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**THE KOREAN FINANCIAL SYSTEM: OVERCOMING THE GLOBAL FINANCIAL CRISIS AND ADDRESSING REMAINING PROBLEMS**

**ECONOMICS DEPARTMENT WORKING PAPERS No. 796**

**by Masahiko Tsutsumi, Randall S. Jones and Thomas F. Cargill**

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## SUMMARY/RÉSUMÉ

### **The Korean financial system: overcoming the global financial crisis and addressing remaining problems**

The intensification of the global financial crisis in late 2008 led to large capital outflows from Korea and turmoil in its capital markets. However, the prompt response by the government and the central bank stabilised Korea's financial sector in early 2009 and recovery followed relatively quickly. In contrast to 1997, financial institutions have overcome the crisis without significant damage. Increased assistance for small and medium-sized enterprises has played a large role in overcoming the crisis, but should be scaled back to avoid supporting non-viable firms and to expand banks' capacity for risk appraisal, leading to a more market-oriented financial system. As a small open economy, Korea also needs to reduce its vulnerability to sudden capital outflows. In addition, it is important to use prudential regulations effectively to limit the risk of mortgage lending, upgrade the corporate governance of financial institutions and develop securitisation by ensuring transparency.

This Working Paper relates to the 2010 *OECD Economic Survey of Korea*

([www.oecd.org/eco/surveys/korea](http://www.oecd.org/eco/surveys/korea))

JEL classification: Q28, Q54, Q56, Q58

Keywords: Korean financial sector; global financial crisis; banks; short-term foreign debt; capital markets; capital adequacy rules; Basel II; credit rating agencies; FSS; FSC; Bank of Korea; capital injections; KAMCO; small and medium-sized enterprises; securitisation; housing prices; LTV; DTI; foreign exchange reserves.

### **Le système financier coréen : surmonter la crise financière mondiale et régler les problèmes qui subsistent**

L'intensification de la crise financière mondiale à la fin de 2008 s'est traduite par d'amples sorties de capitaux et de fortes turbulences sur les marchés financiers coréens. Mais la prompt réponse du gouvernement et de la banque centrale a stabilisé le secteur financier coréen au début de 2009 et la reprise s'est engagée assez rapidement. Contrairement à ce qui s'était passé en 1997, les institutions financières ont surmonté la crise sans sévères dommages. Les aides renforcées aux petites et moyennes entreprises ont joué un grand rôle pour surmonter la crise, mais il faudrait les éliminer afin de ne pas soutenir des entreprises non viables et de faire en sorte que les banques développent leurs capacités d'évaluation des risques ; le système financier reposerait ainsi davantage sur les mécanismes du marché. Petite économie ouverte, la Corée doit aussi prendre des mesures pour être moins sensible à de soudaines sorties de capitaux. Il faut en outre utiliser efficacement la réglementation prudentielle en vue de limiter les risques liés aux prêts hypothécaires, améliorer le gouvernement d'entreprise des institutions financières et développer la titrisation dans la transparence.

Ce Document de travail a trait à l'*Étude économique de l'OCDE de la Corée*, 2010

([www.oecd.org/eco/etudes/coree](http://www.oecd.org/eco/etudes/coree)).

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Mots clés: Secteur financier coréen ; crise financière mondiale ; banques ; marchés de capitaux ; règles relatives aux fonds propres ; Bâle II ; agences de notation financières ; FSS; FSC ; Banque de Corée ; injections de capitaux ; KAMCO ; petites et moyennes entreprises ; titrisation ; prix de l'immobilier d'habitation ; LTV; DTI.

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## THE KOREAN FINANCIAL SYSTEM: OVERCOMING THE GLOBAL FINANCIAL CRISIS AND ADDRESSING REMAINING PROBLEMS

Masahiko Tsutsumi, Randall S. Jones and Thomas F. Cargill<sup>1</sup>

The recent global financial crisis profoundly tested Korea's financial system. The September 2008 shock, which hit as the Korean economy was already slowing, prompted capital flight and a plunge in the exchange rate, rekindling memories of the 1997 crisis that had brought the country close to economic and financial collapse (Annex).<sup>2</sup> In the event, the financial system and the economy weathered the shock quite well, thanks in part to a prompt and effective policy response. The crisis response was much better than a decade earlier, as the institutional framework had been strengthened following the 1997 crisis. Moreover, financial institutions emerged stronger from the post-1997 crisis restructuring, helping them to resist contagion this time. A number of indicators suggest that the financial system stabilised by March 2009 and continued to improve thereafter, in tandem with the real economy, although non-performing loans (NPLs) remain above the pre-crisis level.

This paper begins by examining the impact of the global financial crisis on Korea and the policies that enabled the financial sector to recover quickly. The third section analyses the current state of Korean financial institutions, followed by a discussion on how to cope with Korea's continued vulnerability to capital outflows. The following section looks at the challenges that Korea is now facing, notably the problems of small and medium-sized enterprises (SMEs) and concerns about housing prices. A summary of recommendations is in Box 3.

### **The impact of the global financial crisis on the Korean financial sector**

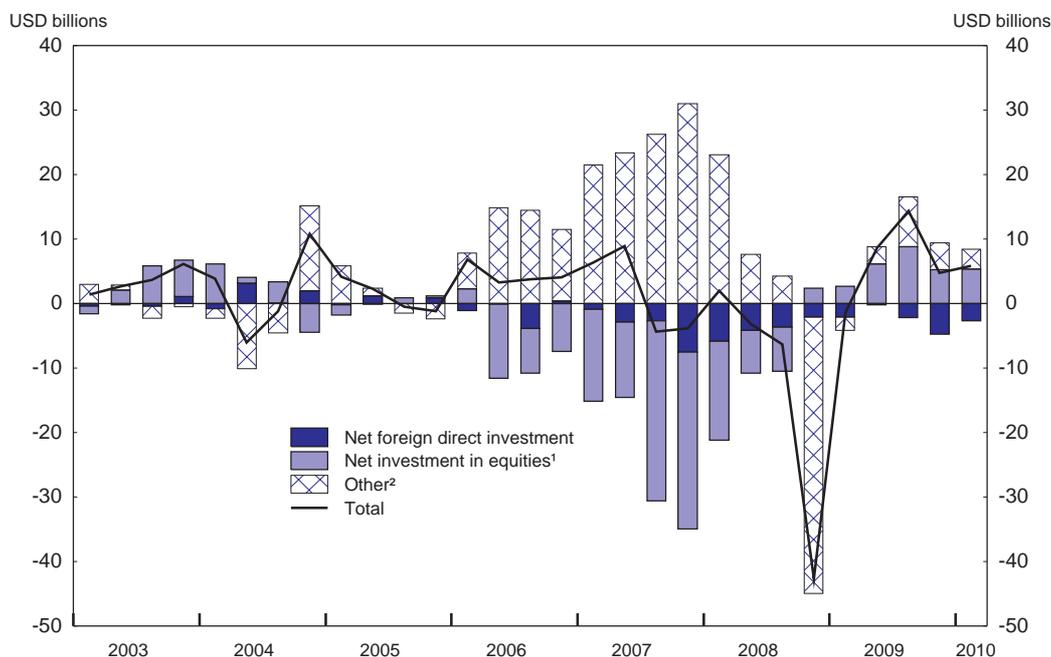
#### ***Large capital outflows in late 2008...***

The origins of the vulnerability of Korea's financial sector to the global financial crisis can be traced to 2006, when it recorded a large amount of net borrowing from abroad (Figure 1). The increased capital inflow was primarily a result of external borrowing by banks (shown in the category "other" in Figure 1). Indeed, between the third quarters of 2006 and 2008, the gross external liabilities of domestic banks and domestic branches of foreign banks rose by \$41 billion and \$47 billion, respectively (Figure 2). Inflows

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  2. For example, "South Korea Heads for Black September with Won Problems", *The Times*, 1 September 2008 and "Sinking Feeling", *Financial Times*, 14 October 2008.

were partially offset by increased outflows, as restrictions on overseas investment by Korean firms were eased (Kim *et al.*, 2009) and Korean residents expanded their purchases of foreign equities.

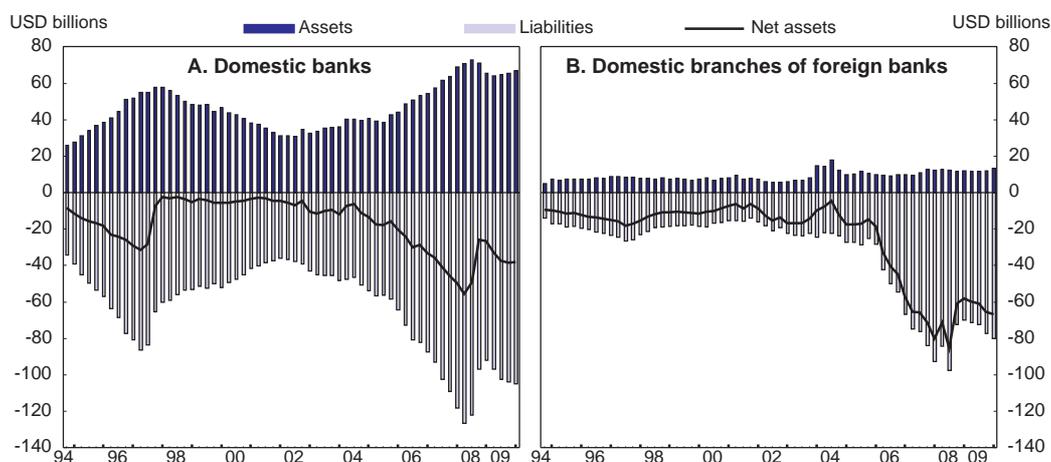
**Figure 1. Korea's capital account**



1. A component of portfolio investment.
  2. All other capital transfers and flows including the "debt securities" component of portfolio investment, net other investment (including loans and trade credits) and net financial derivatives.
- Source: Bank of Korea, *Economic Statistics System*.

There are significant differences between the external borrowing and lending of domestic branches of foreign banks and domestic banks. *First*, borrowing was 95% short term (less than one year) for the branches of foreign banks over 2006-08, compared to about half for domestic banks. *Second*, the external lending of branches of foreign banks amounted to only 15% of their external borrowing over that

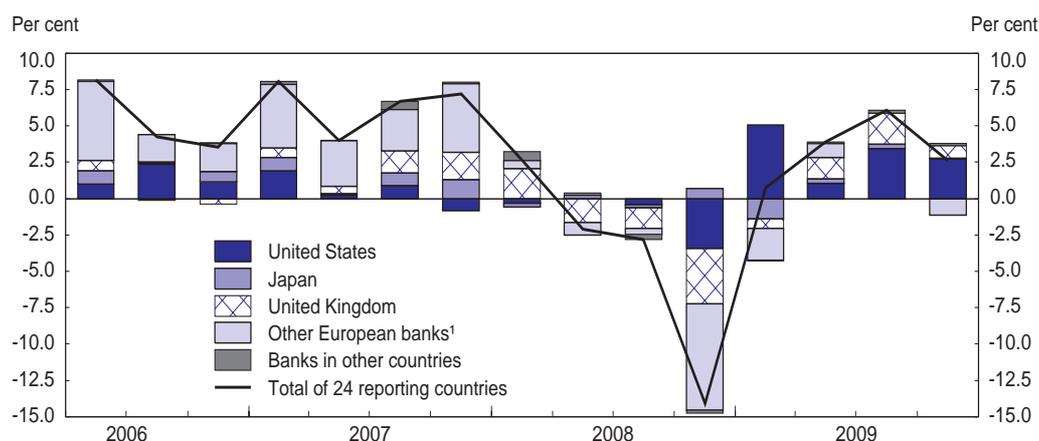
**Figure 2. External assets and liabilities by type of bank**



Source: Bank of Korea, *Economic Statistics System*.

period, compared with 60% for domestic banks. These factors suggest that the external borrowing of the branches of foreign banks was more closely linked to carry trade, *i.e.* borrowing short-term from abroad to invest in domestic bonds and equities while hedging the exchange rate risk by arbitraging between forward and spot market rates.<sup>3</sup> European banks accounted for almost three-quarters of the increased claims of foreign banks in Korea between the end of 2005 and mid-2008 (Figure 3). The carry trade helped boost the amount of government bonds held by foreigners from 1% of the total outstanding in the first quarter of 2006 to 12% by the second quarter of 2008. Similarly, foreign holdings of financial debentures soared over the same period, lifting their share to 6% of the total outstanding. The rise in foreigners' holdings of government bonds and financial debentures was partially offset by a fall in their holdings of equities.

