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Title	The impact of the US subprime mortgage crisis on the world and East Asia : through analyses of cross-border capital movements
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Abstract	サブプライム危機が世界およびアジアに与えた影響について分析する。クロスボーダーの株式，債券，銀行セクターの取引の詳細なデータ，国際収支，銀行の対外資産・負債のデータなどをもとに，震源地である米国およびその他の諸国との関係，危機発生後から現在におけるの影響を分析し，為替レート，経済成長率，国際貿易への影響にも言及している。最後に，この世界経済危機が東アジアに示した課題を指摘している。
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The Impact of the US Subprime Mortgage Crisis on the World and East Asia

-Through Analyses of Cross-Border Capital Movements-

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Abstract

The world economy currently suffers from a global financial and economic crisis that has become severe since the second half of 2008. This global financial situation was triggered by the advent of the subprime mortgage crisis in the United States that became apparent from the mid-2007s. Europe was the next affected, thereafter its contagion spread to the rest of the world. East Asia did not escape. The nature of the current global financial crisis is unprecedented in terms of (1) the scale of the problems in the financial sector (particularly in the United States and Europe), (2) the depth and speed of contagion worldwide (through financial sector and trade linkages), and (3) the severity of the recession (particularly in emerging market economics, small countries, and East Asia). This paper analyzes, mainly, cross-border capital movements by looking at the pre-crisis features of the United States as the crisis hypocenter and its relationships with other countries. Detailed observations are conducted with respect to cross-border investment in stocks and debt securities, as well as banking activities. The paper then sheds light on the impact of the subprime mortgage crisis on cross-border capital movements in the United States, the United Kingdom, and East Asia. Other performance indicators such as exchange rates, economic growth and international trade are also discussed in the case of East Asia. The paper examines several challenges the recent crisis poses for East Asia.

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I. INTRODUCTION

The world economy currently suffers from a global financial and economic crisis that has become severe since the second half of 2008. This global financial situation was triggered by the advent of the subprime mortgage crisis in the United States that became apparent from the mid-2007s. Europe was the next affected, thereafter its contagion spread to the rest of the world. East Asia did not escape. The nature of the current global financial crisis is unprecedented in terms of the scale of the problems in the financial sector (particularly in the United States and Europe), the depth and speed of the worldwide contagion (through financial sector linkages as well as trade linkages), and the severity of the recession (particularly in emerging market economics, small countries, and East Asia).

The subprime mortgage crisis in the United States is far more complicated than any series of crises in the past (e.g., the Great Depression of 1929-1930s, the Savings and Loan [S&L] crisis in the United States in the 1980s-90s, the Long Term Capital Management [LTCM] crisis in the United States in 1998, and the IT bubble bust of 2000-01) for several reasons.

First, many securitized assets and derivatives had been transacted in the over-the-counter market; thus there was a paucity of information, and hence counterparty, credit, liquidity risks were more severe than the cases of exchange-traded products. This absence of precise information about the reality of the financial conditions of many financial institutions in the midst of the crisis enhanced the anxiety felt by financial institutions and investors. This has lead to the curtailing of investments and financial flows, adversely affecting the financial and real sectors to an even greater extent.

Second, capital adequacy requirements were applicable only to deposit-taking banks (commercial banks), not to other financial institutions (such as investment banks, financial companies, and hedge funds). While other financial institutions would not be protected under the deposit insurance system in the event of a financial crisis, they enjoyed exemptions from the stringent monitoring and capital adequacy requirement imposed by regulatory authorities. This enabled them to expand businesses related to subprime mortgage origination, securitization, and derivatives. They got, mostly, short-term funds from the market and invested in longer-term illiquid financial assets, such as ABSs (asset-backed securities) and CDOs (collateralized debt obligations).

Third, commercial banks attempted to circumvent regulatory monitoring and the capital adequacy requirements by establishing SIVs (structured investment vehicles) as off-balance units. The SIVs issued short-term commercial paper to invest in longer-term and lower-quality ABSs and CDOs. The commercial paper is called ABCPs (asset-backed commercial papers). Its collateral assets largely consisted of mortgages originating from commercial banks and mortgage finance companies. Commercial banks offered back-up lines of credit and guarantees to their SIVs (which functioned as a credit enhancement for SIVs) in exchange for a share of profits generated by them. Commercial banks and mortgage finance companies arranged mortgages without carefully considering the affordability to borrowers or the credit rating of the borrowers. They could do this because they could transfer these mortgages from their balance sheets by packaging and securitizing them and then distributing the product to final investors. Commercial banks also used mortgage brokers by outsourcing some of their mortgage businesses (such as negotiations with borrowers) and paying fees. These off-balance sheet activities, or an "originate-to-distribute" business model, expanded in the 2000s, particularly in regard to subprime mortgages. However, the regulatory arbitrage and resultant potential risks borne by commercial banks (such as the difficulty to roll-over commercial papers by SIVs as a result of declining values of the collateral assets) were underestimated by commercial banks and by regulatory authorities.[1]

Fourth, credit rating agencies failed to capture the risks involved in MBSs (mortgage-backed securities) and CDOs. Since their risk rating practices have been based largely on historical data, a forward-looking analysis of risks related to newly-innovated financial assets was a difficult task. Without any real deep understanding of the correlations between various collateralized assets and associated default probabilities, these securitized assets were rated highly. The rating agencies' sudden decisions to downgrade the ratings of these products occurred in the midst of market turmoil, further raising investors' anxiety and promoting a fire sales of these products. Since the Basel II capital adequacy requirement has allowed regulatory authorities to utilize credit ratings in the case that banks have no internal risk models, banks used these ratings without seriously considering the appropriateness of the rating methods. Credit rating agencies also benefitted from their substantial charges related to advisory services over the development of structured credit assets. Thus there were severe internal conflicts of interest that emerged between the advisory businesses and the rating

[1] According to OECD (2007), as of June 2007, US ABSs outstanding amounted to about $4.2 trillion. About 56% of these ABSs were comprised of residential MBSs. Some of these ABSs were sold directly to investors, while others were sold to conduits established by the parent commercial banks or other financial institutions for further re-packaging of ABSs. Such conduits are SIVs and CDOs. About half of the estimated $1.3 billion CDOs were purchased by hedge funds, about a quarter by banks, and the rest by insurance firms and asset managers. Commercial banks invested heavily in mezzanine (BB to BBB) and equity tranches. About three quarters of CDOs were purchased in the United States, with less than 20% in Europe.

services within the rating agencies.

While the current crisis has been compared with the Great Depression of the 1930s, real sector damage remains relatively mild to date as compared with that resulting in the 1930s. For example, as at February 2009 the unemployment rate in the United States was 8.1%, whereas the unemployment level reached 25% in 1933. Rather, the current crisis has brought on severe problems with respect to the capital and financial markets. Banks and other financial institutions have faced large losses that have impaired their own capital. The rapid loss in their creditworthiness caused a sharp decline in transactions in the interbank markets and a plunge in their stock prices, which further deteriorated their financial stability. Amid growing financial uncertainty, the money, debt securities, and stock markets shrank rapidly, making it extremely difficult for financial and non-financial firms to obtain funds.

The deepening of financial problems has led many central banks to lower interest rate policies to the historically low levels, supply ample liquidity to the financial institutions (and also directly and indirectly to non-financial firms in some countries by purchasing commercial papers and bonds),[2] as well as to provide them with US dollars (through a reduction in foreign reserves and an establishment of swap arrangements with the US Federal Reserve Board [FRB]).[3] Some governments have also made purchases of MBSs and other NPLs (non-performing loans) from major banks to help them maintain liquidity in their lending activities. Moreover, many governments have been forced to recapitalize or nationalize major financial institutions, as well as instituting expansionary fiscal policies (tax cuts and increased expenditure) to stimulate aggregate demand. The total amount of capital injected by governments (including the scheduled amount) recorded nearly $1 trillion. Of this amount, $765 billion was injected into over 300 financial institutions in the United States.

The current crisis appears unique in the sense that the US dollar, the currency at the hypocenter of the current global crisis, has strengthened against almost all foreign currencies, except the Japanese yen and the Chinese yuan (see Section III). This differs from past experiences when the currencies of the crisis-originating countries tended to reduce their values against other currencies. This unique situation reflected the increased demand for the US dollar in the de-leveraging process—mainly through a withdrawal by US investors from global stock investment and a decline in

[2]The Bank of Japan began to purchase commercial paper (up to ¥3 trillion) and corporate bonds (up to ¥1 trillion) in 2009 from banks. Meanwhile, the United Kingdom formed a fund of £50 billion to purchase corporate bonds and treasury securities in 2009.

[3] For example, major swap arrangements with the FRB were made by the European Central Bank, Bank of Japan, Swiss National Bank, Bank of England, Reserve Bank of Australia, Reserve Bank of New Zealand, Bank of Canada, Sweden's Riksbank, Norway's Norges Bank, and Bank of Korea.

dollar-denominated funds for banks in Europe (and other regions). It also reflect that the crisis' contagion reduced the prices of almost all financial assets worldwide, so that investors could have regarded some US financial assets (such as US treasury securities) as safer than other foreign assets.

This paper consists of 4 sections. Section II analyzes cross-border capital flows by looking at the pre-crisis features of the United States as the hypocenter of the global crisis. Detailed observations are conducted with respect to cross-border stocks and debt securities investments, as well as banking activities prior to the crisis. Section III sheds light on the impact of the subprime mortgage crisis on cross-border capital movements in the United States, the United Kingdom, and East Asia. Other performance indicators such as exchange rates, economic growth and international trade are also discussed in the case of East Asia. Section IV examines several challenges posed to East Asia by the recent crisis.

II. CROSS-BORDER CAPITAL FLOWS BEFORE THE SUBPRIME MORTGAGE CRISIS

2-1. Features of Cross-Border Stock Investment Flows

Before the subprime mortgage crisis arose, the United States was an active investor in world stock markets. US Investors held foreign stocks of about $5 trillion as of end-2007 (Table I), while foreign investors held US stocks of about $3.1 trillion as of end-June 2007 (Table II). This indicates that the United States was a net investor in foreign stocks, despite its position as the largest net external debtor in the world. That means that the United States contributed to the development of global stock markets to a significant degree by expanding the investor base of other countries.

The United States actively invested in European stocks, accounting for half of its total foreign stock investment. The country in which the United States had its largest investment was the United Kingdom (accounting for 18% of the UK stock market capitalization), followed by Japan (12% of Japanese stock market capitalization), France (12% of French stock market capitalization), and Germany (15% of German stock market capitalization). Indeed, US investors were the largest external investor in the United Kingdom (accounting for 43% of the value of total UK stocks held by foreign investors), Germany (32%), and France (34%), based on IMF data. The dominance of the United Kingdom as an investment destination country is not surprising given that London has one of the world's most attractive stock markets. The number of listed firms there exceeds 3,300 (the New York Stock Exchange has just over 2,300). As well, "principle-based" regulation applied in the United Kingdom is regarded as less rigid than the "rule-based regulation" practiced in the United

States.[4]

The amount of East Asian stocks held by US investors was much smaller than that of European stocks. Nevertheless, US investors had a large presence in East Asian stock markets. IMF data shows that US investors were the largest external source of investment in a number of East Asian countries; Hong Kong (accounting for about 36% of the total value of Hong Kong stocks held by foreign investors), Indonesia (38%), Japan (50%), Korea (50%), Malaysia (33%), Singapore (43%), and Thailand (34%).

Table I. Amount of Foreign Stocks Held by US Investors (As of end-2007)

Counrty/Region	Amount (Billions $)	% of Domestic Market Capitalization
UK	638	18
Japan	526	12
France	346	12
Germany	318	15
...		
Korea	125	11
Hong Kong	118	10
China	96	2
...		
Total Common Stocks	4,956	
of which:		% of Total Common Stock
Europe	2,484	50
East Asia	1,182	24
Latin America	205	4

Source: Based on US Treasury data

Regarding foreign investment in US stock market, European investors were more active than East Asian ones (Table II). Investment from Europe in the United States reached $1.6 trillion and accounted for half of the total US stocks held by foreign investors. This amount was far greater than that held by East Asia (which accounted for 18% of US stocks held by foreign investors). The United Kingdom was the most active investor, holding $421 billion of US stocks as of June 2007. Japan was the most active East Asian investor, but its scale ($220 billion) was considerably smaller than the United Kingdom and Luxemburg.

While foreign investors held a substantial amount of US stocks ($3.1 trillion), this was only 11% of the total US stock market. This reflects the large number of domestic individual and institutional

[4] "Principle-based" regulation emphasizes supervision and prevention by promoting good practices that rely on basic principles—such as market confidence, public awareness, consumer protection, as well as a reduction in financial crimes. Self-regulation by securities industry participants (e.g., securities firms) is also encouraged. By contrast, "rule-based" regulation emphasizes enforcement actions through actively prosecuting corporate scandals as crimes. The Sarbanes-Oxley Act of 2002, which was introduced after the accounting scandals of Enron and World Com, can be regarded as an example of rule-based regulation. The Act imposes strict guideless regarding reporting in securities markets to enhance corporate responsibility and financial disclosure as well as to minimize accounting frauds. It has been pointed out that this costly regulation has induced many firms to raise funds on the UK stock market.

investors in the United States. The amount of financial assets of US households was $50 trillion in 2007, the largest in the world and much greater than that of Japan's individually held financial assets ($13 trillion). US households held 28% of the total US stocks. US mutual funds, with financial assets of over $8 trillion, were the second largest investor as a group, holding 22% of US stocks outstanding. The ratio of foreign ownership in the United States was then smaller than the ratios of Indonesia (about 20%), Japan (about 30%), Korea (about 35%), and Thailand (about 30%) in 2006. This suggests that the US has a lower degree of dependence on foreign investors than does East Asia.

Table II. The Amount of US Stocks Held by Foreign Investors (As of June 2007)

Country/Region	Amount (Billions $)	% Total Foreign Holdings
UK	421	13
Canada	347	11
Cayman Islands	279	9
Luxembourg	235	8
Japan	220	7
...		
Total	3,130	100
Of which:		
Europe	1,594	51
Latin America	871	28
East Asia	560	18
US Total Corporate Equities	27,768	
(Foreign Holding Share %)	11	

Source: Based on US Treasury data.

In the case of China, foreign investors held $388 billion of Chinese stocks in 2007 (according to the IMF data). Investors from Hong Kong were the largest group ($153 billion), followed by the United States ($96 billion). Since 2002, foreign investors have been allowed to invest in China's capital market through the system of "Qualified Foreign Institutional Investors (QFII)". A QFII license is issued by the China Securities Regulatory Commission and the People's Bank of China to applicant entities that meet certain requirements. For example, a fund management institution must have over 5 years experience of operating a fund business and have managed assets of not less than $5 billion. A securities firm must have over 30 years experience of operating a securities business, have paid-in capital of not less than $1 billion, and manage securities assets of not less than $10 billion. In 2008, 24 foreign institutions were granted QFII status with total permitted investment of $2.9 billion (a total of 76 institutions had been granted QFII status with total permitted investment of $30 billion as of January 2008).

2-2. Features of Cross-Border Debt Securities Investment Flows

Compared with stocks ($4.95 trillion), US investors invested less actively in foreign debt securities ($1.96 trillion) as at end-2007 (Table III). The most of US investment in foreign debt securities were allocated to foreign private sector debt securities ($1.2 trillion as compared with $737 billion for government ones) and long-term debt securities ($1.6 trillion as opposed to $357 billion for

short-term ones). The small amount of investment in foreign government securities partly reflects that the United States hold only a small amount of foreign reserves (about $74 billion) as it hardly intervenes in the foreign exchange markets. The United States held a substantial amount of UK debt securities ($427 billion), followed by securities issued in Cayman Islands ($312 billion), Canadian securities ($207 billion), French securities ($100 billion) and German securities ($97 billion). Most of these bonds were private sector debt securities. The United States remained the largest foreign investor of UK debt securities, accounting for 27% of the total value of UK debt securities held by foreign investors (according to IMF data).

Table III. The Amount of Foreign Debt Securities Held by US Investors
(As of end-2007, Billions of US dollars)

		Total Long-term Debt			Total Short-term Debt		
	Grand Total	Total	Government	Private	Total	Government	Private
UK	427	286	41	246	141	139	2
Cayman Islands	312	271	0	271	41	41	0
Canada	207	185	47	138	22	19	3
France	100	83	35	48	18	17	1
Germany	97	89	57	32	8	6	2
Australia	84	73	7	67	11	11	0
Netherlands	81	76	4	72	5	5	0
Ireland	83	50	0	50	33	33	0
Japan	64	60	50	11	4	3	1
Luxembourg	55	44	0	44	11	11	0
Spain	40	38	3	35	2	2	0
Sweeden	55	29	7	22	26	26	0
		...	...	...	...	...	...
Total Debt	1,964	1,607	393	1,214	357	344	13

Source: Prepared based on US Treasury data.

While US investors were not active in investing in foreign debt securities, foreign investors actively invested in the US debt securities market. As of June 2007, foreign investors held US debt securities equivalent to $6.6 trillion (Table IV), which exceeded the amount of US stocks ($3.1 trillion) held by them. Japan and China stood out as the largest investors in US debt securities, $976 billion and $894 billion, respectively. Their debt securities were mostly longer-term ones such as treasury securities and agency-related securities, and were relatively risk-free. Agency-related securities include bonds and mortgaged-backed securities issued by government-sponsored enterprises (e.g., Fannie Mae and Freddie Mac). The US treasury securities held by Japan and China constitute a substantial part of their foreign reserves.

