

Part II.

Capital Mobility and Trans-Pacific Imbalance

Coping with Increased Capital Mobility: Lessons from the Korean Experience

Yoonsok Lee and Haesik Park

- I Introduction
- II. Increased Capital Mobility: Inference from Korea
- III. Potential Risks of Rising Foreign Investment
- IV. Policy Options to Cope With Foreign Investment
- V. Conclusion
References
Executive Summary

Coping with Increased Capital Mobility: Lessons from the Korean Experience

Yoonsok Lee and Haesik Park***

I. Introduction

Capital mobility in the Asian region has increased dramatically in recent years. The rapidly increasing capital movement in the region has been prompted by international investors seeking higher investment returns under the low interest rate environment surrounding the major industrialized countries, including the U.S. and the Euro area. The aggressive institutional changes undertaken by a number of the Asian countries designed to deregulate domestic financial markets and remove the existing capital controls have also encouraged large capital inflow into the region from other parts of the world. As such, financial markets in the Asian region have become more prone to foreigners' influence. Moreover, the possibilities of speculative activities by foreign investors have risen significantly.

These changes in the financial market environment of the Asian region pose serious risks and challenges to each and every regulatory body of the countries in the region. This is especially so given that the deregulated domestic financial markets imply fewer policy instruments left to cope with rising capital movements. Consequently, it brings up the importance of discussing policy options to deal with foreign capital and minimize its potential destabilizing effects on the domestic financial markets. The purpose of this paper is to analyze the relevant issues arising from the increased capital

* Research Fellow, Korea Institute of Finance. yslee@kif.re.kr.

** Research Fellow, Korea Institute of Finance. hspark@kif.re.kr.

mobility, drawing upon the Korean experience during the post-crisis period.

The rest of the paper is organized as follows. Section II gives a brief description of the major changes observed in the financial markets of Korea during the past decade or so. Section III discusses the potential risks associated with increased foreign investment in the domestic financial markets with major implications drawn from the Korean experience. Section IV presents policy options available to cope with foreign investment. In doing so, we emphasize what needs to be done, both at the national and regional levels, to prevent foreign capital from threatening financial market stability. Finally, Section V concludes the paper.

II. Increased Capital Mobility: Inference from Korea

Current Status of Foreign Investment in Korea

Recent trends of foreign investment in Korea show that portfolio investment dominates foreign direct investment (FDI). <Table 1> gives a brief description of foreign investment in Korea for the recent period. During the past five years, foreigners' portfolio investment flows in total (invested+retrieved) have increased by almost four times. FDI, in contrast, has only risen by twofold. This comparison is also evident if we look at the net investment amounts that are presented in the last row of each sub-category. Net portfolio investment during 2004 and 2005 is almost twice of that of FDI. The last column of <Table 1> shows the cumulative investment amount where we can see that net cumulative portfolio investment amounts to US\$506 million whereas FDI is a little less than US\$200 million.

If we take a closer look at portfolio investment by foreigners in Korea, we are able to observe that it is primarily directed toward the equity market. <Table 2> reports the yearly change in market capitalization of foreign portfolio investment. Here we can see that foreigners' investment in equities has more than doubled between 2001 and 2005, and the proportion of equities owned by foreigners has reached around 40%. Whereas foreigners' equity investment is quite substantial, their bond investment is relatively small.

Table 1. Recent Trend of Foreign Investment Flows in Korea

(Unit: US\$ mil.)

		2001	2002	2003	2004	2005	Total
Foreign Direct Investment	Invested	43.9	33.6	44.9	94.2	79.8	296.4
	Retrieved	14.8	11.9	15.4	21.0	40.0	103.1
	Net Invested	29.1	21.7	29.5	73.2	39.8	193.3
Portfolio Investment	Invested	507.5	720.3	992.3	1,340.5	1,669.5	5,230.1
	Retrieved	386.8	706.8	819.4	1,213.7	1,597.4	4,724.1
	Net Invested	120.7	13.5	172.9	126.8	72.1	506.0

Source: The Bank of Korea.

Although the proportion has increased gradually in recent years, only 0.6% of outstanding bonds are owned by foreigners as of 2005.

Table 2. Market Capitalization of Foreign Portfolio Investment

(Unit: US\$ mil., %)

	2001	2002	2003	2004	2005			
					1st Qr.	2nd Qr.	3rd Qr.	4th Qr.
Stock Market	754.2 (32.1)	818.5 (32.8)	1,204.4 (37.7)	1,719.3 (40.1)	1,902.6 (39.6)	1,932.1 (38.6)	2,339.8 (39.0)	2,667.5 (37.2)
KOSPI	713.3 (36.6)	785.4 (36.0)	1,195.2 (40.1)	1,672.9 (42.0)	1,849.8 (41.9)	1,873.0 (41.0)	2,266.0 (41.3)	2,572.8 (39.7)
KOSDAQ	40.9 (10.4)	33.1 (10.5)	45.2 (14.4)	46.4 (15.4)	52.8 (13.5)	59.1 (13.4)	73.8 (14.2)	94.7 (13.5)
Bond Market	3.3 (0.1)	5.5 (0.1)	14.8 (0.3)	30.7 (0.5)	41.7 (0.6)	38.6 (0.6)	42.6 (0.6)	43.5 (0.6)
Total	757.5	824.0	1,255.2	1,750.0	1,944.3	1,970.7	2,382.4	2,711.0

Note: Values in parentheses are shares held by foreign investors.

Source: Financial Supervisory Service.

A number of explanations have been given for the concentration of foreign investors' capital in the equity market. Among those, one points to the institutional factor. That is, the stock market opening for foreign investment

preceded well before the bond market opening. Accordingly, it is argued, foreigners having more experience in the Korean stock market investment have been more comfortable with equity investment. Alternatively, lower liquidity risk associated with equity investment is suggested to have made foreign investors pay less attention to the bond market. Liquidity in the Korean stock market is estimated to be around KRW 720 trillion in terms of market capitalization, whereas outstanding issues in the Korean bond market amount to about KRW 450 trillion. Moreover, the Korean bond market has a less developed secondary market, which would expose foreign investors to higher liquidity risk if they invest in Korean bonds. Other institutional factors that favor investment in the stock market over the bond market can be summarized as the following. Limits on borrowing the Korean won by non-residents discourage so-called carry trades in the bond market. This makes bond investment less attractive to foreigners. Also, foreigners often point to difficulties arising from the requirements of Korean-written prospectuses associated with bond issuance, a small number of market makers in the bond market, bond interest withholding tax problems, and credit risk problems associated with Korean trading partners due to low credit ratings.

Another interesting characteristic observed from foreigners' portfolio investment in Korea is that the largest share of investment is being made by institutional investors. <Table 3> shows the breakdown of net foreign portfolio investment by investor types. The table clearly demonstrates that institutional investors, who have a tendency to invest in the long term, represent the majority. On the other hand, the proportion of short-term investors, highlighted by hedge funds, is relatively minimal. However, it should

Table 3. Net Investment by Types of Foreign Portfolio Investors

(Unit: US\$ mil.)

	2001	2002	2003	2004	2005
Institutional Investors	62.3	-0.1	97.2	51.0	1.6
Hedge Funds	4.5	-3.6	4.2	-1.9	-10.8
Individual Investors	1.7	-2.0	-4.1	4.0	-1.1
Other Investors	6.6	-2.6	37.9	40.0	-14.0
Total	75.1	-8.3	135.2	93.1	-24.3

Source: The Bank of Korea

be noted that in periods of outflow, hedge funds have contributed significantly to the outflow amount. Given this observation, it is not surprising to find that foreign investors exhibit a lower turnover ratio than domestic investors. The turnover ratio of foreign investors in the Korean stock market recorded 74.4%, which falls significantly short of those by domestic institutional investors (119.5%) and domestic individual investors (490.9%).

The composition of foreign investors by country of origin is presented in <Table 4>. The U.S. by far constitutes the largest share of investors followed by offshore financial centers such as Luxembourg and the Cayman Islands. Cumulative investment of U.S. investors accounts for more than 50% of net investment during the last five years. It is surprising to see Japanese investors not at the top of the list given that Japan is one of the largest capital exporting countries in the Asia-Pacific region. It should be kept in mind, however, that Japanese portfolio investment in Korea might have been underestimated. For instance, a bulk of portfolio investment originated from Singapore is composed of funds managed by foreign investors operating in the Asian Dollar Market (ADM), an offshore financial market in Singapore, with Japanese financial institutions being the major participants.