**Figure 3. Consolidated claims of foreign banks in Korea**  
Changes on an ultimate risk basis from the previous quarter, with contribution in percentage points



1. Domestically-owned banks of countries that report claims on an ultimate risk basis (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and the United Kingdom).  
Source: Bank for International Settlements.

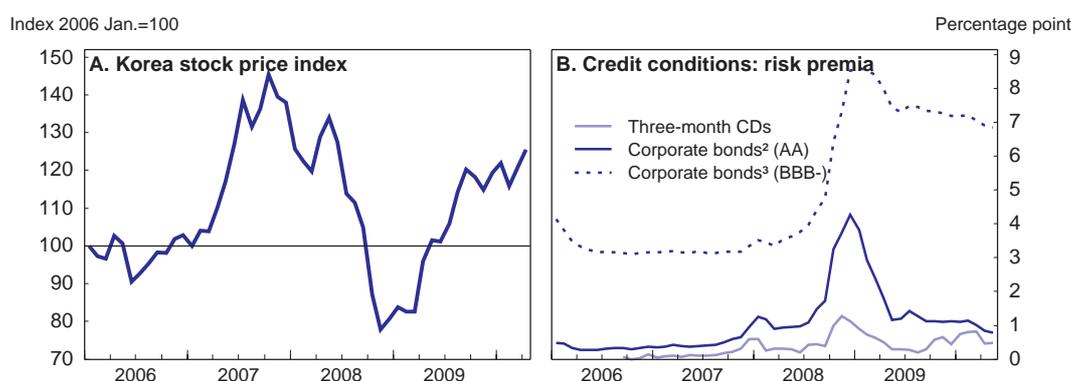
Korea's economy was already slowing prior to September 2008, reflecting the US recession that had begun in December 2007, rising oil prices and tighter monetary policy as the Bank of Korea "leaned against" upward pressure on housing prices. The September 2008 shock prompted a large outflow of foreign capital of \$42 billion in the fourth quarter (Figure 1). During that quarter, the gross liabilities of domestic banks fell by \$25 billion (Figure 2). Problems in rolling over existing loans reduced their borrowing from banks abroad and international money markets, due in part to the financial constraints facing creditors in the context of a global liquidity crisis. The gross liabilities of domestic branches of foreign banks also fell by \$25 billion, reflecting financial and economic problems in their home countries.<sup>4</sup> European banks accounted for three-quarters of the fall in foreign bank claims in Korea during the final half of 2008, with US banks accounting for most of the rest (Figure 3).

3. The carry trade is discussed in Jordà and Taylor (2007), IMF (2007) and MacCauley and Zuckunft (2008). The increased carry trade boosted the selling of forward exchange contracts by 76% between 2005-07.
4. One study (Peek and Rosengren, 1997) found episodes showing a link between the situation in Japan and the financing activities of the branches of Japanese banks in foreign countries. A later study (Ji, Alina, and Bang, 2009) found no such links. However, this may reflect the fact that the variable on conditions in the home country does not include asset prices and the definition of the activity of foreign branches is limited to lending. Foreign bank branches tend to behave as an investment vehicle financed by external borrowing.

*...led to a plunge in the won and a deterioration in domestic asset markets and credit conditions...*

The exchange rate started to depreciate gradually in effective terms from mid-2007 when the capital account turned negative. The large capital outflows in late 2008 triggered a sharp fall in the won, and by February 2009, it had fallen 25% in effective terms, 27% against the dollar and 38% against the yen relative to August 2008. The depreciation of the won and abrupt changes in capital flows affected domestic asset prices. By February 2009, the equity price index dropped by more than 40% from its October 2007 peak (Figure 4). Short-term money markets and corporate bond markets were also disrupted by the global crisis, with risk premia (the gap in interest rates with corresponding publicly-guaranteed instruments) for corporate bonds rated AA and BBB- exceeding 400 and 800 basis points, respectively, in late 2008.

**Figure 4. Equity and bond market developments in Korea**



1. Differential between three-month CD rates and monetary stabilisation bonds.
2. Differential between three-year Korean treasury bonds and corporate bonds rated AA.
3. Differential between three-year Korean treasury bonds and corporate bonds rated BBB-.

Source: Bank of Korea and DataStream.

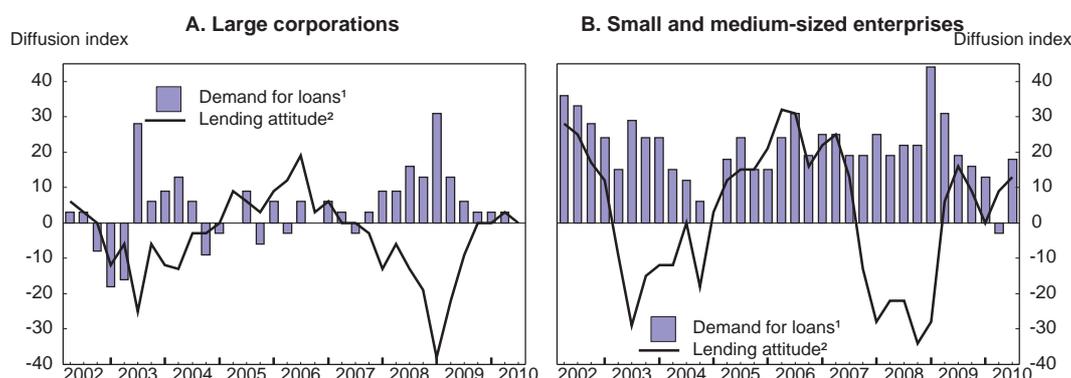
As the crisis squeezed financing through capital markets, firms shifted toward banks for funding. Loan demand in the fourth quarter of 2008 doubled for both large firms and SMEs (Figure 5). However, at the same time, the lending attitude of banks toward large firms tightened sharply, while remaining very strict for SMEs, thus creating financial distress in the business sector. The number of companies that wrote dishonoured checks doubled in the fourth quarter of 2008 to almost 1 000.

*...that stabilised in the first quarter of 2009*

The Korean financial system stabilised in early 2009. By the end of the year, it had overcome the September 2008 shock without the type of damage that occurred in the wake of the 1997 crisis, which saw a large number of bankruptcies in the financial sector, a huge run-up in non-performing assets and a lack of capital in the banking sector that required significant injections of public money. Following the large outflows in late 2008, the capital account returned to balance in the first quarter of 2009, followed by significant surpluses in the following quarters (Figure 1). Net investment in equities accounted for most of the inflows in 2009. Foreign borrowing by banks also resumed but external liabilities at the end of 2009 remained below their 2008 peak (Figure 2).<sup>5</sup>

5. A surge in lending from US banks in early 2009 accounted for most of the rise in foreign lending to Korea.

**Figure 5. Credit conditions in Korea**  
Results of the senior loan officer opinion survey in Korea



1. Diffusion index = (significant increase)×1.0 + (moderate increase)×0.5 - (significant decrease)×1.0 - (moderate decrease)×0.5.
2. Diffusion index = (significantly relaxed)×1.0 + (somewhat relaxed)×0.5 - (significantly restrictive)×1.0 - (somewhat restrictive)×0.5.

Source: Bank of Korea, *Survey on Lending Practices of Financial Institutions*.

The turnaround in the capital market has had a positive impact on the currency, equity and bond markets and credit conditions for large firms:

- The Korean won has risen by 20% in effective terms since its trough in February 2009, and by 21% against the yen and 25% against the dollar. Nevertheless, it is still about a quarter below its peak in mid-2007 in effective terms and 41% below relative to the yen.
- The equity price index has rebounded 50% since the end of 2008, thanks to the early economic recovery and the restoration of business confidence, although it remains 17% below its 2007 peak (Figure 4). The recovery in equity prices was in large part driven by foreign investors whose share of equities rose from 28% in the first quarter of 2009 to 32% by the third quarter.<sup>6</sup>
- As the economy stabilised, the risk premium on AA corporate bonds declined to around 130 basis points by mid-2009, although that is still higher than in 2006 (Figure 4, Panel B). A more serious problem remains in lower-rated bonds. Although the risk premium for bonds rated BBB- has declined from the peak in late 2008, it is still close to 700 basis points, more than twice the 2006 level. The high risk premia for those firms, reflecting increased risk aversion of creditors as well as greater risk, will have a negative impact on the economic recovery.
- Lending attitudes towards large corporations have returned to neutral, although loan demand has faltered as capital markets normalised (Figure 5). The number of firms that wrote dishonoured checks fell by half during 2009.
- Banks' lending attitudes toward SMEs improved significantly in early 2009 (Figure 5, Panel B), reflecting the impact of government measures, notably the advice to banks to automatically roll over loans to SMEs (excluding those already delinquent on existing loans) and the expansion of public credit guarantees (see below). However, lending attitudes *vis-à-vis* SMEs, in contrast to large firms, tightened in the second half of 2009. This may slow the economic recovery.

6. Capital inflows tend to boost stock prices but not land prices (Kim and Yang, 2009).

## A prompt and effective policy response

The authorities' response was timely and comprehensive, including an easing of monetary and credit conditions and policies to cope with external debt, strengthen financial institutions, support SMEs and assist financially-distressed households. Fiscal stimulus also contributed to the rapid stabilisation of the financial system by prompting an early and strong economic recovery (OECD, 2010). The success in responding to the crisis was due in part to the experience gained during the 1997 crisis and the institutions that were created to deal with it (Box 1). In contrast to 1997, the government response was transparent.<sup>7</sup> At the same time, the government affirmed its commitment to continue corporate governance reform, liberalise financial markets and improve government financial and regulatory institutions.

### Box 1. The legacy of the 1997 Asian financial crisis

The swiftness and magnitude of the economic and financial distress during the 1997 Asian crisis, which forced Korea to seek a \$58 billion loan from the IMF, made the weakness of the financial system and the need for regime change apparent to the Korean authorities. They responded with: *i*) institutional redesign of regulatory institutions, resulting in improved prudential regulation; *ii*) resolution of the NPL problem; and *iii*) recapitalisation and restructuring of the financial system. The closure of non-viable institutions and the merger of many of the remainder reduced the number of financial institutions by a quarter between 1997 and 2000 (OECD, 2001).

Four institutional reforms of the regulatory system in the wake of the 1997 crisis provided a foundation to deal with the capital flight, won depreciation and loss of confidence in the financial system resulting from the 2008 shock:

- The establishment of the Financial Supervisory Commission (FSC) in 1998 and the Financial Supervisory Service (FSS) in 1999 greatly improved prudential regulation by increasing capital standards, introducing a meaningful system of classifying NPLs and reducing the politicisation of bank credit allocation. The government also established a prompt corrective action framework to move aggressively against troubled financial institutions, imposed a variety of prudential regulations regarding loans to individuals and business groups, improved corporate governance by requiring an outside director system for many financial institutions (including permitting foreigners to serve as directors), and enhanced accounting standards.
- The formal independence of the Bank of Korea was enhanced in 1998 and 2003 (Cargill, 2001 and 2010). The introduction of an inflation-targeting framework focused monetary policy on price stability and reduced political influence on central bank credit allocation policies. The 2003 reforms also provided the Bank of Korea with greater flexibility to support the payment system and function as a lender of last resort.
- The Korea Deposit Insurance Corporation (KDIC) was given the task of insuring the deposits of banks, securities companies, insurance companies, merchant banks and savings banks, thereby limiting systemic risk. This explicit form of government deposit guarantees is more transparent and less sensitive to political pressures than the previous implicit system.
- The Korea Asset Management Company (KAMCO), a public financial institution, was reorganised to deal with NPLs, which increased significantly as a result of the 1997 crisis.

Korea spent 38.5 trillion won (8% of 1997 GDP) of public money to purchase NPLs, primarily through KAMCO (Table 1), rapidly reducing NPLs for both banks and non-banks. KAMCO's success in resolving the NPL problem was due to its role as a "garage sale" institution rather than a warehouse, indicating that the response to the crisis would not be based on forgiveness and forbearance, as in some countries. Instead, public funds were used for a rapid resolution of the problem. KAMCO disposed of NPLs by bulk or pooled asset-backed securities (ABS) sales, individual sales, foreclosure and public auctions, and joint partnerships. The pooled or ABS sales contributed to the development of Korea's money and capital markets (He, 2004).

