

Global Financial Crisis and the Korean Economy

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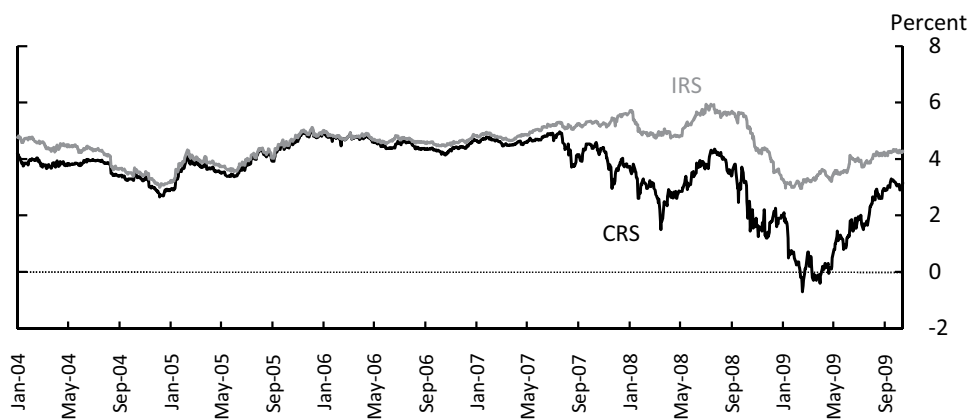
Korea has been one of the Asian nations most severely hit by the global financial crisis. At first glance, Korea appeared better placed to weather the shock thanks to its substantial cushion of official reserves, its improved policy framework, and its very limited exposure to toxic assets originating in Western banks. However, given the region's large trade volume and its financial integration with the rest of the world, investors' views on the Korean economy deteriorated as global deleveraging intensified and world growth slowed markedly. This affected the foreign exchange markets as foreigners began to repatriate their funds out of Korean financial markets. As of the end of November 2008, the Korean won had depreciated by over 25.4 percent in dollar terms since the collapse of Lehman Brothers in September, the largest fall among major Asian countries excluding Turkey. The stock price collapsed by 27.2 percent during the same period.

In fact, as Figure 1 shows, even before the collapse of Lehman Brothers Korean foreign exchange market conditions had already deteriorated. The figure shows daily three-year interest rate swaps (IRS) and currency rate swaps (CRS). Differences in market floating rates such as IRS and CRS rates potentially create profitable arbitrage opportunities if risks are limited to exchange rate risk.¹ However, they also reflect other risks, including counterparty credit risk, liquidity risk, and funding risk. These risks started to rise sharply in early August 2007 when BNP Paribas suspended its fund withdrawals, and in November 2007 and March 2008 when news related to the subprime mortgage problems surprised the market.

Due to the evaporation of global liquidity, foreign currency borrowing conditions for Korean banks severely deteriorated. The credit default swap (CDS) (five-year) premiums on Foreign Exchange Stabilization Fund (FESF) bonds showed marked upward trends (from 9.14, 135 basis points to 11.30, 368 basis points) and CRS rates fell relentlessly. In order to ease the foreign liquidity squeeze, the Bank of Korea (BOK) supplied a total of 26.6 billion dollars in

Author's note: *The views expressed here are those of the author, and do not necessarily reflect those of the Bank of Korea or the Bank of Korea's policy.*

FIGURE 1
Korean Foreign Exchange Market Conditions
 3-year interest rate swaps (IRS) and currency rate swaps (CRS)



foreign currency liquidity through its Competitive Auction Swap Facility using its official foreign reserves, and through its Competitive Auction Loan Facility using the proceeds of its currency swaps with the U.S. Federal Reserve. On October 19, the Korean government also guaranteed its banking sector's external debt until the end of June 2009.

