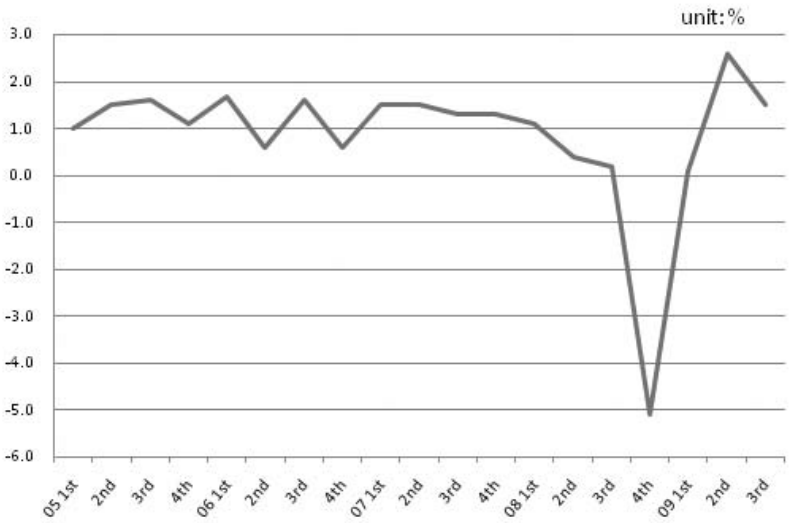
II. Onset of a Liquidity Crisis: October 2008

After growing more than 5 percent for two successive years and turning in an equally strong performance in the first quarter of 2008, the Korean economy in mid-2008 began to show signs of cooling off. In the second quarter GDP growth fell to 3 percent year on year. Since then it has continued to decelerate. While the economy was slowing down, the soaring prices of oil and other raw materials in early 2008 worsened further the current account balance, which

had gone into deficit in December 2007, while they pulled up the rate inflation of the of consumer price index (CPI) well above the target range. In September price inflation began subsiding, and around the same time the economic slump slashed imports to produce a surplus, moderating the current account deficit to $7 billion for the year as a whole in 2008.

In 2008, consumption and investment demand showed little sign of recovery, but exports continued to grow at a brisk pace, soaring by 23.1 percent and 27.0 percent in the second and third quarters, respectively, up from 17.4 percent in the first quarter year on year. In October, however, the global recession started making inroads into Korea's export industries. Exports fell off by 19 percent in November and again by 18 percent in December compared with the same periods of 2007. By then it became evident that the weak domestic demand and the drop of exports would combine to throw the Korean economy into a recession deeper than expected. In the final quarter, economic growth turned negative: the GDP shrank by 5.1 percent compared with the preceding quarter (see ***Figure 1***).

Figure 1: **Growth of Gross Domestic Product in Korea, 2005–2009, quarter on quarter, percentage**



Source: Bank of Korea, Economic Statistics System (ECOS).

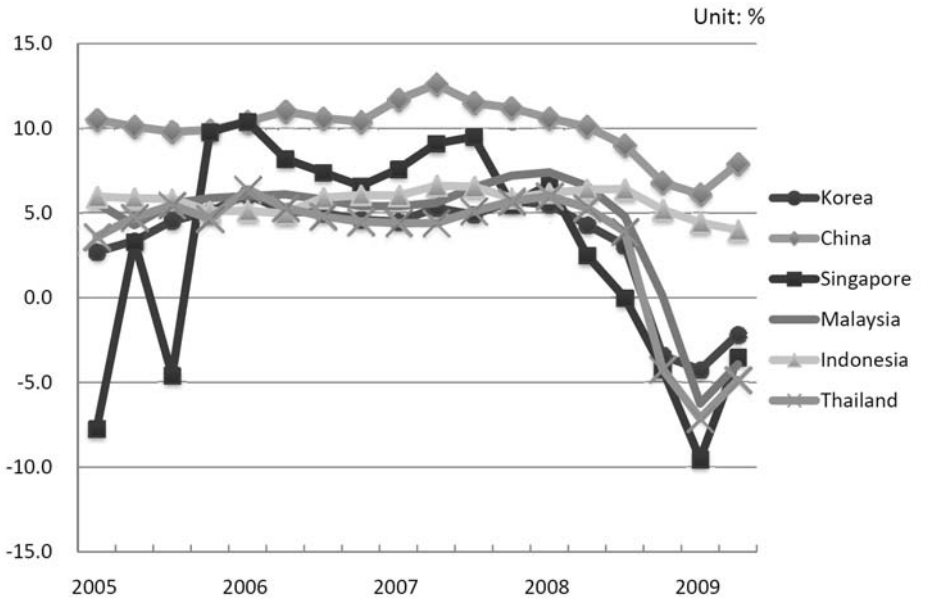
In retrospect, we can see that the global financial crisis did not reach Korea until the last quarter of 2008; much of the growth slowdown during the first three quarters was therefore brought on by weak domestic demand. As is argued in Section IV, the tight stance of monetary and fiscal policy amid the receding domestic demand, which was dictated by rapidly rising prices, is likely to have

deepened the economic downturn. For the year as a whole, private consumption grew less than 1 percent—a sharp decline from a 5 percent increase in 2007—and total investment fell by 1.7 percent. The contraction of consumption and investment was offset by increases in export earnings (in local currency terms) by 12.5 percent and government spending by 4 percent to manage achieving GDP growth of 2.2 percent. Investment demand, which collapsed during the 1997 Asian crisis, since then has not responded to various incentive schemes and low market interest rates, and it continues to remain a major cause of the delay in restoring economic dynamism of the pre-1997 crisis period.

In its April 2009 *World Economic Outlook,* the IMF (2009a) presented the results of a financial stress test for emerging economies that reveal a rapid and strong contagion of financial crisis from advanced economies to emerging economies. In line with this pattern, the financial meltdown in advanced economies in the third quarter of 2008 had a major effect on emerging economies, and the financial stress on all emerging regions on average exceeded the levels seen during the Asian crisis. At the beginning of the U.S. subprime crisis, it was widely believed that Korea was well braced for deflecting or adjusting to the crisis without incurring much damage. After all, Korea had built up a cushion of foreign exchange reserves exceeding $260 billion at the end of 2007, which was seen to be excessive to many, on top of having succeeded in strengthening its economic fundamentals through an extensive economic reform since the 1997–98 financial crisis. It was also expected that the flexible exchange rate system would provide a first line of defense. Yet, unlike other emerging economies in the region, Korea could not steer clear of a wrenching U.S. dollar liquidity crunch, which provoked a series of speculative attacks on its currency for a six-month period beginning in October 2008. In retrospect, it is unmistakable that Korea was hit harder than other economies in the region as it was the only country unable to ward off a run on the central bank foreign exchange reserves without securing additional foreign currency liquidity from the central banks of the United States, China, and Japan (***Figure 2***).