Table 4. Net Investment by Countries of Origin

(Unit: US\$ mil)

	2001	2002	2003	2004	2005	Total
United States	28.9	5.0	47.5	39.0	26.8	147.2
United Kingdom	6.2	-9.2	6.9	-2.1	-24.7	-22.9
Luxembourg	6.3	4.2	15.7	7.7	12.4	46.3
Ireland	2.0	-0.7	4.8	9.3	-1.2	14.2
Singapore	4.2	-8.5	33.1	11.2	-27.2	12.8
Holland	5.5	3.1	2.3	4.5	-10.6	4.8
Cayman Islands	2.6	1.3	10.7	2.3	1.9	18.8
Others	19.4	-3.5	14.2	21.2	-1.7	49.6
Total	75.1	-8.3	135.2	93.1	-24.3	270.8

Source: The Bank of Korea

Government Measures to Encourage Foreign Investment

The Korean government efforts to establish a more favorable investment environment would be probably one of the most important factors underlying the increased capital investment performed by foreign investors in Korea. Therefore, we briefly introduce below the measures taken by the Korean government to encourage foreign participation in the Korean financial markets. The Korean government's stance toward capital market opening has been a gradual, step-by-step approach. In particular, foreigners' holdings of securities issued by domestic firms were allowed only to a limited extent through the imposition of ownership ceilings, and it was only after the financial crisis in 1997 that full foreign ownership was guaranteed. The gradual approach toward capital market liberalization was mainly intended to protect domestic firms, including financial institutions, from being dominated by foreign capital. Gradualism was also pursued as a way of providing a buffer to domestic investors to adjust to the new financial environment so that they could easily cope with experienced international investors.

Table 5. Foreign Ownership Ceilings in the Korean Stock Market

(Unit: %)

	Date	Overall Ceiling		Individual Ceiling	
		Private	Public	Private	Public
Initial Ceiling	Jan. 3, 1992	10	8	3	1
1st Expansion	Dec. 1, 1994	12	8	3	1
2nd Expansion	Jul. 1, 1995	15	10	3	1
3rd Expansion	Apr. 1, 1996	18	12	4	1
4th Expansion	Oct. 1, 1996	20	15	5	1
5th Expansion	May 2, 1997	23	18	6	1
6th Expansion	Nov. 3, 1997	26	21	7	1
7th Expansion	Dec. 11, 1997	50	25	50	1
8th Expansion	Dec. 30, 1997	55	25	50	1
9th Expansion	May 25, 1998	Abolished	30	Abolished	1
10th Expansion	Nov. 15, 2000	-	40	-	3

Date Source: The Bank of Korea

As noted earlier, Korea's capital market opening was initiated with the stock market. In the early stage of the stock market opening, however, foreigners were allowed to invest only indirectly in the Korean stock market. The Korea Fund established overseas in 1984 followed by the Korea Europe Fund in 1987 and then the Korea Asia Fund in 1990 were the sole financial instruments available to foreigners to invest in the Korean stock market in the 1980s. Liberalization of direct equity investment by foreigners was launched in the early 1990s, but the amount of foreign capital to be invested in the domestic stock market was severely limited by foreign ownership ceilings. The

Table 6. Details of Bond Market Liberalization in Korea

(Unit: %)

	Corporate Bond								Gov't Bond	Others
	SMEs				LEs					
	Non-Guaranteed			Guaranteed	Non-Guaranteed			Guaranteed		
	Ordinary	CB	BW, EB		Ordinary	CB	BW, EB			
Jul. 1, 1994	-	30% (10%)	-	-	-	-	-	-	-	
Jan. 3, 1997	-	50% (10%)	-	-	-	-	-	-	-	
Jun. 2, 1997	50%	-	-	-	-	30% (6%)	-	-	-	
Nov. 17, 1997	-	-	50% (10%)	-	-	-	-	-	-	
Dec. 12, 1997	A	A	A	30% (10%)	30% (10%)	50% (10%)	50% (10%)	30% (10%)	-	<1998> OTC RP Non-listed
Dec. 23, 1997				30%	30%	50%	50%	30%	30%	
Dec. 30, 1997				A	A	A	A	A	A	
May 25, 1998										
Jul. 1, 1997										

Note: A: Abolished

Source: The Bank of Korea

foreign ownership ceilings were gradually relaxed with the passage of time, but it was not until May 1998 that foreigners were allowed to have full ownership over Korean firms listed in the Korean Stock Exchange (KSE). Yet, foreigners' full ownership over public sector companies still remains restricted with overall and individual ownership limited to 40% and 3% of outstanding stocks issued, respectively (see <Table 5>).

The bond market opening proceeded in a manner similar to the stock market opening. That is, limited foreign ownership followed by gradual lifting of ownership ceilings and then full liberalization in the post-crisis period. There is, however, one more interesting observation emerging from the bond market opening depicted in <Table 6>. In particular, the Korean government appeared to have used the bond market opening as a policy instrument to mitigate the financing difficulties of domestic firms with the assistance of foreign capital. Such policy intentions by the Korean government are apparent from the observation that the bond market opening was initiated with the corporate bond market, especially those bonds issued by small—and medium-sized enterprises (SMEs). Foreign ownership of bonds issued by large corporations, which tend to have less difficulty in financing directly from the capital market than SMEs, was only allowed three years later after the bond market for SMEs was liberalized. Additional evidence for this conjecture stems from the observation that the opening of non-guaranteed corporate bonds preceded that of guaranteed corporate bonds.

After the stock market was opened to foreigners in 1992, the Korean government opened the equity futures market in 1995 and the options market in 1997. Initially, the individual and overall limit was tapped at 3% and 15%,

Table 7. Details of Equity Futures and Option Market Opening in Korea

	May 1995	Nov. 1996	Jul. 1997	May 1998
Futures	15% (Overall)	30% (Overall)	100% (Overall)	Abolished
	3% (Individual)	5% (Individual)	5% (Individual)	
Option	-	-	100% (Overall)	Abolished
	-	-	5% (Individual)	

Source: Financial Supervisory Service

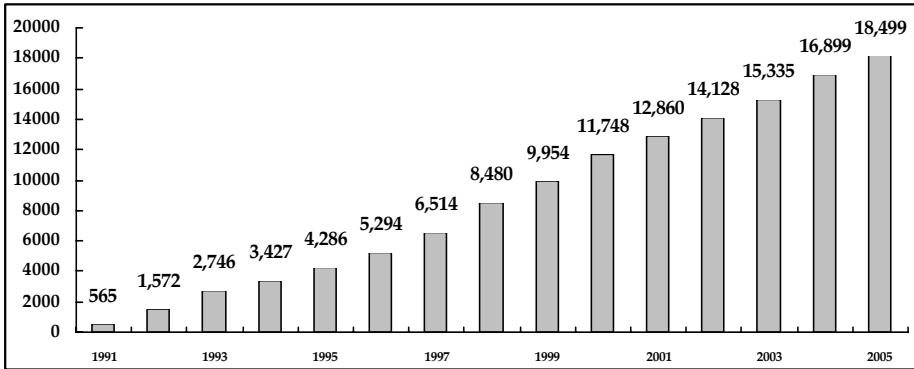
respectively, for futures, and 5% for individuals investing in options. But eventually the limits imposed upon foreign investors were abolished within a relatively short period (see <Table 7>).

Capital market opening to foreign capital involves foreign exchange transactions. Accordingly, the Korean government facilitated capital market opening with the liberalization of the Foreign Exchange Act, which governs foreign exchange transactions in Korea. Foreign exchange liberalization in Korea was performed aggressively in the post-crisis period over the following two stages. In the first stage, implemented in April 1999, the positive list system of the Foreign Exchange Act was overhauled and transformed into a negative list system. Also, various institutional and legal amendments were made with special emphasis on the promotion of foreign capital inflow. In the second stage of liberalization, implemented in January 2001, the Korean government deregulated virtually all the remaining current account transactions.

During the post-crisis foreign exchange liberalization, however, the Korean government was reluctant to lift some of the restrictions on capital account transactions, and their liberalization was postponed in the form of sunset clauses until the end of 2005. Capital account transactions included in the sunset clauses were those transactions that required close monitoring and supervision for the possible destabilizing effects on the domestic financial markets. To take a few examples of transactions in the sunset clauses, non-residents' onshore borrowings of the Korean won were strictly restricted, requiring permission from the Ministry of Finance and Economy (MOFE) for their potential usage for speculative trading in the FX market. Residents were not allowed to engage in securities exchange, securities acquisition and short selling of securities with non-residents unless they had permission from the Bank of Korea (BOK). Short-term foreign currency borrowings of financially unsound domestic firms were subject to approval by MOFE, etc.

Following the wave of financial market liberalization over the past two decades or so, Korea has experienced significant changes in its economic environment. For instance, there has been a dramatic increase of foreign participants in the Korean financial market as demonstrated by <Figure 1>, which plots the number of foreign portfolio investors registered in the KSE during the period of 1991-2005. In 1991, there were only 565 foreign

Figure 1. Registered Foreign Portfolio Investors in Korea



investors registered in the KSE to trade domestic securities. However, the number of registered foreign investors has skyrocketed to 18,499 in 2005. Moreover, an increasing number of countries have shown keen interest in investing in Korea: in 2005, the number of foreign countries that had their investors registered in the KSE amounted to 91, a rise of 37.9% from 1998.