UK investors, the third largest group of foreign investors, purchased a substantial amount ($405 billion) of corporate debt securities; corporate bonds and ABSs of $263 billion and $142 billion, respectively. Investors from other European countries, such as Luxembourg, Belgium, Ireland,

Switzerland, and Netherlands, had investment tendencies similar to those of UK investors. These countries hold few foreign reserves and thus were less keen than East Asia on holding foreign government securities. This could be because most of these countries have adopted the euro as a single currency and thus were largely precluded from intervening in the foreign exchange market. The United Kingdom, which still has its own currency, also rarely intervenes in the foreign exchange market, similar to the United States. This view is supported by Figure 1, which shows that East Asia accounts for more a half of the total foreign reserves accumulated worldwide.

Based on the above observations, it can be concluded that European investors were greater risk-takers than East Asian investors. It can be said that East Asian investors contributed to lowering US long-term interest rates by holding large amounts of US treasury securities. But East Asian investors were less willing to hold other debt securities, such as corporate bonds and ABSs. By contrast, European investors were more interested in holding riskier assets, contributing to financing firms and private sector issuers of securitized assets in the United States. This suggests that European investors would suffer most in the event of a US-led financial crisis and resultant plunge in financial asset prices.

Table IV. US Debt Securities Held by Foreign Investors

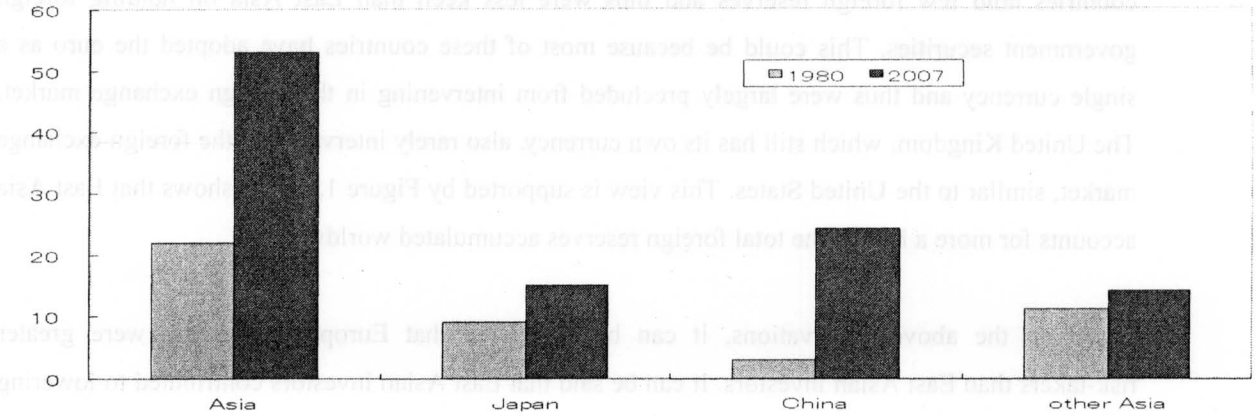
(As of June 2007, Billions of US dollars)

Long-Term Debt Securities							
Total LT Debt		Treasury LT Debt		Agency LT Debt		Corporate LT Debt	
Japan	901	Japan	553	China	376	UK	405
China	871	China	467	Japan	229	Luxembourg	340
UK	476	Luxembourg	45	Luxembourg	39	Belgium	321
		...		...		...	
Total	6,007	Total	1,965	Total	1,305	Total	2,737
Total Outstanding	20,950	Total Outstanding	3,454	Total Outstanding	6,105	Total Outstanding	11,391
	29	% Foreign Holding	57	% Foreign Holding	21	% Foreign Holding	24

Short-term Debt Securities		Grand Total	
Ireland	85	Japan	976
Japan	76	China	894
Luxemborg	44	UK	500
...		...	
Total	635	Total	6,642

Source: Based on US Treasury data.

Figure 1. Foreign Reserves (% of World Foreign Reserves)



Source: Based on World Bank data.

An important point regarding US debt securities is that US issuers issued debt securities largely in US dollars, regardless of whether the issuers were public or private sector. About 88% of foreign-held US debt securities were denominated in US dollars (Table V). Moreover, US investors could purchase a large amount of foreign debt securities that were also denominated in US dollars. About 76% of foreign debt securities held by US investors were denominated in US dollars. Since most of the foreign securities held by US investors in Europe were private sector securities, this supports the view that the US dollar remains the most important hard currency in cross-border bond market transactions. These data also indicate that both US issuers as well as investors faced little exchange rate risk.

Table V. Currency Denomination of Foreign Debt Securities Held by US Investors and US Debt Securities Held by Foreign Investors (As of end-2007 and June 2007, respectively)

	US Holdings of Foreign Debt Securities		Foreign Holdings of US Debt Securities	
Currency	Billions $	% Total	Billions $	% Total
US dollar	1,499	76	5,874	88
Euro	199	10	435	7
Canadian dollar	58	3	27	0
Japanese yen	67	3	82	1
UK pound	62	3	133	2
...			...	
Total	1,964	100	6,642	100

Source: Based on US Treasury data.

Regarding East Asian debt securities, the nationalities of foreign investors were diverse (based on IMF data). As for Japanese debt securities (the outstanding amount of $382 billion in 2007), investors in France were the largest group (holding $87 billion), followed by the United States ($53

billion). Chinese debt securities (with $20 billion held by foreign investors) were owned largely by investors in Hong Kong ($13 billion). Hong Kong debt securities, $16.3 billion held by foreign investors, were largely held by investors in Singapore ($3.5 billion) and Mauritius ($3.1 billion). Korean debt securities ($93 billion held by foreign investors) were held largely by investors in Hong Kong ($17 billion), France ($16 billion), and Singapore ($14 billion).

2-3. Features of Cross-Boarder Banking Activities

Cross-border banking activities expanded globally in the early 2000s and became dominated by banks in the United States, the United Kingdom, and other European countries. Banks increased cross-border claims not only to other banks and their affiliates operating abroad, but also to non-bank firms (including loans, corporate bonds, ABSs, MBSs, CDOs, and stocks). In particular, UK nationality (local) banks and affiliates of foreign nationality banks operating in the United Kingdom were the most active players in cross-border banking activities around the world. Foreign bank affiliates operating in the United Kingdom primarily originated from the United States, France, Germany, Switzerland, and other European countries.

According to the BIS data, external (on-balance) assets and liabilities of banks (including local banks as well as affiliates of foreign nationality banks residing in the country under consideration) were largest in the United Kingdom. The amount of external assets and liabilities recorded as at December 2007 were $6,843 billion (2.4 times larger than UK GDP) and $7,305 billion (2.6 times) (Table VI). The absolute size of external assets and liabilities was substantial and indeed the largest in the world, so the net external assets resulted in only minus value of $462 billion. This indicates that the United Kingdom offered the best location for both local and foreign banks to engage in cross-border bank lending and borrowing activities.

Table VI. Cross-Border Banking Activities (Billions of US Dollars)

	Assets		Liabilties		Net Assets	
	End-06	End-07	End-06	End-07	End-06	End-07
Total	**26,190**	**33,504**	**24,478**	**31,211**	**1,712**	**2,294**
Japan	1,903	2,402	682	712	1,221	1,690
Hong Kong	621	798	353	477	269	322
Sigapore	604	785	607	803	-3	-17
Korea	69	86	147	204	-77	-118
Malaysia		37		48	0	-11
US	2,383	2,989	3,111	3,735	-729	-746
UK	5,185	6,843	5,432	7,305	-248	-462
Germany	2,794	3,561	1,722	1,993	1,072	1,568
France	2,196	2,813	2,123	2,806	73	8

Source: Based on BIS data.

About 54% of external assets held by banks in the United Kingdom were made up of external assets vis-à-vis banks abroad (including foreign affiliates). Almost all were in the form of loans and

deposits. The remaining 46% of external assets comprised assets against nonbanks abroad (Table VII). Of this amount, 65% were in the form of loans and deposits, while 35% were largely debt securities issued by non-bank firms in the United States (including structured credit products, and corporate bonds). In particular, local banks as well as affiliates of German and Swiss nationality banks operating in the United Kingdom were keen on this pattern of investment. On the other hand, affiliates of US nationality banks operating in the United Kingdom did not engage much in this pattern of investment and were more actively engaged in loan and deposit activities.

Table VII. External Assets and Liabilities of Banks Operating in Designated Countries (%)

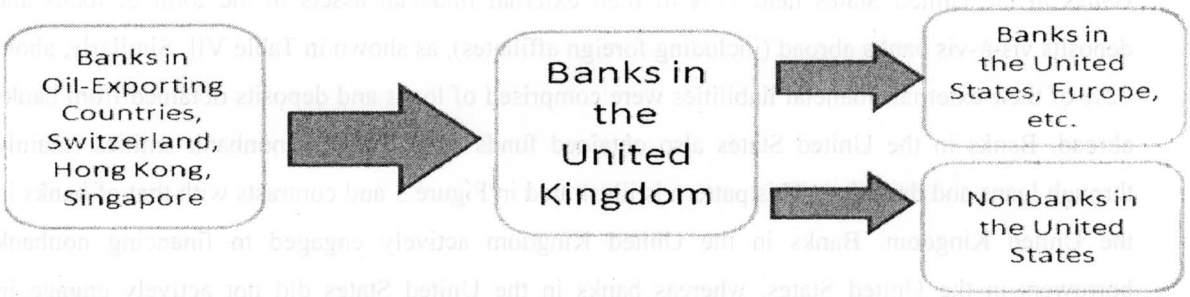
	Foreign Assets				Foreign Liabiliteis			
United Kingdom	Banks	54%	Loan&Deposits	almost all	Banks	70%	Loan&Deposits	87%
			Others				Others	13%
	Nonbanks	46%	Loan&Deposits	65%	Nonbanks	30%	Loan&Deposits	82%
			Others	35%			Others	18%
United States	Banks	77%	Loan&Deposits	almost all	Banks	72%	Loan&Deposits	almost all
			Others				Others	
	Nonbanks	23%	Loan&Deposits	almost all	Nonbanks	28%	Loan&Deposits	almost all
			Others				Others	
Germany	Banks	62%	Loan&Deposits	73%	Banks	78%	Loan&Deposits	70%
			Others	27%			Others	30%
	Nonbanks	38%	Loan&Deposits	54%	Nonbanks	22%	Loan&Deposits	almost all
			Others	46%			Others	
France	Banks	66%	Loan&Deposits	74%	Banks	almost all	Loan&Deposits	almost all
			Others	26%			Others	
	Nonbanks	34%	Loan&Deposits	25%	Nonbanks		Loan&Deposits	
			Others	75%			Others	
Japan	Banks	37%	Loan&Deposits	almost all	Banks	77%	Loan&Deposits	almost all
			Others				Others	
	Nonbanks	63%	Loan&Deposits	23%	Nonbanks	23%	Loan&Deposits	almost all
			Others	77%			Others	
Hong Kong	Banks	81%	Loan&Deposits	almost all	Banks	66%	Loan&Deposits	almost all
			Others				Others	
	Nonbanks	19%	Loan&Deposits	43%	Nonbanks	34%	Loan&Deposits	almost all
			Others	57%			Others	
Singapore	Banks	75%	Loan&Deposits	almost all	Banks	67%	Loan&Deposits	almost all
			Others				Others	
	Nonbanks	25%	Loan&Deposits	almost all	Nonbanks	33%	Loan&Deposits	almost all
			Others				Others	
Korea	Banks	52%	Loan&Deposits	almost all	Banks	almost all	Loan&Deposits	almost all
			Others				Others	
	Nonbanks	48%	Loan&Deposits	almost all	Nonbanks		Loan&Deposits	
			Others				Others	
Malaysia	Banks	almost all	Loan&Deposits	almost all	Banks	almost all	Loan&Deposits	almost all
			Others				Others	
	Nonbanks		Loan&Deposits		Nonbanks		Loan&Deposits	
			Others				Others	

Source: Based on BIS data.

On the other hand, about 70% of the external liabilities of banks in the United Kingdom were generated from banks abroad (including foreign affiliates). These were largely from funds provided by banks in the oil-exporting countries, Switzerland, Singapore, Hong Kong, and the euro area (BIS, 2008a). These external asset and liability features indicate a transformation of international money

through the intermediation of banks in the United Kingdom; from diverse interbank funding sources worldwide to nonbank claims in the United States (Figure 2). This phenomenon is consistent with Table IV in that investors (including banks) in the United Kingdom were most active in investing in US long-term corporate debt securities.

Figure 2. Cross-Border Banking Activities in the United Kingdom



Source: Prepared by the Author.

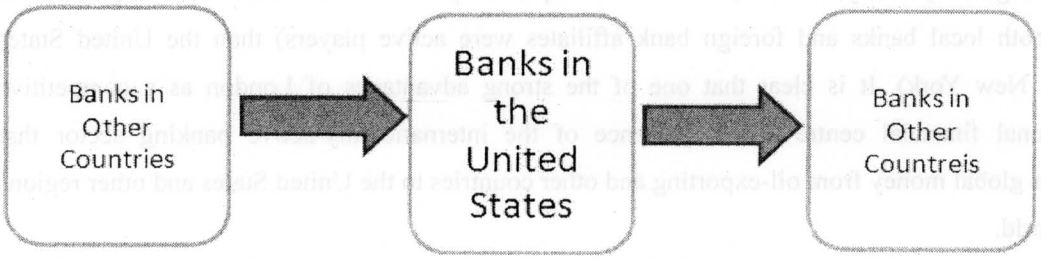
Compared with banks in the United Kingdom, banks based in the United States had smaller external assets and liabilities. The amounts of their external assets and liabilities were $2,989 billion and $3,735 billion, respectively. These amounts accounted for only 22% and 27%, respectively, of US GDP, far below the ratios for banks in the United Kingdom. These facts support the view that the United Kingdom (namely, London) was a more important place for cross-border banking activities (where both local banks and foreign bank affiliates were active players) than the United States (namely, New York). It is clear that one of the strong advantages of London as a competitive international financial centre is the presence of the internationally-active banking sector that circulates global money from oil-exporting and other countries to the United States and other regions of the world.

The data on the United States, shown in Tables VI and VII, indicate cross-border claims of banks located in the United States. These banks include both local (US nationality) banks and affiliates of foreign nationality banks located in the United States. In order to view the data with respect to foreign claims by US nationality banks and their foreign affiliates, one should look at "consolidated foreign claims" of US nationality banks (compiled by BIS). The data cover cross-border claims by US nationality banks and their foreign affiliates, as well as local claims of US nationality banks' foreign affiliates with local residents, with positions between affiliates of the same bank having been netted out. The data include both domestic and foreign currency-denominated claims. The amount of consolidated foreign claims of US nationality banks amounted to $6,484 billion as at December 2007. This amount was the largest in the world, suggesting that US nationality banks performed aggressively in the international business environment by extending business through foreign

affiliates. In particular, their foreign affiliates' claims were conducted actively with local residents in local currencies. US nationality banks' foreign affiliates were most active in the United Kingdom, followed by their activities in Germany, France, Japan, and Switzerland. In the case of the United Kingdom, the amount of consolidated foreign claims of UK nationality banks recorded $4,546 billion—the second largest in the world, but much smaller than that of US nationality banks.[5]

Banks in the United States held 77% of their external financial assets in the form of loans and deposits vis-à-vis banks abroad (including foreign affiliates), as shown in Table VII. Similarly, about 72% of their external financial liabilities were comprised of loans and deposits obtained from banks abroad. Banks in the United States also obtained funds from overseas nonbank entities (mainly through loans and deposits). This pattern is illustrated in Figure 3 and contrasts with that of banks in the United Kingdom. Banks in the United Kingdom actively engaged in financing nonbank borrowers in the United States, whereas banks in the United States did not actively engage in financing nonbank borrowers in other countries. This difference could be explained by the fact that the United States offered the biggest market for structured credit assets, thus attracting foreign investors and banks. US nationality banks naturally invested in these assets through the utilization of domestic SIVs.

Figure 3. Cross-Border Banking Activities in the United States



Source: Prepared by the Author.

Banks in Germany and France also actively engaged in cross-border banking activities, as evidenced by the relatively large sizes of their external assets and liabilities. Over 60% of their external assets comprised assets vis-à-vis banks abroad (including foreign affiliates) in Germany and France (Table

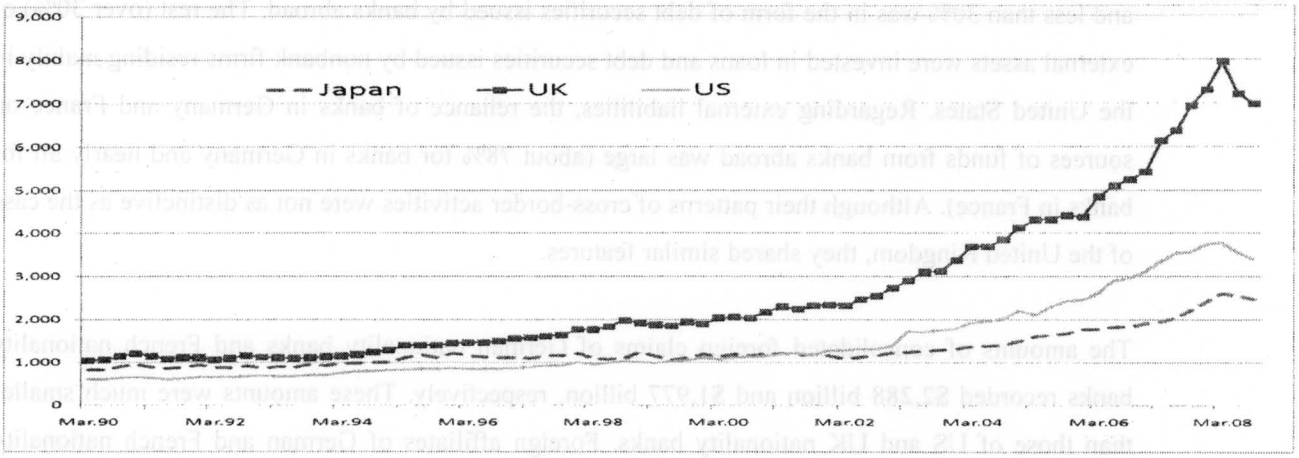
[5] The data on the consolidated claims of reporting banks and the data reported in Table VI are compiled from very different reports that each country's central banks receive from their resident commercial banks. In addition, the former excludes cross-border positions between affiliates of the same bank, while the latter includes them. Thus, the direct comparison between these data is not desirable. Nonetheless, it can be said that there were numerous foreign bank affiliates operating in the United Kingdom (as compared with the United States), while US nationality banks were highly active in international banking businesses through establishing numerous foreign affiliates in many countries (as compared with UK nationality banks).

