

Why Are There Global Imbalances?

The Case of South Korea

Franklin Allen

(University of Pennsylvania)

SIRFE Occasional Paper 10-P01

서울대학교 금융경제연구원

서울특별시 관악구 관악로 599 번지 83 동 102 호

Tel: 02-880-5424, 5425 Fax: 02-888-4231

<http://www.sirfe.com>

Why Are There Global Imbalances?

The Case of South Korea

Franklin Allen and JooYun Hong

University of Pennsylvania

January 31, 2010

Abstract

In the 1997 Asian Financial Crisis, South Korea, which had been one of the most successful economies in the world, was forced to raise interest rates and cut government spending by the IMF. These measures caused great economic distress. Because Asian countries are not well represented in the IMF's governance structure, Korea could not effectively appeal the IMF's decision. What Korea and neighboring countries learned from this experience was that they had to accumulate their own reserves to self insure against future crises without the need to resort to the IMF. This self-insurance in East Asia has been quite effective, allowing Korea, for example, to navigate the current crisis well. However, the trillions of dollars saved in Asia led to the 'global imbalances' that have played an important role in causing the current crisis. In terms of resource allocation, holding reserves is a costly and inefficient method. Firstly, it requires a lowering of consumption in the accumulating countries such as China and Korea, and an increase in consumption in the countries whose assets are being acquired, mainly the U.S. This transfer of consumption from relatively poor countries to the richest is not desirable. Secondly, the debt securities acquired by Asian countries helped to drive down lending standards and led to an excessive supply of credit in the housing sector in the U.S. Going forward, one of the necessary changes in the international financial architecture is to reduce the need for Asian countries to hold large reserves. Reforming the governance of the IMF will be one of the first steps needed to achieve this goal. If countries could always rely on being treated fairly and equitably and being allowed to be vocal in their opinions, they would not need to accumulate huge reserves. In the medium term this goal seems unlikely to be achieved. Other measures to solve the global imbalance problem are to set up a risk-sharing institution in Asia and for the Chinese to allow the RMB to become a reserve currency.

1. Introduction

Countries are often hit by economic shocks of various kinds. One of the most important issues is how this risk can be shared. Originally the IMF was set up to facilitate this kind of risk sharing. Often, the IMF requires countries to make reforms in exchange for providing loans. Sometimes these reforms are very helpful as in the case of India in the early 1990's. In others they can be very damaging as in the case of South Korea in 1997.

The governance of an international organization such as the IMF is crucial to its success. Under the Bretton Woods Agreement and the implicit agreements that go along with it, the Europeans and U.S. dominate. The Asians have relatively little representation. This caused a significant problem during the Asian Crisis of 1997. Despite being one of the most successful economies in the second half of the twentieth century, the South Koreans were forced to raise interest rates and cut government spending. This caused great economic distress. Because of the under-representation of Asian countries in the IMF's governance structure and staff, there was very little that South Korea could do to appeal against the imposition of these harsh measures. Not surprisingly, the conclusion that they and other Asian countries drew from this experience was that they must never again be put in the situation of having to go to the IMF for help. Instead they and many other Asian countries decided to accumulate trillions of dollars of foreign exchange reserves. These are the "global imbalances" that have played such an important role in causing the current crisis.

The self-insurance that these reserves allow has been quite effective. South Korea provides a good example. Its foreign exchange reserves have allowed it to navigate the current crisis without resort to the IMF. However, it is extremely costly and inefficient in terms of resource allocation. First, the method requires a lowering of consumption in the accumulating countries and an increase in consumption in the countries whose assets are being acquired. These self insurance balances will be long lasting and so represent a real

resource cost. This is the first inefficiency associated with self insurance. The existence of these reserves vastly increased the amount of credit available, particularly in the U.S. but also in other countries such as Spain and Ireland. This easy availability of credit was a major contributor to the property bubbles that lie at the heart of the crisis that started in 2007. This is the second inefficiency.

Going forward one of the major tasks is to eliminate the incentives for the Asian countries to self insure with such vast quantities of reserves. One method is to reform the IMF. A second method is for the Asian countries to set up an equivalent body for Asia. A third is for China to allow the RMB to become a reserve currency along with the dollar and the euro.

2. The IMF and its Governance

The International Monetary Fund (IMF) was conceived in July 1944 when the representatives of the 44 governments met in Bretton Woods, agreed on a framework for international economic cooperation. The Fund was formally established in December, 1945, when the 29 participating countries signed its Articles of Agreement. The institution was created to give confidence to members that the general resources of the Fund would be made temporarily available to them under adequate safeguards. In other words, the IMF was set up to facilitate risk sharing, when its member countries were hit by economic shocks and needed to obtain assistance. The Articles also specified that the institution would provide them with the opportunity to make adjustments in their balance of payments without resorting to measures destructive of national or international prosperity.

The governance of an international organization such as the IMF is crucial to its success. From its inception, however, Asian countries were largely underrepresented. Among

the 44 delegations in the Bretton Woods, there were 12 European countries¹, 19 Central & South American countries² and two East Asian nations (China and the Philippines). Under this representation, it is not surprising that the U.S. and European countries, which initiated the formation of the Fund, made an implicit agreement for their dominance of the Fund.

The lack of balance in the representation of countries has been criticized for a long time and the debate is not over yet. In the Fund, two areas have been main target of the critics: the European and U.S. dominance in the top management and unbalanced voting shares among the members.

Historically, senior executive positions have been taken by Europeans and Americans. The Managing Directors³, the top of the organization's hierarchy, have been only Europeans and the First Deputy Managing Directors, the second highest position, have been Americans. Even though there is no explicit rule, this role split has been a long tradition in the organization from the Bretton Woods system. Only a few Asians have been allowed to participate in the top management group.

IMF quotas are a pivotal issue in the fund's governance. The quota of the country directly translates into voting power, because the number of votes a country has in the Fund is based primarily on the size of its quota. Negotiations over IMF quotas have traditionally been informed by formulas that involve GDP at current market prices, international reserves, current payments, current receipts and variability of current receipts. According to Truman (2006), the increase in a country's individual quota is based on some combination of its current quota share, which always receives the largest weight, an adjustment to bring some

¹ Belgium, Czechoslovakia, France, Greece, Iceland, Luxembourg, the Netherlands, Norway, Poland, U.K., the USSR and Yugoslavia (<http://external.worldbankimflib.org/Bwf/delegationsBW.htm>). The USSR did not sign the final agreement.

² Bolivia, Brazil, Chile, Columbia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela (<http://external.worldbankimflib.org/Bwf/delegationsBW.htm>)

³ So far, four Managing Directors have been from France, two from Sweden, and one each from Belgium, the Netherlands, Spain and Germany.

countries closer to their calculated quota shares, and occasional ad hoc adjustments for the countries whose quotas are way out of line. Since the existing quota has been given the largest credit in quota calculation, the countries, which held large quota from the Bretton Woods Agreement, have maintained high voting shares and have exerted strong influence in the Fund's decisions.

Figure 1 shows a comparison between the current voting share of the country in the IMF and GDP share. East Asian countries such as Japan, China and Korea have lower voting shares than their GDP shares, whereas European countries such as the U.K., Belgium and Sweden maintain higher voting power than their GDP equivalents. Even after several revisions of the voting shares, Asian countries are still underrepresented in the decision making process of the Fund. The Bretton Woods system has affected the current governance of the IMF for over 60 years and this legacy led to a problem in the Asian Financial Crisis in 1997.

3. South Korea in the 1997 Crisis

South Korea has been one of the most successful economies in the world in the second half of the 20th century and the beginning of the 21st century. From 1970-2009 the Korean economy grew at an average rate of 7.35% in real terms. With its high economic growth, the country in the 1990s was known as one of the 'Four Asian Tigers', together with Hong Kong, Singapore and Taiwan.

During the period 1994-1996, Korea showed steady economic growth: the real GDP rate showed 8.2 percent growth on average and the unemployment rate remained about 2 percent. The fiscal position was strong, with a surplus of about 0.4 percent of GDP, and public debt was below 11 percent of GDP, of which only about one-fifth was foreign debt.