The liquidity crisis was set off by a confluence of factors, including panic and herding among international financial market participants, which in turn appears to have been exacerbated by some of the structural weaknesses of the financial sector in addition to the reemergence of the current account deficit in the first half of 2008. In the nine months preceding September 2008 most of monetary and financial market indicators showed an adequate amount of market liquidity: credit market conditions were relatively loose despite a tighter stance of monetary policy. Market interest rates measured by the yields on corporate and government bonds remained stable although, after the Bank of Korea began

Figure 2: **GDP Growth Rates of East Asia's Emerging Economies, 2005–09, percentage**

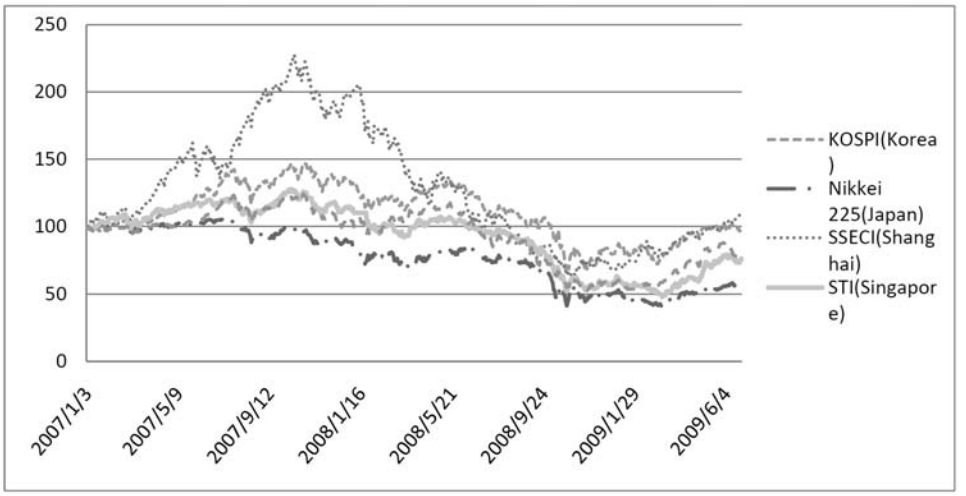


Source: Asian Development Bank, Asia Regional Integration Centre, Economic and Financial Indicators Data Base, http://aric.adb.org/macro_indicators.php.
Note: GDP growth rates are annual rates of growth on a quarterly basis.

lowering its policy rate in October, a perverse development took place wherein the interest rate on corporate bonds inched up almost 100 basis points while that on government bonds fell. There was little change in the growth rates of all monetary aggregates, including M2, liquidity aggregate of financial institutions (Lf), and liquidity aggregate (L). There was no evidence of a significant increase in procyclicality in bank lending throughout 2008.

Because Korean financial institutions did not hold sizable amounts of U.S. toxic assets, the outbreak of the U.S. subprime crisis itself did not impinge on their soundness or disrupt Korea's stock market. Instead, the deficit in the balance of payments in the first half of 2008 together with deterioration in the economic prospect—piling up of inventories and a large drop in the operating rate in manufacturing—appears to have triggered a deep plunge and high degree of volatility in stock prices and a sharp depreciation of the exchange rate. After breaking the 2,000 level in December 2007, stock prices measured by the Korean stock market index, KOSPI, began a sharp slide, falling below 1,000 by November 2008. The plunge reflected one of the worst performances among East Asia's stock markets (***Figure 3***).

Figure 3: **Movement of Stock Prices in Selected Countries in East Asia, 2007–09**

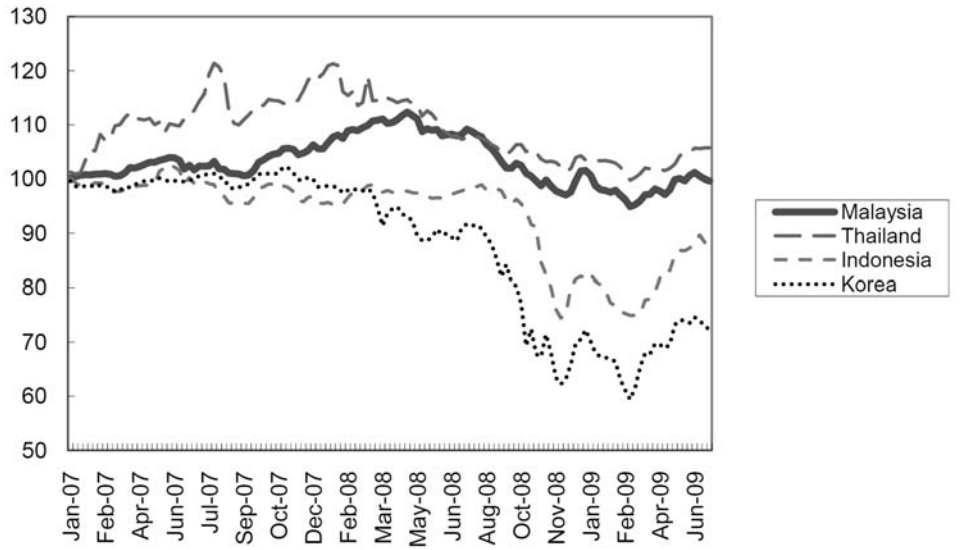


Source: Asian Development Bank, Asia Regional Integration Centre, Economic and Financial Indicators Data Base, http://aric.adb.org/macro_indicators.php.

The nominal exchange rate, which had remained below 1,000 *won* per U.S. dollar during the first quarter of 2008, began a sharp depreciation in April to reach a maximum of 1,509 *won* per U.S. dollar on 24 November. Among the East Asian currencies, the Korean *won* lost most in value vis-à-vis the U.S. dollar in 2008 (***Figure 4***). Changes in the *won*-dollar exchange rate have been closely linked with changes in stock prices. The high degree of volatility of stock prices has therefore meant an equally high instability of the foreign exchange rate in Korea. Although there is no universally accepted definition of a currency crisis, depreciation of a currency by more than 50 percent over a five-month period (July–November) and almost 18 percent over a one-month period in October 2008 (before Korea secured a swap borrowing amounting to $30 billion from the U.S. Federal Reserve on 30 October) would certainly place any country with such a currency in a crisis category.

During the crisis period, the foreign exchange market was marked by a high degree of instability. The *won*–U.S. dollar market in Korea is small in size and shallow as the number of market participants is limited. On average the volume of daily foreign exchange trading has been less than 6.5 percent of GDP. The small size and lack of liquidity left the market exposed to a series of external shocks after the collapse of Lehman Bothers, resulting in volatile movements of the exchange rate.

Figure 4: **Exchange Rates of Selected Emerging Economies in East Asia Compared with the U.S. Dollar, 2007–09**



Source: Asian Development Bank, Asia Regional Integration Centre, Economic and Financial Indicators Data Base, http://aric.adb.org/macro_indicators.php.

As the U.S. subprime crisis spread to other parts of the world, foreign investors and lenders began retreating from East Asia to deleverage and increase the share of safe assets in their portfolios. Compared with the rebalancing of their portfolios elsewhere in Asia, foreign investors divested themselves of relatively more of their holdings of Korean financial assets because they were led to believe that deterioration in some of financial market indicators made Korea highly vulnerable to a financial crisis. Because Korea's financial markets were relatively larger and more liquid than those of other East Asian emerging economies, it was also easier for them to sell outside of Korea. The share of foreign investors in the stock market capitalization was close to 45 percent at the end of 2007. During 2008 it fell less than 25 percent.

Foreign banks had also been more averse to renewing their short-term loans to Korean financial institutions than before until they saw an improvement in the current account and a better growth prospect in the early months of 2009. After the collapse of Lehman Brothers in September 2009, Korean banks found it increasingly difficult to roll over their short-term foreign currency liabilities. At the lowest point in November, the renewal rate fell to less than 40 percent (***Table 1***). This difficulty caused large capital outflows and a large liquidity drain at these institutions. During 2008, the financial account recorded a deficit of $46.1 billion in addition to a current account deficit of $7 billion, leading to

Table 1: **Rate of Renewal of Foreign Loans at Korean Banks, in billions of U.S. dollars**

(unit: Billion $)

		2007	2008				2009
			Total	1/4	2/4	3/4	4/4	1
Short-term	Total borrowing	764.6	795.8	208.6	270.6	237.7	86.3	33.3
	Due for repayment	739.8	957.9	210.3	270.8	250.9	235.9	38.7
	Rollover rate (%)	103.4	83.1	99.2	99.9	94.7	36.6	86.2
Long-term	Total borowing	162.6	134.5	28.6	75.0	23.8	7.2	41.3
	Due for repayment	72.5	131.5	18.5	38.6	34.8	39.6	1.8
	Rollover rate (%)	224.3	102.3	154.6	194.3	68.4	18.2	2,320.8
Total	Total borrowing	927.2	930.3	237.2	345.6	261.5	39.5	74.6
	Due for repayment	812.3	1089.5	228.9	309.5	285.8	275.6	40.4
	Rollover rate (%)	114.1	85.4	103.6	111.7	91.5	33.9	184.6

Source: Bank of Korea.

a loss of foreign exchange reserves of almost 20 percent. Not surprisingly this dollar liquidity shortage curtailed the availability of foreign currency (mostly U.S. dollar) loans and trade credits before easing in the early months of 2009. To an export-oriented economy this credit squeeze was much more painful than it would have been in other economies less dependent on exports. With the worsening of the liquidity crisis, both the sovereign spread and credit default swap (CDS) premium began a steep rise. At the height of the crisis, the spread jumped up to 751 and the CDS premium to 700 basis points, respectively, on 27 October 2008. It was therefore not surprising that foreign investors' confidence in the Korean economy descended to the bottom. By November 2009 Korea had fallen deep in a currency crisis.