To strengthen its defense against global illiquidity, the BOK established a US\$30 billion swap arrangement with the Federal Reserve on October 30, 2008. On December 12, the BOK entered into a 180 billion yuan/38 trillion won swap arrangement with the People's Bank of China (PBC), and at the same time agreed with the Bank of Japan (BOJ) on expanding the ceiling of existing won/yen swap arrangements from the equivalent of 3 billion U.S. dollars to 20 billion dollars. In spite of such efforts, deleveraging continued, and the CRS rate often fell into negative territory in February, March, and April 2009. Figure 1 clearly shows that the foreign exchange liquidity conditions have not fully recovered yet. Domestic credit spreads on corporate and bank bonds have also widened rapidly with the illiquidity in the domestic money market. This phenomenon, often termed "double drain," was unprecedented for Korea.

The Bank of Korea has responded with aggressive interest rate cuts to alleviate the credit crunch. It cut the "BOK base rate" on six occasions, by 3.25 percent overall. It also provided a total of 27.8 trillion won in market liquidity—by conducting open market operations, increasing the ceiling of its aggregate credit ceiling loan program, making banks a one-off payment of interest on

their required reserves, and contributing to the Bond Market Stabilization and Bank Recapitalization Funds. In addition, 12 securities companies were added to the list of eligible counterparties for RP operations, and bonds from banks and other institutions were added to the list of collateral eligible for open market operations.

In addition to the global crisis, the Korean economy suffered from the oil price hikes that occurred during the first half of 2008. From the second half of 2008, both the Korean export and domestic sectors began to feel the impact of the decline in international demand, and the fourth quarter annual GDP growth rate fell to -5.1 percent.² In January 2009, the International Monetary Fund (IMF) revised its forecast for Korean GDP growth from a positive 2 percent to a 4 percent contraction. This was among its largest downward revisions for emerging market economies.

The rise in external debt has been a main cause for concern among foreign investors, even though the most recent increase in debt, that acquired since 2006, has differed in structure from that in the period prior to the onset of the East Asian crisis. A major share of the increase in debt has been bridge financing by domestic banks. These banks engaged in forward contracts with exporters and asset management companies, and balanced their positions through borrowing. Furthermore, bad loan problems analogous to those that contributed to the Asian financial crisis did not exist.

The external debt of the banking sector drew particular attention.³ For the whole economy, the mismatch between the external assets and debts did not widen, but strong asymmetry existed in the private sector as foreign assets were concentrated in the monetary authority, and foreign debts were concentrated in the banking sector (Table 1). This left severe mismatches in the banking sector.

TABLE 1
External Debts and Assets
(period end, \$US billions)

	2005	2006	2007	2008:Q2	2008	2009:Q1
External Debt	187.9	260.1	382.2	419.8	381.3	369.3
(short-term)	(65.9)	(113.7)	(160.3)	(176.2)	(151.1)	(148.1)
Banks	83.4	136.5	194.0	210.5	171.7	161.9
(short-term)	(51.3)	(96.1)	(134.0)	(146.7)	(113.0)	(103.8)
External Asset	308.6	366.7	417.7	422.5	348.2	345.5
(short-term)	(212.4)	(242.8)	(266.3)	(261.8)	(279.6)	(278.8)
Banks	53.0	63.2	76.4	84.5	83.0	77.3
(short-term)	(39.0)	(39.9)	(45.5)	(51.9)	(52.4)	(47.2)

Source: ECOS, Bank of Korea.

The riskiness of the banking sector may not be coincidental. Figure 2 plots the rate of growth of the banking sector's external debt percentages and the short-term external assets to short-term external debt ratios during 1995:Q1–2008:Q4. There is a negative relationship between these two variables, which indicates that when banks accumulate external debt, they tend to rely more on short-term debt. Thus, when banks accumulate external debts, both the risks of currency mismatch and of maturity mismatches tend to increase.

Before the global crisis, the banking sector pushed up leverage in Korea, while after the Lehman collapse, it suffered most from Korean deleveraging. This can be clearly seen from Tables 2 and 3. They present the flows of foreign liquidity funds in the pre-crisis and crisis periods, respectively. During 2006:Q1–2008:Q3 of the 168 billion dollars flowing into Korea, 137.4 billion dollars were funded by the banking sector, 68.3 billion dollars were domestically absorbed, and the rest were recycled through overseas equity investment, foreign direct investment, remuneration of foreign equity investment, etc. During this period, the monetary authorities were net sellers of foreign liquidity.