However, the seeds of the crisis had been sown over many years. Balino and Ubide

(1999) noted that the Korean economy was dominated by large corporations, *chaebols*, which were highly dependent on borrowing, particularly from the banking system. The high leverage ratios⁴ and low profitability of the *chaebols* made them vulnerable to any shock to their cash flow. In the financial sector, weak regulatory and supervisory arrangement allowed banks to incur excessive risk without building a capital base to withstand shocks. As the *chaebols* aggressively expanded their business abroad, banks accordingly increased their foreign short-term borrowings and channeled external short-term funds to long term loans financing investments by domestic corporations.

The crisis, which started with the collapse of the Thai Bath peg in July 1997, and subsequent crash of the Hong Kong stock market in Oct 1997, was transmitted to the Korean economy. As the sovereign credit rating of the country was downgraded and the international financial markets contracted credit to Asia, banks were unable to meet their short-term debts. In response to the banks' request for foreign exchange liquidity, the Bank of Korea disbursed \$20 billion of reserves immediately and almost used up its reserves by the end of 1997. However, the savings of the country in foreign currency was not enough to calm down the financial markets. In order to prevent the bankruptcy of the country, Korea had only one choice left: turn to the last resort of lending, the IMF. On Dec 4 1997, the nation signed the contract with the IMF, pledging to follow the Fund's conditions, and established a \$21 billion arrangement.

Taiwan, another Tiger in Asia, is an interesting comparison. In contrast to its neighbors with similar size economies who were financially devastated by the crisis, Taiwan was not badly hit by the storm in the region. The real GDP growth rate and unemployment rate in Taiwan were not greatly affected. The real GDP growth rate of Taiwan slightly decreased from 6.6% in 1997 to 4.5% in 1998, while the rate of Korea significantly dropped

⁴ Baliño and Ubide (1999) indicated that the debt ratio of the *chaebols* exceeded 400 percent during the 1990s, compared to an average of 150 percent in the U.S., 210 percent in Japan and 90 percent in Taiwan.

from 4.6% to -6.8%. The unemployment rate in Taiwan remained constant averaging 2.7% in 1997-98 period but that of Korea jumped from 2.6% to 7% in the same period. In comparison to Korea, it is true that the structure of the economy in Taiwan was different. The economy of Taiwan was more dependent upon China and consisted of small to medium sized business, which can partly offset the external shock. In terms of the government balance, Taiwan recorded negative numbers from 1994 to 1996, whereas Korea saw positive numbers in the same account⁵. However, there was a major difference between the two countries- holding of reserves. Taiwan held three times more reserves than Korea during 1994-1996. Given that the GDP of Taiwan was half that of Korea in 1997, the reserve to GDP ratio in Taiwan is higher than that of Korea. The reserves to GDP ratio of Korea was 5.9% in 1996 and 3.7% in 1997 while the same ratio of Taiwan was 30.7% in 1996 and 28% in 1997(Figure 2). Regarding this difference, the large reserves in Taiwan at that time buffered it against the outside shock in the late 1990s as it did for Korea in the current crisis. Since the Asian Crisis, Taiwan has been accumulating its reserves even further. At the end of 2008, the reserves in Taiwan reached almost three quarters (74.5%) of its national GDP.

4. The Wrong Medicine

In exchange for the cash infusion, the IMF prescribed two policies for Korea: high interest rates and tight fiscal policy⁶. Following the disbursement contract, the IMF drove Korea to increase interest rates sharply, and implement a tight fiscal policy⁷. For instance,

⁵ The government balance (percent of GDP) of Taiwan was -3.56%, -4.32%, -4.97% in year 1994, 1995 and 1996, while that of Korea was 0.07%, 0.30%, 0.24% during the same period (IMF).

⁶ “Monetary policy to be tightened immediately to restore the market and contain inflationary impact of recent Won depreciation. Money market rate will be maintained at a high level as needed to stabilize markets”, “For 1998, fiscal policy will remain tight. Additional fiscal measures of about 1-1/2 percent of GDP will be put in place to achieve balance or small surplus” (Dec. 1997, IMF’s press release)

⁷ On December 22, 1997, the statutory ceiling on interest rate was raised from 25 percent per annum to 40 percent and call rates reached 32 percent on December 26 from 12 percent in early Dec 1997. Other market interest rates also increased sharply during this period. The average bank lending and deposit rates climbed from 12 percent before the crisis to 18 percent and the overdraft lending rate jumped 13 percentage points to 37

money market rates climbed from 11% in mid 1997 to 25% in early 1998. Due to the highly leveraged finance structure in the corporate sector, the impact was quickly felt. The debt service burden in corporations intensified as the average lending rate rose and subsequently, many firms faced bankruptcy. In January 1998, compared to mid 1997, the average daily number of corporate insolvencies more than tripled and the percentage of dishonored bills rapidly escalated⁸. With a decline in asset prices and increase in default risk, the credit market significantly contracted, and more firms found it difficult to obtain loans⁹. In particular, SMEs (small and medium sized enterprises) were hit harder by the credit squeeze: they relied more on bank credit financing and had few choices of alternative financing¹⁰.

Due to tight government spending throughout Q1 of 1998, the recession was made even more severe and accordingly, the overall economy was significantly disrupted. Real GDP recorded negative growth (-6%) in 1998 and unemployment rate rose from its 2% average level to 9% at the beginning of 1999. After a brief spike in early 1998, inflation was subdued owing to weak domestic demand. Even though many people suffered from bankruptcy and job loss, the government could not offer any additional social safety net because its spending was restricted by the agreement with the IMF.

There has been a long debate about whether the IMF used appropriate measures in the Asian Crisis¹¹. Some, who defended the Fund, said that it was necessary to increase the interest rates in order to stabilize the foreign exchange market and prevent capital flight.

percent.

⁸ Baliño and Ubide (1999) showed that the daily number of insolvency increased from 10 in mid 1997 to 30 in Jan 1998. The percentage of dishonored bills grew to 2.3 percent from 0.2% range before the crisis.

⁹ From the survey conducted by KIIE (the Korea Institute for Industrial Economics), the share of the firms whose loan applications were rejected by financial institutions rose from 14 percent in the first half of 1997 to 38 percent in the first half of 1998.

¹⁰ SMEs accounted for 73 percent of the total corporate financing by domestic money banks while large companies only comprised 27 percent. (Country Report 2000, the IMF)

¹¹ The IMF partially acknowledged its fault on Korea. Also, Hubert Neiss, the director of the Asian Pacific Department in 1997, reflected on the Fund's policy on Korea: "*The depth of the recession was not recognized at the beginning of the crisis, and the fiscal relaxation required to mitigate the decline of GDP – especially in view of the need to initially maintain high interest rates - came, therefore, too late. Interest rates were initially raised only hesitatingly and then kept high a bit too long. This aggravated foreign exchange market turmoil first and the recession later.*" (2007, public speech in Korea)

However, the high interest rate policy was kept for five months in Korea¹², which was too long, and it consequently inflicted unnecessary pain on the economy. At that time, the IMF brought the same formula that they used for the debt crisis of Latin America in the 1980s: high interest rates and tight government spending. Unlike South America, the public debt level was much lower in South Korea (below 11 percent of GDP), which eliminated the necessity to restrict government spending. Given the high corporate leverage ratio in Korea, it was obvious that the economy would be devastated if the authority raises interest rates. In the middle of negotiations, however, the Fund did not fully investigate the country nor did it sufficiently take into account the differences between the Korean economy and South American economies¹³. Even worse, the Fund replaced the Korean specialist in the organization a few weeks before the crisis and spent only a few days to reach the terms for the agreement¹⁴.

It is informative to see how the U.S. and Europe dealt with the current crisis. Interestingly, they adopted the exact opposite to what the IMF did in Asia: U.S. and Europe lowered their interest rates and disbursed trillions of dollars and euros of bailout money into the market. As explained below, Korea navigated the current crisis well with low interest rates and high government spending.