III. Causes and Consequences of the Liquidity Crisis

What were, then, the financial market indicators of deterioration that so frightened foreign investors and lenders that they hurried to the exit? In this section it is argued that Korea fell prey to a speculative attack on its currency as a result of panic and herding on the part of international financial market participants, a situation that was presumably exacerbated by structural frailties of the finan-

cial system. A disconcerting question then is: How did the market participants come to make an assessment as pessimistic as they did about Korea's ability to overcome what was basically a short-run problem stemming from U.S. dollar liquidity shortages? And why did market participants panic toward the latter part of 2008 only to change their judgment a few months later? At the beginning of the crisis, there must have been structural vulnerabilities of the economy that foreign lenders and investors saw as serious enough to pose systemic risk to the economy in general and to the financial system in particular. In subsequent periods, there must also have been market developments that changed their former views on the future prospect of the Korean economy for the better.

It is always precarious to read too much into changes in economic indicators. In retrospect one could brush aside the liquidity crunch as having been a crisis episode without long-lasting adverse effects. The stock market rally that began in the second quarter of 2009 could easily fizzle. The current account surplus could also disappear as the currency appreciates and the fiscal stimulus kicks in. The reversal of capital flows could recur if economic recovery falters in advanced countries. When these unpredictable foreign market participants see these adverse developments again, what will they do? Because they are likely to become nervous again, it is important to identify some of the structural weaknesses unique to Korea that unsettled so many of these market participants in the first place.

Structural Weaknesses of the Nonfinancial Sector

On the real side of the economy, the culprit for the recession and financial market instability has been vanishing export markets. When the global economy is mired in a crisis, a country like Korea, which still depends heavily on export markets of the United States and China, is likely to suffer more as global trade shrinks. But the export loss has not been confined to Korea and, hence, could not have been a major cause of the crisis. More serious causes are found elsewhere in the structural weaknesses of the Korean economy. One such weakness is the widespread perception that Korea is bound to see its potential growth falling off, and, at the same time, it is bound to lose its global export market share as its major exporters have been increasingly competed out by producers from both China and Japan. They have been pursued and in many cases overtaken by their competitors from China in low- and medium-technology export products, while they have been finding it difficult to move up the ladder of technology to catch up with their counterparts in Japan (Kim and Lee 2006).

Table 2: **Korea's Exports, by Principal Commodity, 2007, in billions of U.S. dollars**

Exports	2007	
	Amount	Ratio
Total	3,714.9	100.0
Semiconductors	390.5	10.5
Nonline telephony apparatus	291.9	7.9
Displays	167.2	4.5
Computers	137.9	3.7
Cars	497.1	13.4
Chemicals	368.2	9.9
Irons, steel products	315.9	8.5
Machinery	287.0	7.7
Ships and boats	268.6	7.2
Petroleum, petroleum products	242.1	6.5

Source: Bank of Korea, Economic Statistics System (ECOS).

Another weakness in Korea is the concentration of exports in a limited number of manufactures and producers. In 2007, 57 percent of total exports were shipped out by four industries: automobiles, shipbuilding, electronics, and chemicals. During the past decade, Korea's top 10 export products made up more than 65 percent of Korea's total exports, as shown in ***Table 2.*** The 10 largest industrial groups made up 80 percent of Korea's total exports in 2007. A setback in export earnings would then undermine the financial health of these groups, which constitute the backbone of the Korean economy. The global demand for manufactures is more income elastic than other categories of exportables and, hence, more sensitive to cyclical fluctuations of the global economy. As shown by Blanchard and Giavazzi (2009), compared with countries with a diversified mix of export products, those with a heavy concentration in a limited number of manufactured export goods, which are highly cyclical, have been hit harder by the current crisis. Note, however, that the heavy concentration has an advantage, too: once a full recovery begins, output growth will accelerate.

A third weakness was a rather widespread perception that Korea may have become complacent in continuing with the reforms of its financial and corporate sectors that it initiated after the 1997 crisis. Because the restructured financial and corporate sectors had not been subject to any market test, there was no way of knowing whether they became more resilient to global downturns. In the eyes of foreign investors, evidence was not clear that economic liberalization and market opening had improved and expanded Korea's institutional capacity

to ward off external disruptions such as the U.S. subprime crisis. There was no visible evidence that Korea's policymakers were committed to restructuring the economy to move resources to the nontradable sectors for more balanced growth. In the meantime, the decline of the potential rate of growth together with chronic labor union militancy, domestic demand stagnation, a bout with a credit card crisis in 2003, and the real estate bubble in 2005–06 may all have left many foreign investors with the assessment that Korea was vulnerable to a global economic crisis, no matter how unfounded that belief was.

Deterioration in Financial Indicators

On the basis of an overall risk ranking of emerging economies constructed in terms of four indicators—a current account deficit or surplus as a percentage of GDP, the volume of short-term external debt as a percentage of foreign exchange reserves, and banks' loan deposit ratios—a report by HSBC and described by *The Economist* on 15 February 2009 placed Korea as the third most vulnerable country to a currency crisis among emerging economies. Although there are questions as to whether these indicators are reliable measures of the degree of systemic risk, there was little doubt that the indicators had deteriorated much more in Korea than elsewhere in the emerging economies East Asia, and this deterioration placed Korea in a crisis zone by the end of September 2008.

Rise in foreign short-term debt. At the end of 2008 Korea's short-term foreign liabilities as a proportion of its foreign exchange reserve rose to 97 percent, close to overstepping the Greenspan-Guidotti-Fischer (GGF) rule for reserve adequacy (100 percent). Liabilities climbed up to 55 percent from 53 percent a year earlier as a proportion of total foreign debt. Korea also became a debtor country for the first time since recovering from the 1997 financial crisis (***Table 3***). Rumors were also making the rounds that the bulk of Korea's foreign exchange reserves was invested in illiquid assets such U.S. agency bonds and thus were not usable. At the same time the loan-deposit ratio at banking institutions had risen steadily since 2001 to go over 125 percent by the time the crisis erupted (***Figure 5***) as banks had increasingly relied on both domestic and foreign wholesale funding. Put together, these changes indicated a sharp deterioration in maturity mismatches in foreign assets and liabilities of bank balance sheets—borrowing short from international financial markets and lending long to domestic borrowers—making banks vulnerable to the drying up of U.S. dollar liquidity.