7. Reports, news releases and conferences with market participants by high-ranking regulatory officials of the FSS, the FSC and the Bank of Korea provided detailed information to the public and especially the foreign sector to assess the condition of the financial system and economy.

The Korean government injected 82 trillion won (16% of 1997 GDP) in public funds to recapitalise financial institutions (Table 1). Five banks that did not meet the 8% BIS capital adequacy standard were closed in 1998, nine were merged into four in 1999 and two of these were merged in 2000. The government encouraged mergers even among the healthy banks. The privatisation of the eight banks that were nationalised opened the door to foreign investors. As a result, foreign-owned banks have become a permanent and competitive part of the Korean financial system (Byrne, 2005). All nationalised banks have been privatised except Woori Bank, where the KDIC remains the major shareholder. In the non-bank sector, the government closed 29 merchant banks, 15 securities companies, 15 asset management companies and 22 insurance companies between 1998 and June 2007.

**Table 1. The financial-sector restructuring programme**  
November 1997 to June 2009, in trillion won

**A. Outlays by type of financial institutions**

	Equity participation	Capital contributions	Deposit payoffs	Asset acquisition	NPL purchases	Total
Banks	34.0	13.9	–	14.4	24.6	86.9
The non-bank sector	29.5	4.7	30.3	3.3	11.5	79.3
Merchant banks	2.7	0.7	18.3	–	1.1	22.8
Securities/investment trusts	10.9	0.4	–	2.1	8.5	21.9
Insurance	15.9	3.1	–	0.3	1.8	21.2
Credit unions	–	–	4.7	0.2	–	4.9
Saving banks	–	0.4	7.3	0.6	0.2	8.5
Foreign institutions	–	–	–	–	2.4	2.4
<b>Total</b>	<b>63.5</b>	<b>18.6</b>	<b>30.3</b>	<b>17.7</b>	<b>38.5</b>	<b>168.6</b>

**B. Outlays by source of financing**

Bond issuance	42.2	15.2	20.0	4.2	20.5	102.1
Recovered funds	8.0	3.2	7.4	6.9	17.0	42.5
Public money	13.2	–	–	6.5	–	19.7
Other	–	0.2	2.9	0.1	1.1	4.3
<b>Total</b>	<b>63.5</b>	<b>18.6</b>	<b>30.3</b>	<b>17.7</b>	<b>38.5</b>	<b>168.6</b>

**C. Recovery of expenditure**

	KDIC	KAMCO	Government	Total
1998	–	2.4	–	2.4
1999	4.3	9.7	–	14.0
2000	6.0	8.9	–	15.0
2001	4.1	5.3	–	9.4
2002	2.7	3.8	6.6	13.1
2003	5.6	2.4	1.1	9.1
2004	5.7	1.4	0.2	7.3
2005	3.6	2.1	0.1	5.8
2006	3.4	4.8	0.2	8.4
2007	4.4	0.8	0.2	5.4
2008	2.4	0.7	0.3	3.4
2009 (August)	0.9	0.3	–	1.2
<b>Total</b>	<b>43.1</b>	<b>42.7</b>	<b>8.8</b>	<b>94.5</b>

Source: Public Funds Oversight Committee.

Total outlays of public funds for financial-sector restructuring from November 1997 through June 2009 totaled 168.6 trillion won (32% of 1997 GDP), with about two-thirds disbursed between 1997 and 2000. The amount was higher than the cost of financial-sector crises in two other OECD countries.<sup>1</sup> The recovery rate of public funds used for financial restructuring, primarily through the sale of NPLs by KAMCO and the sale of government holdings in financial institutions, was 56% (Table 1). While the cost of resolving the financial crisis was exceptionally high, it resulted in stronger and more commercially-based financial institutions and more stable financial markets. The prompt and effective resolution of the financial crisis was an important factor in the resumption of output growth at a 5.4% annual rate in the decade from 1998, although new problems appeared, notably the collapse of the credit card bubble in 2003.

1. The cost was 9.8% of GDP in Japan between 1992 and 2009 (OECD, 2009b) and 4% of GDP in the United States from 1984 to 1991 (Laeven and Valencia, 2008).

***Easing monetary and credit conditions***

The Bank of Korea sharply eased monetary policy by cutting the policy interest rate six times from 5.25% in October 2008 to the current level of 2%. In addition, it provided 28 trillion won (2.7% of GDP) to alleviate a credit crunch by increasing open market operations, broadening the range of assets eligible for open market operations, raising the upper limits on its credit ceiling programme,<sup>8</sup> paying interest to banks on their required reserve balances and contributing to the Bond Market Stabilisation Fund and the Bank Recapitalisation Fund (Table 2).

**Table 2. Liquidity provision by the Bank of Korea to stabilise financial markets**  
Trillion won as of March 2009

	Amount
Open market operations, including repo purchases	18.5
Increase in aggregate credit ceiling loans	3.5
Payment of interest on reserves	0.5
Support for the Bond Market Stabilisation Fund	2.1
Support for the Bank Recapitalisation Fund	3.3
Contributions to the Korea Credit Guarantee Fund	0.1
Total	28.0

Source: Bank of Korea.

Accordingly, the Bank's assets increased at an unusually rapid pace in 2008 (Figure 6, Panel A). Central bank loans mainly went to commercial banks and other financial corporations in the fourth quarter of 2008 (Panel B). By the third quarter of 2009, loans to banks had declined to less than 10 trillion won, while those to other financial corporations and the government remained above that level. On the liabilities side, the central bank initially expanded currency and deposits to provide liquidity (Panel C), reflecting banks' need to maintain large liquid assets, as well as an unusual liquidity demand from non-residents (Panel D). The Bank shifted to greater reliance on issuing bonds, rather than printing money in mid-2009, when the stabilisation of the economy and markets allowed banks and non-residents to release liquid assets.

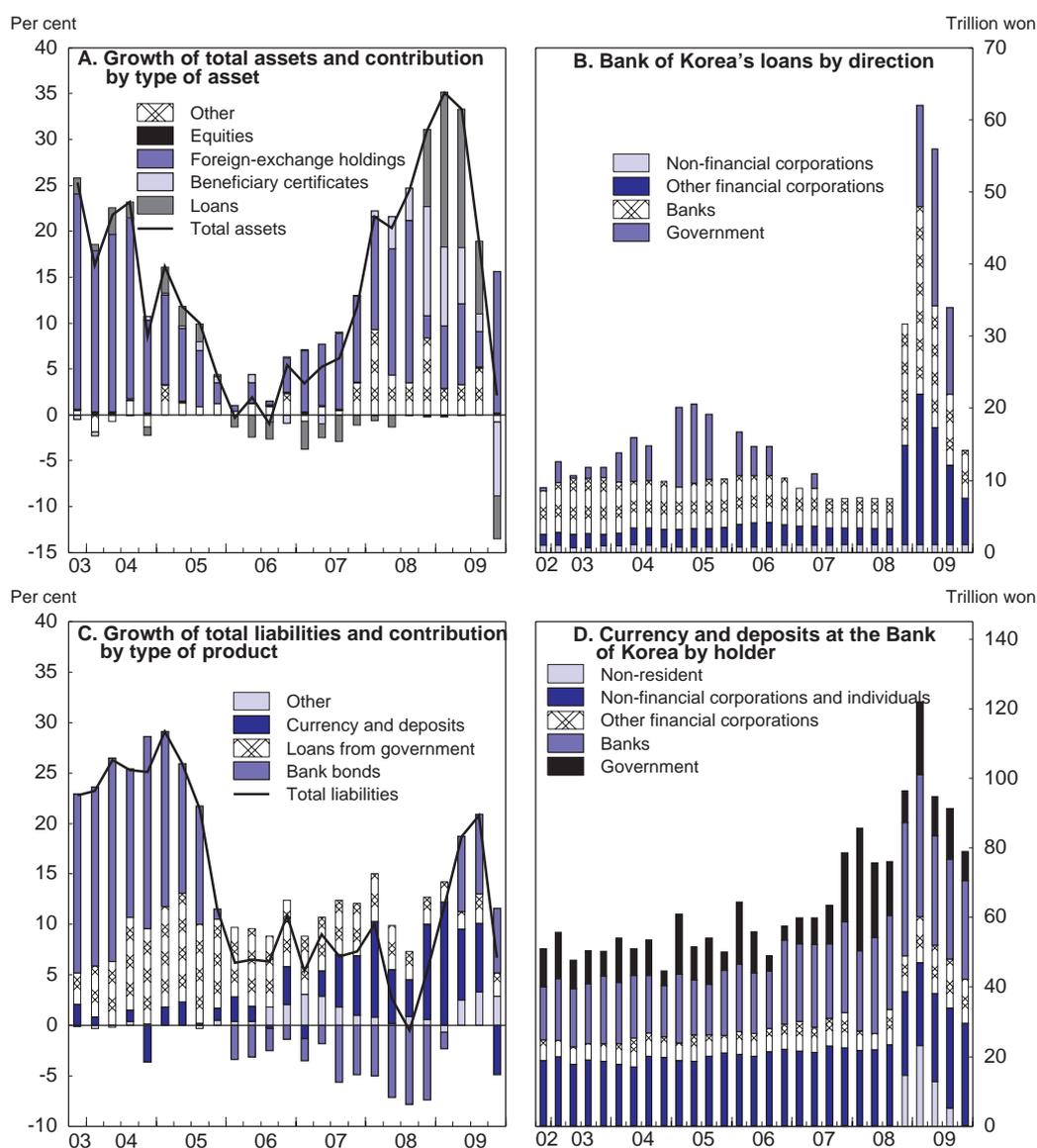
Additional liquidity was provided through the 10 trillion won (0.9% of GDP) Bond Market Stabilisation Fund financed by the government and public organisations. Its objective was to supply liquidity to the real sector through the bond market from December 2008. By October 2009, the Fund had purchased corporate bonds and credit-specialised financial company bonds worth 4.3 trillion won. While these purchases may have helped curb risk premia, the premia on low-graded bonds remain high (Figure 4).<sup>9</sup>

Finally, the Korea Exchange (which includes the Korea Stock Exchange, Korea Futures and KOSDAQ), the Korea Exchange Financial Investment Association and the Korea Securities Depository jointly created a 515 billion won fund to invest in the stock market for three years beginning in

8. The credit ceiling programme is a way to increase lending to SMEs. The Bank of Korea allocates a certain amount of funds to banks at a low rate depending on the amount of their loans to SMEs. Consequently, this credit ceiling approach distorts resource allocation.
9. The government also made preparations for a Financial Stabilisation Fund, which would allow it to provide pre-emptive capital support to normal financial institutions with the aim of addressing market uncertainties and calming investor concerns. The "Act on the Structural Improvement of the Financial Industry" was amended in April 2009 but the Fund has not yet been launched.

November 2008. The fund was aimed at alleviating anxiety among investors during the crisis. It invested in the stock price index and yielded a return of about 38% in its first year. Given its size, the fund may not have had much impact on the stock market, but allowing a stock exchange to intervene with the aim of supporting equity prices raises concerns.

**Figure 6. The Bank of Korea's balance sheet**



Source: Bank of Korea, *Flow of Funds*.

### *Coping with external debt*

Given the difficulties that banks experienced in rolling over their foreign loans, the Bank of Korea provided them with foreign currency loans. Moreover, the government announced that it was guaranteeing \$100 billion of banks' short-term liabilities in October 2008, when they were estimated to be about \$80 billion, to ease pressure on banks from abroad. To receive a guarantee, banks had to sign a memo of

understanding (MOU) with the FSS, pledging to facilitate liquidity provision to SMEs. In May 2009, the guarantees were extended to cover newly-acquired foreign liabilities through the end of 2009.

To ease the severe downward pressure on the won and the difficulties in obtaining US dollar funding, the Bank of Korea also entered into a number of international agreements:

- A swap agreement with the US Federal Reserve was signed in October 2008, giving the Bank of Korea access to up to \$30 billion in US dollar funds in exchange for won. In December 2008, \$4 billion of this amount was auctioned to banks. The agreement expired in February 2010.
- A three-year swap agreement with the People's Bank of China in December 2008 provided the Bank of Korea with up to 180 billion RMB (38 trillion won). The two sides agreed to explore the possibility and extent of converting swap currencies into reserve currencies.
- The same month, the Bank of Korea reached an agreement with the Bank of Japan to increase the maximum amount of the bilateral won-yen swap arrangement from the equivalent of \$3 billion to \$20 billion. This agreement expired at the end of April 2010.