Why was the IMF lacking knowledge of Asian economies in the late 1990s? Why did the institution use unnecessary policies which caused great pain in those nations? One reason is the unbalanced governance in the Fund. Asians are underrepresented in the Fund's decision making process. They had a low voting share and relatively few senior staff. The price they

¹² Duk Koo Chung wrote in his book 'The Record of the Financial Crisis (2007)', "*From the beginning of 1998, Korean representatives constantly persuaded the IMF's officials to lower interest rates. However, we heard the same response: 'We need more time to see the market stability in Korea'. Meantime, numerable firms fell down with bankruptcy and people were kicked out from their work force. Kids were abandoned by their parents and the suicide rates rapidly increased*"

¹³ Chung wrote, "*In the negotiation, Korean representatives brought all documents to persuade the IMF that we are different from Latin America. However, the IMF stuck with their original plan and there was no room for negotiation. We had no choice but to accept their terms.*"

¹⁴ Blustein confirmed these facts in his book 'Chastening (2003)'.

paid for this low presence was very harsh.

5. Reserves as Self-Insurance

The Asian countries, which went through tough times under the policies imposed by the IMF, learned an important lesson: they would have to accumulate foreign exchange reserves to deal with the future crisis without turning to the IMF¹⁵. Given these countries' experience, neighboring countries, such as China, learnt the same lesson. As seen in Figure 3, East Asian countries all together have accumulated trillions of dollars of reserves after 1997, whereas Eastern European and Latin American nations have kept roughly the same level of reserves¹⁶. Even though Asian economies grew faster than Eastern Europe and Latin America, it is still surprising to see the rise of reserves in Asia.

There are two main viewpoints on the huge reserves in East Asia: 'the self-insurance motive' and 'the Asian mercantilist view'. The first interpretation is that these countries have built up a huge amount of reserves as a result of precautionary demand, reflecting the desire for self-insurance against future sudden stops in their access to borrowing funds from other countries. For countries whose currencies are less liquid and capital market access is less than assured, reserves can reduce both the risk and impact of current account shocks or capital account crises. This contrasts with advanced economies with highly liquid floating currencies and stable financial market access in domestic currency are less motivated to hold large reserves. Some argue that East Asia's hoarding of reserves qualifies for this perspective, because the magnitude and speed of increase in reserves of East Asia accelerated after 1997. The 'Asian Mercantilist view', which is advanced by Dooley, Folkerts-Landau, and Garber

¹⁵ KyungWook Huh, The Vice Minister, Ministry of Finance in Korea said "*We will never, ever, turn back to the IMF in the future. We suffered too much due to the IMF's policy. Koreans would never allow the government to receive even a penny from the Fund.*" (July, 2009)

¹⁶ China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand

(2003), suggests that reserve accumulation is triggered by concerns about export competitiveness. Under this analysis, the Asian countries, particularly China, wanted to promote export growth by preventing or slowing appreciation of their currencies and as a result, foreign currency reserves have been accumulated in their accounts.

Between these extremes, Aizenman and Lee (2005) finds that variables associated with trade openness and exposure to financial crises are both statistically and economically important in explaining reserves, while variables associated with the mercantilist view are statistically significant but economically insignificant. They conclude that precautionary demand is consistent with high levels of reserves in East Asia.

The 1997 Asian Financial Crisis led most affected countries to go through tough adjustments and hindered domestic economy growth for several years. Caprio and Klingebiel (2003) suggest the fiscal cost of the banking crisis at 55 percent of GDP in Indonesia, above 40 percent in Thailand, and 20 percent in Malaysia and Korea. Wolf (2009) demonstrates that investment rates of East Asian developing countries other than China, fell by about 10 percent of GDP between 1997 and 1998 and never subsequently recovered. From the calibrations in Jeanne and Ranciere (2006) and Jeanne (2007), the average probability of crisis is 10 percent, equal to the unconditional frequency of sudden stops in access to international markets in a sample of emerging economies during 1975-2003. Given the painful costs of the Asian Crisis and the high probability of crisis, it is plausible that reserve accumulation across East Asia was driven by precautionary motives, reflecting the trade-off between mitigating potential costs of crises and bearing the opportunity cost of holding liquid assets.

In the case of South Korea, the empirical evidence supports the self-insurance explanation for the rise of reserves. From 1997 to 2007, the reserves in South Korea grew

more than ten times¹⁷. Before the Asian Financial Crisis, its reserves were lower than most of its Asian competitors, Taiwan, Singapore, Hong Kong, Thailand and Malaysia, but now the country's holding is the sixth highest in the world¹⁸. Korea partially owes its huge reserves to a surplus in the current account-the cumulative surplus is \$157 billion from 1997-2007. Contrary to Asian Mercantilist view, however, the Korean Won actually appreciated over time during this period¹⁹. In addition, the Korean government acknowledged that it had a self-insurance motive with its saving²⁰.

The same phenomenon in the rest of East Asia is also explained better with a self-insurance view. Since the 1997 crisis, the rate of increase in reserves surpassed the same rate of GDP. In Figure 4, reserves to GDP ratio was below 10 percent before 1997 in Asia but, at the end of 2007, it climbed up to 35%. Some may argue that this increase is mainly due to the reserves accumulation in China. Figure 4 also shows the same number excluding China, which depicts almost the same movement in the period. Regarding the fact that the current account surplus in Asia has been a constant trend since 1990, the sudden increase in reserves since 1997 can be interpreted as a deliberate effort for self-insurance.

6. South Korea in the Current Crisis

At the beginning of 2008, South Korea had an ample amount of reserves, \$264 billion, amounting to one quarter of its annual GDP. The country was ready to liquidate the assets whenever this was needed. It did not take very long for the country to make use of the

¹⁷ We used the number in 2007 because it is the highest level of reserves before the current crisis in Korea.

¹⁸ As of Dec. 2009, China, Japan, Russia, Taiwan, India, Korea, Hong Kong, Brazil, Germany and Singapore (with the order of the highest) are top ten countries who hold the largest reserves (excluding Eurozone).

¹⁹ In 2000-2003, Korean Won per 1 USD on average was 1214 Won but, in 2004-2007, Won per USD was 1013 Won. (Source=Bank of Korea)

²⁰ Huh, Vice Minister of Ministry of Finance, said, "*The family who had big fire in their house would reasonably need fire insurance. From 1997's experience we learned that the national humiliation and pain under IMF's rule was not the thing which we can bear any more. We conclude that, in the short-run, holding reserves would be the best precautionary measures against the financial shock.*"

savings. In the aftermath of Lehman Brothers' collapse, foreign investors, who held 40 percent²¹ of stocks, pulled back their money and consequently, the exchange rate and the stock market were both disrupted²². From the memories of 1997, people feared that the nightmare would recur. However, Korea had enough money in hand to extinguish the fire this time.

In comparison with the crisis in 1997, the cause of the current crisis was different. Ten years ago, highly leveraged conglomerates in Korea incurred excessive foreign borrowings, while banks had low capital bases. After several reforms initiated by the government in the corporate and financial sectors, the leverage ratio of the top 40 companies went down to 100% level at the end of 2007. During 2005-2007, real GDP grew steadily at 4.75% on average, and the unemployment rate stayed at 3.5%, far below the average of OECD members²³. In the same period, the Korean government's financial position remained strong, with a surplus of 2.3% of GDP.

In both cases, the external debt including short-term borrowings rapidly increased before the crises. Figure 5 shows that both the external debt and the short-term borrowings climbed during 2005-2007, as it did before the Asian Financial Crisis. However, the compositions of external debts were not the same. In the period of 2005-2007, the external debt grew mainly due to foreign currency hedge demand driven by export companies and private sector's investment in foreign stock market. In 1995-1997, the foreign borrowings went up because companies were generally dependent upon excessive leverages and banks favored short-term debt which caused maturity mismatch at the time of the crisis. Most of all, reserves in 2005-2007 far exceeded overall short-term borrowings, whereas reserves in 1995-

²¹ The holding is calculated in market cap.

²² The Korean Won, which valued 1010 won per dollar in May depreciated to 1468 won by the end of Oct. During the same period, KOSPI, the primary index in Korean stock market, was halved from 1884, its peak of the year, to 939.

²³ During 2005-2007, the average unemployment rate of the OECD members was 6.27%.

1997 were around the half of short-term debts.