The increasing participation of foreign investors in Korea has resulted in a sharp rise of foreign-owned domestic securities. <Figure 2> shows the shares of foreign ownership by industry in the Korean stock market. Foreign ownership in the financial sector constitutes about 44% of outstanding stocks with banks bolstering the highest share at 64% and securities companies

Figure 2. Foreigners' Shareholdings by Industry in Korea

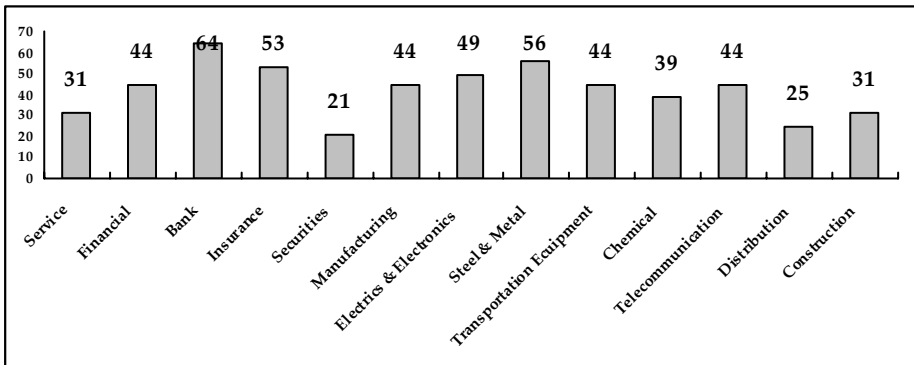
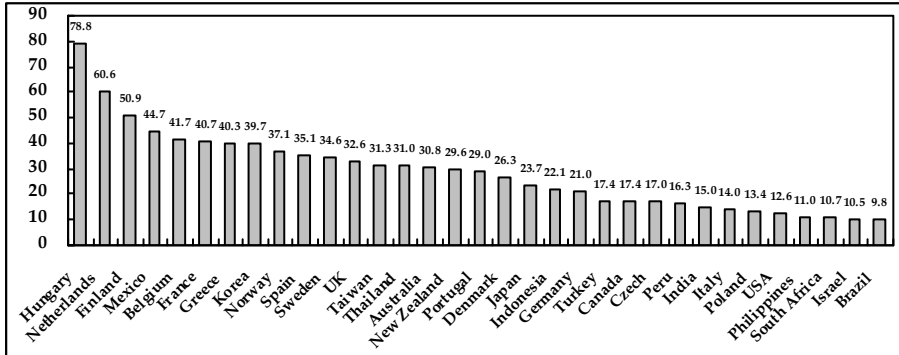


Figure 3. International Comparison of Foreign Ownership

(Unit: %)



Source: KCIF

recording the lowest at 21%. A similar pattern of foreign ownership is also evident in the manufacturing sector where 44% of outstanding stocks are owned by foreigners. Among the manufacturing sector, steel & metal is at the top of the ladder attracting foreign investors to hold 56% of outstanding stocks followed by electrics & electronics with 49% of foreign ownership.

<Figure 3> extends the foreigners' holdings of domestic stocks on a worldwide basis. Foreigners' share of U.S. equities is only 12.6% while Japan has, albeit higher than the U.S., about 23.7%. Foreign ownership in European countries is not small with most of the countries in the region recording around 30% or more. The average proportion of foreign ownership in

Table 8. Comparison of Foreigners' Shareholdings in Asia

(Unit: %)

Region	Country	'00	'01	'02	'03	'04	Recent
Asia	Japan	18.8	18.3	17.7	21.8	23.7	23.7
	Australia	29.6	28.7	31.0	31.0	30.8	30.8
	Korea	30.1	36.6	36.0	40.1	42.0	39.7
	Taiwan	8.8	12.4	16.3	22.6	23.2	31.3
	Indonesia	20.8	19.5	21.9	22.6	22.1	22.1
	Thailand	27.9	28.5	25.2	31.6	31.0	31.0
	India	11.5	11.6	13.0	15.9	15.0	15.0

Source: KCIF

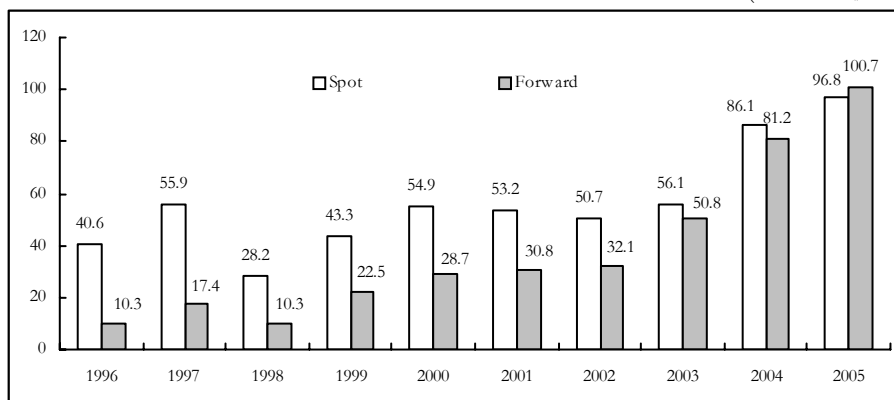
advanced countries is 32%. Overall, it shows that the Korean stock market is heavily dominated by foreign investors even by international standards.

<Table 8> summarizes the recent trend of foreign equity ownership in Asia. It shows that rising foreigners' stock holdings are also prominent in other countries of the region. For instance, the share of foreign ownership in Taiwan was less than 10% in 2000, but it soared to more than 30% after 2004. In Thailand, although foreign investors' equity holdings are less than before, their ownership of domestic equities still remains high at 31.0%.

Financial market liberalization, which has served to encourage foreigners' participation in Korea, also contributed to the deepening of domestic markets. The depth of domestic financial markets can be observed from <Figure 4>, which describes the daily average trading volume in the Korean FX market. It shows that daily average spot transactions in the post-crisis period once plummeted to US\$2.8 billion in 1998. Beginning in 1999, however, the Korean FX market experienced a gradual rise of spot transactions the daily average of which reached above US\$9.5 billion in 2005. <Figure 4> also shows that forward trading has gained importance in the Korean FX market in a dramatic fashion during the post-crisis period. Traditionally, spot trading overwhelmingly outperforms forward trading in the Korean FX market in terms of transaction volume. <Figure 4> clearly demonstrates that such a trading pattern

Figure 4. Daily Average FX Trading in Korea

(Unit: U.S.\$ mil)



Source: The Bank of Korea

disappeared completely in recent years with forward trading constituting almost the same share as spot trading in Korean FX transactions.

III. Potential Risks of Rising Foreign Investment

Vulnerability to Foreign Shocks

As the domestic economy increasingly integrates with the rest of the world and foreign capital becomes more and more influential in the domestic financial markets, it is very likely that the domestic financial markets will be more vulnerable to foreign shocks. The situation could be worsened if there is no domestic financial capital having the market power to compete effectively with foreign capital. The implication is that the stability of domestic financial markets could be endangered when financial markets abroad are swept by adverse shocks. Indeed, evidence for the increased vulnerability to foreign shocks is mounting in the post-crisis financial market performance of Korea. We provide some of this evidence, drawing upon the recent empirical works of Lee and Ryou (2006) and Park and Song (2006a).

Table 9. Increased Foreign Influences: Correlation Coefficients

	Pre-Crisis Period		Post-Crisis Period	
	TB Rate	S&P Index	TB Rate	S&P Index
Won/Dollar	0.0208	0.0156	0.0252	-0.0507
KOSPI Index	-0.0063	0.0382	-0.0258	0.0962
CD Rate	-0.0959	-0.0016	0.5854	-0.0028

Note: Reproduced from Lee and Ryou (2006).

<Table 9> reports the simple correlation coefficients between various financial variables of Korea and the U.S. Three distinctive features emerge from the table regarding foreign influences over the domestic financial market variables. First, the synchronization of the Korean stock price (KOSPI index) with the U.S. stock price (S&P index) has strengthened during the post-crisis

period. The correlation coefficient between the two variables increased from 0.038 in the pre-crisis period to 0.096 in the post-crisis period. Second, the won/dollar exchange rate is negatively correlated with U.S. stock prices after the crisis whereas the two variables are positively correlated before the crisis. The negative correlation indicates that foreign investors' equity investment in Korea exerts significant influences over the exchange rate determination in the domestic FX market. Our own post-crisis estimation of correlation coefficient between net foreign equity investment flow and the won/ dollar exchange rate confirms this by finding it significantly different from zero at -0.32. Lastly, the domestic interest rate (Certificate of Deposit rate) is found to co-move more closely with the U.S. interest rate (Treasury Bill rate) during the post-crisis period. It suggests that monetary independence in Korea may have been hampered by rising capital mobility.