### ***Strengthening financial institutions***

Korean financial supervisors had already implemented several measures to strengthen the soundness of banks prior to the recent crisis. The most important, in December 2007, was boosting provisioning requirements for normal corporate loans from 0.7% to 0.85% (0.9% for cyclically-sensitive sectors such as construction, real estate, wholesale and retail and restaurants) to guard against a possible increase in loan insolvency. In addition, the government provided guidelines for stronger risk management.<sup>10</sup>

As the crisis intensified, short-term measures to provide liquidity to the economy were accompanied by a fund to inject capital in banks through the Bank Recapitalisation Fund. It was established in December 2008 with 20 trillion won (2% of GDP). The major objective is to strengthen the capital base of banks to allow them to continue lending to non-financial firms, notably SMEs. In order to qualify for funding, a bank must sign an MOU with the government, which then conducts monthly evaluations of the bank's restructuring efforts and their support for SMEs. In March 2009, the Fund purchased hybrid bonds (3.5 trillion won) and subordinated bonds (0.5 trillion won) issued by eight financial institutions. The government has announced no additional plans to inject capital into banks.

In addition to the direct injection of capital, the government took measures to raise the capital-adequacy ratio of banks. *First*, Korea extended the period in which parallel calculations of capital requirements based on Basel I and Basel II are allowed to prevent a decrease in BIS ratios, which would reduce banks' lending capability. Through the end of 2009, the FSS applied the higher of the two capital ratios calculated under Basel I and Basel II in their supervisory activities. *Second*, the FSS changed the criteria for assets and liabilities included in the calculation of the won liquidity ratio from those with remaining maturity of "less than three months" to those with remaining maturity of "less than one month" in October 2008. This was aimed at reducing the demand for debenture issuance and stabilising market interest rates. *Third*, the FSS raised the scope for recognition of hybrid bonds as BIS Tier 1 capital from 15% to 30% in December 2008. These transparent measures to relax capital requirements within the framework of BIS I at a time of financial stress were appropriate and effective.

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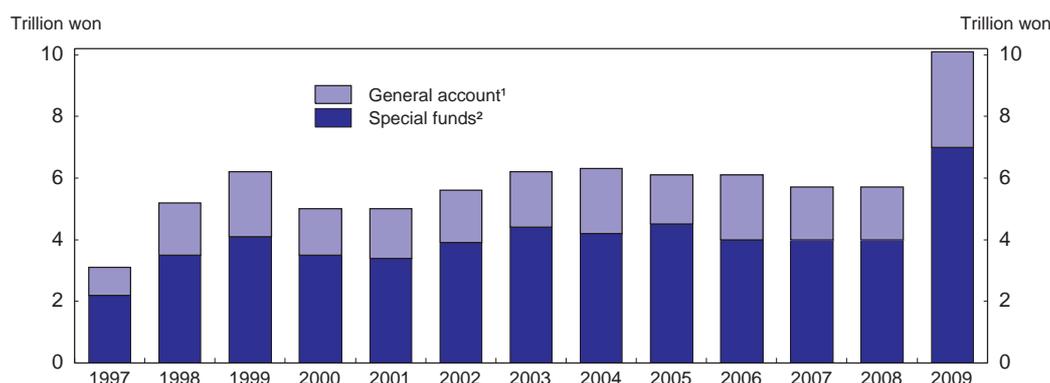
10. These guidelines, announced in February 2009, covered market risk measurement and strict credit limit management to cope with increased uncertainties in domestic and international financial markets that could lead to drastic declines in interest rates, stock prices and the exchange rate (Angklomkiew *et al.*, 2009).

The government is also strengthening financial institutions by buying their assets directly. It established a 40 trillion won (4% of GDP) Corporate Restructuring Fund to address the NPL and bad asset problem. As during the 1997 crisis, KAMCO is playing a leading role in purchasing non-performing assets through the Fund. As of October 2009, KAMCO and the Fund had invested 3.1 trillion won. Most of this amount was used to purchase NPLs (2.3 trillion won by KAMCO and 0.6 trillion won by the Fund). The remainder was used for the purchase of physical assets and to support corporate restructuring.<sup>11</sup>

### ***Supporting small and medium-sized enterprises and other firms***

An important policy priority in Korea has been to protect SMEs during the crisis through a wide range of programmes to encourage continued bank lending and prevent large-scale bankruptcy. Credit guarantees by two public institutions – the Korea Credit Guarantee Fund (KODIT) and the Korea Technology Finance Corporation (KOTEC) – increased sharply. In 2009, they reached 59.4 trillion won (5.6% of GDP), a 34% rise from 2008 (Table 3). Moreover, the credit guarantee ratio on SME loans was raised from 85% to 95%. A 100% guarantee scheme was introduced for firms in core sectors, including exports, green growth, high technology and start-ups, up to a ceiling of 10 billion won. Finally, direct government spending to support SMEs almost doubled in 2009 (Figure 7).

**Figure 7. Government spending to support small and medium-sized enterprises**  
In trillion won



1. The budget of the Small and Medium Business Administration (SMBA) includes transfers to credit guarantee funds.
2. This includes SMBA funds to promote and create SMEs. While the SMBA is a government agency, some of its budget is transferred to funds that are outside of the general account.

Source: Ministry of Strategy and Finance.

Two new initiatives – the Fast Track and the Win-Win Guarantee programmes – were launched to aid viable SMEs facing financial stress. The Fast Track programme, which was created in October 2008, provided 18 trillion won (1.7% of GDP) to nearly 10 thousand SMEs by mid-2009 and was extended through the end of 2009. Under the programme, firms apply to their banks, which classify the firms based on credit evaluations. Eligible firms are provided with liquidity support through: *i*) the extension of new bank loans; *ii*) swapping debt for equity; *iii*) rolling over existing loans at lower interest rates; and *iv*) extending the deadline for settling losses from holding bonds or KIKO.<sup>12</sup>

11. For example, the Fund bought 17 ships for 191 billion won to help restructure the shipping industry.

12. KIKO (knock-in, knock-out) are currency-related financial derivatives to hedge against foreign currency risks. They have resulted in sizeable losses for a number of non-financial institutions. The government estimated in August 2008 the KIKO exposures of 517 firms, including 471 SMEs, at \$7.9 billion, of which \$2.3 billion were deemed “over-hedged”, *i.e.* not backed by prospective foreign exchange revenues. As of May 2009, firms with KIKO-related losses had received more than 4 trillion won (\$3.1 billion) under the

**Table 3. Credit guarantees for small and medium-sized enterprises**  
Trillion won<sup>1</sup>

	A	B	B/A	
	Balance of guarantees	Defaults	Default rate %	Net loss
1997	17.0	1.2	6.9	1.2
1998	32.8	3.0	9.2	2.6
1999	30.9	1.9	6.0	1.3
2000	35.1	1.2	3.4	0.8
2001	47.4	1.6	3.4	1.5
2002	49.0	1.4	2.8	1.1
2003	49.5	2.7	5.5	2.3
2004	47.1	3.3	7.1	2.3
2005	42.6	2.4	5.6	1.6
2006	40.8	1.2	2.8	0.7
2007	40.2	1.2	3.1	0.8
2008	44.3	1.5	3.5	1.0
2009	59.4	2.0	3.4	-

1. Guarantees are provided by the Korea Credit Guarantee Fund (KODIT) and the Korea Technology Finance Corporation (KOTEC).

Source: Small and Medium Business Administration.

The Win-Win programme is a way for large firms to support key SMEs that supply them with intermediate products. It is based on agreements between the large firms, public credit guarantee institutions (KODIT and KOTEC) and banks. The large firms and banks make special contributions to KODIT and KOTEC, which match them one-to-one. These funds are used to provide 100% guarantees on loans to the recommended SME suppliers. For example, in the first Win-Win guarantee in January 2009, three large corporations (Hyundai Motor, POSCO and Hynix) and three banks (IBK, Shinhan and Woori) contributed a total of 42 billion won to KODIT and KOTEC. The two public institutions then guaranteed 351 billion won (\$310 million) of liquidity support from the three banks and the large corporations to their SME suppliers. Firms affiliated with the largest *chaebol* are not eligible for such guarantees in principle.<sup>13</sup> The local Win-Win guarantee programme also involves local governments.<sup>14</sup>

The government also encouraged credit to SMEs by advising banks in 2009 to automatically roll over their loans to SMEs, which typically have a maturity of one year. As of June 2009, the rollover rate consistently exceeded 90%. The government justified this approach on the grounds that banks were not capable of making an accurate assessment of the viability and solvency of borrowers during the crisis. However, banks were required to make such assessments, for example, in the case of the Win-Win programme. Automatic rollovers, if continued, would institutionalise the “ever-greening” of bad loans. The

Fast Track programme, accounting for a quarter of its outlays. While the peak of the problem has passed, the excessive use of currency-related derivatives by many firms raises concerns about the role of financial brokers. The FSC and FSS announced improvements in derivatives market supervision in December 2008 in response to the KIKO problem. See Bank of Korea (2008 and 2009a) for a detailed account of this issue.

13. The KFTC has stated that the Win-Win programme does not conflict with the Fair Trade Act as long as the guarantors apply the same standards as those used for SMEs that are independent of large firms or *chaebol*.
14. In April 2009, Incheon and Gyeonggi Province provided 5 billion won each, GM Daewoo and Ssangyong Motor 3.4 billion won and Shinhan Bank and the National Agricultural Cooperative Federation 3.3 billion won each to KODIT and KOTEC. KODIT and KOTEC are providing as much as 240 billion won in guarantees to SMEs supplying GM Daewoo and Ssangyong Motor and operating in Incheon and Gyeonggi Province.

MOUs to increase lending to SMEs, which the banks had to sign with the government in order to receive guarantees on their external debt or injections of public capital (see above), also helped to increase credit to SMEs. In October 2008, the government set a target of a 32.2 trillion won rise in lending to SMEs in 2009, which would account for 50.4% of the expected total increase in loans (FSS, 2010). In the event, loans to SMEs increased by 33.8 trillion won, accounting for 67.6% of the overall expansion in bank lending. By year-end, domestic banks carried 444 trillion won in SME loans, accounting for 46% of their total lending.

### ***Supporting financially-distressed households***

Around 7 to 8 million persons, about one-fifth of the adult population, have low credit scores and thus are not eligible for bank loans. The problem is not so much their lack of access to bank lending but rather their excessive debts from past borrowing, for example from consumer finance companies. Indeed, it is estimated that 15% to 20% of total household loans (which amount to 60% of GDP) had been extended to borrowers with low credit scores. Government initiatives to help financially-distressed households with low income and credit scores achieved the following results during the first ten months of 2009:<sup>15</sup>

- The Credit Recovery Fund (a private entity funded by contributions from financial institutions) and the Credit Counselling and Recovery Service restructured debt held by individuals. The Fund purchased loans of less than 50 million won (\$44 thousand) more than three months overdue from creditors (financial institutions) to reduce the burdens of debtors by offering interest relief and allowing amortisation. The almost 750 thousand loans purchased through the Fund amounted to 5.2 trillion won (0.5% of GDP) between December 2008 and November 2009.
- The Fund also helped people with low credit scores to convert loans with interest rates of more than 20% to bank loans with an average rate of 12%. More than 13 thousand loans, amounting to 143 billion won, were converted.
- The Credit Counselling and Recovery Service (CCRS) carried out individual debt restructuring by adjusting interest rates or providing debt relief through workouts for 87 thousand individuals in 2009.<sup>16</sup>
- Under the guidance of the supervisory authorities, banks have eased the burden of debtors, for instance by extending maturities and carrying out workout programmes. Between November 2008 and August 2009, the maturity on loans of 117.5 trillion won (11% of GDP) was extended, while debt workouts reached 1.1 trillion won.

A number of conditions were attached to these programmes to mitigate moral hazard problems in debt rescheduling and the provision of refinancing guarantees. For example, a debt rescheduling agreement is invalidated if an individual is found to have hidden properties or fails to repay a debt obligation on time. These schemes also refuse guarantees to individuals with excessive debts or income above a certain level. Nevertheless, there appear to be serious moral hazard problems resulting from these programmes.

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15. Another means of helping financially-distressed households is non-guaranteed loans through the Microfinance Foundation. Microcredit businesses have been launched for people with low credit ratings and low income using dormant accounts at financial institutions and corporate donations.

16. About 2 trillion won in debts are rescheduled each year by the CCRS. In general, rescheduled debts are classed as substandard assets, according to the forward-looking criteria, requiring provisioning of 20%.