Throughout the year in 2008, reserves in Korea rapidly dropped from \$262 billion to \$201 billion. In particular, 40 billion dollars was spent after September to stabilize the market. The government used reserves mainly in two ways: firstly to intervene directly in the foreign exchange market and to supply dollars to banks²⁴. In addition, the holding of reserves helped Korean government to come to terms with U.S. for establishing \$30 billion swap line²⁵.

Without the IMF's intervention, the government of Korea made its own decisions this time. Contrary to the high interest rates and tight fiscal policy mandated by the IMF in 1997-98, the opposite was implemented in 2008-09: low interest rates and expansion in government spending. As a result, the weaker Won exchange rate against the dollar enhanced price competitiveness in exports. According to the government's estimate, the current account surplus was the highest recorded in the first half of 2009 (\$21 billion).

The liquidity supply allowed by the reserves, accompanied by the appropriate economic policy, has allowed the country to navigate the global financial turmoil well. Among OECD members, Korea indicated the highest GDP growth in the first and second quarters in 2009. Figure 6 shows the real GDP growth rate of Korea and of major OECD countries. In comparison with other trade-oriented economies such as Germany and Japan, Korea showed a much faster recovery²⁶.

²⁴ The government officials said they allocated more money to provide dollar liquidity to the banks. Banking sector accounts for the highest portion, 45 percent, of Korea's external debt, and 65 percent of banks' debts are short-term borrowings. Former Deputy of International Finance in Ministry of Finance, Jong Ku Choi said, *"Due to the global financial crisis, banks found it difficult to roll over the foreign currency liabilities and issue new debt. We supplied dollars to keep the banks afloat."* Kunil Leem, Head of Overseas Funding in Shinhan bank, recalled. *"There were two major concerns in the market: reserves assets may not be easily liquidated and short-term debt, which occupies 40 percent of total external debt, is too high for the country. When government immediately disbursed dollar into the market with its reserves, the tension was much more eased."*

²⁵ The agreement mitigated distress in foreign exchange market. On the day of the announcement for currency swap, the Korean won appreciated from 1427 won to 1250 won per dollar. A government source said, *"In the bilateral talk, representative of Korea mentioned that if we sell U.S. debt securities to improve liquidity condition, there will be reverse spill-over to U.S. financial market. Due to our reserves, Korean representatives reached an agreement quickly."*

²⁶ According to OECD, Korea's share of trade in 2007 is 45.2 percent in GDP, while Japan's number is 16.8 percent and Germany's is equal to 43.4 percent.

From its experience of crises with and without reserves, Korea learned that reserves worked well for the country's insurance²⁷. Furthermore, the country was able to keep its political and economic independence. Consequently, the government is accumulating reserves again: At the end of 2009, Korea recovered the level of reserves before the crisis, \$269.9 billion²⁸.

7. Inefficiencies Caused by Large Holdings of Reserves

On an individual country level basis, the acquisition of reserves has been a significant success. However, it is costly and inefficient in terms of resource allocation. There are at least two inefficiencies associated with holding large reserves. First, the method requires a lowering of consumption in the accumulating countries and an increase in consumption in the countries whose assets are being acquired. The self-insurance reserves will be long lasting and so represent a real one-time resource flow. The countries acquiring the reserves are poor relative to the U.S., which is the main consuming country. Secondly, the existence of these reserves vastly increased the amount of credit available, particularly in U.S. but also in other countries. This credit led to property bubbles as we have argued above.

The cost of reserves has been debated over the years particularly after the Asian crisis. Regarding the opportunity cost and the contraction of the domestic consumption, accompanied with national savings, some argue that reserves are expensive assets to hold. Others disagree with this view because they take other effects into account, such as the potential cost of the financial crisis that may be avoided and the spread for external

²⁷ Huh, Vice Minister of Ministry of Finance, said *"The more reserves we have, the more we feel comfortable. As the economy expands, we need to maintain high level of reserves."* Sangryul Lee, a journalist in *JoongAng Daily*, said *"Nobody debates over the cost of reserves any more. Most people agree that we need to store reserves as much as possible. It is the only way which can protect sovereignty of our economy in the time of crisis."*

²⁸ The government received back its dollar supply which it lent to banks in 2008 and the current account surplus also contributed to rapid increase in dollar infusion.

borrowing which is lowered by reserves.

Rodrik (2006) calculates that the social costs of reserves amount to 1 percent of GDP for developing nations as a whole. Regarding central banks holding their reserves mostly in the form of low-yielding short-term U.S. Treasury securities, Rodrik reports each dollar of reserves that country invests in these assets comes at an opportunity cost that equals the cost of external borrowing for that economy. Summers (2006) sees countries with excessive reserves earn almost zero return measured in domestic terms, whereas they can benefit from a return of 6 percent if they invest either domestically in infrastructure or in fully diversified long-term global assets. Summers calculated the opportunity cost of these reserves comes to 1.85 percent of their combined GDP, aggregating the ten leading holders of large reserves.

In Korea, the direct cost of reserves²⁹ was 0.1-0.2 percent of GDP³⁰ during 2005-2007, excluding fair value adjustment of securities held by the Bank of Korea and ignoring the opportunity cost of reserves. This resource can be directed to other sectors in the economy, such as education and social welfare. As for primary government spending, Korea used 2.7 percent of its GDP for national defense and 3.8 percent for education in 2008. If the opportunity cost of crowding out private investment is included in this calibration, as some have argued should be done, the social cost of holding reserves is even more significant.

However, the majority of Koreans, including decision-makers, believe the direct and indirect costs are easily offset by the benefit of preventing a severe financial crisis. Korea's reserves amount to 20-25 percent of its annual GDP during 2005-2008, when total public expenditure in the same period comes to 23.3 percent of GDP. It is sometimes argued that

²⁹ This cost of reserves is calculated as follows. 'Profit(Interest earned on securities+ Profits on sales of securities)-Cost(Interest paid on Monetary Stabilization Fund+ Interest paid on securities+ Interest paid on Foreign currency equalization Fund). Korea as a nation recorded a loss of 1,000 to 1,900 billion Won during 2005-2007. The numbers were acquired from the Bank of Korea database and the Ministry of Finance.

³⁰ The cost of reserves is accordingly 0.22, 0.21 and 0.11 percent of GDP in 2005, 2006 and 2007.

the optimal level of reserves is the sum of a country's short-term external debt³¹ and three months of imports. The level of reserves in Korea clearly exceeds this level. From the current crisis, it is more or less national consensus to accumulate more reserves for the country³². Notwithstanding the inefficiency of the resource utilization, the speed of accumulating reserves is likely to be continued or even accelerated within the next few years.

Secondly, political constraints on buying large amounts of equity mean that most of these investments were in the form of debt securities. This easy availability of credit was a major contributor to the property bubbles that lie at the heart of the crisis that started in 2007. It is the second inefficiency associated with large reserves.

Why the excessive credit flowed to the U.S. and Europe has been the topic of intense discussion. The 'Saving Glut's view', explaining the phenomenon with a supply side push from the developing world, is advanced by Bernanke (2005). The Asian countries increased reserves through the expedient of issuing debt to their citizens, thereby mobilizing domestic saving, and then using the proceeds to buy U.S. Treasury securities and other assets. This shift by developing nations, together with the high saving propensities of Germany and Japan, has resulted in a 'Saving Glut', which boosted equity value and helped to increase home values in the U.S. Summers (2006) also notes that three elements; a capital flow from emerging markets to industrial countries, huge accumulation of reserves and expected negative returns on reserves, constituted the capital flows paradox. As a consequence of this paradox, he explains that the current account deficit is growing in U.S. and investment in U.S. is tilted towards real estate and the non-traded goods sector.

³¹ It is called Greenspan-Guidotti rule.