Correlation by itself does not necessarily mean causality. <Table 10> reproduces the results of a Granger causality test undertaken by Lee and Ryou (2006) using the post-crisis period data. It contains the test statistics for the null hypothesis of no Granger causality, and * indicates the rejection of the null at the conventional significance level. The test results in <Table 10> suggest that the three features emerging in <Table 9> are due to the causality running from foreign variables to domestic variables. That is, the synchronized

Table 10. Increased Foreign Influences: Causality Tests

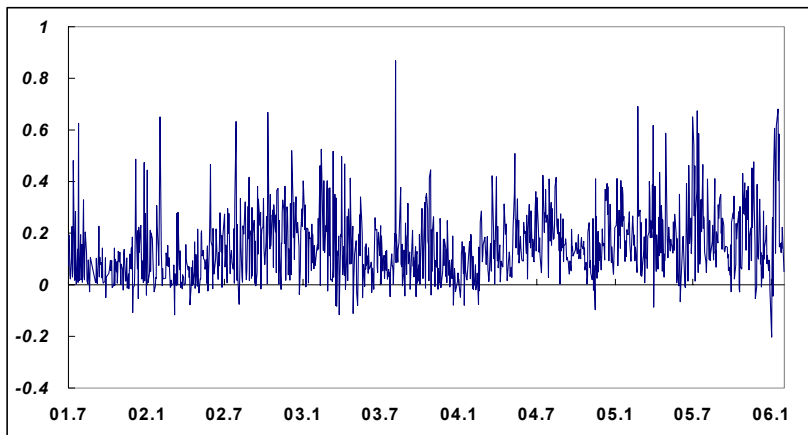
Null Hypothesis			Lag					
A does not Granger cause B		B	1	2	3	4	5	6
A	⇒							
TB	⇒	Won/Dollar	0.905	0.322	0.819	0.642	1.499	2.338
TB	⇒	KOSPI	0.999	0.519	0.478	0.484	0.691	0.590
TB	⇒	CD	14.472*	5.581*	3.667*	2.580*	2.871*	2.245*
S&P	⇒	Won/Dollar	20.628*	12.077*	8.012*	8.309*	6.596*	5.481*
S&P	⇒	KOSPI	158.190*	84.319*	56.874*	44.632*	35.838*	29.822*
S&P	⇒	CD	0.730	0.131	0.085	0.384	0.273	0.247

Note: Reproduced from Lee and Ryou (2006).

stock price movement between Korea and the U.S. is attributed to the fact that the U.S. stock price Granger causes the Korean stock price. Moreover, a rise (fall) in the U.S. stock price is found to have appreciated (depreciated) the Korean won against the U.S. dollar, whereas the domestic interest rate is found to have been significantly influenced by the past interest rate movements in the U.S.

Park and Song (2006a) offer other interesting evidence in support of the hypothesis that Korean financial markets have been increasingly vulnerable to foreign shocks in the post-crisis period. They examined the currency synchronization in the Korean FX market with particular attention given to the Japanese yen. They constructed the daily estimates of the coefficient measuring the Japanese currency influences over the Korean won using the two-minute interval data available from July 2001 and January 2006. These estimates are depicted in <Figure 5>. Positive values in the figure indicate that the Japanese yen has positive influences over the Korean won and little or negative influences otherwise. Using these daily estimates, they show that on 697 occasions corresponding to 62.0% of total business days in the sample, the Japanese yen is found to have exerted significantly positive impact on the Korean won.

Figure 5. Japanese Yen Influences over the Korean Won



Note: Reproduced from Park and Song (2006a).

A comparison with the pre-crisis period would be required if any claim were to be made from their finding that it is indicative of increasing foreign influences in the Korean FX market in the post-crisis period. Unfortunately, a direct comparison with the pre-crisis period is not possible given the unavailability of two-minute interval data before the crisis. Instead, we attempt to draw indirect inference using the following procedure. We first made a decomposition of 1,124 business days in the sample into the following categories; yen appreciation and yen depreciation. Yen appreciation is defined as business days when the yen/dollar exchange rate falls from the previous business day. Likewise, yen depreciation corresponds to business days when the yen/dollar exchange rate rises from the previous day. Drawing upon the daily estimates constructed by Park and Song (2006a), we then counted the number of business days that are observed to show significantly positive estimated values, which we refer to as “synchronization.” We also counted the number of business days having the estimated values insignificantly positive and less than zero, which is “Non-Synchronization.”

<Table 11> gives the results of our decomposition. It shows that on 559 business days when the Japanese yen depreciates from the previous day, the Korean won is found to be synchronized with the Japanese yen on 357 occasions (63.9%). During the business days of Japanese yen appreciation, the share of synchronization remains almost the same at 60.2%. It implies that the currency synchronization between the Korean won and the Japanese yen in the post-crisis period is symmetric across appreciation and depreciation of the Japanese currency. In contrast, one of the stylized facts observed in the pre-crisis Korean FX market is that the co-movement between the two

Table 11. Synchronization vs. Non-Synchronization

(Unit: business days, %)

Categories	Yen Depreciation		Yen Appreciation	
	Business Days	Shares	Business Days	Shares
Synchronization	357	63.9	340	60.2
Non-Synchronization	202	36.1	225	39.8
Total	559	100.0	565	100.0

Note: Decomposition is made using the daily estimates in Park and Song (2006).

currencies is asymmetric in the sense that it is predominant during the period of yen depreciation (see Lee (2003), Kim (2001), and Chung and Jang (2000)). Accordingly, the results in <Table 11> can be interpreted as evidence, albeit indirect, to support increased foreign influences in the Korean FX market.

Market Segmentation

In general, when international investors invest abroad, it is likely that they abide by flight-to-quality investment strategies. The flight-to-quality investment by international investors is likely to be heightened if the financial markets where they invest lack transparency. In other words, given that international investors are constrained by limited access to information about securities in which they try to invest, it would be safer for them to invest in internationally recognized securities of higher quality. In the financial markets where flight-to-quality investment by foreign investors is prevalent, market segmentation is often observed, and its likelihood rises when domestic investors display securities trading strategies to chase foreign investors. On frequent occasions, market segmentation is manifested when securities with higher foreign ownership starkly outperform those with lower foreign ownership. Such market segmentation would be of great concern to the hosting countries of foreign capital since it is likely to create a financial market environment where financial resources are inefficiently allocated. For instance, domestic firms lacking international recognition but with high productivity and sound financials may find it difficult to finance directly from the securities markets.

The Korean experience with foreign capital suggests that market segmentation is indeed serious and should not be underestimated. Flight-to-quality of foreign investors is widespread in the Korean stock market. <Figure 6> summarizes the percentage shares of the Korean firms listed in the KSE whose foreign ownership equals or exceeds 5% in terms of market capitalization for each category of firms. It shows that among the ten largest corporations listed in the KSE, nine have equal to or more than 5% of their outstanding stocks owned by foreigners. In relation to this observation, we find that almost half (46.8%) of outstanding stocks issued by the ten largest

business conglomerates in Korea are owned by foreign investors with Samsung Electronics having the highest at 53.8% followed by Hyundai Motors at 47.1%. <Figure 6> also indicates that 83% of the 200 largest Korean firms listed in the KSE are subject to foreign ownership of 5% or more. Faced with foreign investors' skewed preference for large-sized firms in the domestic stock market, small- and medium-sized enterprises (SMEs), which already have difficulty in financing indirectly through financial institutions, may find their prospective business projects at risk.

Figure 6. Firm Size Categories of Foreign Ownership

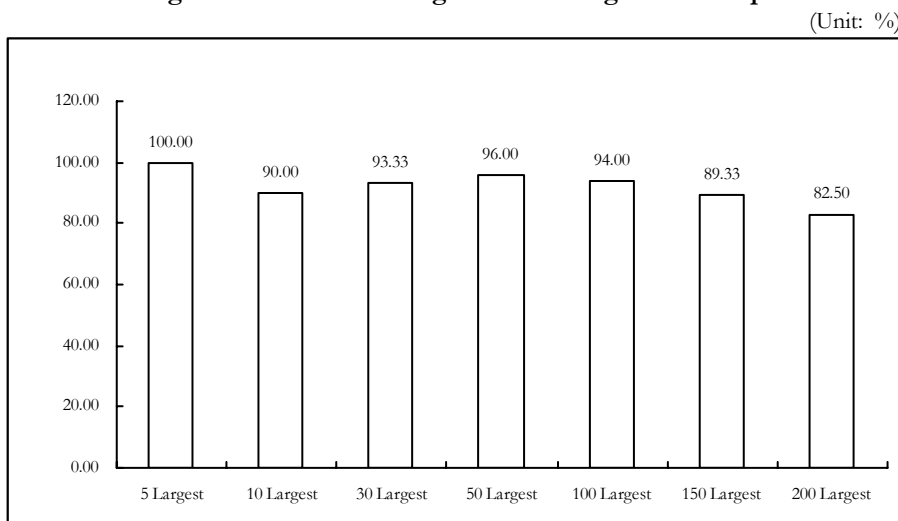


Table 12. Foreign Ownership of Korean Firms in MSCI & FTSE

	MSCI	FTSE
Number of Korean Firms Listed	66	95
Percentage share of these stocks among Foreign-Owned Stocks in the KSE	84%	94%

Source: Suh (2006)

Further evidence of foreign investors' flight-to-quality in Korea is provided in <Table 12>, which presents the number of the Korean firms

listed in the Morgan Stanley Citation Index (MSCI) and Financial Times Stock Exchange (FTSE) along with the percentage the stocks of these firms represent among total foreign-owned stocks listed on the KSE. As of February 2005, 66 Korean firms are listed in MSCI whereas 95 Korean firms are listed in FTSE (as of November 2004). It is well known that both MSCI and FTSE indexes are widely used by international investors as benchmarks for investing outside the U.S. Accordingly, the Korean firms listed in both price indexes are those that are well recognized in the international financial markets and have reputation for high quality. <Table 12> shows that foreign ownership of the Korean firms listed in these two stock price indexes is extremely high. In particular, 84% of foreign-owned stocks in the KSE are concentrated in the Korean firms listed in the MSCI index while the corresponding figure for the FTSE index is 94%.