### The sound condition of Korean financial institutions made it easier to weather the crisis

Thanks to the restructuring and improved regulatory framework in the wake of the 1997 crisis, banks and non-bank financial institutions appeared to be in good shape overall at the time of the September 2008 shock: profitability, return on assets, ratio of substandard or below loans, delinquency rates for SME and household loans and the BIS capital adequacy ratio all indicated a sound financial system. The relatively strong position going into the crisis allowed an early stabilisation of the financial sector. However, given the automatic rollover of loans to SMEs, which includes non-viable firms, there is a risk of a marked increase in NPLs.

Korea's financial system remains primarily based on indirect finance, of which the banking sector is the primary source.<sup>17</sup> The nation-wide banks, which account for about 90% of total bank deposits and loans, are in good condition despite some increase in their NPLs. Indeed, substandard or below loans<sup>18</sup> doubled from 0.7% of total loans in 2007 to 1.6% by June 2009, before falling back to 1.2% in December 2009 (Table 4). Loan-loss reserves have increased significantly since 2007, as a result of the stricter provisioning rules noted above. Consequently, they were 40% higher than substandard or below loans in December 2009, even after writing off 3 trillion won of NPLs in the second half of 2009. After-tax profits and return on equity and assets were relatively low in 2008 and 2009, while remaining positive, in large part due to large loan-loss reserves. The BIS capital adequacy ratio has increased since 2007, reaching 14.6% in December 2009, the highest since 2002. The rising ratio reflects the infusion of public funds, banks' own efforts to raise capital and the decline in their loans. In addition, the regulatory changes discussed above helped to boost the reported capital adequacy ratios.

**Table 4. Indicators for the banking sector**  
Nation-wide banks, in trillion won

	2002	2004	2006	2007	2008	June 2009	Dec. 2009
Net profits (before tax)	9.0	12.8	2.2	16.5	14.6	6.5	12.1
Net profits minus loan-loss provisioning (before tax)	3.7	6.0	1.3	13.8	7.4	1.9	5.1
After-tax profits	2.9	5.9	8.1	9.4	5.2	1.5	4.2
Return on equity (%)	10.95	18.23	15.52	16.04	8.31	2.28	6.12
Return on assets (%)	0.56	0.89	1.06	1.09	0.51	0.13	0.38
Total loans (A)	432.2	473	591.3	670.9	784.7	778.5	770.3
Substandard loans or below <sup>1</sup> (B)	10.6	9.4	5.3	4.9	9.1	12.2	9.0
Ratio to total loans (%) (B/A)	2.4	2.0	0.9	0.7	1.2	1.6	1.2
Loan-loss reserves (C)	8.8	9.1	8.4	9.3	12.9	14.3	12.6
Ratio of reserves to substandard loans or below (%) (C/B)	83.5	96.6	160.1	197.0	146.5	121.7	139.8
Capital adequacy ratio (BIS ratio)	10.5	11.3	12.4	12.0	12.8	14.3	14.6
Number of branches	4 304	4 333	4 623	4 723	4 866	4 704	4 721

1. Includes loans classified as substandard and doubtful, plus estimated loss.  
Source: Financial Supervisory Service.

17. Non-bank financial institutions' share in indirect financing peaked at around 50% prior to the 1997 crisis. As a result of bankruptcies and M&As, the share of non-bank financial institutions in indirect finance declined to around 30% by 2005, while the share of banks returned to its pre-crisis level (Hahm, 2008).
18. Defined as NPLs, which are loans overdue more by more than three months or for which interest is unpaid, plus doubtful loans, as classified by a bank's subjective credit-rating model.

Overall, the loan-to-deposit ratio does not suggest a heavy reliance on borrowing by banks. Indeed, the ratio at the end of 2007 and 2008 was 104.4% and 101.6%, respectively, if deposits include CDs (excluding CDs, it was 123.9% and 118.8%). The performance of the two largest specialised banks, Korea Development Bank and Industrial Bank of Korea,<sup>19</sup> was similar to that of nation-wide banks in 2009 with respect to loan quality, loan-loss reserves and capital adequacy. Meanwhile, local banks, which account for 7% of total bank loans and deposits, have remained more profitable than nation-wide banks.

Other types of financial institutions remain financially healthy overall. Although securities companies suffered losses from principal investments in 2008, their net profits remained positive and their net capital ratios stayed above 500%. Insurance companies saw their net profits wiped out by early 2009. As financial markets stabilised, their net profits bounced back, boosting their solvency margin ratio to 262% by September 2009. The performance of other non-bank financial institutions – mutual savings banks, credit unions, merchant banks, credit card companies, leasing companies, finance companies and venture capital companies – is comparable to that of banks (Table 5). Although net profit declined in 2009 and loan growth slowed, substandard loans rose only modestly, from 3.4% in 2007 to 4.0% in mid-2009, which is below the 5.2% average recorded between 2002 and 2006. However, the aggregate statistics for non-bank financial institutions mask a problem in the savings banks, which along with non-bank credit card companies, have been the weak players in the non-bank sector. Savings banks are saddled with a high delinquency rate, reflecting the large share of low-credit individuals and SMEs among their borrowers.

**Table 5. Indicators for the non-banking sector<sup>1</sup>**

Date	Loans in trillion won	Per cent change	Substandard loans or below to total loans	Net profit in trillion won
2002	189		5.2	3 280
2003	177	-6.5	6.2	-9 905
2004	180	1.9	5.3	-198
2005	202	12.2	5.2	3 056
2006	230	13.6	4.1	5 096
2007	266	15.6	3.4	5 380
2008	278	4.6	3.6	3 765
June 2009	297	6.9	4.0	2 310

1. Includes mutual savings banks, credit unions, merchant banks, credit card companies, leasing companies, finance companies and venture capital companies.

Source: Ministry of Strategy and Finance.

In sum, the September 2008 shock reduced loan growth at all types of Korean financial institutions and generally lowered loan quality. Even so, bank capital adequacy increased, bank reserves exceed loans rated substandard or below, and institutions were profitable by the end of 2009. However, financial institutions will have to cope with the withdrawal of government funds and guarantees to stabilise financial markets and institutions and there is a risk of a significant rise in NPLs.

### **How to cope with Korea's vulnerability to capital outflows**

The chance of prolonged won depreciation as a result of the 2008 shock appeared smaller than a decade earlier (FSC, 2008 and FSS, 2008). In addition to the sound condition of financial institutions and

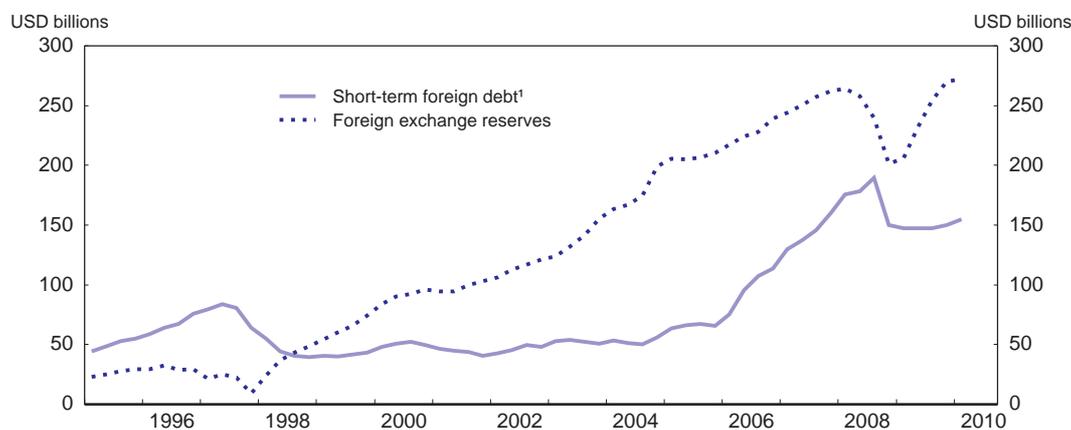
19. Korea has four specialised banks: Korea Development Bank, Industrial Bank of Korea, National Agricultural Cooperative Federation and the National Federation of Fisheries Cooperatives. These are policy banks supported by the government to target certain sectors of the economy to achieve specific policy objectives. These banks are regulated separately from commercial banks because of the policy loan objectives, although they are subject to the general application of the Banking Act.

the improvement in the financial sector since 1997, Korea had large holdings of international reserves and a significant amount of its foreign debt had low risk. While total foreign debt amounted to \$420 billion in June 2008, almost one-third was not subject to repayment burdens.<sup>20</sup> Foreign exchange reserves in June 2008 were \$258 billion, exceeding short-term foreign debt of \$177 billion (Figure 8). Moreover, most reserves were held in bonds rated AA or above, and the government was transparent about its holdings of international reserves. At the time of the 1997 crisis, in contrast, useable foreign exchange reserves were less than \$30 billion, well below the more than \$60 billion in external short-term debt.

Despite this apparently sound position, the crisis revealed Korea's vulnerability primarily due to the banking sector's short-term foreign debt holdings (Figure 2). The external debt of banks jumped by 66% between the end of 2006 and September 2008, reaching \$159 billion and making Korea a net debtor nation for the first time since 2000. Subsequently, Korea experienced large capital outflows and a sharp depreciation of the won in the wake of the September 2008 shock, as noted above. In sum, the rising external debt of the banking system was a major factor that brought Korea to the brink of a 1997-type crisis.

As an export-oriented and non-reserve currency country with an open capital account, Korea is sensitive to external shocks, whether financial or real. Consequently, the economy remains susceptible to capital flight and rapid currency depreciation, as shown during the 1997 and 2008 crises. This vulnerability to external shocks presents policy makers with serious problems, making it important to limit the risk of sudden capital outflows. A number of long-term policies would help limit such susceptibility. *First*, faster growth of domestic demand and services may help re-orient the economy away from excessively export-based growth, thus reducing vulnerability. Reforms to promote productivity growth in services would thus be helpful (2010 *OECD Economic Survey of Korea*). *Second*, continuing to build a transparent and sound financial system would help maintain foreign confidence and enable the financial system to better absorb external shocks.

**Figure 8. Korea's foreign exchange reserves and short-term debt**



1. Maturity of less than one year.

Source: Bank of Korea.

While such long-term measures would help, the vulnerability of the Korean economy to external shocks, with large effects on the exchange rate and asset prices, raises questions about what could be done in the short run to mitigate their impact. There are essentially three options. *First*, Korea could reintroduce controls on short-term capital. However, this would limit Korea's growing integration in the world

20. This includes pre-foreign direct investment funding, foreign exchange forward hedging of pre-contracted future cash flows, and advanced receipts for shipbuilding contracts.

economy, which has driven its remarkable development. Reintroduction of capital controls is also subject to disciplines under the OECD Code of Liberalisation of Capital Movements to which Korea adheres. *Second*, Korea could increase its foreign exchange reserves. However, the 2008 crisis does not suggest that foreign exchange reserves were inadequate. Indeed, they remained above \$200 billion throughout and were thus always well above Korea's short-term foreign debt. By February 2010, foreign exchange reserves had reached \$271 billion (33% of 2009 GDP), exceeding the pre-crisis level. A substantial increase in foreign exchange reserves would thus be ill-advised, as there are significant costs associated with large foreign exchange reserves (Rodrik, 2006).<sup>21</sup> Moreover, there are risks in placing a large share of national wealth in volatile foreign assets.

The third, and preferable option, would be to internalise the risk of foreign borrowing by financial institutions by providing incentives to monitor this source of funds more carefully. The FSC recently launched an initiative to strengthen risk control guidelines on foreign liabilities by focusing more on individual institutions rather than on the sector as a whole (Box 2). Such regulations should be used to increase transparency about foreign borrowing. In addition, deposit insurance premiums could be adjusted on the basis of banks' foreign borrowing to provide incentives to manage such borrowing more prudently.

As noted above, capital account volatility was partially a result of the activities of foreign bank branches in Korea, which accounted for 40% of the banking sector's foreign debt in mid-2008, of which relatively little was balanced by foreign assets (Figure 2). Foreign institutions are not subject to liquidity regulations imposed by Korean authorities, as is the norm in banking regulation. However, a recent report by the Basel Committee on Banking Supervision raises the issue of how liquidity and leverage regulations could be applied to foreign branches (BCBS, 2009) and this issue is being discussed by the G20 and the Financial Stability Board. Korea should actively participate in these discussions in order to promote a framework that takes better account of the risks. At the very least, it is important to ensure that there is adequate information on the liquidity position of foreign bank branches to allow the authorities to respond quickly. At the same time, foreign bank branches play an indispensable role in financing and investing, making it important for Korea to establish a globally-harmonised regulatory framework that strikes an appropriate balance between stability and growth.