³² Choi, former Director of International Finance in Ministry of Finance, thinks the government needs to include foreigners' ownership of stocks with a market capitalization basis when it determines the optimal level of reserves. Summing up one third of foreign possession in the stock market, three months imports and short-term debt, Choi suggests 300 billion dollars for a benchmark. Bong Kyun Kang, the Congressman who supervises the Ministry of Finance and former Minister of Finance in 1998, said, "*Taking into account the humiliation we underwent with the IMF rules, I think we ought to have reserves as much as possible, despite any cost.*"

In response to this view, Shin (2009) suggests that holding of U.S. debt securities is explained by the momentum of rapidly growing balance sheets in the residential mortgage sector which searches for funding sources. The greater risk-taking capacity of the shadow banking system leads to an increased demand for new assets to fill the expanding balance sheets and an increase in leverage. Among the new sources of funding will be foreign investors, including the central banks in Asia. One problem with this view is that reserves are back to where they were before the crisis despite the fact that U.S. banks have deleveraged. There is not much demand from them any more but reserves are already back where they were and are continuing to grow.

The abundant savings in East Asia, which is mainly spurred by the IMF's unbalanced governance and inappropriate economic policy, flowed to the U.S. where there are great needs for credit. Due to political constraints, most of these reserves were invested in the form of debt securities. Attempts to buy equities by Asian countries were often not allowed. In Aug. 2005, China National Offshore Oil Company Ltd. (CNOOC) announced that it had withdrawn its acquisition offer for Unocal Oil Company, the oil company in U.S., due to the political opposition. In the U.S., some viewed the proposed merger as a threat to American security. In June 2009, Chinalco, a state-owned Aluminum corporation in China, failed to acquire an 18 percent stake at Rio Tinto, the world's third-largest miner in Australia, after it confronted opposition, reflecting fears of giving China direct access to natural resources.

Moreover, the countries which hold reserves for a precautionary demand need to keep reserves in the form of secure assets which can be easily liquidated. For this reason, most reserves held by Asian countries are invested in debt securities. As Figure 7 demonstrates, more than half of reserves in Korea were invested in government bills or GSE (Government Sponsored Enterprise) backed securities. Only 3.5 percent of total reserves were invested in equity.

This capital inflow into U.S. debt securities helped to drive down lending standards and led to an excessive supply of credit especially to the housing sector. As seen in Figure 8, it is unlikely to be a coincidence that housing prices in the U.S. started to increase sharply after the Asian Financial Crisis. It can be argued that the root cause of what happened can be traced back to the IMF. We will discuss how we solve this problem in the next section.

8. Fixing the Problem

Going forward, we suggest three possible solutions to eliminate the incentives for the Asian countries to self insure with large quantities of reserves. These are reforming the IMF, expanding regional or bilateral insurance, and allowing an additional reserve currency.

Amidst the mounting criticism toward the IMF and in particular its policies on developing countries, members and outside observers have voiced the need to reform the organization. There was an evaluation that the IMF's guidelines for the troubled Asian nations did not embrace differences in the Asian countries. Emerging economies also do not trust the IMF because they do not think they have enough say in it. The insurance function of the Fund has been diminishing since developing countries were dissatisfied with the Fund's policies (Kupur and Webb, 2007).

In order to reform the organization, the governance of the IMF needs to be changed. Together, European countries still have more than 30 percent of the votes and the U.S. has nearly 17 percent. Truman (2006) advocates the convergence of the U.S. and EU quota shares to 18 percent total each. This convergence would free up 13 to 16 percentage points of today's quotas for reallocation to other members and accordingly, more quotas could be allocated to the developing world.

According to a report led by Trevor Manuel, South Africa's finance minister, the voting threshold on critical decisions should be lowered from the current number, 85 percent,

to 70-75 percent because the existing ceiling amounts to a veto for U.S., with its 17% voting share. The committee also recommends that the selection of the Managing Director should occur through a transparent, open and merit-based system. Additionally, a new lending source which is more easily accessible for borrowers with less strict conditions, the FCL (Flexible Credit Line) should be carefully implemented.

Secondly, we believe regional and bilateral insurance need to be strengthened and be made available to more countries. The Chiang Mai Initiative (CMI) should be a good start for regional cooperation in East Asia. The CMI³³ is designed to fulfill two objectives: to address short-term liquidity difficulties in the region and to supplement existing international financial arrangements. If this initiative is well managed and expanded by Asian countries, the need for individual country insurance will be lessened. Also, bilateral cooperation can be another substitute for the self-insurance. In October of 2008, the U.S. Federal Reserve reached a credit swap agreement with Brazil, Mexico, Singapore and Korea³⁴. If a regular swap line is established between Asia and the U.S., the holders of massive reserves will have less need of savings.

A third possibility is to let China turn its RMB into a global reserve currency. In response to the current crisis, which stemmed from the U.S. financial markets, the emerging world called for a new reserve currency. In July 2009, as part of the build-up to the G-8 summit, China, Russia and India raised the need to examine the dollar's place in the global financial architecture. Among these nations, China is more outspoken in challenging the dollar's dominance³⁵. The country has allowed selected firms in China to trade in RMB with

³³ On May 3rd 2009, 'ASEAN + 3 (China, Japan and Korea)' reached agreement on major components of the CMI, including each individual country's contribution, borrowing accessibility and surveillance. These countries will provide total fund amounts to \$120 billion and will launch the CMI in early 2010.

³⁴ According to the Federal Reserve, the institution previously authorized temporary reciprocal currency arrangements with Australia, Canada, U.K., European Union, Japan, New Zealand and a few more European countries.

³⁵ Zhou Xiaochuan, the governor of the People's Bank of China argued in March 2009 that the dollar's reserve-currency status let U.S. borrow cheaply, causing the country's credit and housing bubbles to persist for longer

businesses in Hong Kong, Macau and ASEAN countries, in 2009. The People's Bank of China also came to terms with Korea, Argentina, Belarus, Indonesia and Malaysia for the currency swap agreement, making the RMB available for these countries to use. China owns one third of world reserves and vast quantities of them are held in the U.S. dollars. If China can use its currency to trade goods, it will be less dependent on the dollar and can slow or cut back its savings in the dollar, which possibly will relieve the global imbalance problem. To achieve its goal, China needs to minimize its capital controls and free its foreign exchange market.

9. Concluding Remarks

Many people have argued that global imbalances played an important role in causing the financial crisis. The combination of low interest rates set by the U.S. Federal Reserve and other central banks and the easy availability of credit resulting from global imbalances caused a housing bubble in the U.S. and a number of other countries. The bursting of this bubble caused the start of the crisis. In this paper we have looked at the causes of global imbalances by considering South Korea. We have argued that the lack of Asian influence and representation in the senior ranks of the IMF meant that it pursued bad policies in the 1997 Asian crisis. One of the few countries to avoid having to seek outside help in 1997 was Taiwan thanks to its large foreign exchange reserves. The lesson many Asian countries drew was that being independent of the IMF was highly desirable and the way to do this was to acquire foreign exchange reserves. This led to a significant increase in Asian central bank reserves.

than they otherwise would have. Instead, he proposed that the world should replace the dollar with a global reserve currency the SDR (Special Drawing Rights). Under his plan, the amount of SDRs would be increased and the basket expanded to include other currencies, notably the RMB.

The strategy of building up reserves has turned out to be a success. Korea came through the crisis better than most countries. With the exception of Japan, the rest of East Asia has also done quite well. In the case of Japan, the combination of a strong currency and a trade orientation in many industries, led to a bad outcome. The lesson that most East Asian countries seem to have drawn from the current crisis is that more reserves are desirable. The problem of global imbalances is therefore likely to persist at least in the short term.

As mentioned above a third of global foreign exchange reserves are held by China. Initially, China may also have been driven by a desire not to be beholden to western dominated institutions. It is arguably the most underrepresented country at the IMF, for example. However, over time it can be argued that China has discovered that it is extremely advantageous to have enormous foreign exchange reserves. The U.S. now treats China with much more respect than previously. The U.S. knows that if China were to start shifting its reserves out of the dollar in large quantities, the U.S. economy would be badly damaged. In recent years China has significantly increased its military capability. Its large foreign exchange reserves provide an alternative way of influencing other countries and in particular the U.S.

Although reform of the IMF would be desirable, it seems likely that the extent of reform required to make global imbalances unnecessary will not occur. Regional agreements are also helpful but these are unlikely to be sufficient to persuade countries to do away with their reserves. The most likely development in the medium term is that China's currency, the RMB, will become fully convertible and join the dollar and the euro as the third global reserve currency. This will eliminate the need for China to hold foreign exchange reserves and will go a long way toward solving the global imbalances problem.