VII). Of this amount, more than 70% was in the form of loans and deposits vis-à-vis banks abroad and less than 30% was in the form of debt securities issued by banks abroad. The rest (over 30%) of external assets were invested in loans and debt securities issued by nonbank firms residing mainly in the United States. Regarding external liabilities, the reliance of banks in Germany and France on sources of funds from banks abroad was large (about 78% for banks in Germany and nearly all for banks in France). Although their patterns of cross-border activities were not as distinctive as the case of the United Kingdom, they shared similar features.

The amounts of consolidated foreign claims of German nationality banks and French nationality banks recorded $2,288 billion and $1,977 billion, respectively. These amounts were much smaller than those of US and UK nationality banks. Foreign affiliates of German and French nationality banks actively engaged in business in the United Kingdom, the United States, and other regions. Similar to local banks located in the United Kingdom, foreign affiliates of German and French nationality banks operating in the United Kingdom had substantial exposure to nonbank financing, mainly in the United States, by raising US dollar-denominated funds from the interbank market.

Compared with banks in the United States and Europe, the amounts of external assets and liabilities of East Asia remained much smaller. This could imply that East Asian cross-border banking businesses are still in a premature stage. Banks in Japan had external assets of sizes comparable to banks in Europe and the United States, but their external liabilities were much smaller, even smaller than banks in Singapore. This meant that banks in Japan did not play an active role in the intermediation of foreign money. Moreover, their external assets and liabilities accounted for only 53% and 16% of Japan's GDP, respectively. These relatively small sizes may be attributed to the fact that Japanese nationality banks were cautious after experiencing serious domestic banking sector problems in the 1990s. These had been caused by the collapse of real estate and stock price bubbles in 1991. Banks in Japan began to increase their cross-border activities from 2002, particularly in the United States, followed by the United Kingdom, France, and Germany. However, the pace of their activities did not match that of banks in the United Kingdom and the United States, as seen in the case of external assets (Figure 4).

Figure 4. External Assets of Banks in Japan, UK and US (Billion of US dollars)



Source: Based on BIS data.

For banks in Japan, external assets vis-à-vis banks abroad (including foreign affiliates) accounted for only 37% of total external assets (Table VII). Nearly all were in the form of loans and deposits. The remaining 63% of external assets comprised claims against nonbanks abroad. The greater exposure to nonbanks abroad reflects the increased preference of banks in Japan toward foreign debt securities (accounting for 77% of external assets vis-à-vis nonbanks abroad). In particular, Japanese nationality banks had the largest exposure to US treasury securities and agency-related bonds among banks in the world, about $200 billion in 2007 (BIS, 2008a). Banks both in Japan and the United Kingdom invested substantially in debt securities. However, their risk attitudes were different: banks in the United Kingdom had large exposures to structured credit products and corporate bonds.. This indicates that banks in the United Kingdom would suffer more than those in Japan in the event of a US-led financial crisis. This pattern of cross-border banking activities is illustrated in Figure 5.

Figure 5. Cross-Border Banking Activities in Japan

Source: Prepared by the Author.

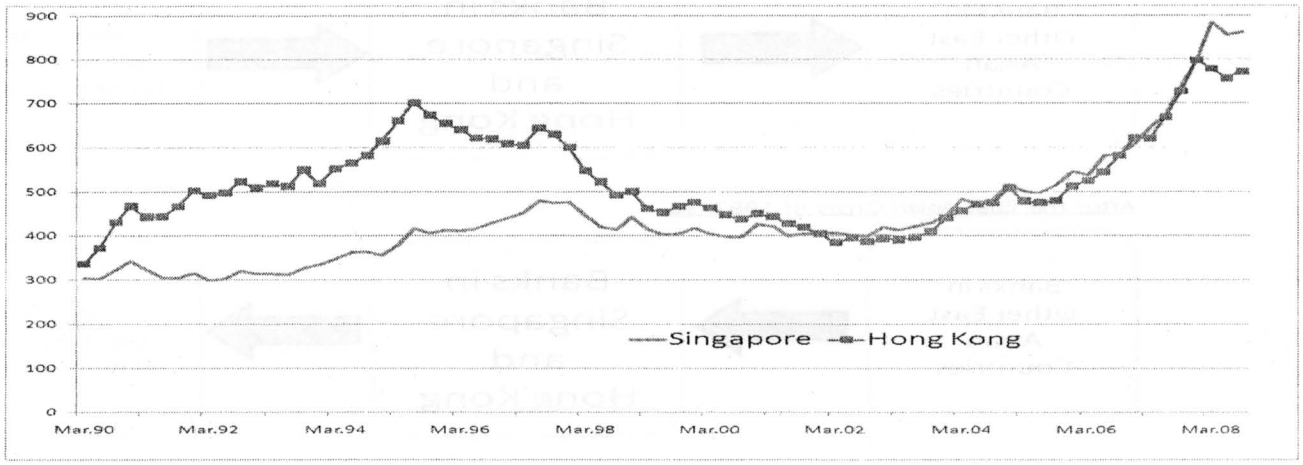
In Japan, the size of consolidated foreign claims of Japanese nationality banks was only $934 billion as at December 2007. This amount was smaller than those of banks with US, UK, German, and French nationalities. This indicates that Japanese nationality banks were not active players in

cross-border activities (after excluding cross-border claims between affiliates of the same Japanese nationality bank), as well as financing activities vis-à-vis local residents.

Banks in Hong Kong had small external assets ($798 billion) and external liabilities ($477 billion). However, these were large in terms of GDP, being about 4 times and 2.3 times, respectively, the Hong Kong GDP. Singapore had a pattern similar to that of Hong Kong: its external assets and liabilities as a share of GDP were 4.7 times and 4.8 times, respectively. These data suggest that Singapore particularly, like the United Kingdom, participated in intermediating global money more actively than did banks in Japan. Their activities stagnated somewhat during the economic crisis of 1997-98, but began to expand again from the early 2000s (Figure 6). Meanwhile, the external assets and liabilities of banks in Korea and Malaysia remained relatively small, both in absolute terms and as a share of GDP (less than 21% in Korea and less than 24% in Malaysia).

As for banks in Hong Kong, about 80% of their external assets comprised loans and deposits vis-à-vis banks abroad (Table VII). Nearly all their external liabilities were external loans and deposits. Of this amount, about 66% were allocated to banks abroad and the rest to nonbanks abroad. In the case of banks in Singapore, external loans and deposits accounted for more than 90% of external assets (about 75% allocated to banks abroad and the rest to nonbanks abroad). Also, about 90% of the external liabilities were external loans and deposits (67% allocated to banks abroad and the rest to nonbanks abroad). Banks in Hong Kong and Singapore could obtain substantial deposits from regional investors and used these proceeds to hold large claims to banks operating in the United Kingdom, United States, and other places. They were not really engaged in investment in structured credit assets in the United States, and their cross-border transactions were more traditional, based on the loan and deposit activities, similar to banks in the United States.

Figure 6. External Assets of Banks in Hong Kong and Singapore (Billion of US dollars)

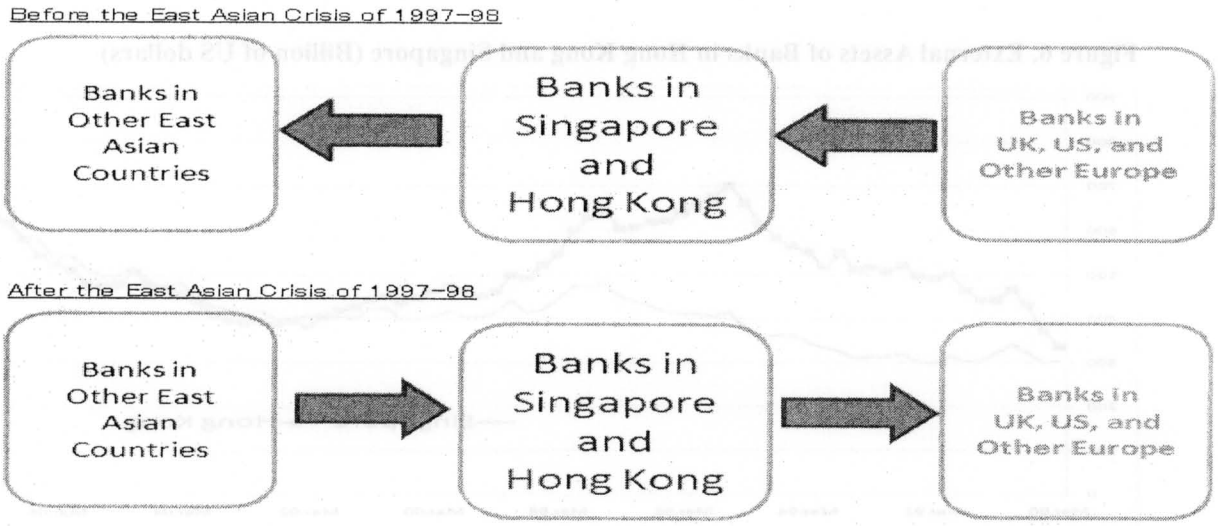


Source: Based on BIS data.

The amounts of consolidated foreign claims of Hong Kong nationality banks and Singaporean nationality banks mounted to $375 billion and $261 billion as at December 2007. These amounts were even smaller than Japanese nationality banks. This seems understandable given that affiliates of foreign nationality banks dominate their domestic banking sectors, so that the sizes of their nationality banks remain limited (thereby restricting their overseas activities through affiliates). Indeed, foreign banks dominated cross-border claims from Hong Kong and Singapore, accounting for more than 80% of total claims (BIS, 2006).

Prior to the East Asian crisis, Hong Kong and Singapore functioned as intermediaries to circulate foreign money from Japan, the United States, and Europe (through affiliates operating in Hong Kong and Singapore) to emerging East Asian countries (such as Korea, Thailand, Indonesia, China), in addition to direct financing by Japanese, US, and European headquarter banks to emerging East Asia. After experiencing a decline in the activities during the East Asian crisis, these two locations emerged again as regional financial centres. However, their role in intermediation was transformed from being a provider of net claims against Emerging East Asia (from Japan, the United States and Europe) to being a provider of net claims against the United States, United Kingdom and other European countries (from emerging East Asia). The shift of their current account balances from deficit to surplus for a number of East Asian countries after the crisis of 1997-98 promoted investors and banks in East Asia to place deposits and extend loans to banks in Hong Kong and Singapore. These proceeds were in turn extended to financing for banks in the United States, United Kingdom, and other European countries (Figure 7).

Figure 7. Cross-Border Banking Activities in East Asia



Source: Prepared by the Author.

With respect to the type of currency used, the US dollar and euro were the most frequently-used currencies for cross-border banking activities. The US dollar and euro accounted for 38% and 39%, respectively, of external assets as of December 2007. The US dollar and euro accounted for 42% and 33%, respectively, of external assets. However, when only the currencies used in transactions as foreign currencies were considered, it is clear that the US dollar was the most dominant foreign currency in cross-border banking activities. The US dollar accounted for 78% of external assets and 74 % of external liabilities. This indicated that substantial cross-border transactions were conducted in the euro zone; as actually occurred among banks in Belgium, France, Germany, Italy, and Netherlands.

Both borrowing and lending conducted by banks operating in the United Kingdom were dominated by US dollars. Even though the euro was the next most important currency, its use was relatively limited (BIS, 2008a). In particular, banks in the United Kingdom (mainly UK banks and other European bank affiliates) obtained largely US dollar-denominated funds from the global interbank market. These US dollar-denominated funds were then invested mainly in financing nonbank borrowers and banks in the United States, as pointed out earlier. Thus, their dependence on US dollar funding was large. If a credit squeeze occurred in the US dollar-denominated interbank market (such as LIBOR), it was obvious that this would trigger serious US dollar shortages among European banks.

2-4. Summary of Cross-Border Capital Flows Before the Subprime Mortgage Crisis

Based on the afore-mentioned observations, Section II can be summarized as follows: First, the scale of US investors' investment in foreign stocks was large and was dominant around the world. The amount of their investment in foreign stocks was even greater than the amount of foreign investors' investment in US stocks. Meanwhile, the United States obtained external financing mainly through issuing debt securities. US government, agency, non-financial firms, and ABS issuers were able to issue a large amounts of bonds internationally. Thus, it may be concluded that investors in the United States were risk-takers in the sense that they preferred investment in foreign stocks (while raising funds internationally through issuing debt securities). Stocks are generally considered riskier than bonds as they could potentially give rise to substantial capital gains or loses without any assurances on the repayment of their principals. The strong preference towards stocks investments by US investors is confirmed in Table VIII. Table VIII shows that foreign stocks were the largest investment items in the United States, accounting for 29% of total foreign assets. This ratio was much smaller in East Asia—11% in Japan, only 1% in China, 19% in Hong Kong, 18% in Korea and 14% in Singapore.

Table VIII. Composition of Foreign Assets in the United States and East Asia (2007)

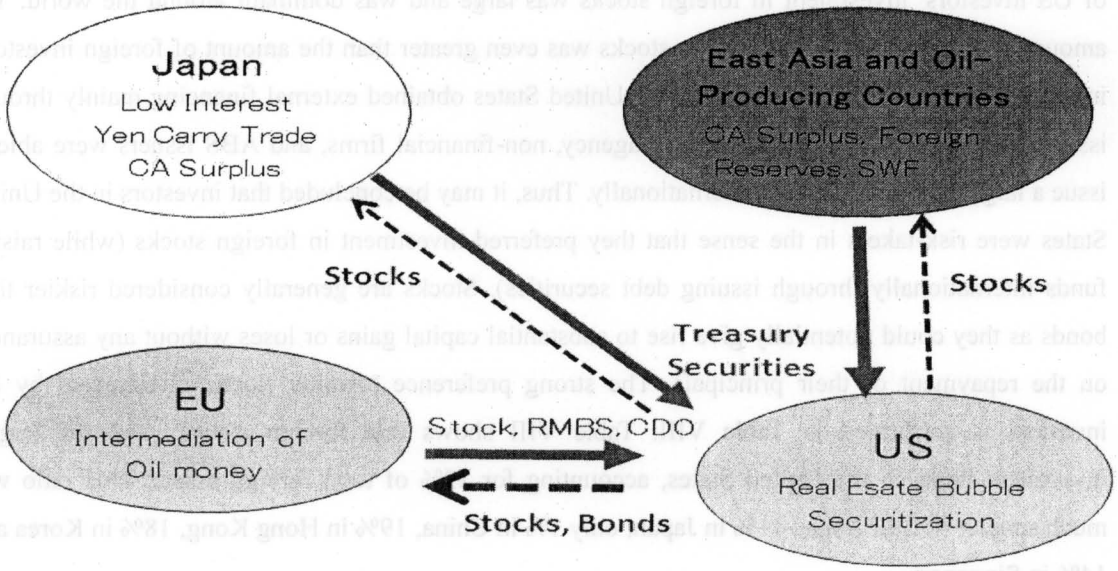
	US	Japan	China	Hong Kong	Korea	Singapore
FDI	19%	10%	5%	38%	11%	19%
Stocks	29%	11%	1%	19%	18%	14%
Financial Derivatives	13%	1%	--	2%	--	--
Debt Securities	11%	36%	10%	10%	9%	9%
Loan&Deposits	24%	24%	18%	26%	17%	40%
Foreign Reserves	2%	18%	67%	6%	45%	18%
Total	100%	100%	100%	100%	100%	100%

Source: Based on IMF data.

Second, investors in Europe could be regarded as risk-takers, since they actively invested in riskier stocks, corporate bonds, ABSs, MBSs, and CDOs in the United States. By contrast, investors in East Asia could be regarded as risk-averse, as foreign reserves were one of their largest foreign assets (invested largely in US treasury securities and agency-related bonds). Moreover, Japanese private sector investors preferred investing in foreign bonds to foreign stocks (Table VIII). Thus, the United States and Europe together contributed to the rapid growth in the structured finance industry in the 2000s. While this investment generated substantial returns and profits to US and European investors, the risks (such as credit, counterparty, liquidity risks) borne by them were substantial and underestimated.

The features pointed out above are summarized in Figure 8.

Figure 8. Capital Flows before the Subprime Mortgage Crisis



Source: Prepared by the Author.