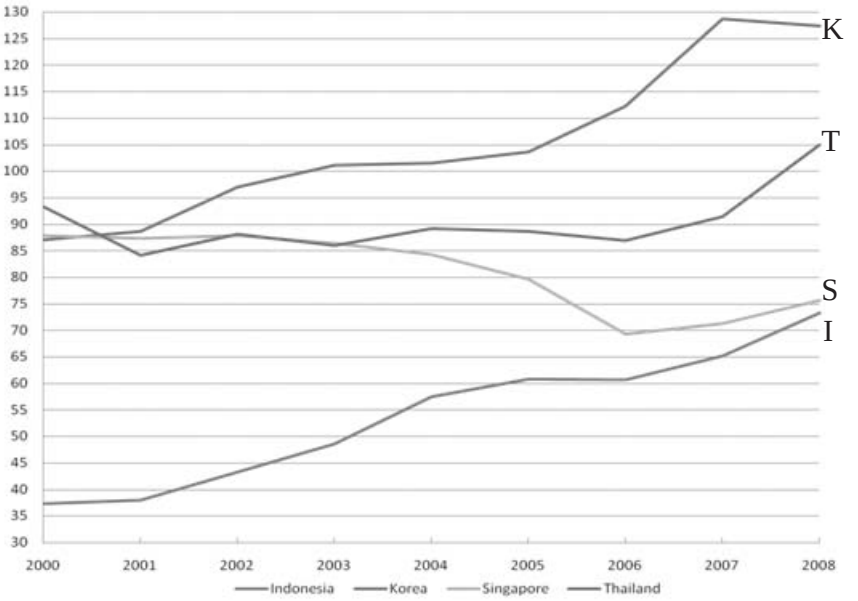
More worrisome was the fact that the increase in the maturity mismatching was also accompanied by a rise in currency mismatching (***Figure 6***). Korea was the only country where the aggregate effective currency mismatch

Table 3: Korea's External Liabilities and Assets, 2002–09, in billions of U.S. dollars

	Gross external debt position				External assets			
	Gross external debt	Short-term debt	Long-term debt	Short-term loans*	External assets	Short-term assets	Long-term assets	Foreign exchange reserves
Date	A=B+C	B	C	D	E=F+G	F	G	H
2002. 3	1,327	429	897	631	1,649	1,444	204	1,061
2002. 6	1,357	456	901	667	1,694	1,495	199	1,124
2002. 9	1,397	499	898	695	1,738	1,529	209	1,167
2002.12	1,415	482	933	673	1,843	1,614	228	1,214
2003. 3	1,490	530	960	769	1,884	1,640	244	1,238
2003. 6	1,556	538	1,018	739	2,013	1,733	280	1,317
2003. 9	1,571	524	1,048	691	2,152	1,864	288	1,415
2003.12	1,574	508	1,066	713	2,301	2,007	294	1,554
2004. 3	1,659	535	1,125	751	2,462	2,144	319	1,636
2004. 6	1,643	513	1,129	717	2,569	2,213	356	1,670
2004. 9	1,623	502	1,121	700	2,698	2,313	385	1,744
2004.12	1,723	563	1,159	769	2,889	2,496	393	1,991
2005. 3	1,789	634	1,155	840	2,967	2,557	410	2,054
2005. 6	1,830	663	1,167	868	2,976	2,515	460	2,050
2005. 9	1,854	674	1,181	881	3,061	2,560	501	2,067
2005.12	1,879	659	1,220	864	3,171	2,620	550	2,104
2006. 3	2,010	752	1,259	965	3,313	2,700	614	2,173
2006. 6	2,265	955	1,309	1,169	3,458	2,786	671	2,244
2006. 9	2,438	1,074	1,364	1,304	3,563	2,834	729	2,282
2006.12	2,601	1,137	1,463	1,341	3,809	2,971	838	2,390
2007. 3	2,828	1,300	1,528	1,498	3,800	3,031	770	2,439
2007. 6	3,113	1,373	1,740	1,593	3,924	3,110	815	2,507
2007. 9	3,418	1,456	1,962	1,810	4,088	3,249	840	2,573
2007.12	3,832	1,602	2,229	2,040	4,206	3,331	875	2,622
2008. 3	4,158	1,760	2,398	2,215	4,282	3,390	892	2,642
2008. 6	4,217	1,762	2,455	2,264	4,239	3,364	876	2,581
2008. 9	4,255	1,896	2,359	2,328	4,016	3,199	816	2,397
2008.12	3,811	1,511	2,300	1,940	3,484	2,796	688	2,012
2009. 3	3,693	1,481	2,212	1,858	3,455	2,788	666	2,063
2009. 6e	3,801	1,482	2,319	1,876	3,694			2,317

Source: Bank of Korea.
* Long-term debt maturing within one year.

Figure 5: **Loan-Deposit Ratios of Selected East Asian Economies, 2000–08**

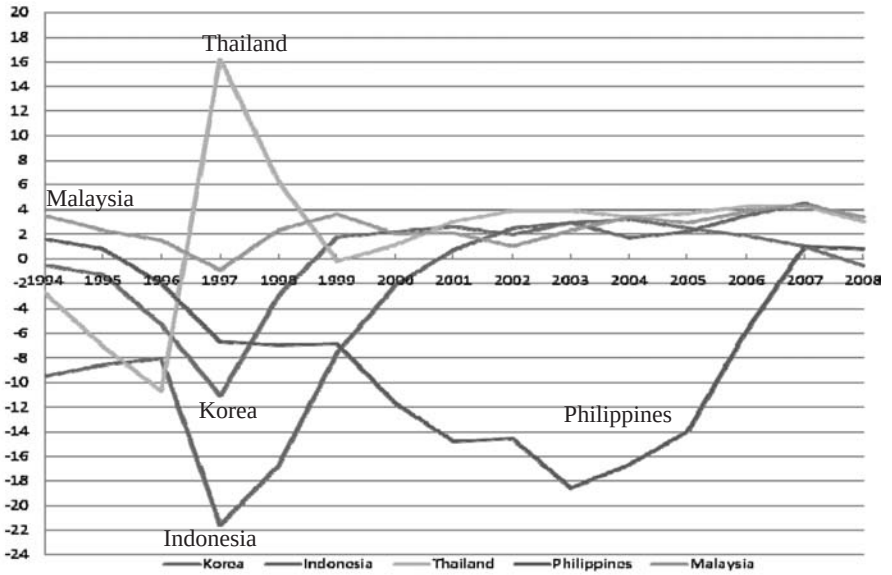


Source: Korea Center for International Finance.

became negative again in 2008. Under normal circumstances, these were problems that could have been ignored, but the period under review was far from normal as the bankruptcy of Lehman Brothers ushered in a highly uncertain and volatile period in global finance. In deleveraging and flying to quality, foreign investors scrutinized risk profiles of their holdings of emerging market assets. In the process, a few large global players apparently concluded Korea stood out as a riskier place to invest than other emerging economies in East Asia, and other smaller players simply followed the herd.

Because Korean policy authorities experienced dire consequences of a large currency mismatch in the 1997 financial crisis, one would expect that they would have built a regulatory system tight enough to prevent its recurrence. As shown in Park (2009b) they built a system, but it did not work. The ineffectiveness of the regulation was also compounded by the pitfalls of undisciplined capital account liberalization. At the end of 2005, the banking sector held $83,429 million in foreign currency liabilities, or 44 percent of Korea's total foreign debt. Two years later the amount more than doubled to $192,880 million, or 50 percent of the total foreign debt. Nonbank financial institutions and private and public enterprises were equally active in borrowing from abroad. Their external debt jumped from $88,920 million at the end of 2005

