

Global Financial Crisis and Korean Economy by Kyungsoo Kim*

First of all, I would like to thank to Dr. Janet Yellen and her colleagues at Federal Reserve Bank of San Francisco for having me this wonderful opportunity.

As you know, Korea has been hit most severely by the Global Financial Crisis among Asian countries. At first glance, compared with other countries, Korea appeared better placed to endure the shock created by the global financial crisis, thanks to the cushion of its substantial official reserves, its improved policy framework and its very limited exposure to toxic assets originating in western banks.

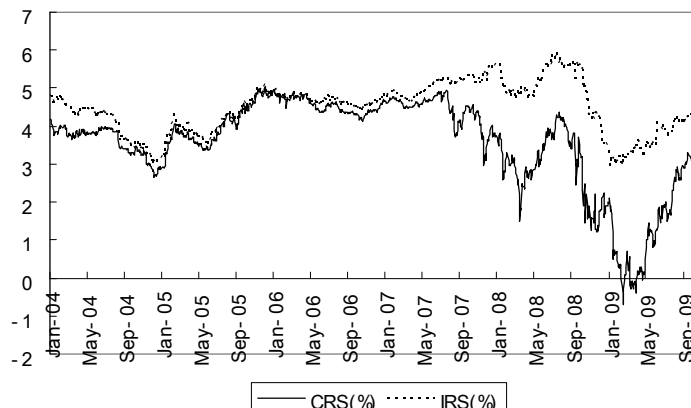
However, given the region's large trade volume and its financial integration with the rest of the world, investors' views on the Korean economy deteriorated as the global de-leveraging intensified and world growth slowed markedly. As a result, an immediate impact was felt in the foreign exchange markets as foreigners began to repatriate their funds from the Korean financial markets. As of the end of November 2008, the Korean won had depreciated by over 25.4% in dollar term since the collapse of Lehman Brothers in September, the largest fall among major Asian countries except for Turkey. The stock price had collapsed by 27.2% during the same period.

In fact, as Figure 1 shows, even before the collapse of Lehman Brothers Korean foreign exchange market conditions had been already deteriorated. The figure shows daily 3 year interest rate swap (IRS) and currency swap (CRS) rates. Engaging in a basis swap in which two streams of money market floating rates of two different currencies are exchanged potential arbitrage opportunity is created such as the difference between IRS and CRS rates.¹ It may reflect other risks than exchange risk such as counter-party credit risk, liquidity risk, funding risk, etc. Risks reflected in basis swap started to sharply rise in early August 2007 when BNP Paribas suspended its fund withdrawal, and in November 2007 and March 2008 when news related to the sub-prime mortgage problems surprised the market.

<Figure1>

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



Owing to the evaporation of global liquidity, foreign currency borrowing conditions for Korean banks were severely worsened. The CDS (5-year) premiums on FESF bonds showed marked upward trends (9.14, 135bp -> 11.30, 368bp) and CRS rate fell relentlessly. In order to ease foreign liquidity squeeze, the BOK supplied a total of 26.6 billion dollars in foreign currency liquidity through its Competitive Auction Swap Facility using the 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 payment for banking sector's external debt due until the end of June, 2009.

To strengthen the backstop blocking the risk of the global financial market turmoil, the BOK established a 30-billion US dollar swap arrangement with the US FRB on October 30, 2008. On December 12, the BOK entered into a 180 billion yuan/38 trillion won swap arrangement with the PBC, and at the same time agreed with the BOJ on expanding the ceiling of existing won/yen swap arrangement from 3 billion US dollars equivalent to 20 billion dollars.

In spite of such efforts, de-leverage continued, and the CRS interest rate often fell into negative territory in February, March and April 2009. The global financial crisis has opened the door to even greater arbitrage opportunity. Figure 1 clearly shows that the foreign exchange liquidity conditions have not fully recovered yet.

Domestic credit spreads on corporate and bank bonds also widened rapidly as the liquidity of the domestic money market evaporated. This phenomenon, so-called 'double drain,' was unprecedented. The Bank of Korea conducted aggressive interest rate policy. It cut the "BOK base rate" on six occasions, by 3.25%p 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 counter-parties for RP operations, and bank - and special - bonds were newly added to the list of collateral eligible for

open market operations, as part of strengthened efforts to alleviate the credit crunch.

The Korean economy suffered from global crisis preceded by oil price hikes during the first half of 2008. From the second half of 2008, both the Korean export and domestic sector began to feel the impact of the decline in international demand, and 4th quarter annual GDP growth rate recorded -5.1%.² In January 2009, the IMF revised its forecast for Korean GDP growth from a positive 2 percent to a 4 percent contraction. This was among its largest negative revisions for EMEs.

The rise in external debt has been a main cause for concern among foreign investors, even though the recent increase in debt, since 2006 differed in structure from that in the period right before the onset of the East Asian crisis. Major proportion of the increase in debt has been the product of bridge financing by domestic banks. They engaged in forward contracts with exporters and asset management companies and squared their position through borrowing. Furthermore, unlike during the East Asian crisis, a bad loan problem did not exist.

In particular, the external debts of the banking sector drew much attention.³ For the whole economy, the mismatch between the external assets and debts did not widen, but strong asymmetry existed in that foreign assets were concentrated in the monetary authority and foreign debts in the banking sector (Table1). That is, the risk was concentrated in the banking sector.