Third, the debt securities issued by debtors in the United States were mostly denominated in US dollars. Thus, US creditors faced only a limited degree of currency mismatch. Meanwhile, US investors also faced little currency mismatch. Although US investors' investment in foreign debt securities was smaller than that in foreign stocks, these bonds were largely denominated in US dollar. Most foreign bonds held by US investors were issued in the United Kingdom, the Cayman Islands, and Canada. The fact that both US creditors and investors bore scant currency mismatches indicates that European counterparts took the foreign exchange risks. Moreover, it indicates that the US dollar was the preferred hard currency in cross-border debt securities transactions.

Fourth, cross-border banking activities were undertaken largely by US and European nationality banks. The United Kingdom offered the most important intermediary place in terms of circulating global banking money. These funds were managed by local banks and European nationality banks' affiliates operating in the United Kingdom. These were then allocated largely to nonbank borrowers in the United States, as already shown in Figure 2. Compared with the United Kingdom, the United States was a less important place for cross-border banking activities. Instead, US nationality banks actively engaged in international activities through establishing subsidiaries and branches residing in the United Kingdom, the European continent, and other regions (such as East Asia). US banks' foreign affiliates were less exposed to financing nonbank borrowers in the United States, as compared with UK and other European banks.

Fifth, Japanese banks were the most active players in cross-boarder banking activities among the East Asian banks, but their activities were largely concentrated on the external asset side. In addition to deposits and loans, they also invested in a large mount of US treasury securities and agency-related bonds. Given that the amount of external assets substantially exceeded external liabilities, it appears that Japan did not offer a place to intermediate global money. It can also be said that the role of Japanese nationality banks in the intermediation of global money was limited. Meanwhile, Singapore and Hong Kong have become important places for cross-border banking activities in East Asia (like the United Kingdom) by circulating regional money to other regions in the world. Most of active players there were affiliates of US and European nationality banks.

Sixth, Hong Kong's role as an intermediary for FDI has become increasingly important and more international. This is evidenced by the large share of FDI in Hong Kong's foreign assets (38%) in 2007, as shown in Table VIII. IMF (2008a) points out that bilateral FDI flows (both asset and liability sides) involving Hong Kong were second to (mainland) China, amounting to 20% of intra-Asian FDI flows (compared with 36% in China). The largest FDI flows were from Hong Kong to China and from China to Hong Kong; namely, Hong Kong's intermediary role for FDI flows was

mostly linked to China. While FDI flows related to China dominated, Hong Kong's FDI flows with other East Asian countries were growing.

III. IMPACT OF THE SUBPRIME MORTGAGE CRISIS

3-1. Impact of the Crisis on Cross-border Capital Movements in the United States and Europe

The subprime mortgage crisis erupted in the United States and then had a contagious effect on Europe. Many banks in the United States and Europe saw an immediate deterioration of their assets, leading to the impairment of their capital. For example, German IKB Deutsche Industriebank faced large losses from exposure to US subprime mortgage-related assets in July 2007. This resulted in it being rescued by a fund formed by its major shareholder, the KfW Group (a state-owned development bank) and other public and private banks. In August 2007, the French banking group BNP Paribas suspended withdrawals from affiliated funds that were exposed to US subprime mortgage-related assets; because of the difficulty valuing these assets in an environment of declining prices. In September 2007, the British bank Northern Rock, which had raised short-term funds from the wholesale market to finance longer-term residential mortgages, encountered funding difficulties and deposit runs after it became known to the public that the Bank of England was providing liquidity to the bank (it was nationalized in February 2008). European banks have since announced large losses from subprime mortgage –related investment.

According to the Asian Development Bank (2008), the total amount of world-wide write-downs of financial institutions amounted to $965 billion as of December 3, 2008. Of this amount, the United States had the largest write-downs of $664 billion. Europe was next with $271 billion as a result of its active investment in US capital markets and lively cross-border banking relationships, as described in Section II. In particular, bank losses were large for UK and Swiss banks. East Asia wrote down only $30 billion, thanks to its limited exposure to investment in structured credit assets in the United States. The total amount of capital raised by financial institutions was $871 billion ($525 billion in the United States, $299 billion in Europe, and $46 billion in East Asia).

Among US banks, Citigroup and Merrill Lynch incurred the largest write-downs (Table IX). As of October 2008, Citigroup, which had been the world's largest bank in terms of assets before the financial crisis, made large losses from investment in mortgage-related CDOs. As a result, Citigroup had to accept capital injections of a total of $45 billion (one in November 2007 and another in January 2009) from the US government. This was conducted under the $700 billion TARP (Troubled Asset Relief Program), originally aimed at purchasing illiquid mortgage-related assets from financial institutions; but its aim was partly shifted to bank recapitalization (as it became clear that purchases of such assets were difficult to conduct). Merrill Lunch incurred major losses from subprime

mortgage-related assets. Merrill Lynch's rapidly declining performance resulted in the purchase of the firm by Bank of America in September 2008 with effect in January 2009. UBS, the largest Swiss bank, had a large exposure to US subprime mortgage-related assets and faced the largest write-downs among European banks.

Table IX. Write-Downs by Major Financial Institutions
(As at Oct. 2008, Billions of US Dollars)

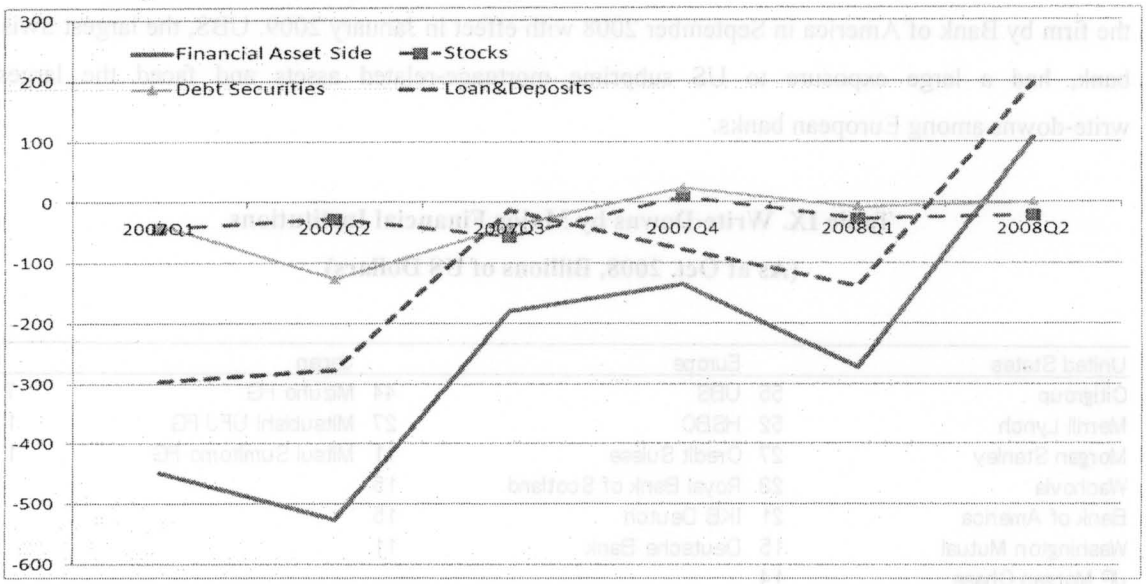
United States		Europe		Japan	
Citigroup	55	UBS	44	Mizuho FG	7
Merrill Lynch	52	HSBC	27	Mitsubishi UFJ FG	1
Morgan Stanley	27	Credit Suisse	11	Mitsui Sumitomo FG	1
Wachovia	23	Royal Bank of Scotland	15		
Bank of America	21	IKB Deutch	15		
Washington Mutual	15	Deutsche Bank	11		
JP Morgan Chase	14				
Wells Fargo	10				

Source: Ghon Rhee (2008).

The financial sector problems had an immediate impact on US cross-border banking activities. Figure 9 indicates the asset-side flows for US financial accounts. Prior to the subprime mortgage crisis, the United States recorded about minus $300 billion on account of loans and deposits in the first and second quarters of 2007, suggesting a net increase in foreign assets for the United States. Banks in the United States, to a large extent, financed non-affiliated as well as affiliated banks abroad. Since then, these activities have substantially declined; indeed, they shifted to plus $200 billion in the second quarter of 2008, leading to a net decline in foreign assets. This reflected that US banks and foreign banks' affiliates in the United States curtailed the cross-border activities, mainly through cutting US dollar-denominated claims. This result is consistent with BIS stock data, which indicates a mild decline in external assets of banks in the United States from $2,989 billion at end-2007 to $2,924 billion in September 2008 (Table X).

While US investors' investment in foreign debt securities and stocks dropped over the same period, the scale of the decline remained mild as compared with the accounts for loans and deposits. The limited impact on foreign debt securities may be explained by a shift of investment by US investors from European private sector debt securities to safer European treasury securities (such as German treasury securities).

Figure 9. US Financial Accounts (External Asset Side, Billions of US Dollars)



Note: A minus indicates a net increase in foreign assets.

Source: Based on IMF data.

Table X. Change in Cross-Border Banking Activities (Billions of US Dollars)

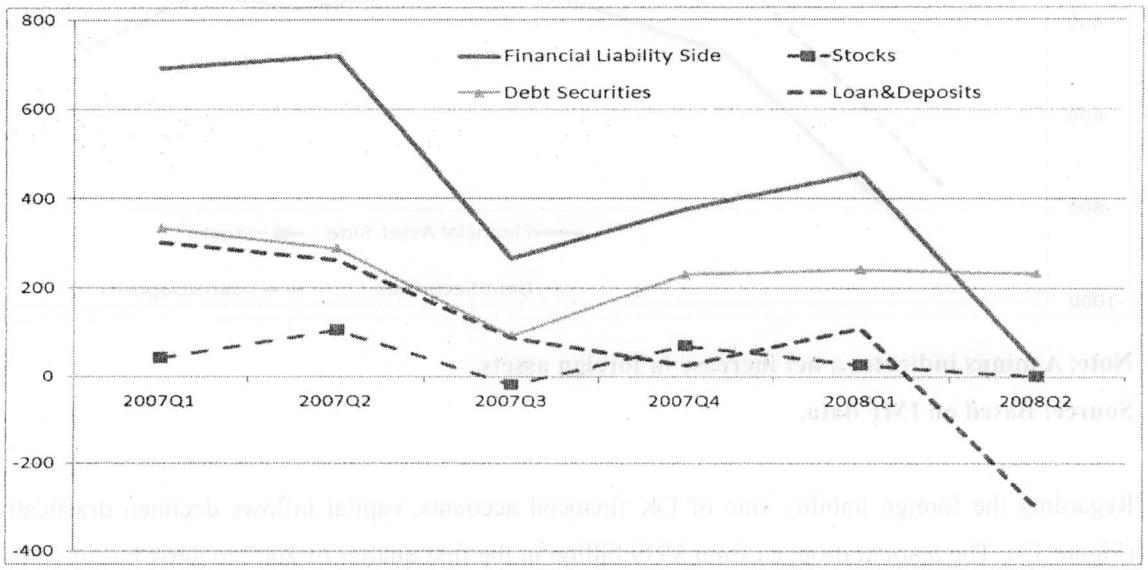
	Assets			Liabilities		
	End-07	Jun-08	Sep-08	End-07	Jun-08	Sep-08
Total	**33,504**	**34,871**	**33,372**	**31,211**	**32,515**	**31,002**
Japan	2,402	2,541	2,466	712	758	760
Hong Kong	798	757	772	477	495	505
Sigapore	785	838	848	803	856	863
Korea	86	108	108	204	233	240
Malaysia	37	36	28	48	56	56
US	2,989	3,016	2,924	3,735	3,556	3,402
UK	6,843	6,681	6,404	7,305	7,211	6,982
Germany	3,561	3,888	3,677	1,993	2,206	2,107
France	2,813	3,044	2,811	2,806	3,016	2,792

Source: Based on BIS data.

Similarly, the impact of the subprime mortgage crisis on the liability side of US financial accounts was most pronounced for the loan and deposit accounts. Figure 10 shows that the loan and deposit accounts each recorded about $300 billion in the first and second quarter of 2007, leading to an increase in US foreign liabilities. However, there has been a drastic decline since then, reaching minus $300 billion and so recording a decline in US foreign liabilities in the second quarter of 2008. This reflected the fact that banks operating in the United Kingdom and other European countries reduced their long position vis-à-vis the United States. BIS stock data also indicate a decline in external liabilities of banks in the United States, from $3,735 billion at end-2007 to $3,402 billion in September 2008.

Foreign capital inflows for US debt securities declined sharply to about $100 billion in the third quarter of 2007. However, it has since made a recovery. This reflects a shift of foreign investors' investment in the United States from corporate bonds and ABSs to treasury securities. Both foreign monetary authorities and private sector investors expanded their investment in US treasury securities, suggesting a "flight to quality" (a shift from risky and illiquid assets to risk-free and liquid assets). China, the United Kingdom, oil-exporting countries, and Switzerland increased their holdings of US treasury securities between 2007 and 2008. In particular, China's holdings of treasury securities rose from $459 billion in November 2007 to $587 billion in September 2008, exceeding those of Japan ($570 billion) and becoming largest holdings. As of November 2008, China's holdings of US treasury securities amounted to $682 billion.

Figure 10. US Financial Accounts (External Liability Side, Billions of US Dollars)



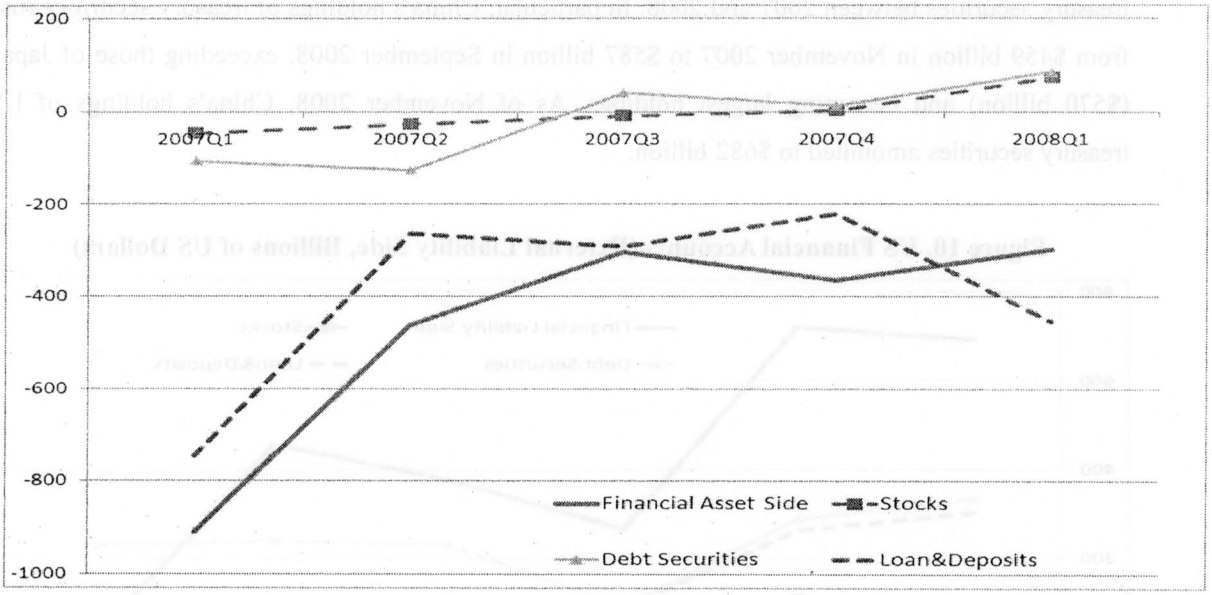
Note: A plus indicates a net increase in foreign liabilities.

Source: Based on IMF data.

Similar patterns were observed in the case of UK cross-border capital movements. The biggest impact of the subprime mortgage crisis can be traced from the loan and deposit accounts (Figures 11 and 12). Since the second quarter of 2007, loan and deposit accounts experienced a substantial change with respect to the pace of increase in foreign assets (indicating a smaller minus number), as shown in Figure 11. Nevertheless, the pace of increase in foreign assets rose in the first quarter of 2008, as a result of increased cross-border lending by banks in the United Kingdom (possibly from foreign bank affiliates to their headquarter banks). However, BIS stock data indicate that a decline in the external assets of banks in the United Kingdom commenced after this period: a decline from $6,843 billion at end-2007 to $6,404 billion in September 2008 (Table X).

The debt securities account shifted from an increase to a decline in foreign assets. This reflected that investors and banks in the United Kingdom (such as UK banks and foreign affiliates of French and German banks) reduced their investment in US structured credit assets, corporate bonds, and other private sector financial assets.