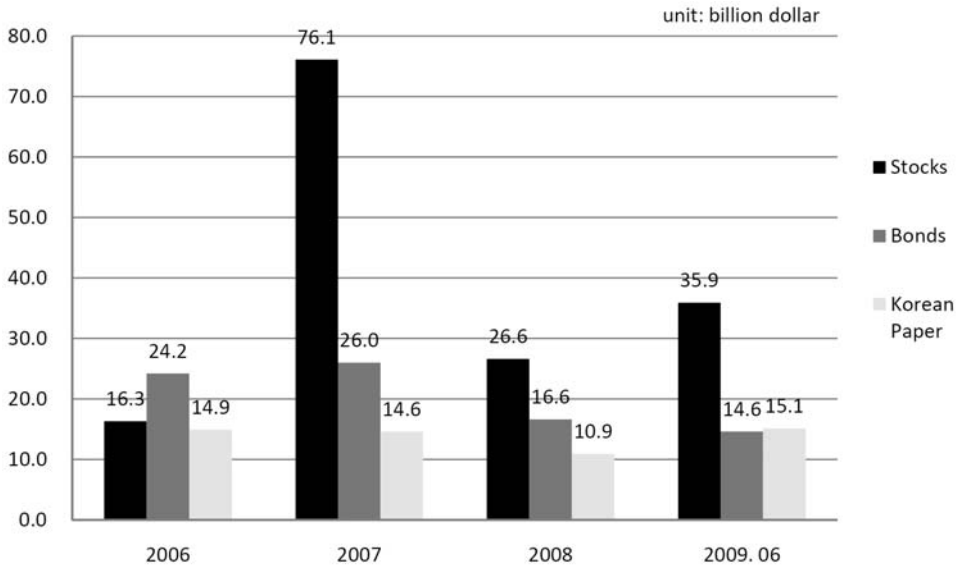
Figure 6: **Aggregate Effective Currency Mismatches of Selected Asian Countries**



Source: Morris Goldstein and Philip Turner, *Controlling Currency Mismatches in Emerging Economies* (Washington, D.C.: Institute for International Economics, 2004).

to $136,654 million two years later. What caused such a spurt of external borrowing? Two developments precipitated the increase: one was related to capital account liberalization and the other to poor risk management at banks. The Korean *won*, which had started strengthening against the dollar in late 2005, continued to appreciate to fall below 920 *won* per dollar toward the end of 2006. Throughout 2007 and during the first two months of 2008 it remained around 930 *won* per dollar on average. During this period, the *won*'s appreciation in real effective terms was equally large as prices remained relatively stable. Concerned about the loss of export competitiveness and rising costs of sterilization, Korea's policymakers took steps to liberalize capital account transactions to induce capital outflows. The deregulation of capital outflows touched off massive outflows in the form of portfolio investments in foreign securities of emerging as well as developed economies by Korean institutional and private investors. In 2005, Korea's total portfolio investments abroad had amounted to $16.7 billion. These investments almost doubled in value to $31.3 billion in 2006 and soared further to $56.4 billion in the following year. As a result of these increases, the market value of stocks, bonds, and Korean paper (central bank, depository receipts, Bank of Korea wire, and certificate of deposit) denominated in foreign currencies held by Korea's institutional investors (banks, insurance companies,

Figure 7: **Korea's Portfolio Investments in Foreign Securities, 2006–09, in billions of dollars**



Source: Bank of Korea.

asset management companies, and securities firms) more than doubled to $119.6 billion between the end of 2006 and the end of 2007 (***Figure 7***).

In 2007, banks also invested $60 billion in long-term forward dollar contracts issued by shipbuilders. Because it takes a long period to construct ships, a typical shipbuilding order designates delivery of the payment, mostly in U.S. dollars, at a future date, often more than a year in the future. To avoid the exchange rate risk, the shipbuilders usually take a short position in the forward market. Banks take a long position as the counterparts in the forward market. The banks are not strictly required but they customarily maintain a square position in their holdings of foreign currency assets and liabilities to avoid foreign exchange rate risks.[1] This means that they have to borrow the same amount of U.S. dollars of the same maturity so as to square their foreign currency position.

As a result of these two developments—large increases in portfolio investments in foreign securities and banks' holdings of shipbuilders' forward contracts—the demand for U.S. dollars and other foreign currencies grew rapidly at a time when the domestic supply was shrinking. The current account surplus plunged to $5.4 billion in 2006, which was about one-third of the level of 2005. The surplus was

1 This arrangement could trigger a liquidity crunch if some of the shipbuilding orders are not fulfilled because the ship buyers are unable to pay.

equally small in the following year. In the meantime, Korea's policy authorities continued with sterilization operations. By the end of 2007 the sterilization added more than $50 billion to the central bank reserves, from approximately $210 billion two years before, to stem appreciation of the *won*. This caused a further squeeze on the availability of U.S. dollar liquidity in the local foreign exchange market, which, if other things had been equal, would have weakened the currency. But others things were not equal. Much of the excess demand for U.S. dollars was met by capital inflows as banks and other financial institutions went on to finance a large share of their portfolio investments abroad by external borrowing.

The total amount of external funds raised by banks by borrowing from foreign banks and issuing securities ran to $76 billion at the end of 2006. In the following year, it expanded by 37 percent to $104 billion and by another 28 percent in 2008. Banks and other financial institutions borrowed so much that, despite a substantial increase in capital outflows, the financial account registered a surplus of $6.2 billion in 2007. The bulk of foreign borrowing was secured from the short end of international financial markets because it was less costly. The total volume of short-term foreign liabilities had steadily risen to reach the level of foreign exchange reserves by October 2008. Korea did not go over the GGF prescription for reserve holdings, but the increase was perceived to be too large to preserve the soundness of banks and other financial institutions and, hence, to keep speculators at bay when both the current and financial accounts were expected to run deficits in the second half of 2008.

The ballooning of short-term foreign liabilities was also bound to exacerbate balance sheet mismatches at financial institutions, rendering Korea susceptible to a foreign currency liquidity crunch. For three consecutive years, a little over 60 percent of foreign currency assets held by banks consisted of foreign currency loans to domestic borrowers. These loans were instrumental in causing a large increase in currency and maturity mismatches as the banks relied heavily on external wholesale funding while domestic borrowers were not prepared to pay their debts, as they were accustomed to renewing them continuously.

The mismatches had been at the root of liquidity shortages that threatened their safety and soundness in the 1997 crisis. These mismatches cropped up again in the 2008–09 crisis despite the fact that Korea's regulatory authorities had been on close watch for and introduced precautionary measures to mitigate the spread of the two mismatches. As Park (2009b) argues, it appears the regulatory enforcement did little to make banks be on guard for the potential risks associated with the mismatches.

The risks associated with the ballooning of short-term foreign liabilities were further compounded by heavy losses sustained by Korean investors who bought large amounts of foreign securities when the global financial system melted down. In 2008, more than 50 percent of their investments, totaling $119.6 billion at the end of 2007, evaporated, mostly because of the collapse of the financial markets they had entered. Most striking was the loss incurred by private investors in their foreign stock investments. At the end of 2006, their holdings of foreign stocks were valued at $14.9 billion. A year later the market value of these holdings jumped up to $73.3 billion, almost five times the amount a year before. In 2008 the crisis struck, and they lost more than two-thirds of their stock investments. Worse yet, more than 80 percent of these investments were hedged against the currency risk. Because they had bet against depreciation of the *won*, most private investors ran up large foreign exchange losses when the *won* weakened as much as it did.

Under normal circumstances, these book losses would not provoke any liquidity crunch, as short-term foreign loans are likely to be renewed continuously. But once the crisis erupted, they could not be readily rolled over. When they could not, it was obvious that some of these assets were to be sold at heavily discounted prices. This prospect of capital losses implied a large potential increase in Korea's foreign debt burden and a drain on foreign exchange reserves. Many ship buyers did not help improve the prospect as they could not honor their forward contracts. As a result, on the delivery date, shipbuilding companies were forced to purchase U.S. dollars in the spot market to clear the position. This added demand for U.S. dollars, together with the capital losses and the emergence of balance sheet mismatches, scaled up the external borrowing requirement when foreign investors were leaving the Korean market. Unable to secure short- or long-term loans, Korea was thrown into a deeper liquidity crisis.