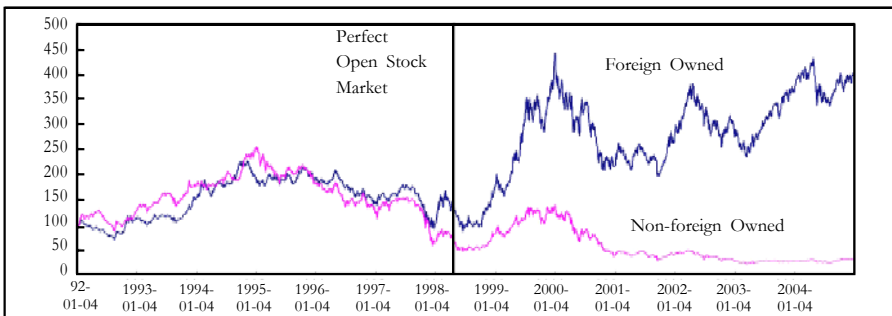
Has this flight-to-quality investment pattern triggered the segmentation of the stock market in Korea? It appears so according to Suh (2006). To demonstrate the segmented stock market in Korea, Suh (2006) constructed the time series data for two stock price indexes; one for foreign-owned firms listed in the KSE and the other for domestic-owned firms listed in the KSE. Using these constructed price indexes, he examined whether the foreign-owned price index outperforms the domestic-owned price index and also compared the performances of these two price indexes before and after the complete market opening in 1998. Panel A of <Figure 7> shows these two time series data constructed by Suh (2006). It is easy to see that the foreign-owned price index maintains higher values than the domestic-owned price index, especially in the period after the stock market opening was completed in 1998. In Panel B of <Figure 7>, the stock price index for large-sized enterprises is plotted along with that of SMEs. Again, we can also observe market segmentation with large-sized enterprises' stock prices outperforming those of SMEs in the period following complete market opening. The stronger performance of stock prices issued by large enterprises is not surprising with respect to the findings that the foreign-owned securities performed better than domestic-owned securities and that foreigners are inclined to invest more in large enterprises than SMEs.

It is interesting to note that, in addition to market segmentation and,

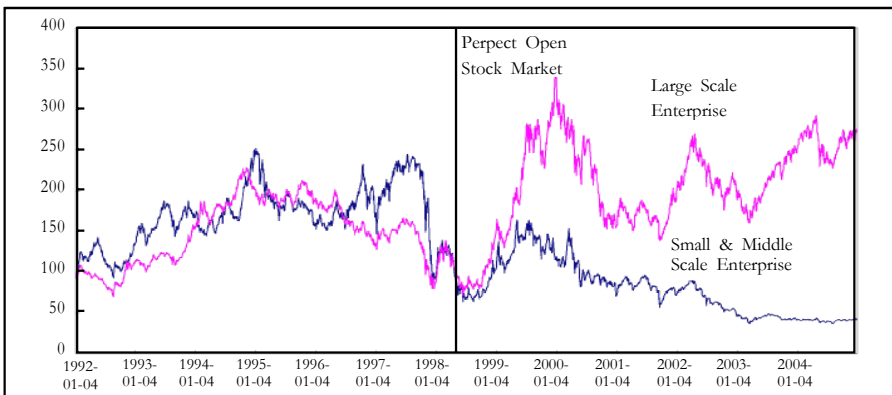
consequently, the possible inefficiency in financial resource allocation, foreign capital is claimed to damage the economic growth potential of the hosting country. In particular, it is argued that foreign investors have a tendency to demand excessively higher dividend payments than normally expected so that domestic firms with higher foreign ownership tend to have less retained profits available for re-investment than firms with lower foreign ownership. Moreover, firms with higher foreign ownership are more frequently exposed to foreign threat, for example, by hostile take-over, than those with lower foreign ownership.

Figure 7. Segmentation in the Korean Stock Market

Panel A: Foreign-Owned vs. Domestic-Owned



Panel B: Large Enterprises vs. SMEs



Note: Reproduced from Suh (2006).

ownership and, therefore, tend to spend most of their financial resources, which would have been used for more productive investment otherwise, defending against foreign threat.

Although these claims are not entirely implausible, we are not convinced of their validity. The finding that the firms with higher foreign ownership tend to be associated with higher dividend payments may be due to foreigners' demanding higher dividends than domestic investors. However, the correlation between these two variables may also arise if foreign investors prefer to invest in securities already paying higher dividends. It follows that the relationship between the two variables requires clarification regarding endogeneity before any conclusion is reached. Similarly, that firms with higher foreign ownership are found to have less investment is also given as evidence that foreign capital is detrimental to economic growth. However, counter arguments have been made by many, including Yang (2005), who finds that the causality runs from investment to foreign ownership, not in the opposite direction.

Macroeconomic Burdens

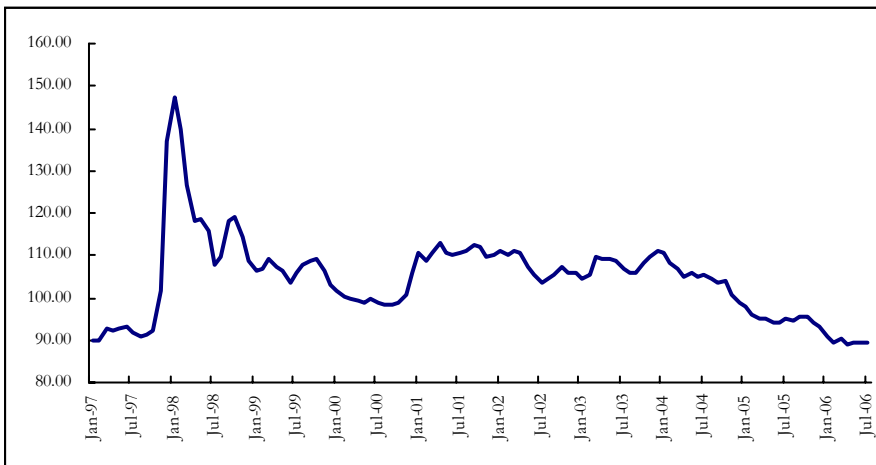
When a country is in a state where capital inflow is predominantly larger than capital outflow, its macroeconomic conditions may be destabilized and the policy burden on the government may rise sharply. This is exactly what has happened in Korea during the post-crisis period. Korea has experienced a growing balance of payment surplus since 1999. Although the surplus was temporarily reduced in 2001, it has continued to grow since then and reached US\$19.8 billion in 2005, almost three times larger than the surplus recorded in 2001. The growing balance of payment surplus has been mainly driven by strong export performance and rising capital inflow. Large trade surpluses supported by rising exports were more than enough to offset deficit experienced by the services trade and other current account transactions. Also, large capital inflow derived from foreign portfolio investment helped the capital account balance maintain a surplus for the past four years.

The balance of payment surplus, and thus the excess supply of foreign currencies in the Korean FX market, has developed into a structural problem associated with the institutional arrangements. In particular, since foreign

exchange liberalization, described in the previous section, was primarily designed to encourage inflow of foreign capital while restricting outflow of domestic capital, the FX market in Korea lacked a mechanism that automatically helps maintain a balance between demand and supply of foreign currencies. The excess supply problem of foreign currencies, in turn, raised the macroeconomic burdens of the Korean government due to the resulting currency appreciation. The Korean won has appreciated strongly in the past several years, and its appreciation is highlighted by the observation made recently: when the won/dollar exchange rate fell below 970, it hit the lowest level since November 1997. As a result of the rising currency value of the Korean won, its real effective exchange rate, a proxy measuring the price competitiveness of Korean exports in the overseas market, continued to decline, raising concerns over reduced economic growth (see <Figure 8>).

The appreciation of the Korean won is not likely to stop soon despite a number of developments that may lower the pressures for currency appreciation, such as the tightening monetary policy by the Fed and rising international oil prices. The persistent U.S. current account deficit, which shows little sign of improvement, is one factor that makes this prediction

Figure 8. Real Effective Exchange Rates of the Korean Won



Note: Currency appreciation (depreciation) is defined by falling (rising) values.

highly plausible. According to the *World Economic Outlook* released by the IMF, the U.S. current account deficit rose from 5.7% of GDP in 2004 to 6.1% of GDP in 2005, and it is expected to remain high in 2006. Surprisingly, the U.S. current account deficit worsened in the presence of the weak U.S. dollar since 2002 (based on the real effective exchange rate). Furthermore, the Chinese government may attempt to revalue its currency once again given the widespread belief in the market that the first round revaluation in July 2005 was not sufficient. The Korean stock market rally, if it continues, would also push the value of the Korean currency further upward since it will attract more foreign investment.