Figure 11. UK Financial Accounts (External Asset Side, Billions of US Dollars)

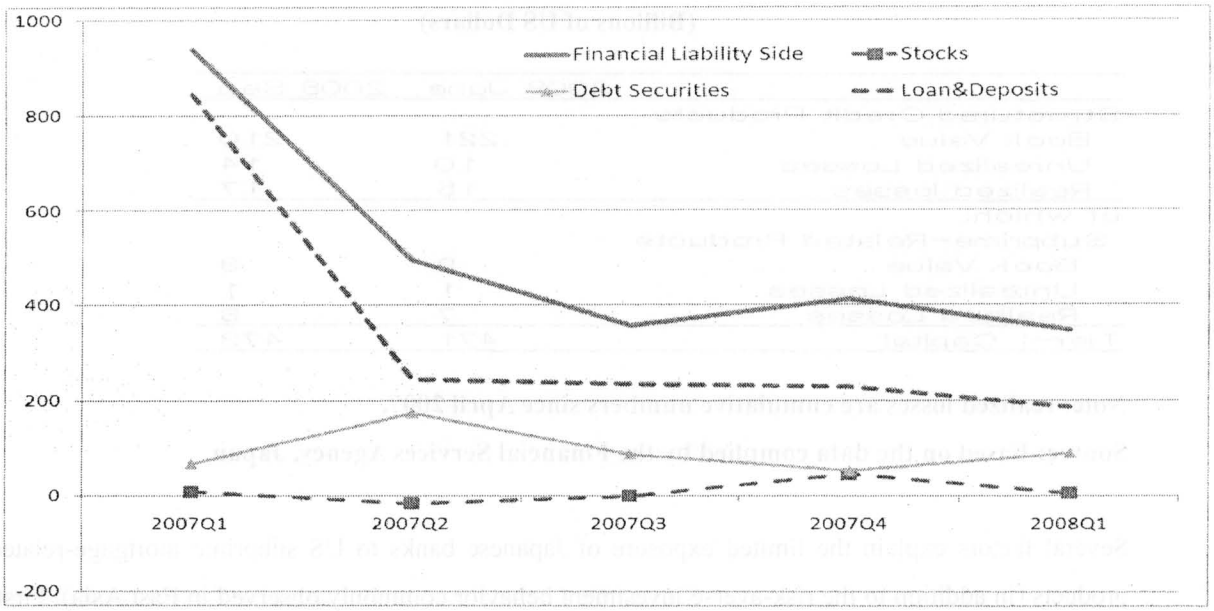


Note: A minus indicates a net increase in foreign assets.

Source: Based on IMF data.

Regarding the foreign liability side of UK financial accounts, capital inflows declined drastically (Figure 12). The amount dropped from $939 billion in the first quarter of 2007 to $464 billion in the second quarter of the same year. This was driven by loans and deposits. This partly was a mirror image of the behavior of banks in the United States (namely, a cut in their dollar-denominated cross-border claims against banks operating in the United Kingdom). Moreover, a decline in the UK's foreign liabilities was attributed to a cut in interbank financing by banks in oil-exporting countries, Switzerland, Hong Kong, Singapore, and the euro area. Given that most of these funds were denominated in US dollars, as pointed out in Section II, this led to a serious shortage of US dollars among banks in the United Kingdom (and other European countries). BIS data indicate a larger decline in external liabilities of banks in the United Kingdom after the first quarter of 2008: a decline from $7,305 billion at end-2007 to $6,982 billion in September 2008. This is coincided with a sharp rise in the LIBOR (for example, 3-month LIBOR rose from around 3% to 4% in September 2008).

Figure 12. UK Financial Accounts (External Liability Side, Billions of US Dollars)



Note: A plus indicates a net increase in foreign liabilities.

Source: Based on IMF data.

3-2. The Impact of the Crisis on Japan's Cross-Border Capital Movements

Generally, East Asia could be said to have managed to escape from direct damage caused by the US subprime mortgage crisis. This was because East Asian investors and banks had not invested much in US structured credit products, which included subprime mortgage-related products, compared with European investors and banks. This is attributable to the risk-averse investment behavior of East Asia in general, as pointed out in Section II.

In the case of Japan, the book value of structured credit products held by Japanese (nationality) banks (including major banks, regional banks, and cooperative financial institutions) amounted to only a little more than $210 billion as of September 2008 (Table XI). Of this book value, unrealized losses amounted to $14 billion. Cumulative realized losses since April 2007 amounted to only $17 billion. Moreover, their exposure to subprime mortgage-related products was only $8 billion (of which, cumulative realized losses reached only $8 billion). This explains why the amount of Japanese banks' write-downs related to such assets was much smaller than those of US and European banks.

Table XI. Exposure of Japanese Banks to Structured Credit Products

(Billions of US Dollars)

	2008 June	2008 Sep.
Structured Credit Products		
Book Value	221	210
Unrealized Losses	10	14
Realized losses	15	17
of which:		
Subprime-Related Products		
Book Value	9	8
Unrealized Losses	1	1
Realized Losses	7	8
Tier-1 Capital	471	473

Note: realized losses are cumulative numbers since April 2007.

Source: Based on the data complied by the Financial Services Agency, Japan.

Several factors explain the limited exposure of Japanese banks to US subprime mortgage-related products (in addition to the risk-averse investment behavior commonly observed in East Asia). First, deposit-taking banks (commercial banks) are dominant in Japan in part because the removal of firewalls among banking, securities, and insurance businesses, as seen in the United States and Europe, has not been fully implemented yet. Japan undertook a so-called "Financial Big Bang" from 1996. These reforms deregulated cross-entry barriers by allowing the establishment of financial holding companies, but the separate management of various financial businesses has remained a requirement. The concerns over conflicts of interest and possible abuses exercised by banks have deterred any moves toward the integration of various financial services or a "universal banking" system (Shirai, 2009a).[6] Thus, competition between commercial and investment banks has not been as intense as that seen in the United States and Europe.

Second, Japanese banks enjoy a large pool of deposited household savings. About 50% of individual financial assets ($13 trillion) in Japan are kept in the form of cash and deposits, despite there being substantially low interest rates on deposits. Thus, Japanese banks' needs to obtain financing from alternative sources (such as the wholesale money market, capital market or abroad) have been relatively limited, as compared with US and European banks. As a result, the market pressures on Japanese banks to achieve better performance tended to be milder than those on US and European banks. For example, banks' average return on assets was 0.36% in Japan in 2006—lower than the 0.9% in the United States and 0.5% in the United Kingdom. Banks' average return on equity was 2.8% in Japan, while those of the United States and United Kingdom were 11% and 10%,

[6]The United Kingdom and Europe have been advanced in this area since 1988, when the EU Second Banking Coordination Directive that extended the German universal banking system (with the full effect from 1993) was issued. The United States used to maintain stringent firewalls under the Glass-Steagal Act of 1933. But the Gramm-Leach-Bliley Act in 1999 was passed to replace some parts of the Glass-Steagal Act to allow cross-entry competition.

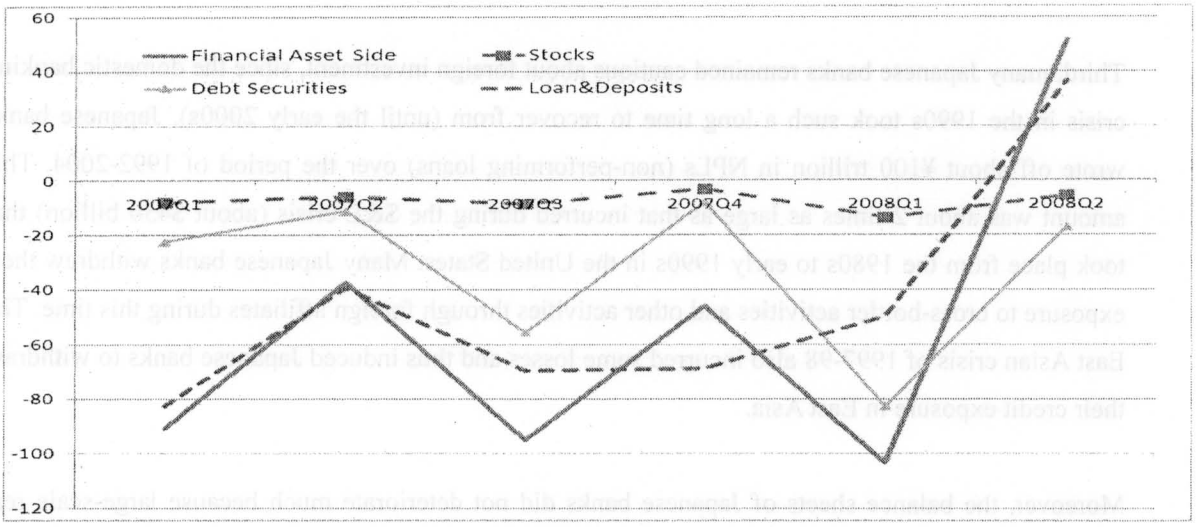
respectively (IMF, 2008b).

Third, many Japanese banks remained cautious about foreign investment since the domestic banking crisis in the 1990s took such a long time to recover from (until the early 2000s). Japanese banks wrote off about ¥100 trillion in NPLs (non-performing loans) over the period of 1992-2004. This amount was about 2 times as large as that incurred during the S&L crisis (about $450 billion) that took place from the 1980s to early 1990s in the United States. Many Japanese banks withdrew their exposure to cross-border activities and other activities through foreign affiliates during this time. The East Asian crisis of 1997-98 also incurred some losses and thus induced Japanese banks to withdraw their credit exposure in East Asia.

Moreover, the balance sheets of Japanese banks did not deteriorate much because large-scale real estate bubbles did not take place in Japan before the subprime mortgage crisis, unlike those experienced in the United States, the United Kingdom, Ireland, Spain and other European countries. The share of the real estate sector in total lending by banks was only 18% in 2006-07. Also, the limited exposure to foreign liabilities, as described in Section II, prevented Japanese banks from incurring from large credit squeezes arising from any reduction in cross-border financing channels, as seen in European banks.

Nonetheless, the subprime mortgage crisis affected Japan's financial accounts in a manner similar to those of the United States and United Kingdom. It largely affected Japan through the loan and deposit accounts, although the magnitude of the impact for Japan was milder than for the United States and United Kingdom. The asset side of the financial account shifted from minus $37 billion in the second quarter of 2007 to plus $52 billion in the second quarter of 2008 (Figure 13). This was driven by a decline in the loan and deposit accounts of non-bank firms. However, the amounts in the loan and deposit accounts of banks remained relatively stable, partly because Japanese banks increased (largely yen-denominated) lending to their affiliates operating abroad as well as to other foreign banks in the United States and Europe that were in need of liquidity (BIS, 2008a). This trend is consistent with BIS stock data, which indicates stable movements of external assets of banks in Japan. The amount of external assets was well maintained, being $2,402 billion at end-2007 and $2,466 billion in September 2008 (Table X). The movement of foreign debt securities assets though was very volatile given Japanese investors and banks' large exposure (see Table VIII).

Figure 13. Japan's Financial Accounts (External Asset Side, Billions of US Dollars)

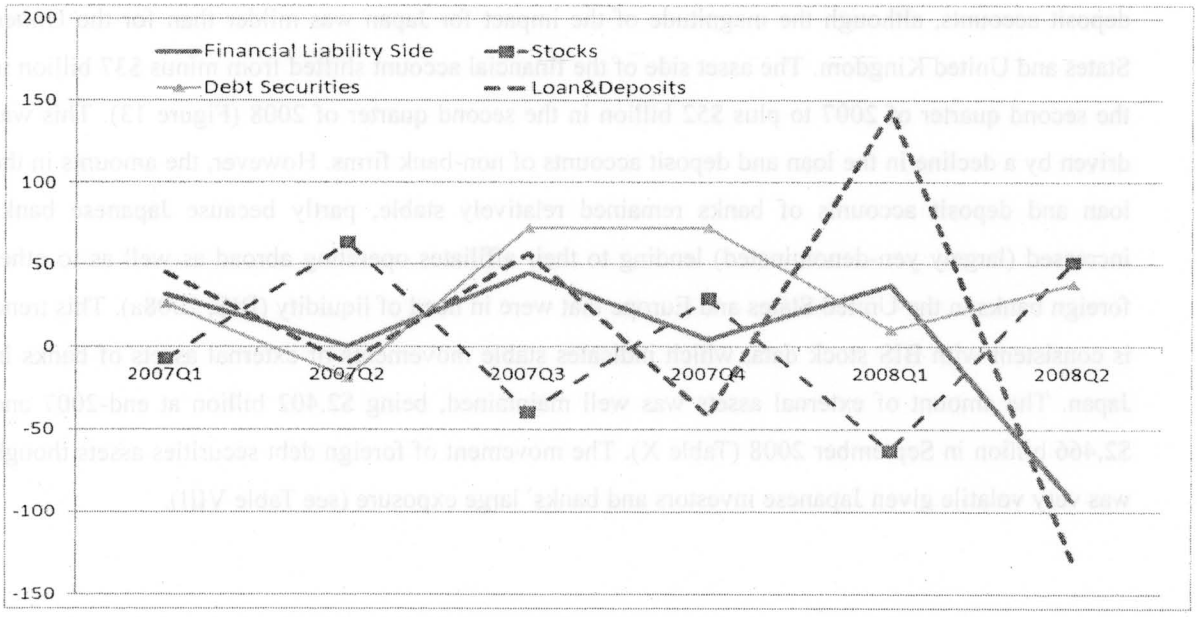


Note: A minus indicates a net increase in foreign assets.

Source: Based on IMF data.

On the other hand, no clear-cut trends were seen regarding the external liability side of Japan's financial accounts. Foreign liabilities in the form of stocks became volatile given the rapid increase in sales and purchase transactions by foreign investors in the United States and Europe. External liabilities in the form of loans and deposits became volatile as well (Figure 14).

Figure 14. Japan's Financial Accounts (External Liability Side, Billions of US Dollars)



Note: A plus indicates a net increase in foreign liabilities.

Source: Based on IMF data.

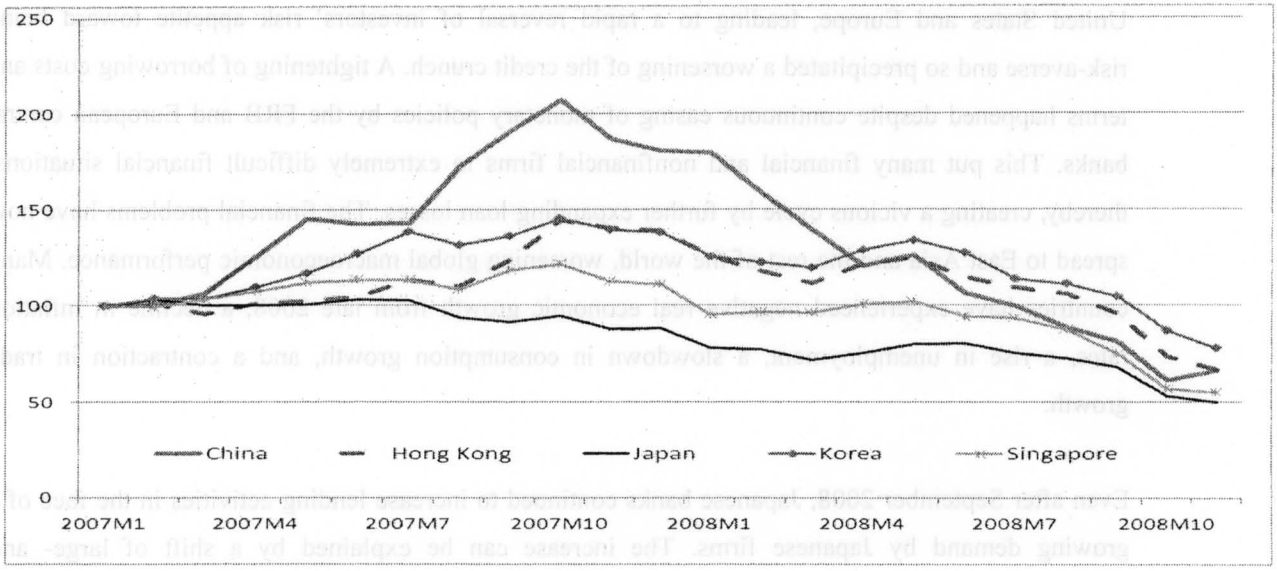
Japan and East Asia felt the impact of the subprime loan crisis primarily after Lehman Brothers filed for Chapter 11 bankruptcy protection in the US courts in September 15, 2008. Lehman Brothers had faced substantial losses after taking large positions in subprime-related assets. Hence there had been a plunge in Lehman Brothers stock prices amid growing loss of confidence by investors in the institution. Its failure intensified the counterparty and credit risks among other financial institutions and investors. As a result, doubt about overall financial sector stability increased sharply in the United States and Europe, leading to a rapid reversal of investors' risk appetite toward being risk-averse and so precipitated a worsening of the credit crunch. A tightening of borrowing costs and terms happened despite continuous easing of monetary policies by the FRB and European central banks. This put many financial and nonfinancial firms in extremely difficult financial situations; thereby, creating a vicious cycle by further expanding loan losses. The financial problems have now spread to East Asia and the rest of the world, worsening global macroeconomic performance. Many countries have experienced negative real economic growth from late 2008, a decline in inflation rates, a rise in unemployment, a slowdown in consumption growth, and a contraction in trade growth.

Even after September 2008, Japanese banks continued to increase lending activities in the face of a growing demand by Japanese firms. The increase can be explained by a shift of large- and medium-sized Japanese firms from capital markets to bank loans after the tightening of financing conditions in both international and domestic capital markets. A sharp and continuous decline in stock prices was caused by the massive sales of stocks by domestic and foreign investors (Figure 15). This also made it very difficult for firms to raise funds in the international and domestic stock markets. Although increases in corporate bond spreads in Japan were not as rapid as those in the United States and Europe, it became increasingly costly and difficult for Japanese firms to gain access to the corporate bond market.

Japanese banks have maintained relatively high capital adequacy ratios. However, the declining value of the Japanese stocks held by Japanese banks put them in an extremely difficult position as it impaired their capital. This has forced many banks to increase their capital, making them cautious about extending loans to small-sized firms. Thus, the growing demand for credit from large- and medium-sized firms and declining bank capital have made it very difficult for small-sized firms to gain access to bank loans. This situation induced the Japanese government to provide inexpensive financing and credit guarantees to Japanese firms from 2008. The government also attempted to contain the declining trend of stock prices by allowing the Bank of Japan (BOJ) and the Banks' Shareholdings Purchase Corporation (BSPC, established in 2001) to purchasing stocks held by banks from 2009; effectively re-starting an earlier measure. BOJ and PSBC purchased stocks amounting to ¥2 trillion and ¥1.6 trillion, respectively, over the period of 2002-06 as an emergency financial

measure to revitalize the sluggish stock market. Both institutions began to sell these stocks from 2006 in the face of improving stock market environment. The government has now interrupted this selling process, and instead, has instructed them to recommerce their purchasing (up to ¥1 trillion by the BOJ and ¥20 trillion by the BSPC).