Deterioration in the soundness of the banking sector. Increases in the maturity and the currency mismatches were compounded by a large drop in bank profits in 2008. The poor earnings performance was brought on by a substantial increase in nonperforming loans and the funding cost at commercial banks. Before the onset of the crisis, banks had allocated an increasing share of their loanable resources to households and small- and medium-size firms instead of large ones, in particular those affiliated with the *chaebol*, which were sitting on large amounts of cash reserves. The total volume of household loans extended by banks and all other financial institutions rose to about 73 percent of GDP at the end of 2008 compared with about 40 percent in 1997, when the Asian crisis broke out.

Much of the increase in household debt went for the financing of housing during the 2005–06 bubble. As the recession gathered force, it softened housing prices and sent many consumer loans into arrears. The share of substandard loans (delinquent for more than three months) out of total loans rose to 0.6 percent at the end of 2008 and then to 0.73 percent three months later compared with 0.55 percent a year earlier. During the same period, the total amount of loans granted to small- and medium-size firms also climbed to 32.5 percent from 29.2 percent of GDP. With an increasing number of these firms going under, a growing share of the loans granted to them also became nonperforming. At the end of 2007, the share of substandard loans out of total commercial bank lending was 0.7 percent. A year later this ratio more than doubled. The share of nonperforming loans was not something to be alarmed about when compared with the nonperforming loan ratio that shot up to 13 percent at the end of September 1999, but it appears that foreign investors took it as a sign of serious deterioration in bank profits and soundness in Korea.

Ever since financial market deregulation was set in motion after the 1997–98 crisis, an increasing number of deposit customers have migrated to the short-term money market in their search for high yields. This shift has made banks rely more on high-cost wholesale funding through the issuance of such instruments as certificates of deposit and financial debentures. The expansion in wholesale funding resulted in a rise in the loan-deposit ratio and a decline in the net interest rate margin below 2 percent in 2007 and 2008, which in turn cut into bank profits. After-tax bank profits in 2008 were less than half of what they were in 2007. In 2008, the return on assets sank to 0.54 percent from 1.08 percent in the preceding year, and the return on equity decreased to 9 percent from 16.2 percent. The rise in the loan-deposit ratio also led to a larger share of interest rate–sensitive short-term liabilities, thereby exposing banks to a greater risk of maturity mismatch in local currency.[2]

Shortages of domestic currency liquidity could be relieved by injecting more money into the economy and by restructuring and recapitalizing the banks. The foreign currency liquidity crunch could have been avoided if capital account liberalization had been carried out in a more gradual manner or if Korea had held a large foreign exchange reserve. Although Korea abided by the GGF

2 Recognizing the need to improve the capital base of the banks, the Korean government created a bank capital expansion fund with an initial subscription of 20 trillion *won*. Its purpose was buying preferred stocks, redeemable preferred stocks, and hybrid bonds issued by banks for the buildup of their tier 1 capital. But banks feared that credit rating agencies might view application for recapitalization as an admission of poor management and, thus, lower their ratings. This, together with the concern of losing management control, has led few banks to show an interest in borrowing from the fund.

rule, it was not enough to convince foreign investors that Korea had built up sufficient self-insurance to safeguard it against a crisis when foreign investors and lenders panicked.

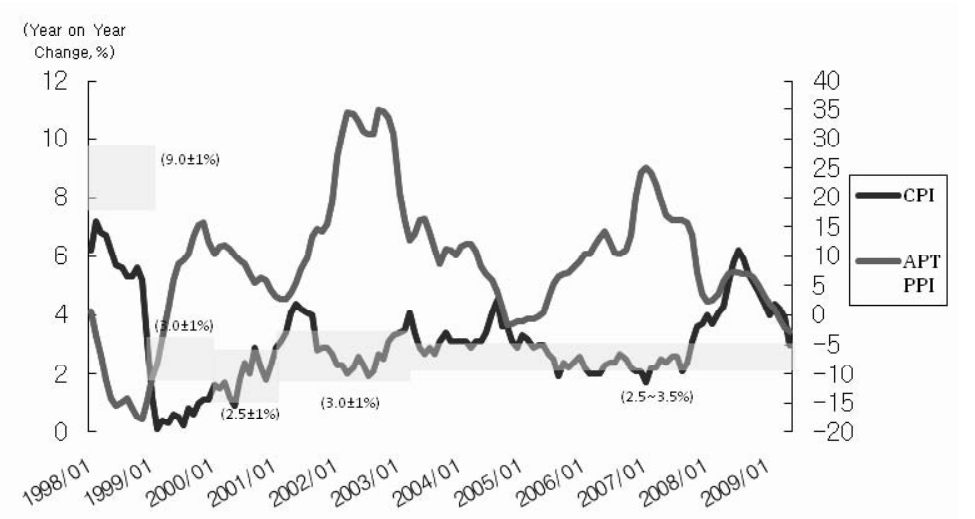
IV. Crisis Management and Macroeconomic Policy

In 2005 and 2006, prices of housing, commercial real estate, and land began surging in some parts of the country, in particular in the metropolitan areas, when the economy was chugging along with stagnant domestic demand in the absence of inflationary pressure. Tighter monetary policy was inappropriate as a measure for stabilizing the real estate market. Instead, the Korean government chose to impose various taxes and other administrative restrictions on ownership, transfer, and transactions of housing to stamp out incipient real estate speculation. These measures succeeded in stabilizing prices of housing and other types of real estate, but at the cost of crushing construction investment. The outbreak of the global financial crisis slashed further the demand for real estate to depress construction investment. In the second half of 2008, prices of oil and other raw materials began falling with the spread of the global economic crisis, removing the burden of stabilizing prices. Faced with dwindling export markets and the prospect of a long, drawn-out recovery, the Korean government set out to implement a three-pronged recovery strategy that consisted of expansionary monetary and fiscal policy, free-floating exchange rates complemented by securing additional foreign exchange reserves, and a swift restructuring of ailing banks and firms. The Bank of Korea lowered further its base rate, and the fiscal authorities introduced two fiscal stimulus packages for 2009: the first package in the original budget amounted to about 2 percent of GDP, while the second, passed in April 2009, amounted to 1.7 percent of GDP.

As a trade-off for stimulating domestic demand, there was a high probability that expansionary monetary and fiscal policy would worsen the current account and induce capital outflows. Although the *won*-dollar exchange rate displayed a higher degree of volatility than before and was at one point on an implosive trajectory of depreciation, Korea's policy authorities—in the belief that at a certain stage the depreciation would help moderate deterioration of the current account and generate expectations of appreciation—refrained from intervening in the foreign exchange market. Instead, they sought to prevent speculative attack by replenishing foreign exchange reserves through external borrowing and currency swap arrangements with the United States, China, and Japan.

In managing the capital account crisis of 1997–98, Korea's policymakers learned that restoring foreign investors' confidence in the economy was the key to re-

Figure 8: **Changes in the Nominal *Won*-Dollar Exchange Rate, January 2008–September 2009**



Source: Bank of Korea.

solving a crisis. As it did during the Asian financial crisis, on 12 October 2008, the Korean government first issued sovereign guarantees on new foreign loans up to $100 billion maturing before the end of June 2009. Similar guarantees had failed to allay fears of financial meltdown at the beginning of the Asian crisis in 1997, and they failed again. As in 1997, the market reaction was indifference. Only when Korea secured a swap line amounting to $30 billion from the U.S. Federal Reserve on 30 October 2008 did the foreign exchange market settle down somewhat, but not for very long. The foreign exchange rate shot up to 1,509 *won* per dollar three weeks after the swap was announced (***Figure 8***). The swap was apparently not enough to remove uncertainties surrounding Korea's ability to service its foreign debt in view of large amounts of bonds held by foreign investors maturing and foreign loans to be renewed by banks in the first quarter of 2009. Korea subsequently succeeded in arranging *won*–local currency swaps with the central banks of both China and Japan, each amounting to an equivalent of $30 billion, on 13 December 2008.[3]

These additional swaps together with the renewal of the U.S. Federal Reserve swap and a current account stronger than expected appear to have calmed the

3 Japan was reported to have been reluctant to offer a *yen-won* swap line. It asked Korea to approach the IMF if more liquidity was needed as a condition for the swap. The swap line was included in the Chiang Mai Initiative Japan-Korea bilateral swap.

market for a while, but thereafter the exchange rate went on a roller coaster, shooting up to 1,573 *won* per dollar on 3 March 2009 before subsiding to 1,300 *won* at the end of June 2009. Has this three-part strategy been effective? Several pieces of evidence, including a substantial improvement in the current account surplus and the positive rates of growth, quarter on quarter, in the first two quarters of 2009, suggest that it has been successful. More important for all practical purposes is that the liquidity crisis was over by the end of the first quarter of 2009. Which measure of the three-part strategy has been most effective in turning around the crisis? Most analysts would agree that the U.S. Federal Reserve played a catalytic role in improving the market sentiments about the prospect of the Korean economy.