Nevertheless, any prospective regulations emerging from the Basel Committee on the role of foreign bank branches are unlikely to be sufficient to fully eliminate Korea's susceptibility to sudden capital outflows. This suggests that the bilateral currency swap arrangements described above will remain an important tool to cope with instability. However, such agreements tend to be negotiated at the last moment in times of crisis. Such an approach should be supplemented by a more formal multilateral safety net, as advocated by the Korean government. One step in this direction is the Chiang Mai Initiative Multilateralisation agreed in December 2009, in which Korea is scheduled to provide \$19.2 billion of the \$120 billion fund as a safeguard against short-term liquidity problems. However, this does not provide any protection for Korea because withdrawals would be limited to the \$19.2 billion that it provided to the fund.

### **Addressing remaining problems in the financial sector**

Policies such as the injection of public funds, guarantees, government purchases of bank subordinated debt and expanded support for SMEs have helped to overcome the crisis. However, these measures would further increase moral hazard and competition problems if kept in place for too long. The greater the government role in supporting the financial system, the less likely institutions will be to adopt market principles and the weaker the incentive to rationally allocate resources. The success in overcoming the crisis should not be used as a reason to pursue interventionist policies, which would hinder the autonomous

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21. For instance, the cost of holding foreign exchange reserves in India is estimated at about 2% of GDP (Gupta, 2008).

development and efficiency of the financial sector. Rather, the restructuring programmes should be improved and gradually phased out. In addition, Korea still faces a number of longer-term

### **Box 2. Measures to enhance the soundness of domestic financial institutions**

In November 2008, the FSC and FSS announced a plan to reduce financial institutions' foreign exchange risks.

#### **Revision of the regulation on the foreign currency liquidity ratio**

The maturity mismatch between banks' foreign currency assets and liabilities is addressed through the minimum foreign exchange liquidity ratio, which applies on a seven-day, one-month and three-month basis. The ratio had been based on the assumption that all assets are recoverable at any given time irrespective of an asset's marketability, *i.e.* all weights are 100%. However, the ratios remained comfortably above recommended levels, even during the 2008 crisis (Table 6). The new plan proposes differentiated weights by type of financial asset to reflect its recoverability, which should make this a more useful indicator.

**Table 6. Foreign exchange soundness ratio**  
End of period in per cent based on old weights

Indicator	Recommended level	2007	2008	March 2009	June 2009	Sept. 2009	Dec. 2009	March 2010
Foreign exchange liquidity ratio	(≥ 85%)	102.7	98.9	102.7	105.2	105.0	105.1	105.5
Seven-day mismatch ratio	(≥ -3%)	3.7	3.2	2.1	2.8	3.1	2.8	2.2
One-month mismatch ratio	(≥ -10%)	2.9	0.4	0.2	1.6	1.6	1.1	2.7

Source: Financial Supervisory Service.

#### **Mandatory possession of riskless foreign currency assets**

Financial institutions are required to hold a minimum amount of riskless foreign currency assets to prepare for a possible shortage of foreign currency liquidity. Safe foreign exchange assets are defined as government and corporate bonds rated higher than single A and deposits in the central banks of countries with sovereign credit ratings higher than single A. Financial institutions have a choice between holding 2% of total foreign currency-denominated assets in risk-free instruments or opting for a formula that may reduce the level.

#### **Revision of the regulations on mid- to long-term foreign currency borrowing management**

The definition of mid- to long-term borrowing was changed from "one year or longer" to "more than one year", in line with international standards. Also, the required level of mid- to long-term funding was raised from 80% of mid- to long-term lending to 90%. The FSC plans to gradually raise the ratio to 100% or more in the first half of 2010.

#### **Establishment of foreign currency liquidity risk management standards**

Financial institutions are required to establish internal control standards to build a foreign currency liquidity risk management system. The new standards will set mandatory guidelines on *inter alia* currency-specific liquidity risk management, an early warning system, limits on capital outflow during crises and contingency funding plans.

#### **Establishment of foreign currency derivatives-related risk management standards**

Financial institutions are required to establish internal control standards to manage risks associated with the trading of foreign currency derivatives. This reform limits foreign exchange forward transactions to a maximum of 125% of physical trade in order to prevent institutions from engaging in excessive hedging. In cases where an upward adjustment in the fixed ratio is deemed necessary, prior approval will be required from the Risk Management Committee in the financial institution. As part of credit risk management, the standards of "Derivatives Execution Best Practices" will apply to all institutions dealing in foreign currencies, except non-bank financial institutions.

#### **Measures to encourage more appropriate foreign exchange hedging by asset management companies**

Stronger information disclosure to clients on the cost and effectiveness of foreign exchange hedging will be encouraged. In addition, investment products with different foreign exchange hedging ratios will be introduced. In this connection, the Korea Financial Investment Association revised the Working Rules on Standard Investment Recommendation to require "mother funds" to have various types of "son funds" with different hedge ratios.

challenges related to: *i)* problems in the SME sector; *ii)* how to cope with housing prices; *iii)* weak corporate governance in financial institutions; *iv)* the ability of financial institutions to absorb shocks in asset values; and *v)* achieving the objective of enhancing Korea's standing in the global financial market.

### ***Improving the current restructuring programmes***

Improvements are needed in two areas. *First*, in the capital injection scheme implemented in 2009, banks' access to public capital was contingent on maintaining a certain level of lending to SMEs. While this helped borrowers to survive, it hinders bank-led corporate restructuring. Strengthening the capital of weak banks should be done based on conditions that encourage, rather than discourage, corporate-sector restructuring. Otherwise, festering problems may lead to a renewed need for capital injections.

*Second*, public financial institutions, particularly KAMCO, have played an important role in reducing banks' holdings of NPLs and in co-ordinating corporate restructuring of borrowers. While bailouts through public entities are necessary as a safety net, banks and other financial institutions should be first in line to push for corporate restructuring in their role as creditors. Of course, banks have an incentive to avoid recognising bad loans and selling them to others, to avoid showing a loss. This incentive is often compounded by banks' bullish expectations on the outlook for asset prices.<sup>22</sup> After analysing the soundness of asset classification in March 2009, the authorities directed financial institutions to reform their loan classification systems by focusing them more on substandard loans with relatively large credit risk.

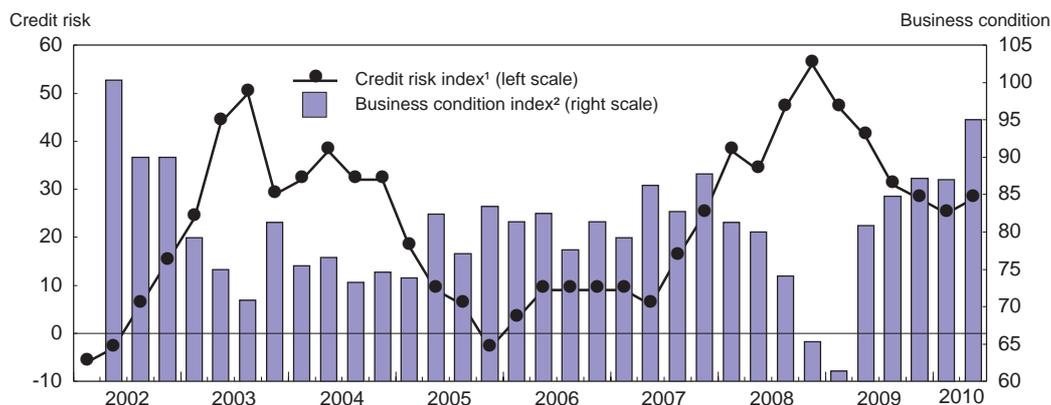
### ***Addressing problems in the small and medium-sized enterprise sector***

The risk of moral hazard is greatest in the SME sector, which accounts for half of manufacturing output and one-third of exports. The large *chaebol*-affiliated corporations were the focal point of corporate reform after 1997 because they were at the centre of the factors causing that crisis. Consequently, the *chaebol* were forced to adopt more commercially-based corporate governance structures and to restructure aggressively. In contrast, the government essentially bailed out SMEs through increased public subsidies and guarantees (Claessens and Kang, 2008). Moreover, this support was not fully scaled back once the crisis had passed (Table 3 and Figure 7). Consequently, the SMEs have not been as aggressive in reforming their business model and their performance has increasingly lagged that of large firms.

In short, the differential approach to restructuring, combined with generous government support for the SME sector, generated a moral hazard problem that continues to the present. It was exacerbated by the expansion of support during the recent crisis, increasing SMEs' reliance on public assistance. The expanded financial support to SMEs prevented some bankruptcies and helped to sustain employment. Nevertheless, it is essential to phase out this assistance – particularly the automatic rollover of loans and extra guarantees to SMEs – and to promote the restructuring of SMEs as the economic recovery takes hold and credit risk and business conditions normalise. In the second quarter of 2010, the business conditions index for SMEs reached its highest level since 2002 (Figure 9). A good exit strategy would be to announce the scaling back of SME support over the next five years, and to let non-viable SMEs fail, accompanied by adequate labour market measures to cope with the social consequences. Otherwise, the continued existence of non-viable firms will remain a drag on Korea's growth potential.

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22. This is widely recognised as a cause of Japan's failure to address the NPL problem (OECD, 2009b).

**Figure 9. Business conditions and credit risks of small and medium-sized enterprises**

1. The "Business Health Index" by the Korea Federation of Small and Medium Business is for the manufacturing sector. Quarterly figures are simple averages of monthly data.
  2. The "Survey on Lending Practices of Financial Institutions" by the Bank of Korea.
- Source: Bank of Korea, *Economic Statistics System* and the Korea Federation of Small and Medium Business.

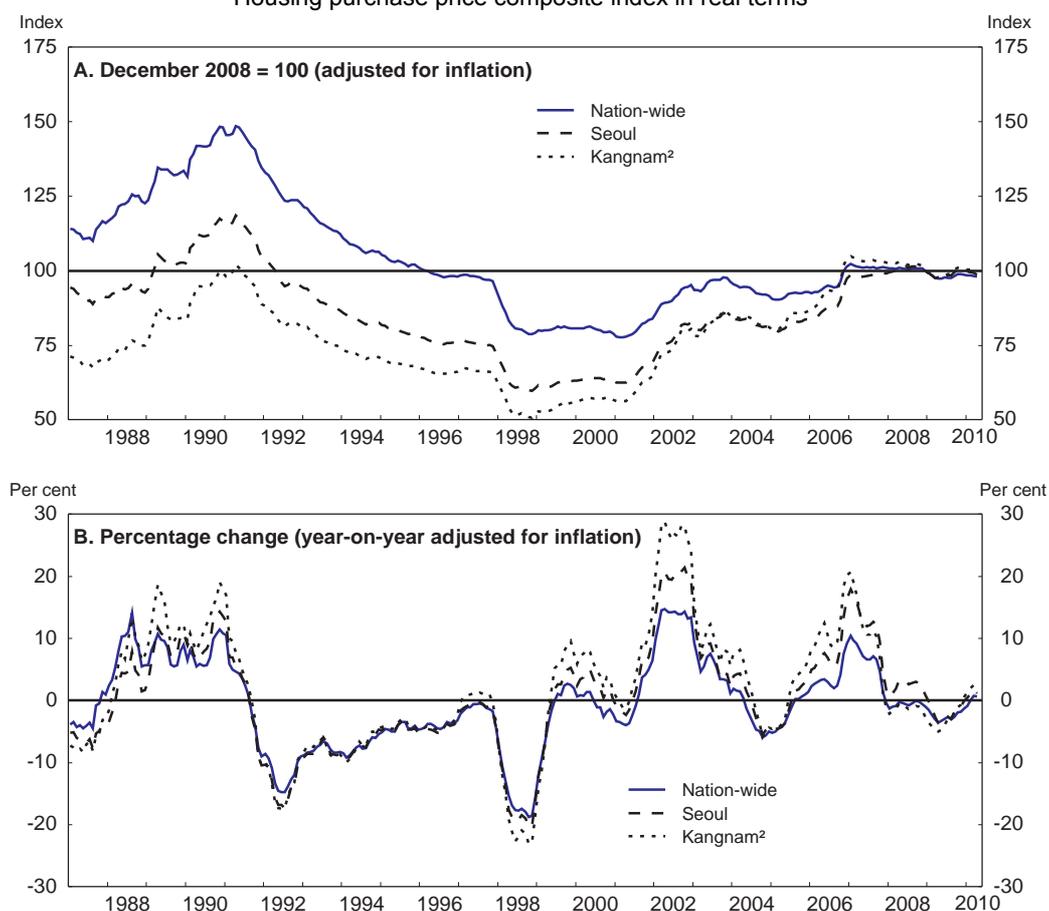
The problems in the SME sector are an issue not only for the firms themselves but also for the banking system, as domestic banks' loans to SMEs account for around half of their total lending. The share of bank loans to large companies has steadily declined since the early 1990s as large firms took advantage of expanding capital markets and the *chaebol* deleveraged. More recently, with large companies relying more on internal sources of funds and tighter regulations on lending for housing, the share of bank loans to SMEs has steadily increased. Indeed, SME credit risk is a more serious problem than mortgage debt. Reducing the moral hazard risk requires changing the longstanding emphasis on the social responsibilities of banks (Lee, 2006). Government pressure on banks to lend to SMEs should be relaxed, and the focus should shift to their primary objective of allocating their lending so as to maximise their returns. Any necessary support to SMEs should be provided through more transparent fiscal measures.