Figure 15. Movements of East Asian Stock Price Indices (2000 M1=100)



Source: Based on CEIC data.

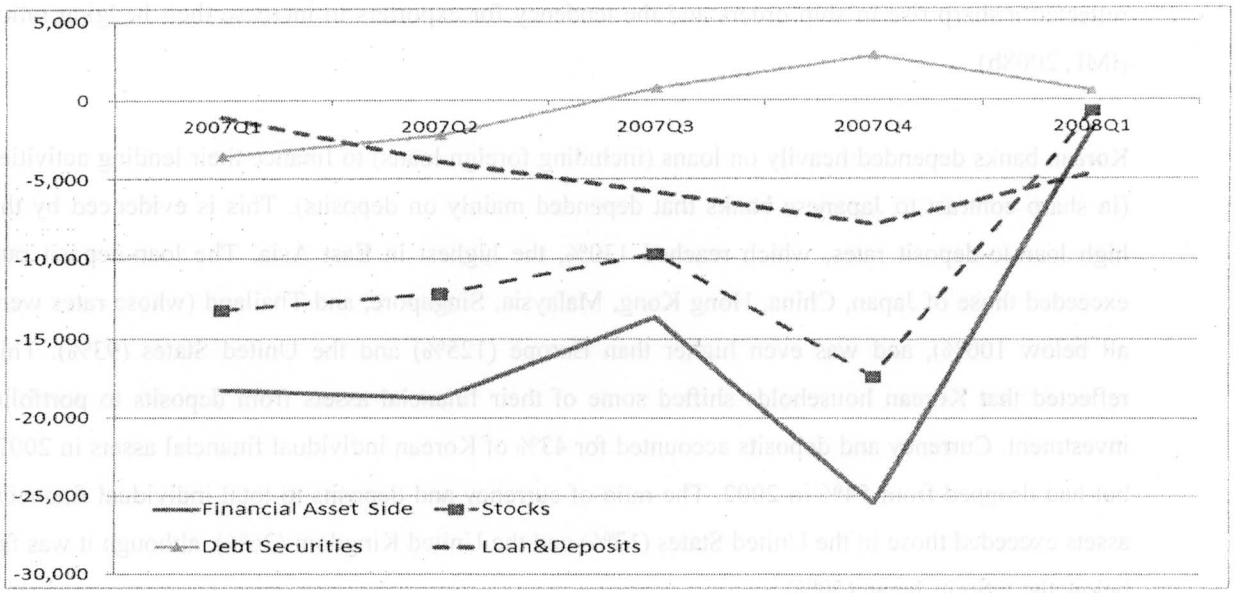
3-3. The Impact of the Crisis on Korea's Cross-Border Capital Movements

In the case of Korea, the financial sector, like that in Japan, did not experience major losses from investment in US structured credit products. Neither did Korean banks engage much in securitization of mortgages and other assets, unlike US and European banks. The amount of investment on subprime mortgage-related financial assets by financial institutions (with Lehman Brothers and Merrill Lynch) is estimated to have reached only $720 million (Lee, 2008). Of this $720 million, banks held $120 million, securities firms $390 million, and insurance firms $210 million.

The US subprime mortgage crisis affected Korea mainly through a cut in Korean investors' investment abroad. Figure 16 shows that the external asset side of Korean financial accounts shifted drastically from minus $18,746 million in the second quarter of 2007 to minus $1,737 million in the first quarter of 2008. This shift was triggered by the decline in Korean investors' holdings of foreign stocks. This phenomenon contrasted with the cases of the United States, United Kingdom, and Japan, where movements were dominated by the loan and deposit accounts. This reflects Korean investors' relatively large exposure to securities (although Korean largest financial assets remained in the form of foreign reserves, as indicated in Table VIII). Securities (stocks, bonds, and mutual funds) accounted for 34% of individual financial assets—much higher than Japan (20%) and the United

Kingdom (15%), although the rate was far below that of the United States (52%). IMF (2008b) points out further that liberalization of capital outflows and tax benefits in 2006, as well as increased risk appetite in search for high returns, were major factors contributing to this shift.[7] Interestingly, foreign assets in the loan and deposit accounts expanded slightly because of an increase in loans and deposits in the Korean banking sector. This may be attributed to the fact that foreign bank affiliates operating in Korea increased lending to their headquarter banks in the United States and Europe that suffered from a sudden liquidity shortage.

Figure 16. Korea's Financial Accounts (External Asset Side, Millions of US Dollars)



Note: A minus indicates a net increase in foreign assets.

Source: Based on IMF data.

As for the external liability side of Korean financial accounts, major impacts were felt through a decline in foreign investors' investment in Korean stocks (Figure 17). An increase in negative numbers in stock investment indicates an increase in outflows by foreign investors from the Korean stock market. The heavy dependence on foreign investors in the stock market (35% in 2006) adversely affected the Korean stock market once foreign investors began large scale sales in 2008. Prior to the crisis, mainly US investors, followed by European ones, had invested heavily in the Korean stock market. This explains in part the sharp decline in Korean stock prices (Figure 15).

The loan and deposit accounts of the Korean external liability side remained relatively stable until

[7] The government extended the coverage of foreign securities eligible for investment by residents in 2003. In 2006, the limits on foreign securities investment by individual investors were removed. In 2007, domestic asset management firms were exempted from taxation on gains through overseas stock purchases in foreign investment funds (BIS, 2008a).

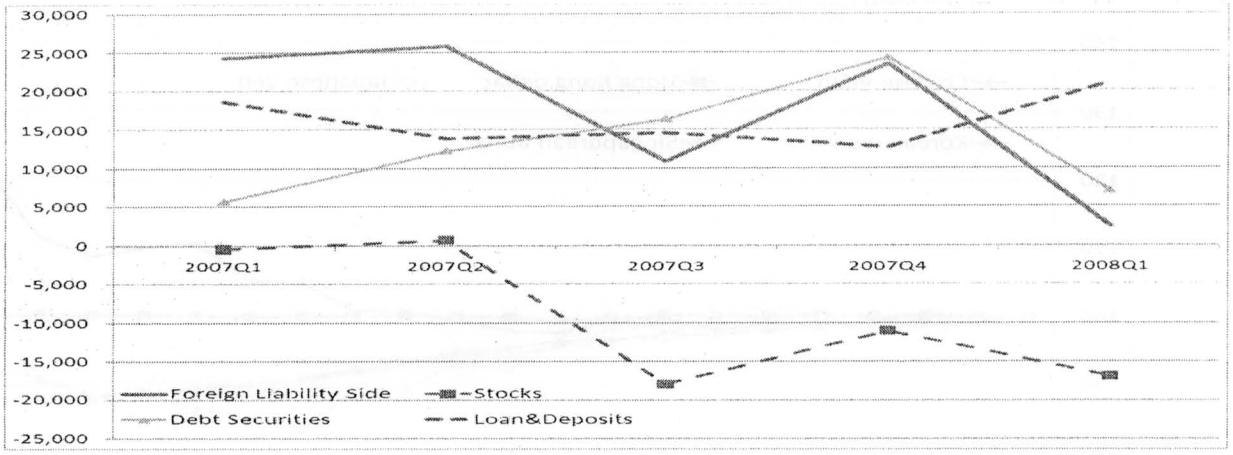
the fourth quarter of 2007. Prior to the subprime loan crisis, the local branches of foreign banks operating in Korea had actively borrowed US dollars, converted them into Korean won in the swap market, and then invested in Korean debt securities (i.e., Korean treasury bonds, central bank monetary stabilization bonds). This contributed to the rapid increase in short-term external debt (BIS, 2008b). Moreover, domestic banks also increased foreign borrowing to meet demand for foreign currencies driven by growing foreign portfolio investment by residents. In addition, capital inflows were generated by the hedging activities of Korean shipbuilders (these obtained large foreign currency revenues and anticipated a won appreciation) and by asset management firms (that made overseas portfolio investments with local funds).[8] The increase in hedging-related capital inflows reflected a sharp rise in ship orders and the tendency for exporters to increase their hedging ratios (IMF, 2008b).

Korean banks depended heavily on loans (including foreign loans) to finance their lending activities (in sharp contrast to Japanese banks that depended mainly on deposits). This is evidenced by the high loan-to-deposit rates, which reached 130%, the highest in East Asia. The loan-deposit rate exceeded those of Japan, China, Hong Kong, Malaysia, Singapore, and Thailand (whose rates were all below 100%), and was even higher than Europe (125%) and the United States (93%). This reflected that Korean households shifted some of their financial assets from deposits to portfolio investment. Currency and deposits accounted for 43% of Korean individual financial assets in 2007, but had dropped from 54% in 2002. The ratio of currency and deposits to total individual financial assets exceeded those in the United States (13%) and the United Kingdom (26%), although it was far below the ratio in Japan (50%).

As a result, Korea's outstanding external liabilities rose from $260 billion in the fourth quarter of 2007 to $412 billion in the first quarter of 2008. Long-term external debt increased from $146 to $236 billion during the same period, and short-term external debt grew from $114 to $176 billion. Of the $412 billion, banks were the largest debtors and held external debt of $214 billion (52% of total external debt). Among banks, domestic banks' external debt ($122 billion) exceeded that of foreign banks' branches ($92.3 billion), but the ratio of short-term external debt to total external debt was greater for foreign banks (accounting for 90% of total external debt) than domestic ones (51%). The large debt exposure came from banks in the United Kingdom, France and Germany, followed by the United States. About half of the increase in short-term external debt of banks was attributable to the provision of currency hedging, as pointed out above. The growing dependence on wholesale financing made Korean banks vulnerable to liquidity risks and external financial conditions.

[8] The BIS report (BIS, 2008b) points out that Korean exporters and asset management firms sold expected US dollar receipts to domestic banks and foreign bank branches in Korea. These banks then sold these US dollars in the local spot market to reduce their foreign currency exposure, thereby creating a capital inflow.

Figure 17. Korea's Financial Accounts (External Liability Side, Millions of US Dollars)

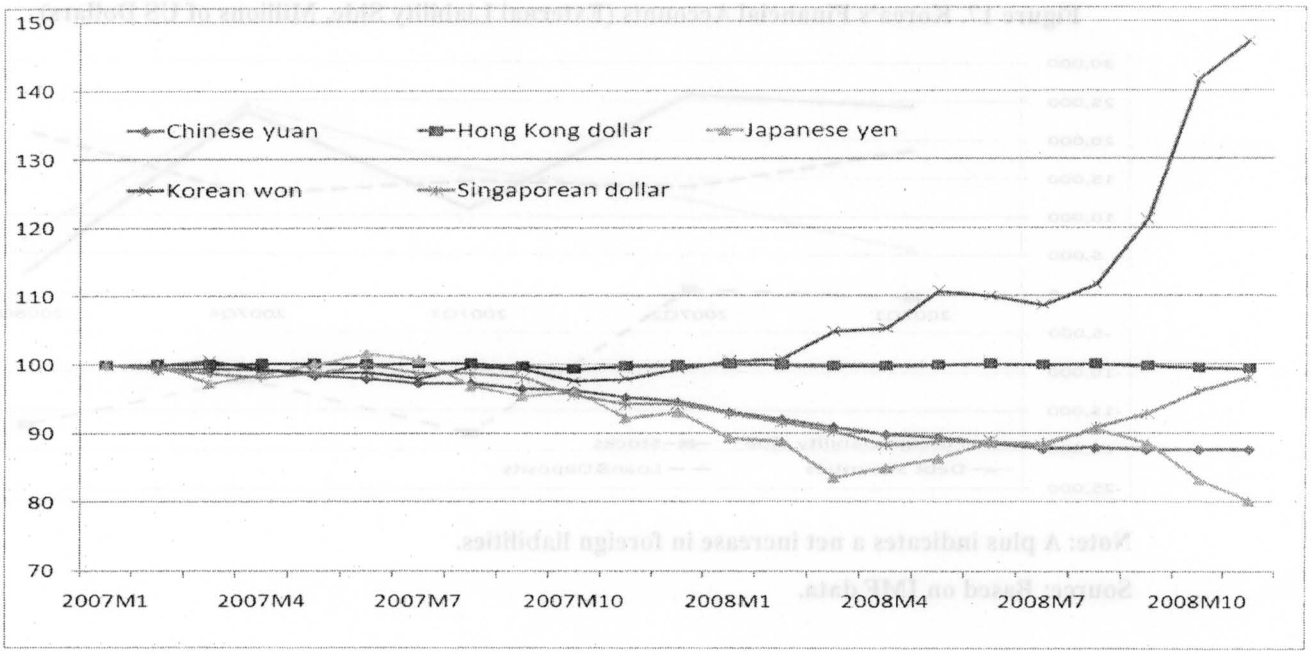


Note: A plus indicates a net increase in foreign liabilities.

Source: Based on IMF data.

From October 2008, the shortage of US dollars caused by a decline in capital inflows became substantial in East Asia. In particular, Korea faced a decline in capital inflows, party because of its growing external debt and partly because of the unwinding of the Japanese yen-involved carry trade. This situation forced the Korean central bank to engage in a $30 billion currency swap agreement with the FRB on October 30, 2008. The decline in capital inflows caused a depreciation of the Korean won. Between December 2007 and November 2008, the exchange rate for the Korean won against the US dollar depreciated by 96% (Figure 18). While other local currencies vis-à-vis the US dollar also depreciated; 16% in Indonesia, 17% in Malaysia, 8% in Singapore, and 8.3% in Thailand, the scale of depreciation was larger in Korea. The sharp depreciation of the Korean won reflected the large sale of Korean stocks held by foreign investors, deteriorating current account balances, and growing concerns about dollar shortages. A sharp depreciation of East Asian currencies against the US dollar was supposed to improve East Asian export competitiveness, but such an advantage has not been gained because of the declining global demand for East Asian export products.

Figure 18. Movements of East Asian Exchange Rates Vis-à-Vis the US dollar (2007M1=100)



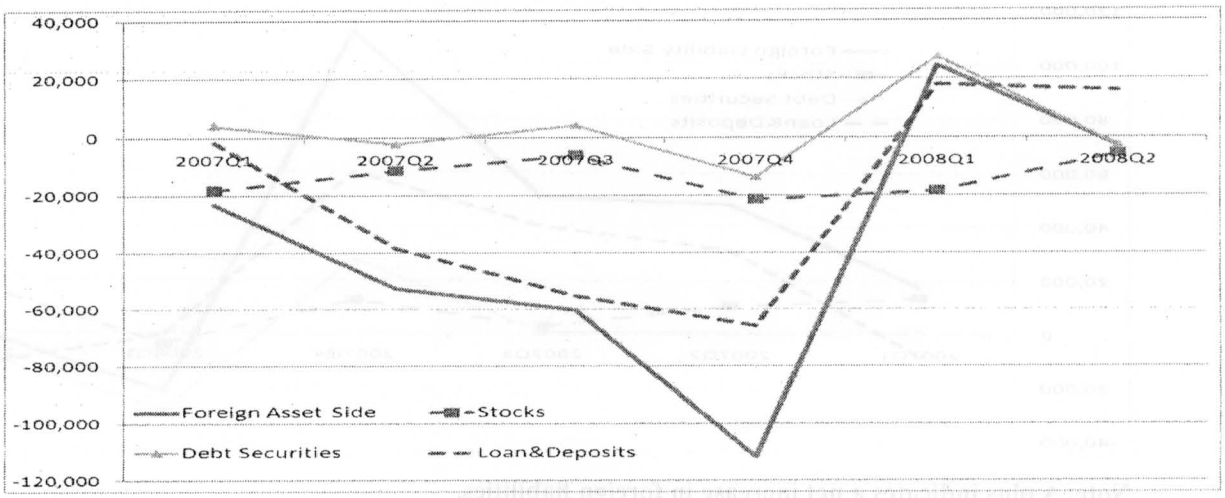
Source: Based on CEIC.

3-4. The Impact of the Crisis on Cross-Border Capital Movements in Other East Asian Countries

The financial accounts of Hong Kong were affected by the subprime mortgage crisis, mainly through the loan and deposit accounts. The asset side of the financial accounts actually showed an increase in foreign assets from the second quarter of 2007 to the third and fourth quarters of 2007 (shifting from minus $53 billion in the second quarter to minus $60 billion in the third quarter, and further to minus $112 billion in the fourth quarter), as indicated in Figure 19. However, it then changed to plus $24 billion in the first quarter of 2008. This movement was driven by the loan and deposit accounts. The sharp decline in foreign assets in the first quarter of 2008 appears to be correlated with heightened financial sector uncertainty in the United States and Europe, leading to a sharp reduction in the provision of cross-border credit to banks in those places. BIS stock data also indicates a decline in foreign assets of banks in Hong Kong from $798 billion at end-2007 to $772 billion in September 2008 (Table X).

The sizes of the local asset management and hedge fund activities are likely to further shrink in 2009. However, Hong Kong differs from other countries in that there are significant opportunities for the expansion of financial service provision to (mainland) China. This makes the risk of a major retrenchment in Hong Kong's financial service business over the longer term appear relatively modest (IMF 2008c).