Table 3 indicates the sudden stop and reversal of capital flows during the global financial crisis. Between 2008:Q4 and 2009:Q1, 42.8 billion dollars in assets were taken out of Korea. This deleveraging was concentrated in the banking sector, as it was not able to roll over its short-term debt. Even though the Korean government guaranteed banking sector debts, lenders withdrew 59 billion dollars while the banking sector recovered 9 billion dollars. The monetary authorities sold 25.2 billion dollars of reserves.

TABLE 2
Uses and Sources of Foreign Exchange Liquidity
(2006:Q1 to 2008:Q3, \$US billions)

Uses		Sources	
External Asset		External Debt	
General Government	5.0	General Government	15.8
Banks	33.2	Banks	137.4
Other Sector	15.3	Other Sector	63.0
Monetary Authorities	14.8	Monetary Authorities	21.5
Overseas Equity Investment	68.2	Foreign Equity Investment	-78.2
Overseas FDI	34.5	Foreign FDI	6.1
Financial Derivatives	-0.6	Other	5.1
Other Investment	6.2	Current Account	-2.7
Other Capital Account	-7.0		
Error and Omissions	-1.5		
Total	168.0	Total	168.0

Source: Computed from Bank of Korea *Monthly Bulletin*.

TABLE 3
Uses and Sources of Foreign Exchange Liquidity
 (2008:Q4 to 2009:Q1, \$US billions)

Uses		Sources	
External Asset		External Debt	
General Government	-9.1	General Government	-5.2
Banks	-8.9	Banks	-58.9
Other Sector	-4.0	Other Sector	2.7
Monetary Authorities	-25.2	Monetary Authorities	5.3
Overseas Equity Investment	-8.2	Foreign Equity Investment	-4.0
Overseas FDI	3.2	Foreign FDI	1.4
Financial Derivatives	13.9	Other	-0.1
Other Investment	-1.4	Current Account	16.1
Other Capital Account	-2.1		
Error and Omissions	-1.3		
Total	-42.8	Total	-42.8

Source: Computed from Bank of Korea *Monthly Bulletin*.

As described above, Korea's experiences during this crisis can be summarized in terms of *the capital inflows problem*. Procyclicality generated by capital flows has been a major cause of vulnerability for small open economies as they can cause boom-bust cycles (e.g., Kaminsky et al., 2005). Excessive foreign capital inflows lead to current account deficits and can cause asset bubbles and increase vulnerability to external credit tightening, which often result in sudden stops and reversals of financial flows. Since the East Asian crisis, the Korean economy has progressed towards closer integration with global financial markets. Its liberalized capital market has invited foreign capital inflows—but this has also enabled foreign investors to unwind their positions at the earliest signs of trouble.

The procyclicality of the banking sector borrowing can be confirmed in Figure 3. It plots the growth rates of foreign assets and debt calculated from the banking sector balance sheet during 1995:Q3 to 2009:Q1. Dots tend to be on the 45-degree line, which implies that once the banking sector as a whole increases its foreign debt its balance sheet expands in lockstep, and vice versa. Through financial intermediation the growth of foreign debts is translated into growth of foreign assets, which push up domestic demand through various channels.

How important is the procyclicality of capital flows originated in the banking sector? Table 4 lists measures of procyclicality of various components of net capital inflows to Korea. Surely, capital flows driven by the banks are the most problematic.