If the Korean government reacts to the appreciation of the Korean won with aggressive foreign exchange intervention, it may harm the stability of macroeconomic conditions in Korea. In particular, a purchase of the U.S. dollar by the government to suppress currency appreciation could be accompanied by an increase in money supply and rising inflationary pressures. Moreover, aggressive buying of the U.S. dollar may make managing foreign exchange reserves a very costly business for the government. In Korea, foreign exchange intervention is financed by issuing Foreign Exchange Stabilization Bonds (FESB) and/or Monetary Stabilization Bonds (MSB), both of which pay higher interest rates than U.S. Treasury bonds where the vast majority of Korea's foreign exchange reserves are invested.

In 2005, the Korean government implemented the overseas investment promotion plan as part of its efforts to alleviate the excess supply of foreign currency in the domestic FX market. Furthermore, the sunset clauses taking effect in December 2005 may also mitigate the excessively abundant foreign currency available in the Korean FX market. The majority of capital account transactions restricted under the sunset clauses are related to capital outflow. The sunset clauses taking effect, therefore, imply the establishment of a new institutional arrangement where domestic capital is freer to move abroad than ever before. This new institutional arrangement would be strengthened with the execution of the overseas investment promotion plan since the plan includes liberalization of many regulations that restrict investment abroad by domestic residents under the Foreign Exchange Act.

In the past, the Foreign Exchange Act was used by the Korean

government to control foreign exchange transactions, including both current and capital account transactions. Now that most of the remaining restrictions were lifted with the implementation of the two additional liberalization measures in 2005, the Korean government is left with few policy instruments to control foreign exchange transactions. It suggests that the Korean economy has become more vulnerable to shocks causing sudden and massive capital outflow. In fact, concern has arisen recently in Korea that rapid increases in overseas investment by individuals and their fund remittances abroad are signs of capital flight. In 2004, 8.2% of direct investment abroad was performed by individuals, up by 6.7%p from 1995. In addition, the total amount of funds remitted abroad by individuals increased 1.2%p of GDP during the same period.

The likelihood of massive capital flight can be reduced with the introduction of appropriate safety measures. International experiences, however, suggest that capital control to depress sudden and massive capital outflow has not always been successful. In 1992, Spain imposed capital controls on commercial banks' purchase and sales of domestic currency to lessen the speculative pressures triggered by the Exchange Rate Mechanism (ERM) crisis. In 1998, Malaysia introduced capital controls banning a number of capital transactions including residents' lending of Ringgit to non-residents and non-residents' remittance of capital gains made in the domestic securities markets. In 1997, Thailand adopted the dual exchange rate system, banned offshore lending of Baht by domestic financial institutions to non-residents, and disallowed the remittance of capital gains from securities trading. According to Ariyoshi, *et al.* (2000), Malaysia succeeded in fending off speculative pressures in the domestic FX market. The other two countries, however, failed due to transactions trying to avoid capital controls. The experiences of these countries suggest that any safety measures and/or capital controls would not be effective unless they are comprehensive enough to circumvent every possible transaction.

Foreign Speculation

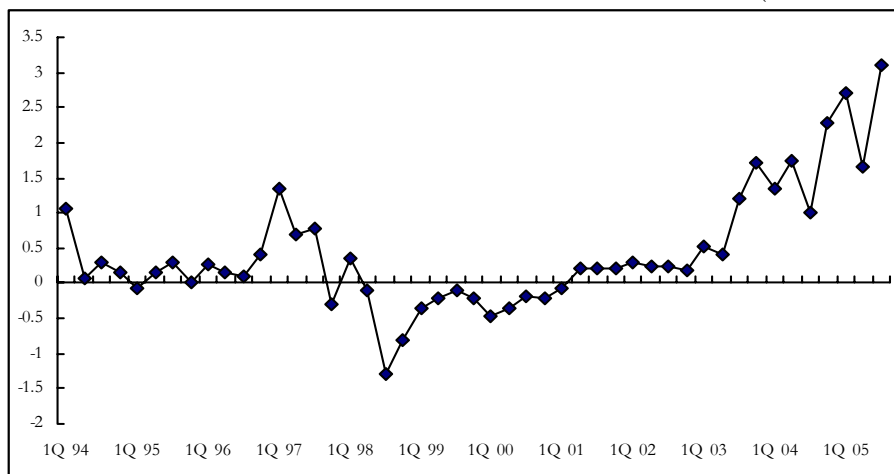
Finally, in the rest of this section, we deal with risk associated with

foreign speculation. Although speculative trading has subdued in Asia in recent years, as evidenced by the Korean securities markets where hedge funds' investment is minimal, increased capital mobility implies that foreign speculation can occur at any time when there is an arbitrage opportunity. Moreover, there are signs that indicate greater participation of speculative capital in the Asian financial markets in the future. First, the growth of hedge funds has been quite significant. According to Van Hedge Fund Advisers, the hedge fund industry has been growing at an average rate of 17% over the last decade. Both the size of assets managed and the funds under operation have increased steadily as well. Second, hedge funds are beginning to pay increasing attention to the Asia-Pacific region for investment. From a distributional perspective, recent investment made by hedge funds is mainly concentrated in the emerging markets (see <Figure 9>). Of those, the Asia-Pacific region has emerged as one of the most attractive investment areas for hedge funds encouraged by the recent high rate of return of 20%. In fact, the recent survey performed by ICBI (International Center for Business Information) shows that 60% of hedge fund respondents viewed the Asia-Pacific region as the most lucrative place to invest.

Speculative capital can play an important role in the development of financial markets, for example, by enhancing market liquidity, offering investors more diversified investment options, and removing market inefficiency through exploitation of arbitrage opportunities. Despite these positive influences, speculative capital has been mostly, if not always, of great concern to both academicians and policymakers. It is perhaps because the negative repercussions of speculative trading historically have been far greater than the positive contributions of speculative capital. Although the distinction is blurred, there are basically two types of risks arising from speculative capital. The first type of risk would be the risk to financial market stability. As evidenced by various financial crises in Europe and Asia in the 1990s, the risk to financial market stability caused by speculative trading may produce significantly disruptive consequences and pose a serious threat to the financial system.

Figure 9. Hedge Funds' Investment in Emerging Markets

(Unit: US\$ bil.)



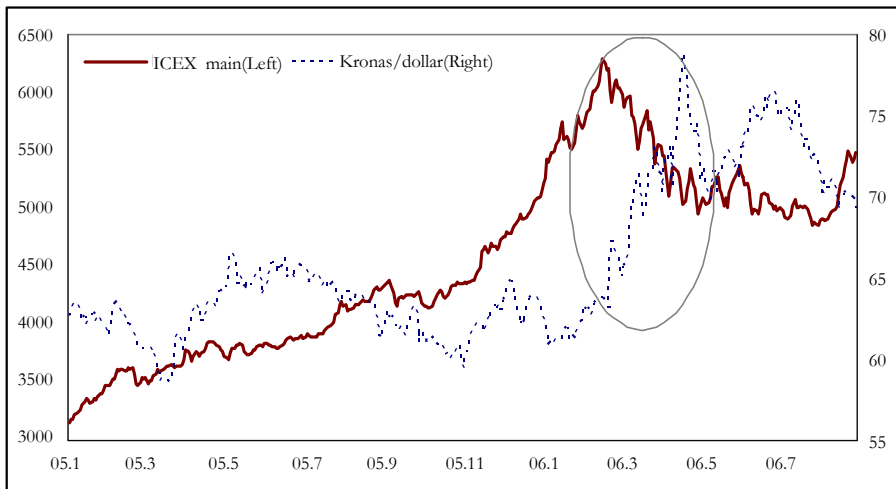
Source: KCIF

The latest example of speculation-driven financial market instability can be found in Iceland. A series of interest rate increases conducted by the central bank of Iceland since mid 2004 (amounting to 13 times by 620 bps) prompted foreign investors to aggressively engage in carry trades, taking advantage of profit opportunities created by interest rate hikes. Such carry trades came to an end with the tightening stances of the European Central Bank and the Bank of Japan in March 2006. The resulting massive unwinding of carry positions in Iceland caused the Iceland Krona to depreciate by more than 10% and equity prices to plunge by almost 10% in just one month.

Financial market instability may also stem from the failures of speculative capital, owing especially to its tendency to be involved in highly leveraged investment. That is, given its highly leveraged nature, the insolvency of a single speculative capital player may lead to a series of failures of other investors lending to speculative capital. The near collapse of Long Term Capital Management (LTCM) in 1998 shows how seriously a failure of speculative capital could impair financial market stability. At the time of near default, the leverage ratio of LTCM was estimated more than 25-to-1.