Figure 19. Hong Kong's Financial Accounts (External Asset Side, Millions of US Dollars)



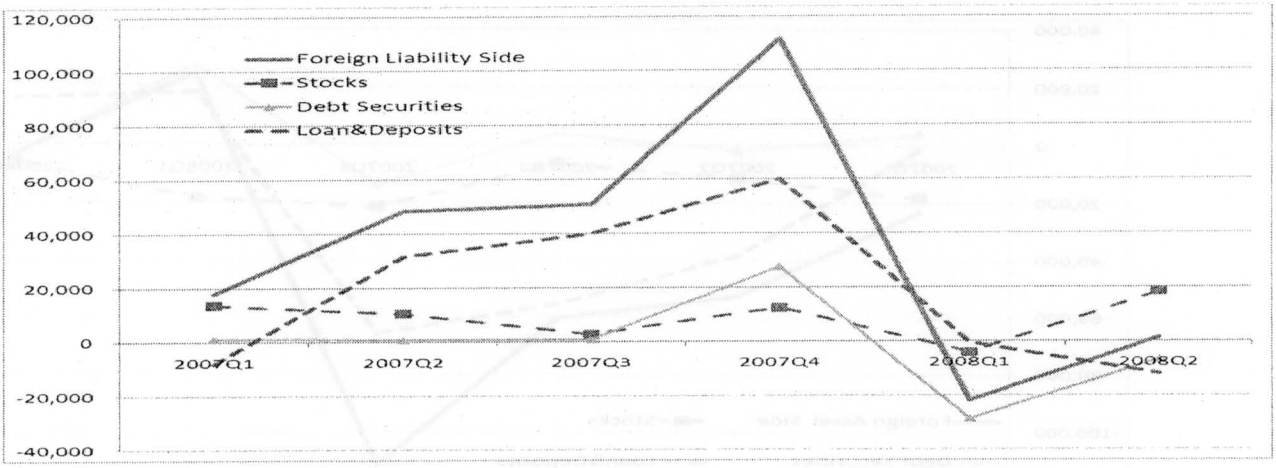
Note: A minus indicates a net increase in foreign assets.

Source: Based on IMF data.

The liability side of Hong Kong's financial accounts expanded from $48 billion in the second quarter of 2007 to $112 billion in the fourth quarter of the same year (Figure 20). The increase, driven by the loan and deposit accounts, coincided with an increase in foreign assets; namely, an increase in foreign liabilities (caused by an increase in deposits) gave rise to increased cross-border lending. It then dropped sharply to minus $22 billion in the first quarter of 2008. This movement was also dominated by the loan and deposit accounts. A decline in the external liabilities of the loan and deposit accounts in 2008 could be explained by increased concerns about the Hong Kong banking system brought about by its close relationships with the United States and Europe.

This situation apparently worsened in late 2008. IMF (2008c) documents that in September 2008, unfounded rumors of liquidity problems and losses from international exposures of banks in Hong Kong catalyzed a deposit run at the Bank of East Asia, the third-largest retail bank in Hong Kong. This intensified the already fragile investor confidence in Hong Kong, notwithstanding its banks' overall sound fundamentals. As pressures built in international markets, the Hong Kong interbank rates rose sharply as a result of rising concerns over counterparty risk, higher risk aversion, and some degree of liquidity hoarding. The market for term interbank lending dried up with significant tiering among counterparties. Foreign investors' investment in Hong Kong stocks appeared to have avoided a sharp withdrawal before the second quarter of 2008. However, Figure 15 indicates a sharp decline in the stock prices from the second half of 2008, partly attributable to a decline in foreign investors' investment in Hong Kong.

Figure 20. Hong Kong's Financial Accounts (External Liability Side, Millions of US Dollars)



Note: A plus indicates a net increase in foreign liabilities.

Source: Based on IMF data.

The banking sector in Hong Kong remains relatively sound. Prior to the sub-prime crisis, banks did not have recourse to wholesale sources of funding, as evidenced by the low loan-to-deposit ratio (60%). As its banks enjoy a substantially large deposit base, like Japan's, Hong Kong's total exposure to US subprime securities and structured assets, as well as to SIVs and monoline insurers in the United States, remains low and well below 0.5% of bank assets (IMF, 2008c).

While complete financial account data are not yet available, it appears that Singapore has experienced a decline in foreign assets. Prior to the crisis, Singapore invested actively in foreign securities through Temasek Holdings (established in 1975 with an estimated size of assets of $130 billion) and Government of Singapore Investment Corporation (GIC, established in 1981 with its major resources coming from foreign reserves; estimated asset size is $399 billion). In December 2007, Temasek invested $4.4 billion to purchase Merrill Lynch stock. In the same month, GIC purchased UBS shares equivalent to $9.76 billion. In January 2008, GIC invested $6.8 billion to purchase Citigroup stock. These stocks have since caused huge losses to these two sovereign wealth funds. Meanwhile, capital inflows to Singapore securities appear to have dropped sharply. This could be attributed to a cut in US investors in Singaporean securities. Given that US investors were the largest foreign investors in Singaporean stocks and debt securities (accounting for 43% and 20% of total foreign investor ownership), this impact is likely to have been substantial.

In China's case, the amount of subprime mortgage-related investment by the major Chinese banks (Industrial & Commercial Bank, Bank of China, and China Construction Bank) was $7.2 billion in the first half of 2008 (BBVA, 2008). Bank of China had the largest exposure $5.5 billion, but its share to total assets was only 0.6% and its share to equity was just 8.1%. Industrial & Commercial

Bank held $1.2 billion with ratios to total assets and equity being 0.1% and 1.5%, respectively. China Construction Bank invested $488 million with ratios to total assets and equity of only 0.1% and 0.7%, respectively. Moreover, the Chinese banking sector enjoys substantial savings accumulated by households and firms, so their reliance on the wholesale market is limited. The ratio of loans to deposits remained at about 60% in China, much smaller than for US and European banks, as well as for Korean banks.

Nonetheless, Chinese financial institutions and domestic investors suffered large losses from investments in US and European stocks, whose prices saw a sharp drop amid growing anxiety over their deteriorating balance sheets and resultant massive sales by investors (Table XII). The China Investment Corporation [CIC], established in 2007 with estimated assets of $200 billion and regarded as a Sovereign Wealth Fund, invested aggressively in US stocks in 2007 (for example, $5 billion in Morgan Stanley stock and $3 billion in the Blackstone Group, a US buyout fund). These stock prices plunged by more than 50%, causing large unrealized losses to CIC. CIC also invested $5.4 billion in the Reserve Primary Fund, a US money market fund with more than $50 billion in assets, which made substantial losses and stopped investors' redemptions as asset values declined below par in September 2008. In October 2008, CIC demanded the withdrawal of its investment of $5.4 billion from this fund. China Development Bank and Ping'an Insurance, and a number of Qualified Domestic Institutional Investors (QDII) have also suffered large losses. Some Chinese banks and firms held substantial amounts of US agency-related bonds (such as bonds issued by Fannie Mae and Freddie Mac); they began to sell many of them in 2008.

Table XII. China's Losses from Investment Aboard

		Amount of Investment $ Billion	Initial Price US$	Latest Price US$	Current Value $ Billion	Loss $ Billion	Loss Ratio %
China Investment Corp.	Black Stone	3.0	29.6	10.9	1.1	1.9	63
	Morgan Stanley	5.0	48.07~57.68	21.9	2.3	2.3	46
China Development Bank	Barclays	3.0	14.6	4.3	0.9	2.2	71
Ping An Insurance	Fortis	2.7	28.0	1.7	0.2	2.5	94
QDII*		16.2			8.1	8.1	50

*QDII include Huazia, Hua'an, Harvest, Yinhua, Southern Fortune-SGAM, SITC-JP Morgan Fleming, ICBC Credit Swiss, Haitong-Fortis and Bocm-Schroder.
Source: BBVA.

Although financial account data for China for 2008 is not yet available, net capital inflows appear to have declined. While FDI inflows have continued to grow, portfolio inflows appear to have been declining. This can be explained by a decline in US investor investment into China, as well as the recent appreciation of the US dollar (BBVA, 2008). Although domestic factors (such as gradual monetary tightening from October 2004 to September 2008) adversely affected stock prices, a withdrawal of foreign investors from the Chinese stock market has also added to the declining trend

in Shanghai Composite Index (Figure 15). The asset booms (stocks and real estates) before early 2008 were partly the consequence of China's exchange rate policy to stabilize the yuan vis-à-vis the US dollar (even after the adoption of a managed float regime in July 2005). The massive injection of liquidity by People's Bank of China in exchange for an accumulation of foreign reserves contributed to credit booms by banks.

3-5. Summary of the Impact of the Crisis on Capital Flows and Economies in East Asia

To summarize, the direct impact of the US subprime mortgage crisis to East Asia has been limited compared to that felt in Europe for several reasons. First, with the exception of Korea, the loan-deposit ratios of banks remained low. East Asian banks enjoyed a large accumulation of savings and thus faced a relatively low level of need to obtain financing from the wholesale market. The limited exposure to interbank financing relative to European banks helped them to escape from the massive dollar squeeze experienced by US and European banks.

Second, net external liabilities (difference between financial liabilities and assets, based on data of the net international investment position) was about 24% of GDP in Korea, 38% in Indonesia, 23% in Thailand and 3% in Malaysia in 2007. Such figures indicate that these countries have been net external debtors. However, these sizes were much smaller than those of European crisis-affected emerging market economies—such as Estonia (80%), Slovak Republic (60%), Lithuania (55%), Poland (50%), and the Czech Republic (38%). Moreover, a number of East Asian countries had net external assets (the difference between external assets and liabilities) with the ratio of net external assets to GDP recording 49% in Japan, 30% in China, 252% in Hong Kong and 92% in Singapore. These diverse positions among East Asian countries helped the region to stabilize financial conditions, as compared those in Europe.

Third, East Asian banks had limited exposure to US structured credit products, as compared with European banks. The ratios of structured investment to equity were only 16% (Taiwan), 10% (Hong Kong), 5% (Philippines), 3.8% (China, Thailand), 3% (Singapore), 2% (Korea), and 1% (Malaysia), according to IMF (2008b).

Fourth, household debt remained relatively low in East Asia. The ratios of household debt to GDP were 13% in China, 70% in Japan, 80% in Korea—lower than the United States (90%), the United Kingdom (100%), and Iceland (103%). This could thus have helped to mitigate the deflationary impact of the financial sector problems on households, and thus their consumption growth.

Fifth, East Asian countries have ample foreign reserves, thanks to accumulated current account surpluses. Thus, external debt as a percentage of foreign reserve ratios remained less than 100% in

many East Asian countries, with the exception of Indonesia (250%) and Korea (about 100%, but exceeding 100% in case of short-term debt only). Countries are regarded vulnerable to the "capital account crisis" (a crisis triggered by a sudden and massive reversal of capital flows, as seen in the East Asian crisis of 1997-98) if the size of foreign reserves becomes smaller than the size of the short-term external debt.

Nonetheless, East Asia was severely affected after the failure of Lehman Brothers in September 2008. Korea and East Asian emerging market economies suffered from a decline in capital inflows, particularly in terms of external borrowing and stock market financing. The loss of risk appetite and intensified liquidity shortages in the United States and Europe reversed their investment activities, causing a rapid increase in CDS premiums and interbank market interest rates, a sharp drop in stock prices (Figure 15), and a rapid depreciation of exchanges rates (Figure 18) in East Asia.

The crisis spread to emerging market economies and East Asia partly through the behavior of foreign bank affiliates operating in East Asia. Since banks in the United States, then in Europe, have the most serious balance sheet problems, their foreign affiliates have been more severely affected than local banks; this because the former have had their financing from their home countries cut. This phenomenon was more pronounced in Eastern Europe (in relation to Western European banks) and the Baltic region (in relation to Nordic banks), but was also apparent in East Asia (in relation to US and European banks). In East Asia, mainly the branches of US banks have curtailed their lending activities. Trade finance has also declined because many banks reduced their supply of letters of credit in the absence of sources of finance, as well as a decline in mutual trust.

While most East Asian currencies depreciated against the US dollar from late 2008 (Figure 18), the Japanese yen and the Chinese yuan showed opposite trends. The Japanese yen appreciated sharply against the US dollar (as well as the euro and other currencies), because of the unwinding of yen carry trade that was active prior to the subprime mortgage crisis. Moreover, the evaluation of the Japanese yen as an international currency improved somewhat as the growing uncertainty in the financial sector in the United States and Europe to some extent reduced the credibility of those currencies. The relatively limited damage incurred on the Japanese financial sector from the subprime mortgage crisis added to this trend. On the other hand, the appreciation of the Chinese yuan reflects continuous large trade surpluses, which continue to grow because the slowdown in imports exceeded that of exports. Since July 2008, however, the Chinese government slowed the pace of the appreciation of the yuan amid a deteriorating export sector environment in its coastal areas.[9]

[9] The non-deliverable futures (NDF) rate of the yuan vis-à-vis the US dollar indicated a market expectation of yuan's depreciation in late 2008. This reflects a sharp appreciation of the yuan against

Since the late 2008, East Asia has been facing a slowdown in economic growth. Japan's real GDP remained at 2.4% in 2007, then it went down to -0.6% in 2008. Its real GDP growth in the fourth quarter of 2008 was minus 12.7% (relative to the previous quarter, annualized), the scale of slowdown being much greater than the United States (-3.8%), the United Kingdom (-5.9%), and the euro area (-5.7%). Korean' real GDP growth dropped from 5% in 2007 to 2.5% in 2008. In particular, the real GDP growth in the fourth quarter of 2008 was minus 20.8% (relative to the previous quarter, annualized), with the scale of slowdown being even greater than Japan. Singapore's real GDP declined from 7.8% in 2007 to 1.1% in 2008. The real GDP in the fourth quarter of 2008 saw a decline of 12.5% (relative to the previous quarter, annualized).

China's real GDP dropped from 13% in 2007 to 9% in 2008. In particular, the fourth quarter of 2008 saw only a 6.8% increase, the lowest level since the fourth quarter of 2001 (6.6%), on a year-on-year basis. Although real GDP growth remained higher than for many other countries, for the continuous creation of employment (given the sheer size of working population) an achievement of more than 8% real GDP growth is required in China. Hong Kong's real GDP dropped from 6.4% in 2007 to 2.5% in 2008. The real GDP dropped by 2.5% in the fourth quarter of 2008 (on a year-on-year basis).

Japanese trade surplus dropped substantially from ¥10.7 trillion in 2007 to ¥7.9 trillion in 2008. The trade balance shifted to a deficit from October 2007 and maintained monthly deficits through January 2008. China's trade surplus was $295 billion in 2008, making China the world's largest trade surplus country, exceeding that of Germany. However, both exports and imports dropped in November and December 2008, but the greater slowdown in China's imports than in exports contributed to a substantial gain in the trade surplus. Korea's trade balance resulted in shifting from surpluses achieved continuously from 1998-2007 to a trade deficit of $13 billion in 2008.

The degree of economic slowdown appears to be more pronounced in Japan and the other East Asian countries than that of the United States. For example, Japan's industrial production dropped by 12% (relative to the previous quarter) and 15% (on a year-on-year basis) in the fourth quarter of 2008, while that of the United States declined relatively mildly by just 3.2% and 6.1%, respectively. Given that Japan (and East Asia) did not bear direct damage from the subprime mortgage crisis and global financial instability, this phenomenon on the face of it appears puzzling. BOJ (2009) points out several factors contributing to the differentiated performances between Japan and the United States.

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other currencies (except the Japanese yen). Between July 2008 and January 2009, the yuan appreciated by 16% against the euro, 28% against the British pound, 17% against the Canadian dollar, 29% against the Australia dollar, etc. The yuan depreciated 18% vis-à-vis the Japanese yen.

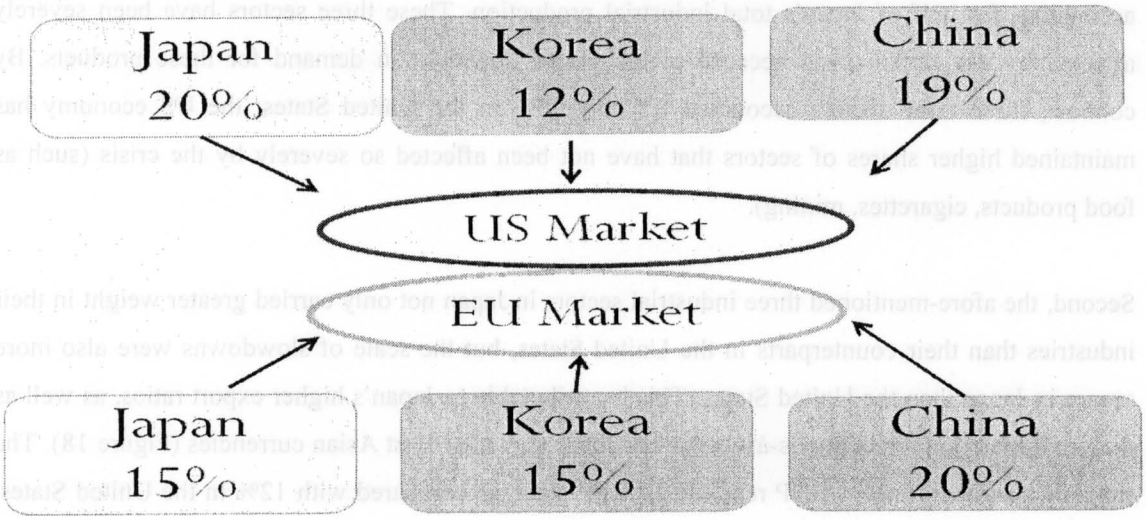
First, Japanese industrial production has been concentrated in three sectors: (a) transportation machinery (e.g. automobiles), (b) electric machinery (e.g., electronic parts and devices, electric machinery, IT machinery), and (c) general machinery (e.g., production machinery), together accounting for half of Japan's total industrial production. These three sectors have been severely affected by the global crisis because of the global downturn in demand for these products. By contrast, these three sectors accounted for only 20% in the United States; the US economy has maintained higher shares of sectors that have not been affected so severely by the crisis (such as food products, cigarettes, mining).