### ***Housing prices and the financial sector***

After falling during most of the 1990s, nation-wide housing prices began to increase in real terms in 2000, though with considerable volatility (Figure 10).<sup>23</sup> However, overall housing price increases over the past decade were small compared to other countries. Indeed, the ratio of housing prices to income rose only 7% in Korea between 2000 and 2007, versus more than 30% in ten OECD countries (Figure 11). In addition, housing price increases were concentrated in the capital region, particularly in the Kangnam area of Seoul, while prices in the rest of the country were more stable. The government is particularly sensitive to prices in the capital region, given the distributional implications as well as the risk that they will spread to other parts of the country. Housing prices in the capital region are influenced by regional policies dating back to the 1960s. Indeed, large-scale construction in the capital region, including factories, universities and other facilities that induce population concentration, is prohibited or controlled. However, a number of exceptions, such as for SMEs, foreign-owned companies and high-technology firms, have to some extent undermined such restrictions. Indeed, the share of the population in the capital region, which accounts for 12% of Korea's area, has risen from 15% in 1970 to almost 50%.

23. As in many countries, the national housing price is an unweighted average of all regions. As housing prices have risen more in the capital region, this approach underestimates the overall increase in housing prices.

**Figure 10. Trends in housing prices**  
Housing purchase price composite index in real terms<sup>1</sup>

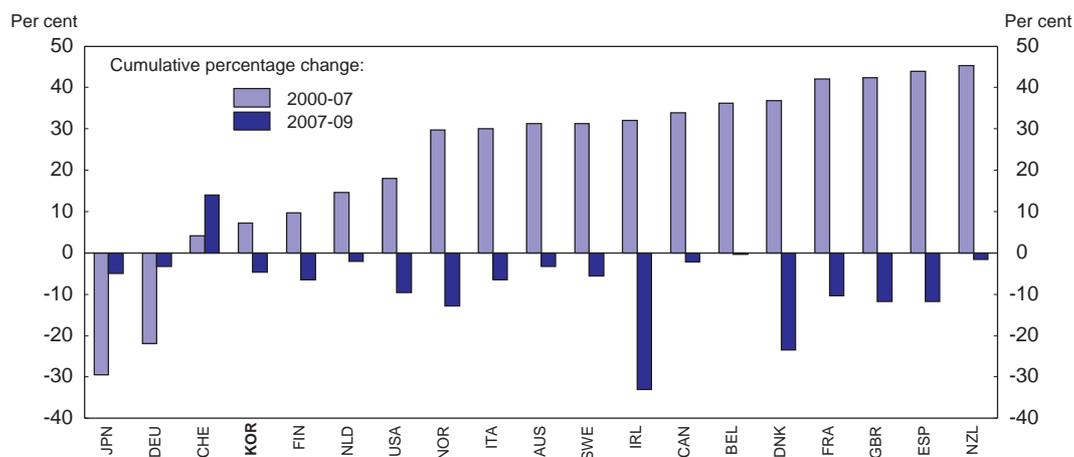


1. Includes single-family homes and apartments. The index is deflated by the overall consumer price index.

2. A district of Seoul.

Source: Kookmin Bank, *National Housing Price Survey*.

The modest housing price increase that did occur in Korea cannot be attributed directly to monetary policy (Song, 2008). Instead, the Bank of Korea “leaned against” the expansion in housing lending by increasing the base rate from 3.25% in October 2005 to a peak of 5.25% in August 2008. The most important step, though, was the 2002 introduction of a ceiling on loan-to-value (LTV) – the ratio of bank lending relative to the value of a residence. This ceiling was set at a very low 40% in speculative zones – defined as areas where housing price increases were the most rapid and appeared to be driven more by expected price increases than fundamentals – and 60% elsewhere. In 2003, 53 regional districts (23% of the total) were designated as speculative zones. The LTV ceiling in Korea has been the lowest in the OECD area, helping to explain why Korea was able to avoid the housing bubble (Table 7). Indeed, in many countries, LTV ceilings were as high as 80% to 100%, or absent altogether. The LTV ceiling was supplemented in 2005 by debt-to-income (DTI) regulations, which shift the focus from the value of the collateral to the ability of the borrower to repay the loans. The ceiling on DTI – the ratio of payments of principal and interest to the borrowers’ income – was limited to between 40% and 65%, depending on where the house is located, its value and which type of institution is lending the money.

**Figure 11. An international comparison of the change in the ratio of housing prices to income**

Source: OECD Economic Outlook Database.

Housing prices have been affected by a wide range of other government policies. In 2005-06, when prices began to increase (Figure 10, Panel B), the authorities launched five packages aimed at controlling housing prices (OECD, 2007). These included a large number of measures, such as imposing price ceilings on new houses, requiring builders to disclose their construction costs, tightening restrictions on reconstructing apartments,<sup>24</sup> requiring purchasers to report to the authorities how they will finance new homes, banning the re-sale of new homes purchased in the capital region for five to seven years and a 50% quasi-tax<sup>25</sup> on development gains. In addition, the government planned to increase the number of public rental units and houses for sale by public companies, secure additional land for housing by relaxing regulations, and expand the National Housing Fund. In the event, housing investment as a share of nominal GDP fell from 5.3% of GDP in 2005 to 4.1% in 2008 and further to 3.9% in 2009.

With the onset of the crisis, housing prices began to fall, prompting the government to ease a number of regulations. In particular, the restrictions on 69 zones that had been designated as speculative zones were removed in November 2008, leaving only three such zones in the Kangnam district of Seoul. Accordingly, LTV and DTI ceilings were relaxed in much of the country outside of Seoul. In addition, regulations on the reconstruction of apartments were liberalised in January 2009 and the regulation on the “floor area ratio” was eased in April 2009. In addition, the government provided liquidity to the real estate and construction sector.<sup>26</sup>

As a result of policy changes and the economic recovery, land prices stabilised in real terms in 2009. Consequently, the policy pendulum moved back towards greater restriction. The FSS tightened the LTV ceiling in the capital region (Seoul, Incheon and parts of Gyeonggi Province) from 60% to 50% for apartment loans of less than ten years by banks in July 2009 and for non-banks (which supply 25% of housing lending) in October 2009 (Table 8). In addition, DTI ceilings, which had applied only to speculative zones, were extended to all of Seoul (Table 9).

24. The reconstruction of older apartments allowed an increase in floor space, thereby increasing the price.

25. Quasi-taxes include a wide range of fees, charges and contributions that are not imposed by the tax laws. Most are levied on firms in a discretionary and non-transparent manner for financing off-budget spending. There were some 100 such quasi-taxes in 2006, generating revenue of 1.4% of GDP.

26. The Korea Housing Guarantee Co., Ltd. bought unsold houses from construction companies under repurchase agreements of up to 2 trillion won and the Korea Land Corporation purchased land owned by real estate developers up to 3 trillion won.

**Table 7. International comparison of loan-to-value ratios on mortgage lending**

	Property valuation method	Restrictions on valuation method	Regulatory limits on loan-to-value	Link with capital adequacy
Australia	OMV	Yes	80% (100% if insured)	50% weight, subject to insurance if loan is above 80% limit
Belgium	OMV/MLV	No	None	50% weight, subject to prudent valuation of collateral
Canada	OMV (or variant)	No	75% (95% if insured)	50% weight if loan is up to 75% limit; 0% weight if CMHC-insured
Denmark	n.a.	n.a.	80%	None
Finland	n.a.	n.a.	None	None
France	OMV	Yes	60% to be eligible for mortgage-backed securities	None
Germany	MLV	Yes	60% to be eligible for mortgage securities	50% weight for first mortgages if loan is up to 60% limit
Ireland	OMV	No	80% (only for building societies)	None
Italy	OMV	No	80% (100% if guaranteed)	50% weight if loan is up to 80% limit
Japan	n.a.	No	None	50% weight for first mortgages
<b>Korea</b>	<b>OMV</b>	<b>Yes</b>	<b>40-60%</b>	
Netherlands	OMV	No	None	50% weight for part of the loan up to 75% of collateral; 0% weight if NHG-insured
Norway	OMV/LTV	No	None	35% weight if LTV is less than 80%; 75% weight if LTV is above 80%
Spain	Prudent valuation certified by appraiser	Yes	80% to be eligible for mortgage-backed securities	35% weight, subject to prudent valuation of collateral
Sweden	OMV	No	None	50% weight if loan is up to 100% of collateral
Switzerland	Mortgage lending value	n.a.	80% for owner-occupiers	50% weight up to 2/3 of market value; 75% weight above that limit
United Kingdom	OMV	No	None	50% weight if loan is up to 90% of collateral; 60% weight above that limit
United States	OMV	No (but appraisers need to be certified)	85% if not guaranteed	50% weight if loan is up to 90% of collateral; 100% weight above that limit

Note: OMV = open market value; MLV = Mortgage lending value. The MLV must be based on a prudent assessment of the market value (in Germany the typical adjustment factor is 20/25 per cent).

Source: Catte *et al.* (2004) and OECD Secretariat.

**Table 8. Loan-to-value regulation in Korea<sup>1</sup>**Banks and insurance companies (mutual finance companies, mutual savings banks and specialised financial companies shown in parentheses)<sup>2</sup>

Loan maturity	Speculation zones		Other parts of the capital region (Seoul, Gyeonggi, Incheon) except for speculation zones		Other areas	
	House	Apartment	House	Apartment		
Three years or less	50%	40%	50% (70%)	50% (60%)	60% (60%)	
Three to ten years	60%	40%	60% (70%)	50% (60%)	60% (60%)	
More than 10 years	Collateral value: more than 600 million won	60%	40%	60% (70%)	50% (60%)	60% (60%)
	Collateral value: less than 600 million won	60%	60%	60% (70%)	60% (60%)	60% (60%)
Amortisation schedule of more than ten years <sup>3</sup>		70%	70%	70% (70%)	70% (60%)	70% (70%)

1. Ratios in the table are the maximum levels allowed.

2. The LTV regulations were revised in July 2009 for banks and in October 2009 for the other financial institutions show in this table.

3. These figures apply to mortgages that will either be sold to the Korea Housing Finance Corporation within one year or those mortgages with fixed interest rates that have plans for securitisation.

Source: Financial Supervisory Service (2009a and 2009b).

**Table 9. Debt-to-income regulation in Korea**

Banks (other financial institutions, such as mutual finance companies, mutual savings banks and specialised financial companies, are shown in parentheses)

Collateral value	Loan amount	Speculative zones	Seoul, excluding speculative zones	Incheon and Gyeonggi
More than 600 million won (holding title for 3 months or less)	More than 50 million won	40%	50%	60%
More than 600 million won (holding title for more than 3 months)	More than 100 million won 50 million won - 100 million won	40% 50%	50%	60%
Between 300 million won and 600 million won	More than 100 million won 50 million won - 100 million won	40% 50%	50%	60%
300 million won or less				
Surface area in excess of 85m <sup>2</sup>	More than 100 million won 50 million won - 100 million won	40% (45%) 50% (55%)	50% (55%)	60% (65%)
Surface area less than 85m <sup>2</sup>	More than 100 million won	50% (55%)	50% (55%)	50% (65%)

Source: Financial Supervisory Service (2009a and 2009b).