Moreover, during the single month of August 1998, LTCM suffered a loss of US\$1.8 billion and its capital base shrank to less than 50% of the year start (US\$2.3 billion). Eventually, the LTCM crisis required a huge amount of capital injection formed by a consortium of 14 firms involved to prevent it from developing into systemic risk.

Figure 10. Iceland Financial Markets Before and After Carry Trade



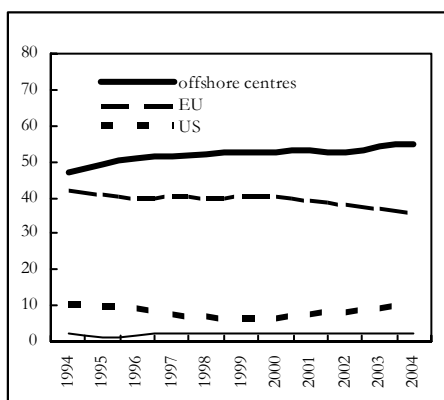
Source: Bloomberg

The second type of risk associated with speculative capital is suggested by Shrimpton and Jones (2005), and it involves a possible deterioration of market quality. A reduction of market quality is likely due to the characteristics of speculative capital, which displays high turnover ratios and low transparency. High turnover ratios demonstrated by speculative capital would naturally lead to increased price volatility. Insufficient information about speculative capital, partly due to its complex investment strategies and reluctance to reveal information to the public, implies a lack of market transparency. The resulting erosion of market confidence would then discourage other investors' participation in the market, thus hindering market development. The tendency for speculative capital to invest collectively would further deteriorate the

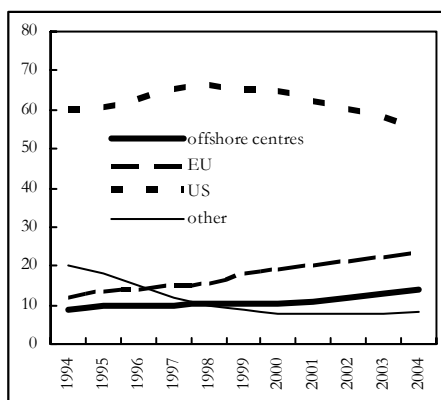
quality of the market. It is reported that speculative capital shares similar investment strategies and similar risk management. Accordingly, speculative capital poses a risk of entering and exiting a market collectively, and such a collective investment pattern exhibited by speculative capital can be detrimental to market liquidity.

Figure 11. The Number of Hedge Funds Globally

(a) by domicile



(b) by the location of managers



Source: TASS Database

Also, the fact that financial supervision of speculative capital, such as hedge funds, is inherently difficult can have adverse implications for market quality. Most of the hedge funds are domiciled in offshore tax havens that have minimum regulations and disclosure requirements. Therefore, their investment schemes are obscure and very little information is released. According to the TASS database, more than 50% of total hedge funds are domiciled in offshore centers, such as the Cayman Islands, British Virgin Islands, Bermuda, and the Bahamas. This number goes up even more when the hedge funds are classified according to the domicile of capital under management. Typically, managers of hedge funds reside in major financial centers such as the U.S. <Figure 11>, which shows the global distribution of hedge fund managers, indicates that more than 50% are located in the U.S. although this proportion has been decreasing in the last decade.

IV. Policy Options to Cope With Foreign Investment

International Cooperation

International cooperation among regulatory bodies of different countries is important since adverse capital movements can easily create a spillover to other markets. Given the fact that the Asian region has become more integrated, this implies a higher risk of disruption in one country affecting the neighboring countries. Since movements of speculative capital are volatile and hard to predict due to lack of information and regulatory tools, information sharing among the countries within the region is essential for monitoring to be effective. It is important that the regional financial supervisory authorities pool their information about specific capital movements of interest and discuss policy options whenever there is a need.

This highlights the necessity of conducting a comprehensive survey of hedge fund developments in the Asian region. This could be conducted through the ADB or by a multi-national working group set up by the regulatory authorities of Korea, China, and Japan for example. Although the activities of hedge funds are relatively small compared to the U.S. or Europe, there is still a need for surveying hedge fund activities within the Asian region. Recent efforts by the European Central Bank and the Financial Securities Agency of the U.K. shed light on this issue. Both institutions have conducted a detailed survey of hedge fund development in the region and have initiated working groups within the organizations to investigate this issue. Since hedge funds by nature are secretive in their trading activities it is essential that the regulatory authorities must gather as much information as possible about their trading strategies and investment patterns. Therefore, a detailed survey about hedge funds including information such as fee structures, investment horizons, and prime brokerage firms should be conducted and reviewed on a regular basis.

This can be performed as a result of extending an individual country's survey. It is important to note that recently the Financial Services Agency of Japan has conducted a detailed survey of hedge funds activities in Japan that was based on a survey of 1251 financial institutions regulated by the FSA. According to this survey, in the five-year period from April 2000 to March

2005, 57 companies established 735 hedge funds, which amounts to 2.5 trillion yen.

Another area that is in need of further cooperation is the development of regional financial markets. As we all know the creation of a regional bond market through the Asian Bond Fund and the Asian Bond Market Initiative has shown some progress in the past few years. Further development of this is important since improvement of liquidity in the financial market will make individual markets less prone to adverse capital movements. Short-term liquidity arrangements, such as the Chiang Mai Initiative, also serve as a tool for international financial cooperation. Given that this has shown less progress than the regional bond market issue since its initial launch in 2000, there is still much room to broaden the scope of the initiative to cover the amount of bilateral swap agreements and participating countries, thus multi-lateralizing the swap agreements.

Building an Effective Monitoring System

The three key components of building an effective monitoring system are identification, execution, and regulation. Identification points to the fact that an effective monitoring system requires identification of speculative trading from other forms of trading. Although this is not an easy task it is important that speculative capital movements should be properly identified. For instance, identification of the path and channels of speculative trading activities, including the trading counterparts, financial instruments involved, and investment strategies used, is essential. This also implies that regulatory authorities should utilize the expertise of the financial experts and specialists that have much experience in the market whenever identification of speculative activities is needed.

The next key component is the proper execution of the monitoring system. Executing a proper monitoring scheme is important since it is essential that market participants acknowledge that the financial authorities are monitoring speculative trading activities. Therefore, it is necessary for the financial authorities to set up a dialogue with market participants and give a clear signal that unusual and suspicious trading activities are being closely

watched and monitored. This will act as a watch dog that prevents further developments of speculative trading that can cause disruption to the market.

Regulations that minimize speculative activities are also an essential ingredient of an effective monitoring system. Although direct regulation of hedge funds is almost impossible and in some cases undesirable for market liquidity, it should be noted that hedge fund activities can be indirectly

Table 13. Regulation of Hedge Funds for Selected Countries

	Regulator	Minimum capital requirement
ES	CNMV (Comission Nacional del Mercado de Valores)	€ 300,000 and own funds requirement, which varies depending on assets under management
FI	Finnish FSA (Financial Supervision Authority)	€ 169,000
FR	AMF (Autorities des Marches Financiers)	25 of operating expenses with a minimum of € 50,000
IE	IFSRA (Irish Financial Services Commission)	Usually € 50,000 initial capital+3months of annualised expenditure
IT	Bank of Italy; CONSOB (Commissione Nazionale per le Societa e la Borsa)	€ 1,000,000
LU	CSSF (Commission de Surveillance du Secteur Finandier)	€ 125,000 (type 2 managers), € 1,500,000 (type 3 managers)
NL	Netherlands AFM (Authority for the Financial Markets)	€ 226,890
PT	CMVM (Portuguese Securities Market Commission)	€ 250,000
SE	Swedish FSA (The Swedish Financial Supervisory Authority)	€ SEK 1,000,000
UK	UK's FSA (Financial Services Authority)	Usually € 50,000 own funds+liquid capital of 3 months' annualised expenditure

Source: Pricewaterhouse Coopers (2005)

monitored and regulated through the counterparties of the hedge funds where regulation can have direct impact.

The work of the Basel Committee on Banking Supervision in 1999 sheds light on this issue. The Committee issued a list of sound practices for banks' interactions with "highly leveraged institutions." These practices were designed to address some of the major risk management failures that emerged from the LTCM episode. They point to the importance of reviewing risk exposure and risk management systems of financial institutions on a regular basis, strengthening the supervision of abnormal derivatives trades, such as trades with excessive option premiums.

Direct regulation of hedge funds is mainly focused on minimum capital requirements for the fund or the fund manager. Although the U.S. does not impose any direct regulations on funds, many European authorities impose such requirements. <Table 13> displays selected countries that impose requirements on hedge funds. Although it varies from country to country, most of the regulations have a minimum capital requirement with some countries imposing an additional requirement of, say, three months' operating expenses or annualized expenditure.

Developing Trade-Specific Monitoring Schemes

We point to the importance of developing trade-specific monitoring schemes by illustrating a simple example. Due to capital account liberalization in recent years in Korea, it has been argued that foreign investors can engage in speculative trading in the Korean stock market without initiating a foreign exchange transaction. For example, after foreigners borrow the Korean won to purchase stocks in huge amounts, they can engage in massive non-deliverable forward transactions that will have a large impact on the foreign exchange market. Early warning signals of these speculations would be a surge of won-denominated loans by foreigners followed by massive inflows into the stock market and a sudden drop of the won/dollar NDF exchange rate.