<Table1> External Debt and Asset (period-end, billion USD)

	2005	2006	2007	2008 II	2008	2009 I
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)

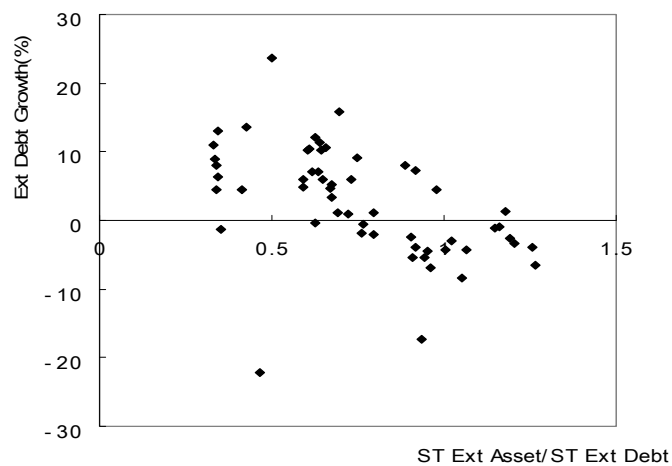
Source: ECOS, BOK

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 over GDP in 2009 is 3.4% and 4.22% respectively. These numbers are much greater than the G20 and OECD averages.

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

The fact that risk lay in the banks may not be coincidental. Figure 2 plots the rate of growth of banking sector's external debt percentage and the short-term external asset to short-term external debt ratio during 1995.I-2008.IV. 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 maturities mismatch tend to increase.

<Figure2>



Before the global crisis, the banking sector drove leverage and after the Lehman collapse, it suffered most from de-leverage. 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.I-2008.III of the 168 billion dollars flowed 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, FDI, remuneration of foreign equity investment, etc. During this period, the monetary authorities were net seller of foreign liquidity.

<Table2> Uses and Sources of FX Liquidity (2006.I-2008.III, bil. USD)

Uses			Sources		
External Asset	General Government	5.0	External Debt	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 BOK Monthly Bulletin

Table 3 indicates the sudden stop and reversal of capital flows during the global financial crisis. Between 2008.IV-2009.I, 42.8 billion dollars flew out from Korea. Severe de-leveraging was concentrated on the banking sector, as it was not able to roll over its short-term debt. Even though the Korean government declared a loan guarantee, lenders withdrew 59 billion dollars while the banking sector itself recovered 9 billion dollars. The monetary authorities sold 25.2 billion dollars of reserves.

<Table3> Uses and Sources of FX Liquidity (2008.IV-2009.I, bil. USD)

Uses			Sources		
External Asset	General Government	-9.1	External Debt	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

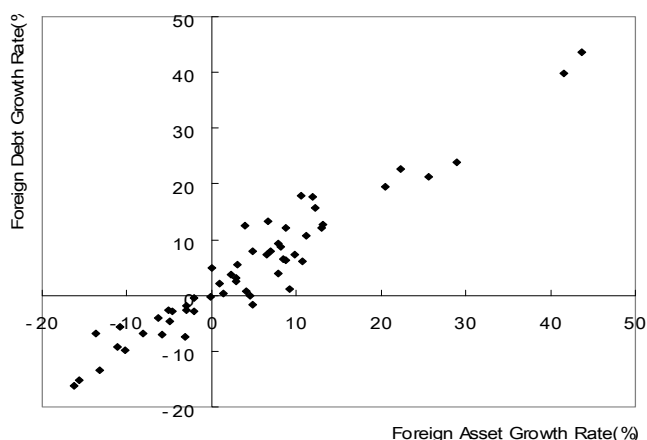
Source: Computed from BOK Monthly Bulletin

As described above, what Korea experienced throughout this crisis can be summarized as *the capital inflows problem*. Pro-cyclicality generated by capital flows has been a major cause of vulnerability for small open economy when the pro-cyclicality causes boom-bust cycles (e.g., Kaminsky et al, 2005). Excessive foreign capital inflows lead to current account deficits and asset bubbles, increase vulnerability to credit tightening, and often result in sudden stops and reversals of financial flows. Since the East Asian crisis, the Korean economy has progressed

towards closer integration with the 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 pro-cyclicality of the banking sector borrowing can be confirmed in Figure 3. It plots the growth rates of foreign asset and debt calculated from the banking sector balance sheet during 1995.III-2009.I. Dots tend to be on the 45 degree line, which implies that once the banking sector as a whole increases foreign debt its balance sheet expands and *vice versa*. Through financial intermediation the growth of foreign debts is translated into growth of foreign assets, which will push up domestic demand through various channels.

<Figure3>



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

<Table4> Pro-cyclicality of Capital Flows: Korea

		1995-97	2000-08	2000-08	
				2000-05	2006-08
Pro-cyclicality ¹⁾	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)

1) 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 has increased their vulnerabilities to sudden large-scale withdrawals of foreign capital, and that is exactly what we have witnessed during the recent crisis. And it should be noted that this problem has occurred even in countries with strong financial regulation and transparent financial systems, for example, 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. And 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 (CGFS, 2009; 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 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 problem: 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 reserves even further. Furthermore, the moral hazard problem exacerbates capital inflows problem.

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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