FIGURE 2
**Korean Banking
 Sector Risk**

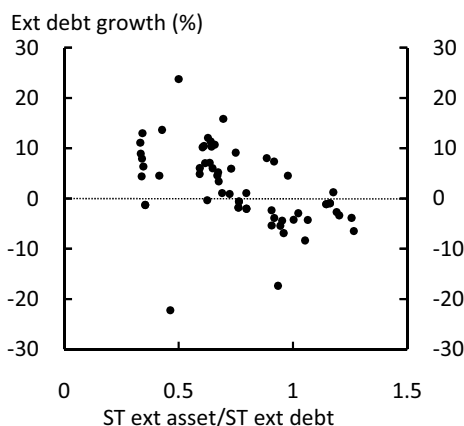


FIGURE 3
**Procyclicality of
 Korean Banking Sector**

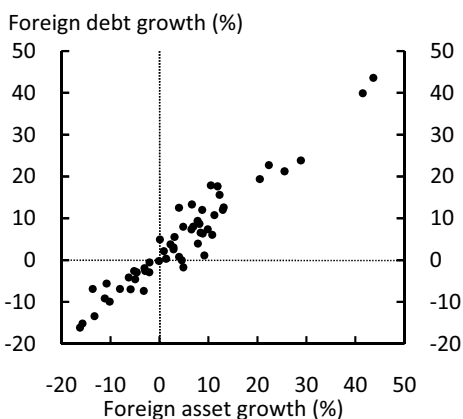


TABLE 4
Procyclicality of Capital Flows: Korea

	1995-97	2000-08	2000-05	2006-08
Net Capital Inflows	0.64	0.47	0.12	0.94
FDI	-0.53	0.04	0.13	-0.31
Equity	0.40	0.18	0.18	0.03
Bond	0.18	0.24	-0.13	0.70
Others	0.71	0.33	0.06	0.87
(Bank)	(0.64)	(0.41)	(0.00)	(0.92)

Note: Procyclicality is measured as the coefficient of correlation with quarterly real GDP growth rate in percent against previous year.

Korea's recent experience offers important policy implications. Capital account liberalization in small open economies increases vulnerability to sudden large-scale withdrawals of foreign capital, and that is exactly what we have witnessed during the recent crisis. It should be noted that this problem has even occurred in countries with strong financial regulation and transparent financial systems such as Korea.

It has been argued that financial globalization makes it possible to enjoy collateral benefits such as domestic financial sector development, institutional improvements, better macroeconomic policies, etc. These collateral benefits have been said to result in higher growth for the globalizing countries, generally via gains in allocative efficiency. The recent crisis has demonstrated, however, that financial globalization can lead to collateral damage in emerging

market economies as well. Therefore, better management of financial openness in emerging market countries is the key issue (Committee on the Global Financial System 2009 and Choi and Kim 2010).

One could defend oneself from such collateral damage by sufficient reserve accumulation. But here the question arises: How sufficient is sufficient? According to the Greenspan-Guidotti-Fischer rule, short-term borrowing abroad by the private sector should be absorbed as foreign reserves by the monetary authorities. However, the rule might invite moral hazard: While profits from borrowing are privatized, hedging of the associated risk is socialized (Rodrik 2006). Consequently, the private sector would like to rely on short-term borrowing even more and the monetary authorities must accumulate even greater reserves. Furthermore, the moral hazard problem exacerbates the overall level of capital inflows.

Direct regulation on capital flows may be another viable option. However, there is little evidence that capital controls are effective in achieving their macroeconomic objectives for longer than limited periods. The best solution, in my opinion, is to establish an incentive mechanism that can harmonize the individual player's optimizing activity in a way not to cause a deterioration of the system soundness, that is, by internalizing the cost of short-term external borrowings.

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NOTES

1 There are many other different ways to capitalize on potential arbitrage profits and, as a matter of fact, derivatives have been an important channel for capital inflows to Korea (Kim and Song 2009).

2 In response to the crisis, the Korean government conducted an aggressive expansionary fiscal policy. According to the IMF and the OECD, the ratio of stimulus package to GDP in 2009 was 3.4 percent and 4.22 percent respectively. These numbers are much greater than the G-20 and OECD averages.

3 The banking sector is composed of domestic banks and foreign bank branches.