Second, the afore-mentioned three industrial sectors in Japan not only carried greater weight in their industries than their counterparts in the United States, but the scale of slowdowns were also more severe in Japan than the United States. This is attributable to Japan's higher export ratios, as well as the yen's sharp appreciation vis-à-vis the US dollar and other East Asian currencies (Figure 18). The share of manufacturing in GDP reached 22% in Japan, as compared with 12% in the United States. The share of manufacturing exports in total industry demand accounted for 16% in Japan, as opposed to 11% in the United States. The commencement of the economic slowdown in East Asia, the resource-rich countries, and other emerging market economies has added to the already-fragile export sector in Japan. This sector was already suffering from a decline in exports to the United States and Europe. While East Asia has a high degree of intra-regional trade (about 60% of total trade), most of these trades are concentrated in intermediate goods and parts. The region continues to depend on the United States and Europe as an ultimate destination for their finalized products (Figure 21). Thus, the economic slowdowns in the United States and Europe resulted in sluggish performances in trade and production in the East Asian region. Also, the decline in capital inflows from the United States and Europe to East Asia has discouraged consumption and investment activities in East Asia, hence undermining demand for trade products within the region.

Third, the responses of the industrial structure to demand shocks differed between Japan and the United States. In Japan's case, an increase in exports (a positive demand shock) tends to generate demand in related goods and services sectors (such as parts, intermediate goods, materials, transportation services) and thus their production activities; thereby generating a greater increase in final domestic demand and production of Japan. This multiplier effect tends to be greater in Japan than the United States, since the domestic procurement ratios for related goods and services have been higher in Japan than the United States. By contrast, industry in the United States depends more heavily on imports of parts, intermediate goods, and materials than does industry in Japan. The share of imports in manufacturing was 24% in Japan, as compared to 10% in the United States. Therefore, a decline in exports (a negative demand shock) is likely to generate a smaller negative shock to US industry than to Japanese, hence milder damage on total demand and production would result in the

United States than in Japan.

Figure 21. Share of Exports to the United States and the European Union (2007)

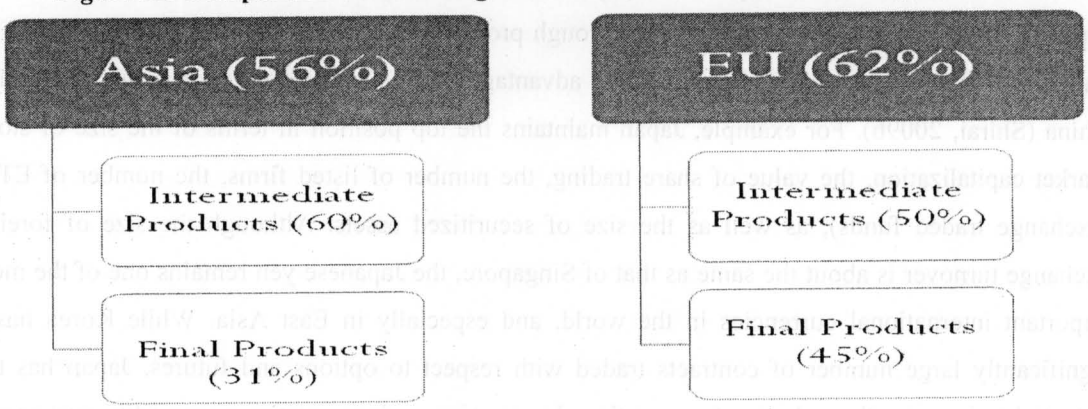


Source: Based on IMF data.

IV. Challenges for East Asia

The recent global financial and economic crisis has posed several challenges to East Asia. First, Japan and East Asia need to make greater effort to develop a more mature internal market for final goods and services. Intra-regional trade already accounts for 56% and this ratio is comparable to that of the European Union (62%). Nevertheless, the extent of trade integration is more self-complete in the European Union that in East Asia in the sense that Europe is able to offer internal markets for both intermediate goods and final ones. By contrast, East Asia has internal markets mainly for intermediate goods, given the growing production and trade networks fostered through regional FDI activities that began in the 1980s. However, East Asia continues to depend heavily on the United States and Europe as markets for their final products (Figure 22). The sluggish increase in domestic demand in Japan, as well as the high levels of savings relative to investments in East Asia, have contributed to this phenomenon.

Figure 22. Comparison of Intra-Regional Trade in East Asia and European Union



Source: Based on METI (2007).

Second, Japan and East Asia need to examine various ways to circulate regional money within the region. Prior to the subprime mortgage crisis, East Asia accumulated substantial current account surpluses. The resultant increase in foreign reserves, the largest form of East Asian external assets, was allocated mainly to the United States in the form of US treasury securities and agency-related bonds, as pointed out in Section II. Moreover, foreign currencies held by the private sector were allocated to banks in the United Kingdom and United States, mainly through the interbank markets of Hong Kong and Singapore. Japan's investment in foreign stocks was largest among East Asian countries, but they were largely allocated to US and European stocks. Hong Kong's investment in foreign stocks was the next largest, but this was largely allocated to (mainland) Chinese stocks. Rather than attracting investment from capital-abundant East Asia itself, it was clear that East Asia depended on capital investment from the United States (and Europe).

This indicates that East Asia circulated money within the region, bypassing the United States (and Europe). This may reflect the difference in risk appetites: US (and European) investors were risk takers, while East Asian investors were risk-averse, as stressed in Section II. Moreover, it is associated with the fact that the United States provided the largest and most diverse (both liquid and illiquid) capital markets in the world, so that foreign money was attracted to the United States. Meanwhile, the United Kingdom offered another internationally-competitive financial center by developing relatively large capital markets and providing a place for most-competitive cross-border banking activities. This pattern of cross-border capital flows, however, is not productive from the perspective of developing East Asia. It would be better to develop attractive international financial centers within East Asia.

Given that Japan is closely linked to the rapidly-growing East Asian economies through production

and trade networks, and that Japan is in physical close proximity to East Asia, it is important for Japan to increasingly focus on this region through promoting greater financial activities. Figure 23 indicates that Japan has various comparative advantages over Korea, Hong Kong, Singapore, and China (Shirai, 2009b). For example, Japan maintains the top position in terms of the size of stock market capitalization, the value of share trading, the number of listed firms, the number of ETFs (exchange traded funds), as well as the size of securitized assets. Although the size of foreign exchange turnover is about the same as that of Singapore, the Japanese yen remains one of the most important international currencies in the world, and especially in East Asia. While Korea has a significantly large number of contracts traded with respect to options and futures, Japan has the potential to increase the volume of transactions by merging various existing commodity exchanges. Currently, in addition to the Osaka Securities Exchange and the Tokyo Stock Exchange, there are the Tokyo Commodity Exchange, the Tokyo Financial Exchange, the Tokyo Grain Exchange, Central Japan Commodity, and the Kansai Commodities Exchange that deal with various futures and/or options.

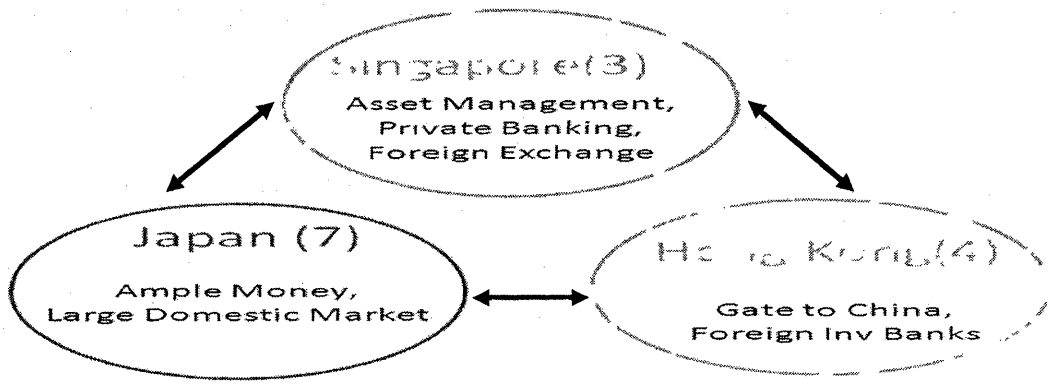
Japan could also increase its cooperation with other international financial centers in East Asia. Hong Kong and Singapore are regarded as rapidly-growing international financial centers. This view is confirmed by their rankings in the Global Financial Center Index, developed by City of London. In September 2008, London and New York were rated the 1st and 2nd international financial centers in the world, based on a number of indicators and regular surveys of senor professional working in relevant financial sectors. Tokyo was only rated the 7th, behind Singapore (3rd) and Hong Kong (4th). Given that each center has different advantages (Figure 24), closer coordination could enhance the attractiveness of East Asia as an investment destination, thereby giving opportunities for developing East Asia to increase domestic investment and consumption. Coordination would include; (1) regional convergence of accounting, auditing, credit rating standards, (2) an increase in cross-listing of securities among stock exchanges, (3) joint development of new financial products, and (4) sophistication of infrastructure (e.g., clearing and settlement systems). This could give rise to a realization of a more self-complete trade integration in East Asia like exists in Europe, as pointed out above.

Figure 23. Advantages of Japan's Capital, Financial, and Foreign Exchange Markets in Asia

Stock Market Size (% of world market capitalization, Sep. 08)	•Tokyo (8.2%) •Korea (1.5%), Hong Kong (3.7%), Singapore (0.8%) Shanghai (4.2.c), Shenzen (0.9%)
Stock Trading Value (% of world Trading Value, Sep 08)	•Tokyo (5 3%) •Korea (1 4%), Hong kong (1 6%), Siganpore (0.26%), Shanghai (1.4%), Shenzen (0 6%)
Number of Listed Firms and % of Domestic Firms (Sep. 08)	•Tokyo (2,393 firms, 99%) •Korea (1790, 99%), Hong Kong (1,259 firms 99%), Singapore (775 firms, 60%), Shanghai (864 firms, 100%) Shenzhen (740 firms, 100%)
Number of ETFs (Sep. 08)	•Tokyo (56) •Korea (35), Hong Kong (24), Singapore (19), Shanghai (3), Shenzen (2)
Exchange-Traded Futures and Options (Millions of Contracts, 07)	•Japan (257), Korea (2 709), Hong Kong (88), Singapore (44), China (364)
Securitized Asset Market Size ($ billions, 07)	•Japan ($174) •Korea ($30), Hong Kong ($0.63), Singapore ($4.86), China ($4.4)
Cross-Border Banking Activities ($ billions, June 08)	•Foreign Assets: Japan (2541), Korea (102) Hong Kong (754), Singapore (838) •Foreign Liabilities: Japan (758), Korea (234) Hong Kong (495) Singapore (856)
Foreign Exhcnage Market Turnover (% of world turnover, 07)	•Marketplace: Japan (6%), Korea (0.8%), Hong Kong (4 .), Singapore (6%), China (0.? .) •Currency Yen (6.5%) Won (1.1%) Hong Kong Dollar (2.8 .), Singapore dollar (1. ?), Renminbi (0.5%)

Source: Shirai (2009b).

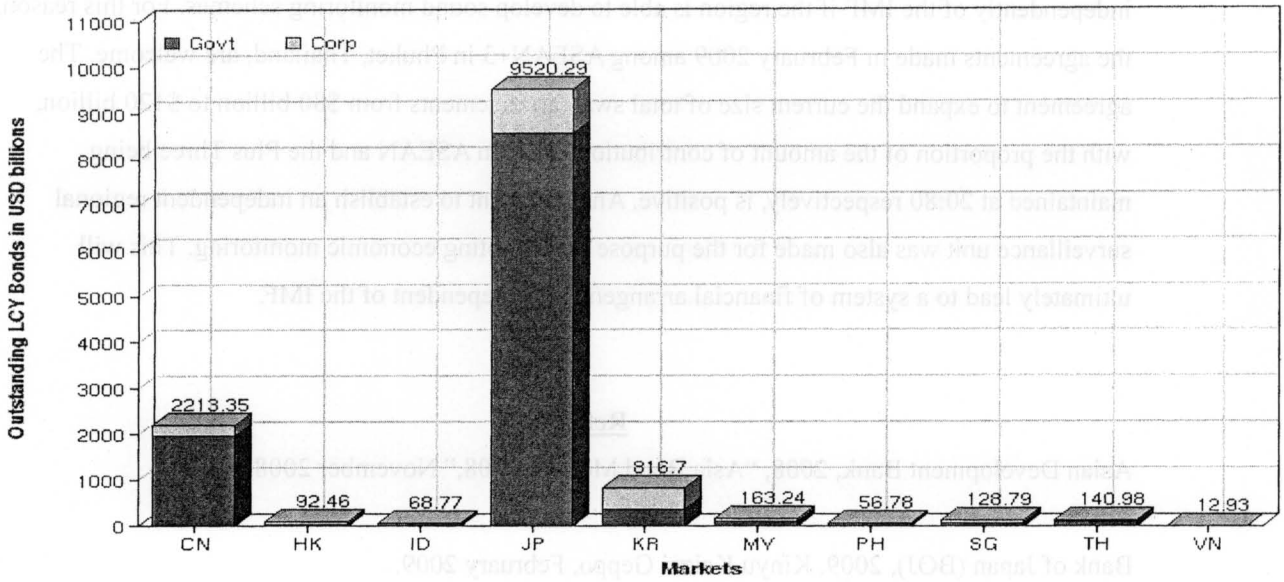
Figure 24. Cooperation among Regional Financial Centers



Third, Japanese banks could consider capitalizing on this opportunity by more actively engaging in cross-border banking activities. Currently, most cross-border banking activities in East Asia have been dominated by UK, US and European nationality banks, since Japanese banks withdrew from such activities in the late 1990s. Japanese banks had little damage from investment in US structured credit products. They have ample deposits and relatively sound financial stability. The appreciation of the Japanese yen vis-à-vis the East Asian currencies also make it cheaper for Japanese banks to establish affiliates in the region. All these factors, as well as the weakened US and European banking sectors, could provide opportunities for Japanese banks to expand business in the region in close collaboration with local regional banks.

Fourth, Japan and East Asia should examine the possibility of developing risk-free liquid assets, which could potentially become alternatives to US treasury securities. East Asia holds a substantial amount of foreign reserves and maintains these largely in the form of US treasury securities. However, when a crisis is triggered in the United States, as is the case for the current crisis, it may be difficult for East Asian central banks to facilitate large scale sales of these US securities to obtain US dollar-denominated cash to support banks. The massive sale of US treasury securities by central banks is likely to generate an oversupply in the US treasury security market, thereby dampening their prices. This could incur a rise in long-term interest rates in the United States, further deteriorating the economic and financial conditions there. Thus, it is better for central banks to diversify their reserve assets. Promoting the use of JGBs (Japanese government bonds) abroad as foreign reserve assets is one option, given that the market has been large and liquid (Figure 25). Alternatively, greater efforts could be made to develop East Asian bond markets, including regional currency basket-denominated bonds. Further deepening the ongoing Asian Bond Market Initiatives along this line could be considered as well.

Figure 25. Local Currency-Denominated Bond Markets in East Asia



Note: CN=China, HK=Hong Kong, ID=Indonesia, JP=Japan, KR=Korea, MY=Malaysia, PH=Philippines, SG=Singapore, TH=Thailand, VN=Vietnam

Source: ADB.

Fifth, East Asia should strengthen regional financial cooperation. ASEAN, Japan, China, and Korea (the so-called ASEAN+3) developed a network of bilateral swap arrangements in 2000 (the Chiang Mai Initiative) to mitigate short-term liquidity shortages in the event of financial crises. Currently, this framework functions as a supplement to IMF-led financial arrangements. Namely, a member country must apply for IMF programs (and conditionality) if it borrows more than 20% of the access limit set under the Chiang Mai Initiative. However, the current global financial and economic crisis has reminded East Asia not only of the need to expand the size of swap arrangements in the event of crises, but also of the possibility of extending financial support to each other, independent of the IMF.

There are three ways, generally, for central banks to provide foreign currency-denominated funding to domestic banks: (1) the use of foreign exchange reserves; (2) borrowing foreign exchange from the market; and (3) borrowing foreign exchange from other central banks. The current global crisis made it inevitable that many central banks had to obtain foreign funds from (1) and (3), given that it was difficult to raise foreign funds from the foreign exchange market because of the severe US dollar shortage. As some central banks did not have ample foreign reserves and were possibly concerned about the afore-mentioned issues, they sought recourse to (3). The creation of flexible, rapid, and effective responses to regional crises through the sophistication of regional swap

arrangement (namely, the active use of method (3)) is important for East Asia, given that regional capital movements are expected to grow in the near future. This arrangement could be developed independently of the IMF if the region is able to develop sound monitoring schemes. For this reason, the agreements made in February 2009 among ASEAN+3 in Phuket, Thailand, are welcome. The agreement to expand the current size of total swap arrangements from $80 billion to $120 billion, with the proportion of the amount of contribution between ASEAN and the Plus Three being maintained at 20:80 respectively, is positive. An agreement to establish an independent regional surveillance unit was also made for the purpose of promoting economic monitoring. This will ultimately lead to a system of financial arrangements independent of the IMF.

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