References

- Aizenman, Joshua and Lee, Jaewoo (2007), 'International Reserves: Precautionary versus Mercantilist Views, Theory and Evidence', *Open Economies Review*, 18, 191-214.
- Baliño, T. and Ubide, A. (1999), 'The Korean Financial Crisis of 1997-A Strategy of Financial Sector Reform', *IMF working paper*, 99/28, 1-66.
- Bernanke, B (2005), 'The Global Saving Glut and the US Current Account Deficit', Sandridge Lecture.
- Caprio, G, and D. Klingebiel (2003), 'Episodes of Systemic and Borderline Financial Crises', *World Bank Discussion Paper*, 428, 31-49.
- Dooley, Michael P., Folkerts-Landau David and Garber Peter (2003), 'An Essay on the Revived Bretton Woods System', *NBER Working Paper* 9971.
- Green, R and T. Torgerson (2007), 'Are High Foreign Exchange Reserves in Emerging Markets a Blessing or a Burden?' *Department of Treasury, Office of International Affairs, Occasional Paper*, 6, 2-12.
- Morris, S and Shin, H (1998), 'Unique Equilibrium in a Model of Self-Fulfilling Currency Attacks', *American Economic Review*, 88, 587-597.
- Jeanne, O. and Rancière, R. 'The Optimal Level of International Reserves for Emerging Market Countries: Formulas and Applications', *IMF Research Department*.
- Jeanne O. (2007), 'International Reserves in Emerging Market Countries: Too Much of a Good Thing?' *Brookings Papers on Economic Activity*, Spring 2007, 1-55.
- Kapur, D. and Webb, R. (2007), 'Beyond the IMF', *G-24 Discussion Paper* 43.
- Rodrik, D. (2006), 'The Social Cost of Foreign Exchange Reserves', *NBER Working Paper* 11952.
- Shin, H. (2009), 'Leverage, Securitization and Global Imbalance', *Hong Kong Institute for Monetary Research, Occasional Paper* 5, 2-33.
- Summers, L H (2006), 'Reflections on Global Account Imbalances and Emerging Markets Reserve Accumulations', *L. K. Jha Memorial Lecture, Reserve Bank of India*.
- Taylor, J. (2008). 'The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong', *NBER Working Paper*, 14631.
- Truman, Edwin M. (2006), 'Reforming the IMF for the 21st century', Institute for International Economics, Washington DC.
- Wolf, Martin (2009), 'Fixing Global Finance', The Johns Hopkins University Press, Baltimore.