The recovery of the Korean economy raises an important question as to how, as late as February 2009, an economy ranked third in the emerging region in terms of vulnerability to the current global crisis could make such a quick turnaround that it was able to break out of the current recession ahead of other countries.[4] One answer to this question is that, unlike in the 1997 Asian financial crisis, Korea had to deal with collateral damage to the economy caused by a crisis of which the epicenter was located elsewhere and, hence, bore less of the burden of resolving it. Another is that Korea suffered a transitory nominal shock, and its economy had built up enough resilience beforehand to withstand its impact. That Korea was well prepared for crisis was not in dispute. The banking sector was not heavily loaded with nonperforming assets—certainly they were not large enough to threaten its solvency or create a systemic risk. Nor did they indulge in acquiring U.S. toxic assets. Maturity and currency mismatches in the balance sheets, which were at the root of the insolvency of many banks and other financial institutions during the Asian crisis, had been by and large under control before they slipped in 2008. Korea's major industrial groups—the *chaebol* and other large corporations—have managed to lower their debt-equity ratios below 200 percent on average and have accumulated ample reserves, allowing them to rely less on external financing and, hence, making them less susceptible to external shocks. The experience of managing a major crisis in 1997 taught the Korean authorities the importance of taking prompt action in restructuring troubled financial institutions and firms in addition to making quick macroeconomic policy adjustments to mitigate the impact of the crisis contagion.

4 Although much of its economic forecasting has been ignored, The Economist at www.economist.com/countries/ predicted as late as April 2009 that the Korean economy would contract by more than 10 percent in 2009.

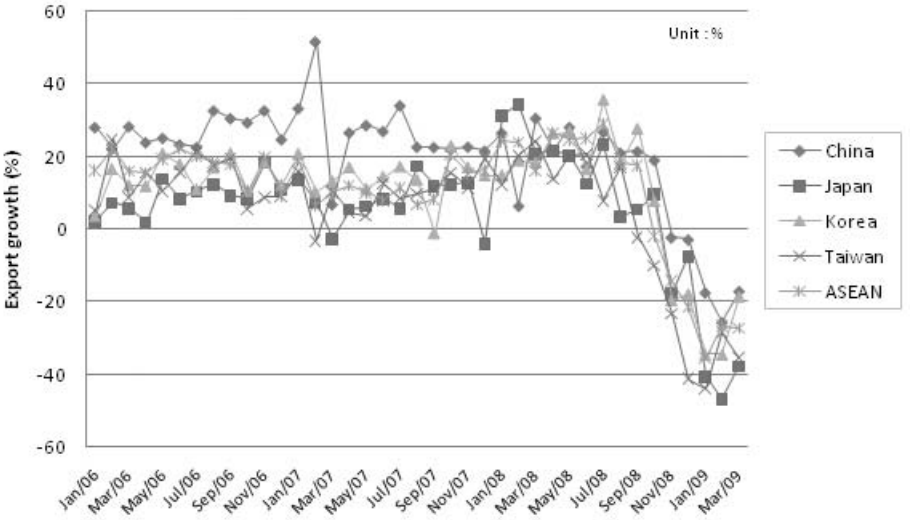
In macroeconomic policy, it is widely accepted that flexibility of the foreign exchange rate system should be given some credit for softening the impact of the liquidity crunch, although as yet there is no empirical evidence to back up this assumption. The massive depreciation of the *won* against the dollar during the period under consideration has improved competitiveness of exports, but, as argued earlier, stability of the foreign exchange market might not have been restored had the Korean government been unable to secure additional foreign exchanges reserves through the swap arrangements to ease off uncertainties about Korea's ability to service its foreign debt. During a bank run, few measures other than the readiness of the central bank to inject an unlimited amount of liquidity is able to stop panic-driven investors. The Korean experience also shows that, in an international context, a liquidity crisis is akin to a run on the central bank foreign exchange reserves; hence, as is the case with a domestic bank run, its resolution requires the services of an international lender of last resort.

V. Future Prospects

Since early April 2009, there has been a rather sudden change in the outlook for the Korean economy. In the first quarter of 2009 the Korean economy grew a little more than 0.1 percent and in the following quarter 2.3 percent compared with the preceding quarter, suggesting a rebound of the economy. In addition to this improvement, the rate of decline of exports has stabilized since the early months of 2009 and, perhaps more important, has been lower than the rates of other Asian economies, in particular those of other Asian newly industrializing economies (***Figure 9***).

Most important, the current account balance produced a surplus of almost 8.6 billion *won* in the first quarter, although much of it was induced by the recession. On top of these developments there have been indications that the fiscal stimulus package has started kicking in. Encouraged by this turn of events, some of the foreign forecasters and media have gone so far as to suggest that the Korean economy took a turn for the better beginning in the first quarter of 2009, as reported by the *Financial Times* on 26 April 2009. OECD (2009b) predicts that the contraction of the Korean economy has slowed and will be reversed to positive growth of 3.5 percent in 2010. Backing up these forecasts, a 2009 IMF report is equally bullish: it projects that Korean growth will be 1.75 percent in 2009 and 2.5 percent in 2010. It looks as though the Korean economy has come full circle during a one-year period beginning in the second quarter of 2008.

Figure 9: **Export Growth in Selected East Asian Countries, 2006–09**



Sources: International Monetary Fund, International Financial Statistics; Bank of Korea.

There is little doubt that the recession has bottomed out in Korea. Reflecting the growing confidence in the economy, the stock market has managed a sustained rally. By the end of June 2009, the foreign exchange rate had appreciated below 1,300 *won* per U.S. dollar from a high of 1,600 in February, and it has since remained stable. The rate of renewal of foreign loans returned to the precrisis level. Depending on developments in Korea's major trading partners, however, the recovery of the Korean economy could be drawn out. Korea's recovery will by and large be predicated on the recovery of the U.S. economy, which is yet to be seen. But even if the slack in the economy persists, Korea is not likely to plunge into the depths as it did during the 1997 Asian financial crisis.

Against this background of growing optimism are several risk factors lurking behind the scenes, pointing to a rocky recovery with many hidden obstacles yet to be detected that could cause detours in Korea's efforts to return to a path of sustainable long-term growth. One such factor concerns the soundness of the banking sector. During a one-year period beginning in July 2008, the nonperforming loan ratio for corporate loans rose to 1.88 percent from 1.25 percent. A similar ratio for small- and medium-size firms also moved up to 2.10 percent from 1.43 percent. Much of the increase was not particularly unsettling as it reflected active corporate debt restructuring, but it could also indicate that the potential volume of nonperforming loans could be substantial, suggesting that the banking sector may not be as sound as it may appear.