To properly monitor these speculative trades we need to construct a time series data of portfolio investment funds by foreigners' registered IDs. We also need to identify the motivations of trade using the transaction data. This

points to the importance of inter-market monitoring as well since speculative trading usually is a mixture of a series of transactions that involve different financial markets.

Enhancing Resilience to Speculative Trading

Although the risks of speculative trading cannot be totally eliminated, there are ways to reduce the risks of speculative trading. First, it is important that the market be less prone to arbitrage opportunities. Typically arbitrage opportunities occur in countries where financial markets are under-developed and less efficient than other markets. This creates an investment opportunity for speculative capital that have proper pricing skills and can take advantage of the arbitrage opportunities earlier than others. Therefore, enhancing the efficiency of the market and eliminating arbitrage opportunities can help reduce the risks of speculative trading.

Secondly, sufficient liquidity of the market is important. If the market has enough liquidity, volatile movements of speculative capital have less room to disrupt the market and will have minimal impact. This implies that there should be enough market participants to provide liquidity and a sufficient number of market makers and brokerages that can provide pricing of financial instruments whenever there is a request.

Lastly, any existing macroeconomic imbalance should be removed. As we have seen in several cases of crisis, macroeconomic imbalances, such as chronic current account and fiscal deficits or increased burden of foreign liabilities, can deteriorate market confidence and lead to massive outflows of capital.

V. Conclusion

Drawing upon Korean experiences, this paper discussed the developments of increased capital mobility and demonstrated that increased capital mobility has led to an increase of foreign ownership in the stock market and of foreign participants in the financial market. Comparison of foreign stock ownership

among the neighboring Asian countries showed that the degree of foreign presence in the Korean economy is paramount. We also emphasized that this change of environment has given rise to potential risks associated with the increase of foreign investment.

We first brought forth the issue of increased vulnerability of the economy to foreign shocks. We presented empirical evidence of higher correlation coefficients between foreign and domestic variables after the post-crisis period and confirmed that foreign variables are influential based on causality tests. This was also demonstrated by the indirect evidence exemplified by the Korean won-Japanese yen synchronization analysis. We also discussed the market segmentation of foreign investment, which is characterized by foreign ownership concentrated in large-scale Korean firms. We then indicated the burdens to the macroeconomic environment by showing that the surge of capital inflows into the Korean economy has pressured the Korean won to appreciate. In addition to this, the increasing risks of foreign speculation have been highlighted by illustrating the trend of rapid growth of speculative capital, such as hedge funds.

We then proposed policy options to cope with foreign investment. This implied the need to strengthen monitoring of speculative capital movements since increased capital mobility combined with less regulatory tools increase the potential risks of market disruption. We stressed the need for stronger international cooperation among regulatory bodies and proposed that a comprehensive survey of hedge funds in the Asian region is necessary. We pointed to the building blocks of an effective monitoring system: proper identification, execution, and regulation. We emphasized that constructing trade-specific monitoring schemes is important and underlined the importance of creating an environment that enhances resilience to speculative trading.

Overall, this paper stresses the importance of monitoring speculative capital movements and building a sound economic environment under increased capital mobility and fewer regulatory tools. This does not imply that an increase in capital mobility itself should be conceived as a negative change. Increased capital mobility, summarized by larger inflows of foreign capital, higher presence of foreign ownership, and greater influence of foreign investors, has created many business opportunities and enhanced market

efficiency, such as improved corporate governance, in the Korean economy. Therefore, the increase of foreign investment also provides us the opportunity to improve our economic inefficiency and enhance our potential responsiveness to external shocks.

Although each country will have unique experiences, we expect these implications can be used as a reference to other Asian countries as well. Since Asian countries share similar characteristics, studying the individual experiences of each country can benefit the region as a whole. We leave for future research investigating the cases of other countries in Asia.

References

- Ariyoshi, A., K. Habermeier, B. Laurens, I. Otter-Robe, J. Canales- Kriljenko and A. Kirilenko, "Capital Controls: Country Experiences with Their Use and Liberalization," IMF Occasional Paper No. 190, 2000.
- Chung and Jang, "Analysis of Changes in the Relationship between the KRW/US Exchange Rate and the JPY/USD Exchange Rate Before and After the Crisis", *Journal of International Economic Studies*, Vol.4 No.1, 2000.
- Garbaravicius, T. and F. Dierick, "Hedge Funds and Their Implications for Financial Stability", ECB Occasional Paper Series, No 34, August 2005.
- Kim, J., "A Study on the Determinants of the Won-Dollar Exchange Rate Volatility," *The Economic Analysis*, Vol. 7, No. 1, The Bank of Korea, 2001, pp. 92-120 (in Korean).
- Lee, Y. and Ko J, "The Linkage of the Won-Dollar Exchange Rate to the Yen-Dollar Exchange Rate," *Journal of Korean Economic Analysis*, Vol. 9, No. 2, August 2003.
- Lee, K. S. and J. W. Ryou, "Analysis of Interrelationship between Domestic and Foreign Financial Markets After the 1997 Currency Crisis," *The Korean Journal of Money and Finance*, Vol. 11, 2006, pp. 159-183 (in Korean).
- Obstfeld, M. and K. Rogoff, "The Unsustainable U.S. Current Account Position Revisited," NBER Working Paper No. 10869, 2004.
- Park, H., "Recent Developments in Korea's Financial Markets: Foreign Exchange Liberalization and the New Real Estate Policy," *Korea's Economy*, Vol. 22, Korea Economic Institute of America, 2006a, pp. 17-23.
- Park, H. and C. Y. Song, "Understanding the Currency Co-Movement between Korea and Japan from the FX Market Microstructure Approach," Paper presented at the Annual Meeting of the Korean Money and Finance Association, 2006a (in Korean).
- Park, H. and C. Y. Song, "Recent Developments in Korea's Foreign Exchange Liberalization; Impacts and Policy Implications," *Kyongjehak Yonku*, Vol. 54, 2006b, pp. 41-77 (in Korean).

- Shrimpton, A. and R. Jones, "Hedge Funds: A Discussion of Risk and Regulatory Engagement," U.K. Financial Services Authority Discussion Paper No. 05/4, 2005.
- Suh, S., "The Influence of Foreigners' Stock Investment on Korean Stock Prices and Its Implications," *The Economic Analysis*, Vol. 12, The Bank of Korea, 2006, pp. 106-150 (in Korean).
- Yang, D. Y., "Foreign Capital and Its Ownership of the Korean Firms: Evaluation of Major Issues," World Economy Update No. 05-17, Korea Institute for International Economic Policy, 2005 (in Korean).

Executive Summary

This paper discusses the developments of increased capital mobility in the case of Korea and shows that increased capital mobility has led to an increase of foreign ownership in the stock market and an increase of foreign participants in the financial market. Comparison of foreign stock ownership among the neighboring Asian countries shows that the degree of foreign presence in the Korean economy is paramount. We also emphasize that this change of environment has given rise to potential risks associated with the increase of foreign investment.

We first bring forth the issue of increased vulnerability of the economy to foreign shocks. We present empirical evidence of higher correlation coefficients between foreign and domestic variables after the post-crisis period and confirm that foreign variables are influential based on causality tests. This is also demonstrated by the indirect evidence exemplified by a Korean won-Japanese yen synchronization analysis. We also discuss the market segmentation of foreign investment, which is characterized by foreign ownership concentrated in large-scale Korean firms. We then indicate the burdens to macroeconomic environment by showing that the surge of capital inflows into the Korean economy has pressured the Korean won to appreciate. In addition, the increasing risks of foreign speculation are highlighted by illustrating the trend of rapid growth of speculative capital, such as hedge funds.

We then propose policy options to cope with foreign investment. This implies the need to strengthen monitoring of foreign capital movements since increased capital mobility combined with fewer regulatory tools increase the potential risks of market disruption. We stress the need for stronger international cooperation among regulatory bodies and propose that a comprehensive survey of hedge funds in the Asian region is necessary. We point to the building blocks of an effective monitoring system: proper identification, execution, and regulation. We emphasize that constructing trade-specific monitoring schemes is important and underline the importance of creating an environment that enhances resilience to speculative trading.

Overall, this paper stresses the importance of monitoring foreign capital movements and building a sound economic environment under increased capital mobility and fewer regulatory tools. This does not imply that an increase in capital mobility itself should be conceived as a negative change. Increased capital mobility, summarized by larger inflows of foreign capital, higher presence of foreign ownership, and greater influence of foreign investors, has created many business

opportunities and has enhanced market efficiency, such as improved corporate governance, in the Korean economy. Therefore, the increase of foreign investment also provides us the opportunity to improve our economic inefficiency and enhance our potential responsiveness to external shocks.

The implications of Korea's experience in financial market and exchange market liberalization and the effects of increased foreign influence can be used as a reference to other Asian countries that are still in the process of opening their markets.