Figure 1

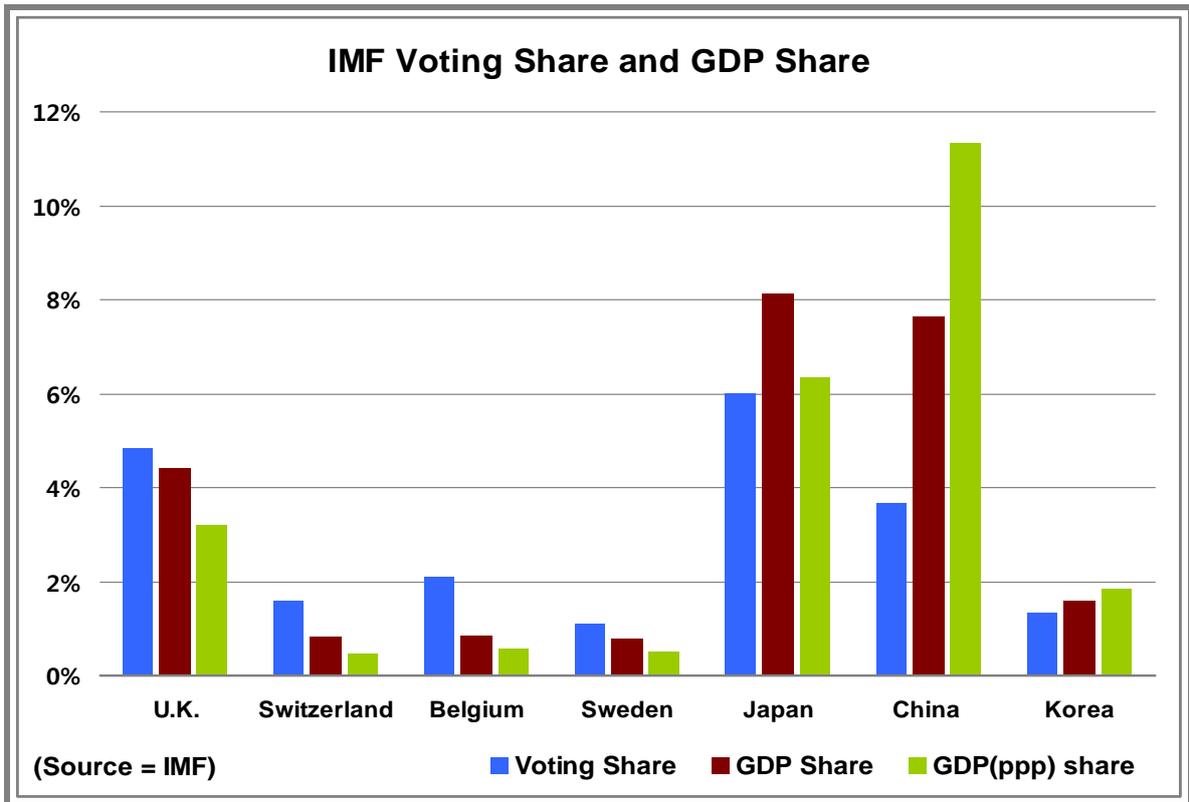


Figure 2

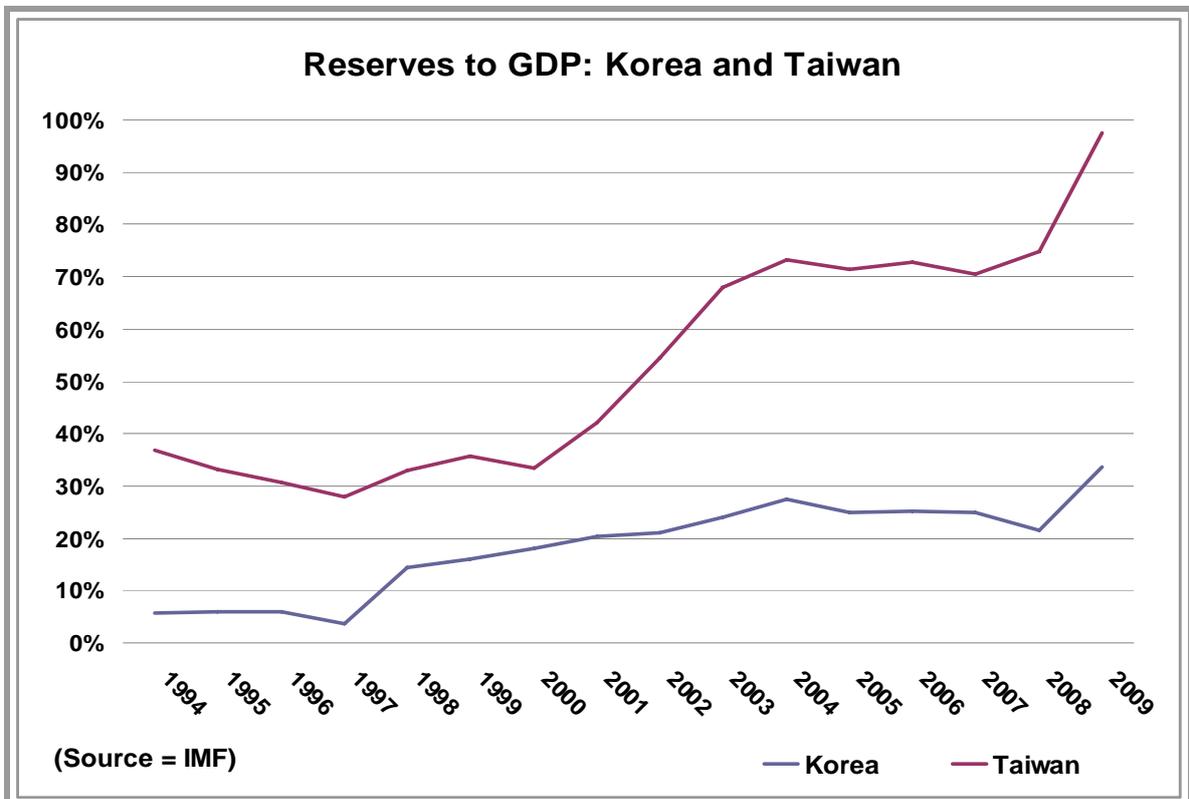


Figure 3

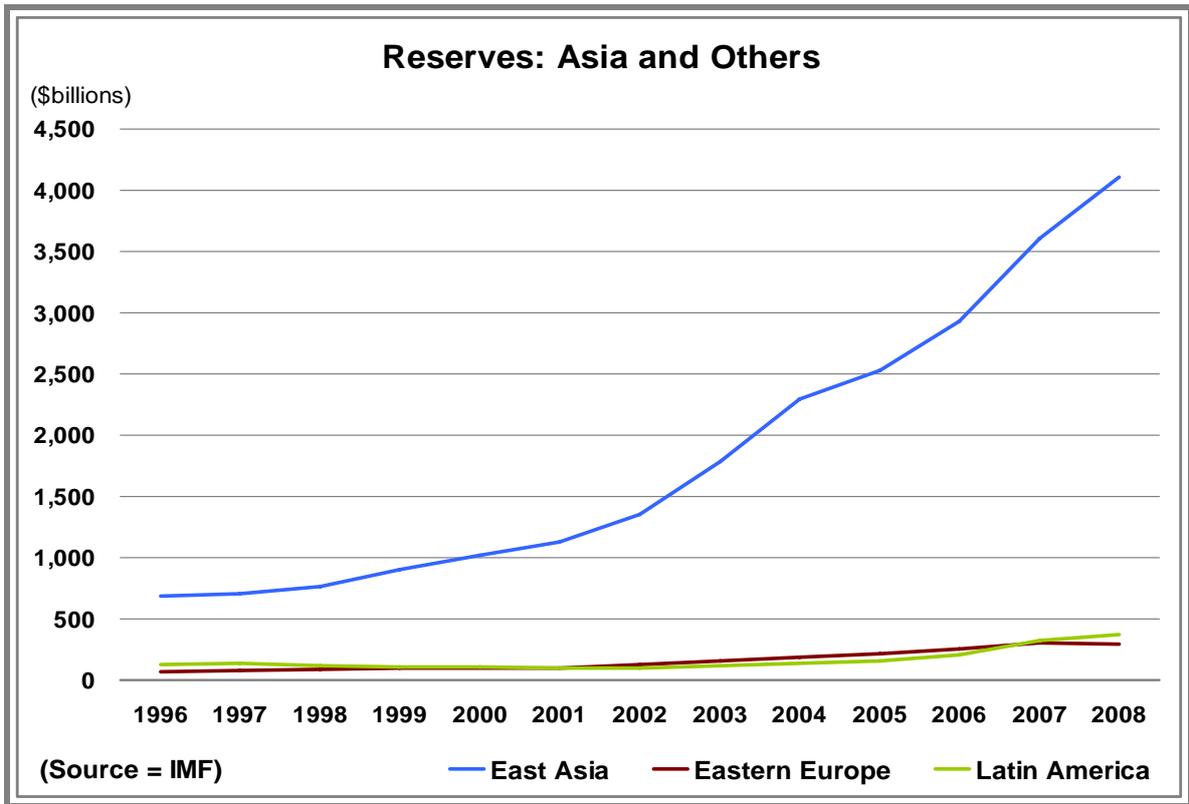


Figure 4