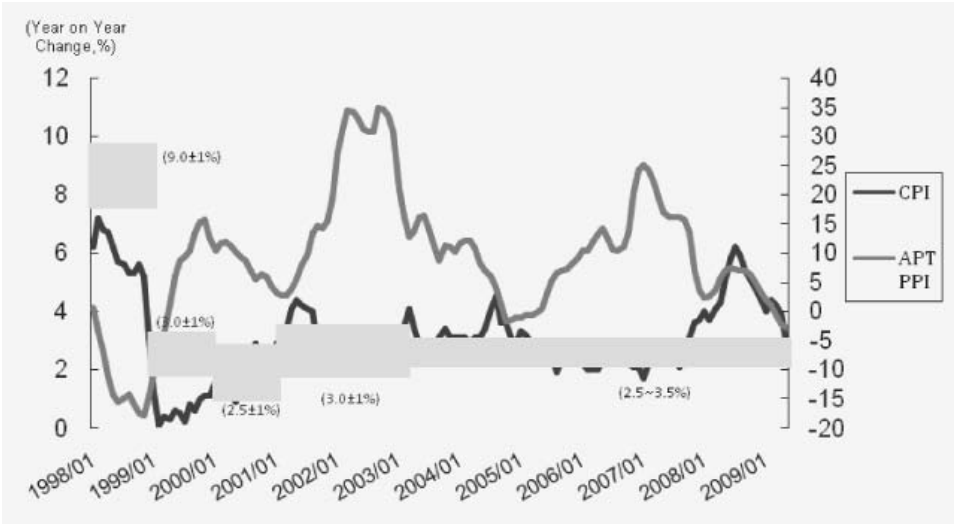
Another risk is that effects of the fiscal stimulus package could be either short-lived or weak. Fiscal stimulus is at best a short-run remedy and as such cannot be sustained for any length of time. To produce long-lasting effects, the fiscal stimulus must in due course work to stimulate consumption and investment in order to make it unnecessary to go on with additional government spending or tax cuts. But this chain reaction could be frustrated if fiscal multipliers are as small as they have been shown to be in a number of recent studies.[5] Furthermore, over the medium term, the massive increase in government spending is likely to raise real interest rates to crowd out further private sector spending (Krueger 2009). If the fiscal stimulus were to add to public debt to bring the total to an unsustainable level, it could sow the seeds for inflation in the future, although Korea has room for additional government debt financing and now is not the time to worry about price instability.

A third risk factor is that the inflation targeting that Korea adopted as a framework for monetary policy immediately after the 1997 crisis, which has been managed primarily to keep price inflation under control, appears to be no longer a viable framework. It is in need of repair or may have to be replaced by a new framework, but at this stage a new model is not likely to be forthcoming any time soon. Inflation targeting has a very limited scope for stabilizing asset prices or safeguarding the soundness and safety of financial institutions. In fact, successful inflation targeting could run counter to sustaining stability in financial markets as it tends to raise real interest rates to lift the demand for real as well as financial assets, as shown in ***Figure 10.*** Therefore, when combined with low interest rates, a large fiscal stimulus package could rekindle speculative demand for real assets such as housing, commercial real estate, and land in addition to stocks and other financial assets. In recent periods, ominous signs of asset market speculation have emerged as foreign equity investors are returning to the Korean market. If unchecked, as a result of the slow speed of adjustment in the markets for goods and services, the speculation could touch off asset market bubbles before expansionary monetary and fiscal policies can boost consumption and investment.

In an inflation-targeting regime, stable prices justified prolonging an expansionary stance in monetary policy, in particular when the economy was in the

5 IMF (2008) was ambivalent about the effectiveness of discretionary fiscal policy as it can be modest and can "go in the wrong direction." It was referring to the vast literature that documents the "difficulty to ensure that reactions are timely, well targeted and temporary." In particular, it was concerned about debt sustainability in emerging economies that may limit the effectiveness of fiscal stimulus packages. IMF (2009a), published in April, showed a change of position by saying that countercyclical policies—in particular, expansionary fiscal policies—"can be helpful in ending recessions and strengthening recoveries" whereas monetary policy is less effective than usual.

Figure 10: **Consumer Price Index, Inflation Targeting, and Apartment Price Index, Seoul Metropolitan Area, 1998–2009**



Source: Bank of Korea.
Note: Shaded areas refer to the target ranges.

doldrums, as was the case in Korea. But the low interest rate and ample liquidity sparked off speculation and in the end created a bubble in the housing market, as Figure 10 shows. Still unanswered is how much weight monetary authorities should assign to the two objectives in managing monetary policy. In view of the potential conflicts between price and financial stability, Korea and other emerging economies are in need of a new generation of frameworks for macroeconomic policy management in which financial stability is featured as a new policy objective in addition to price stability and economic growth.

Finally, the issue that undoubtedly grips the minds of Korea's policymakers more than any other at this stage of the recovery is the prevention of the recurrence of a liquidity crisis in the future. Although it is highly unlikely that Korean borrowers will be forced into large-scale defaults on external liabilities even when a reversal of capital flow takes place, the Korean policy authorities must be prepared for such circumstances.

What, then, are the policy options they can entertain? The experience with managing the current crisis may persuade Korea's policymakers that they need to augment Korea's foreign exchange reserve holdings beyond the adequacy level prescribed by the GGF rule. This will put Korea in a dilemma because it will need to continue to generate current account surpluses, which may in turn tempt the authorities to keep the real exchange rate undervalued. The reserve

accumulation could be a costly option because it means eschewing free floating in favor of an intermediate regime and returning to capital control. This regime change runs the risk of setting off frictions with its major trading partners and of being blamed for exacerbating the global trade imbalance. Despite these risks, Korea may be disposed to follow the reserve option unless the central banks of the reserve currency countries, international financial institutions, or regional cooperative arrangements can provide short-term liquidity in case the country is faced with an impending liquidity crisis.

VI. Concluding Remarks

More than two years have elapsed since the outbreak of the U.S. subprime crisis in August 2007. The crisis has paralyzed the financial system and thrown the economy into the most severe recession since the 1929 depression in the United States. The financial crisis in the United States has also been virulent and contagious as it has engulfed Europe, Asia, and other parts of the world in a sharp economic downturn and has rendered their financial systems dysfunctional as it has impeded trade flows and curtailed the availability of global liquidity.

Like many other export-oriented economies in Asia, Korea has not been immune to the current global economic crisis. Korea has been, arguably, the hardest hit among East Asia's emerging economies. During the third quarter of 2008, Korea suffered a severe dollar liquidity crunch caused mostly by market overreaction. As late as February 2009, Korea was at the top of the list of countries most vulnerable to the current crisis in emerging Asia. Beginning in the second quarter of 2009, the fiscal stimulus kicked in to contribute to expanding domestic demand. By then the liquidity crisis was over and positive growth returned. Since then Korea has sustained a rather vigorous pace of recovery. Contrary to earlier forecasts, Korea's economy may not contract in 2009. The liquidity crisis was deep, but the recovery was equally steep.

The global economic crisis has taught Korea several lessons about crisis management that will help guide future reform. In a small, open economy where equity investments dominate capital flows, free floating does not necessarily enhance the effectiveness of monetary policy, and this becomes more so when the expectation formation is extrapolative. There seems to be no easy way of preventing the maturity and currency mismatch in the balance sheets of financial institutions, which is often singled out as the most serious cause of financial crisis in emerging countries. Neither regulatory restrictions nor private insurance arrangements appear to work to mitigate the balance sheet mismatches.

A large reserve holding will help fend off financial crisis, but the current crisis has shown that there is no level of reserves adequate enough to construct a foolproof line of defense against speculative attack. Prevention of financial crises in emerging markets calls for the provision of liquidity services of a global lender of last resort, but there is little or no possibility that such an institution will ever come into existence. In the absence of such a global lender, emerging economies will have no choice but to run current account surpluses to accumulate more reserves, retreat from capital market opening, and move to the center of the exchange rate spectrum.

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