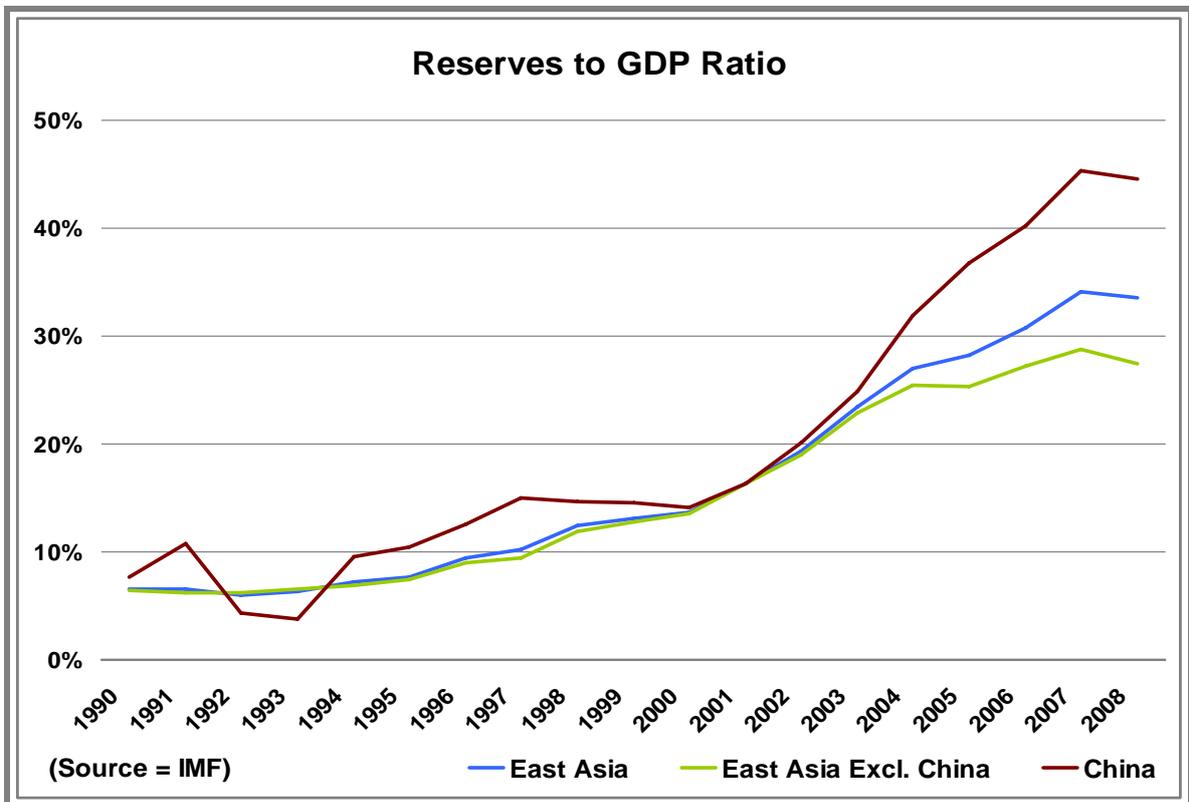


Figure 5

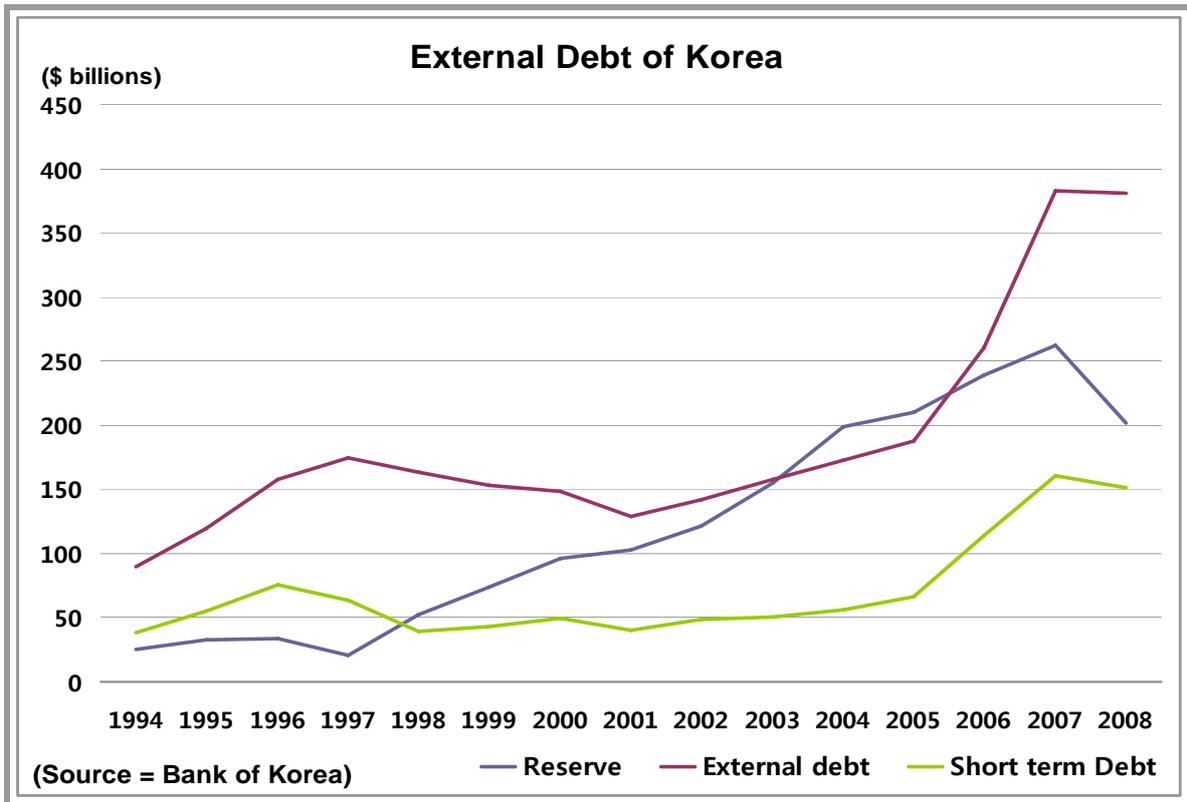


Figure 6

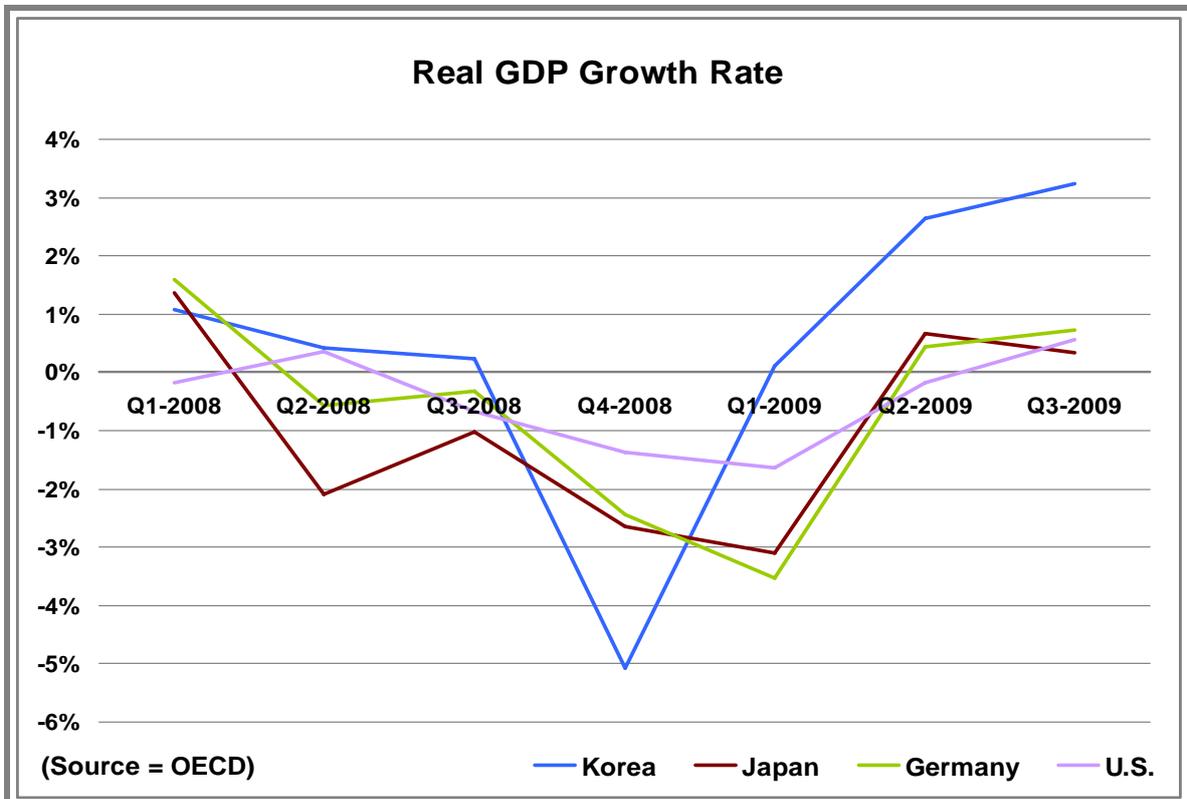


Figure 7

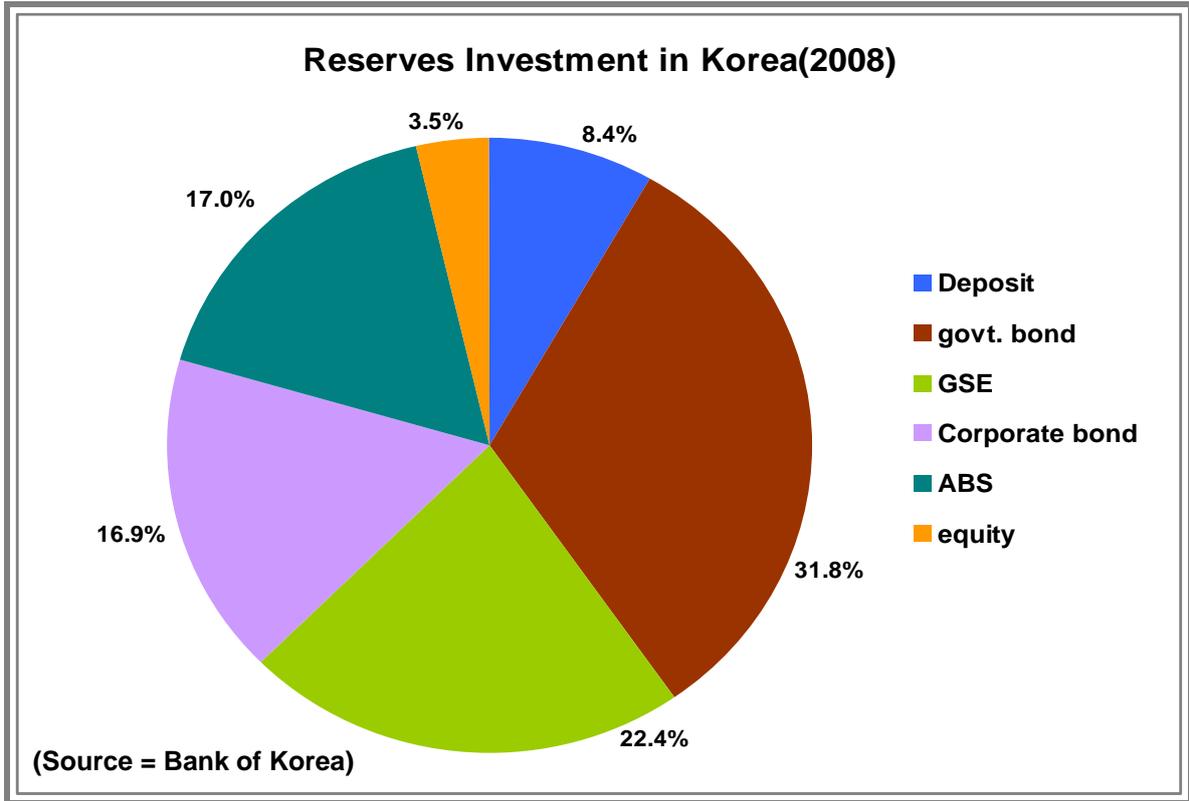


Figure 8