In sum, the authorities should rely on appropriate prudential regulation through LTV and DTI ceilings, while phasing out other restrictions in use, particularly in speculation zones. Moreover, they should avoid frequent changes in prudential regulations, as fine-tuning could increase the volatility of housing prices (OECD, 2007). The rationale for differentiating the LTV and DTI ceilings based on the location of the house and its value appear to be targeted at housing prices rather than on the soundness of financial institutions. It would also be helpful to review the level of the DTI, which appears rather high at 60% in some areas, and of the LTV ratio, which in contrast is relatively low. Increasing property holding taxes, which are relatively low in Korea and were reduced in 2009, would help contain housing prices while encouraging efficient use of land (OECD, 2007). In addition, the contradiction between the regulations aimed at limiting concentration in the capital region and the concern about housing prices in the capital region should be addressed. A number of factors, including the economies of agglomeration and the availability of high-quality education, drive demand for housing in the capital region, putting upward pressure on housing prices. To stabilise housing prices, the government should consider addressing more effectively the factors boosting concentration in the capital region.<sup>27</sup> At the same time, concern about rising housing prices could be met by greater efforts to increase the supply of housing by relaxing regulations. Even in the city of Seoul alone, nearly one-third of land is classified as agricultural or forest, suggesting scope for increased supply of housing if the controls aimed at achieving balanced regional development by limiting new construction in the capital region were to be relaxed.

### ***Improving corporate governance in financial institutions***

One aspect of establishing a robust financial system and improving the competitiveness of the financial sector is upgrading governance of financial institutions. In the wake of the 1997 crisis, a number of reforms were introduced, notably the introduction of outside directors and audit committees and allowing foreigners as directors of banks. But progress appeared to stall by around 2005. A 2007 study showed Korea to be well below regional averages for rules and practices, the political regulatory environment and audit and accounting rules despite some improvement (CLSA, 2007). Indeed, there were complaints that outside directors had no real power and that managers directed banks in the context of diffuse ownership. The government should improve corporate governance in line with the guidance of the Basel Committee on Banking Supervision (BCBS, 2006), which follows the OECD principles.

One lesson from the global crisis is that there has been excessive reliance on credit rating agencies (CRAs) in financial regulation and in investment decisions, thus weakening the cautiousness of investors (Rousseau, 2009). The CRAs played a role in the crisis by giving ratings to complex and risky products that turned out to be unwarrantedly optimistic. The “issuer pays” model of rating has led to the underpricing of risk, suggesting a market failure in the form of a captive market (OECD, 2009b). In Korea, the ratings of four CRAs are used in capital market regulation.<sup>28</sup> CRAs have been regulated since 2001 by the Credit Information Act, which sets rules related to entry, scope of business and disclosure. In addition, CRAs are required to prepare internal control standards to improve their business practices since October 2009. However, it would be better to reduce the reliance on CRAs in financial regulation so as to improve the risk management systems of financial institutions, including board oversight and internal controls.

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27. This was an objective of the 2004 plan to create a new administrative city in Chungcheong province. However, the plan has been largely abandoned.

28. Three clauses in the Financial Investment Services and Capital Markets Act are based on ratings. *First*, financial investment service providers must get credit ratings from more than two CRAs on the non-guaranteed bonds that they acquire. *Second*, only foreign debt securities rated investment-grade, *i.e.* above BBB, by CRAs can be listed. *Third*, investment traders and brokers are only allowed to sell or broker commercial paper that is rated by more than two CRAs.

***Strengthening the ability of financial institutions to absorb shocks in asset values***

Another key to enhancing the Korean financial sector is the development of an asset-backed securities (ABS) market. Although in its unbridled, opaque form, it is regarded as a key factor in the financial crisis (BCBS, 2009 and Shin, 2010), securitisation can benefit asset owners, such as banks and investors, by exchanging income flows from assets to meet respective liquidity needs. Given the shortage of bank deposits against loan demand in Korea, securitisation is an effective tool to reduce pressure on bank balance sheets, which tends to overly encourage foreign borrowing. Despite a decline in issues by the private sector during the financial crisis, total issuance of ABS in Korea rose by 74.6% in 2009, as both publicly-offered ABS bonds and beneficiary certificates more than doubled (Table 10). Mortgage-backed securities (MBS), including those issued by the Korea Housing Finance Corporation (KHFC), were the largest contributor to the increase. The KHFC plans to issue MBS worth around five to six trillion won each year from 2010 to 2012 to develop the market, which is still small. Indeed, at the end of 2008, the share of ABS outstanding among total bonds in Korea was 1.8%, far below the 34.5% share in the United States. Reviving the private-sector market for ABS requires enhancing transparency. As proposed by the Basel Committee on Banking Supervision, it is important that banks have a comprehensive understanding, on an ongoing basis, of the risk characteristics of their individual exposures to securitised products, both on and off-balance sheet. For securitisation to make a useful contribution to the financing of the Korean economy without generating risks of instability, another important requirement is that detailed information on the quality of underlying assets should be made available to prospective buyers of ABS.

**Table 10. Issuance of asset-backed securities in Korea**  
In trillion won<sup>1</sup>

	2004	2005	2006	2007	2008	2009
Total issuance amount	2.7	2.9	2.3	2.0	2.1	3.6
Percentage increase		6.0	-18.8	-14.9	4.2	74.6
Publicly-offered ABS bonds		1.7	1.4	1.0	0.8	1.9
Publicly-offered beneficiary certificates <sup>2</sup>		0.4	0.3	0.4	0.4	1.1
Private		0.7	0.6	0.6	0.8	0.6
Number of issues	170	236	183	106	81	138

1. ABS issued pursuant to the Asset-backed Securitisation Act and the Korea Housing Finance Corporation Act (in terms of registered securitisation).

2. The Korea Housing Finance Corporation issued publicly-offered MBS and SLBS.

Source: Financial Supervisory Service.

***The government's agenda for financial-sector development***

The FSC announced an agenda for financial policy in 2010 that consists of five objectives (FSC, 2009c): *i*) funding economic revitalisation; *ii*) expanding support for low-income households and making financial markets more accessible to mid- to low-income households; *iii*) establishing a robust financial system; *iv*) improving the competitiveness of the financial sector; and *v*) enhancing Korea's standing in the global financial market. In particular, under the 2009 Capital Markets Consolidation Act, Korea is reducing segmentation in the financial sector, in contrast to other OECD countries that are considering moves in the opposite direction. The new act integrates seven laws, thereby allowing a single firm to provide a broader range of services, with a view to promoting the emergence of domestic investment banks. In effect, given the different starting points between Korea and many other OECD countries, there appears to be some convergence to middle ground.

While the banking system has grown and become more concentrated over the past decade (Hahm, 2008), there are still no Korean banks among the top 100 in the world. However, this is not necessarily a disadvantage as there is little evidence of efficiency gains in banks above \$300 million in assets, a very small size by modern banking standards (Wheelock and Wilson, 2001). Given the experience of large

banks during the recent global financial crisis, not having large banks may be an advantage for Korea. Indeed, other countries are considering reducing the size of financial institutions to ensure that none are too big to fail. While it may be reasonable to consolidate small banks in Korea to raise efficiency, a large global bank may not be necessary for a well-functioning capital market.

## Conclusion

Korea's response to the financial crisis was effective in countering the severe effects of capital outflows, exchange rate depreciation and sharp falls in asset prices. The outcome demonstrates the success of the restructuring of the financial sector implemented in the wake of the 1997 crisis. With the economy and the financial-sector recovering, attention should turn to phasing out emergency support, in particular the policies to assist SMEs. It is important to continue progress toward a more market-based financial sector with appropriate prudential regulation, including for mortgage lending, and banks with better-developed credit analysis skills. In addition, Korea will need to devise policies to reduce its vulnerability to sudden capital outflows. Recommendations that deal with these issues are summarised in Box 3.

### Box 3. Summary of recommendations for the financial sector

#### Managing external shocks

- Adjust deposit insurance premia based on foreign borrowing to provide incentives for banks to manage such borrowing more prudently, while effectively implementing revised foreign exchange and liquidity regulations.
- Apply foreign exchange and liquidity regulation on foreign bank branches, by taking into account international regulatory practices and ongoing discussions in the G20 and the Financial Stability Board.
- Participate in multilateral currency swap arrangements to reduce vulnerability to sudden capital outflows.

#### Strengthening financial intermediaries and corporate restructuring

- Limit the moral hazard problems in policies to help highly-indebted households.
- Avoid using lending to SMEs as a condition for banks to receive assistance, such as for public capital injections and guarantees.
- Phase out the expanded SME support programmes, including public spending and guarantees, which were introduced during the recent crisis, and promote corporate restructuring based on market incentives.
- Use the LTV and DTI regulations effectively to limit the risk of mortgage lending to financial intermediaries, while not using them to target housing prices in certain areas.
- Avoid frequent changes in the LTV and DTI, which could foster instability, while boosting property-holding taxes.
- Review the level of the relatively high DTI ceiling and of the relatively low LTV limit.
- Phase out other controls on housing, while putting more emphasis on enhancing supply.
- Reform weak financial intermediaries, notably the mutual savings banks, to improve resource allocation.
- Upgrade the corporate governance of financial institutions in line with the principles recommended by the Basel Committee on Banking Supervision and the OECD.
- Reduce the reliance on credit rating agencies in the financial regulatory system to make financial institutions and investors more responsible for their products, decisions and behaviours.
- Promote the development of securitisation through enhanced transparency to reduce pressure on banks' balance sheet due to the shortage of deposits, while ensuring that it does not create new vulnerabilities.
- Avoid the emergence of too-big-to-fail financial institutions.

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**ANNEX. THE 2008 CRISIS: A CASE OF DÉJÀ VU FOR KOREA?**

The rapid depreciation of the won in 2008 brought back memories of the 1997 crisis, when Korea, along with two other Asian countries, turned to the IMF to avoid defaulting on their external debt. Indeed, the won declined by 39% in effective terms between the first and fourth quarters of 2008, recalling the 66% drop between the third quarter of 1997 and the first quarter of 1998 (Figure A1). In 1998, output collapsed by 7.8% (quarter-on-quarter) in the first quarter, its largest fall since the beginning of Korea's national account statistics in 1970. In 2008, it recorded the second-worst drop of 4.5% in the fourth quarter. There was criticism that the government, corporate and financial sectors had failed to reform sufficiently following the 1997 crisis, forcing Korea to repeat the painful adjustment process only one decade later (Huh, 2009).

However, the underlying causes of the two crises in Korea were very different. The 1997 crisis was triggered by the implosion of the internal financial market, while the 2008 crisis was mainly triggered by the collapse of the external financial market (Cho, 2009). The different origins of the 1997 and 2008 crises are evident in the divergent paths of the world economy during the two episodes. The 1997 crisis was Korea and Asia-specific, while failing to disrupt strong growth in the OECD area at a 3.3% annual rate between 1996 and 1999 (Figure 1.A1.1, Panel B). In contrast, the 2008 crisis was a global shock that led to the deepest downturn in the OECD area in many decades.

In 1997, foreign investors lost confidence in Korea as a result of weaknesses in its corporate and financial sectors. Profitability was very weak in the 1990s, even before the economy started slowing, and the debt-to-equity ratio was nearly 400% in the manufacturing sector in 1997 (Table A1). Such high leverage lowered the interest-coverage ratio to close to 100%, indicating that the average company barely covered its interest expenses – let alone principal – with the cash flow from its operations. The precarious state of the corporate sector led to a sharp rise in the bankruptcy ratio from 0.1% in 1996 to 0.4% in 1997.

**Table A1. Corporate and financial-sector indicators**

	1996	1997	2006	2007
<b>A. Corporate sector</b>				
Return on assets (in per cent)				
All firms	0.5	-0.9	6.8	7.3
SMEs	0.7	-0.6	3.3	3.5
Debt-to-equity ratio in manufacturing (in per cent)				
All firms	317.1	396.3	98.9	97.8
SMEs	387.4	418.4	132.6	129.1
Interest-coverage ratio (in per cent) <sup>1</sup>				
All firms	112.0	129.1	439.3	469.8
SMEs	100.9	99.0	282.9	267.9
<b>B. Banking sector<sup>2</sup></b>				
BIS capital ratio	9.1	7.1	12.8	12.3
Return on assets (in per cent)	-0.9	-3.3	1.1	1.1
Non-performing loan ratio as per cent of total lending	4.1	6.0	0.7	0.6

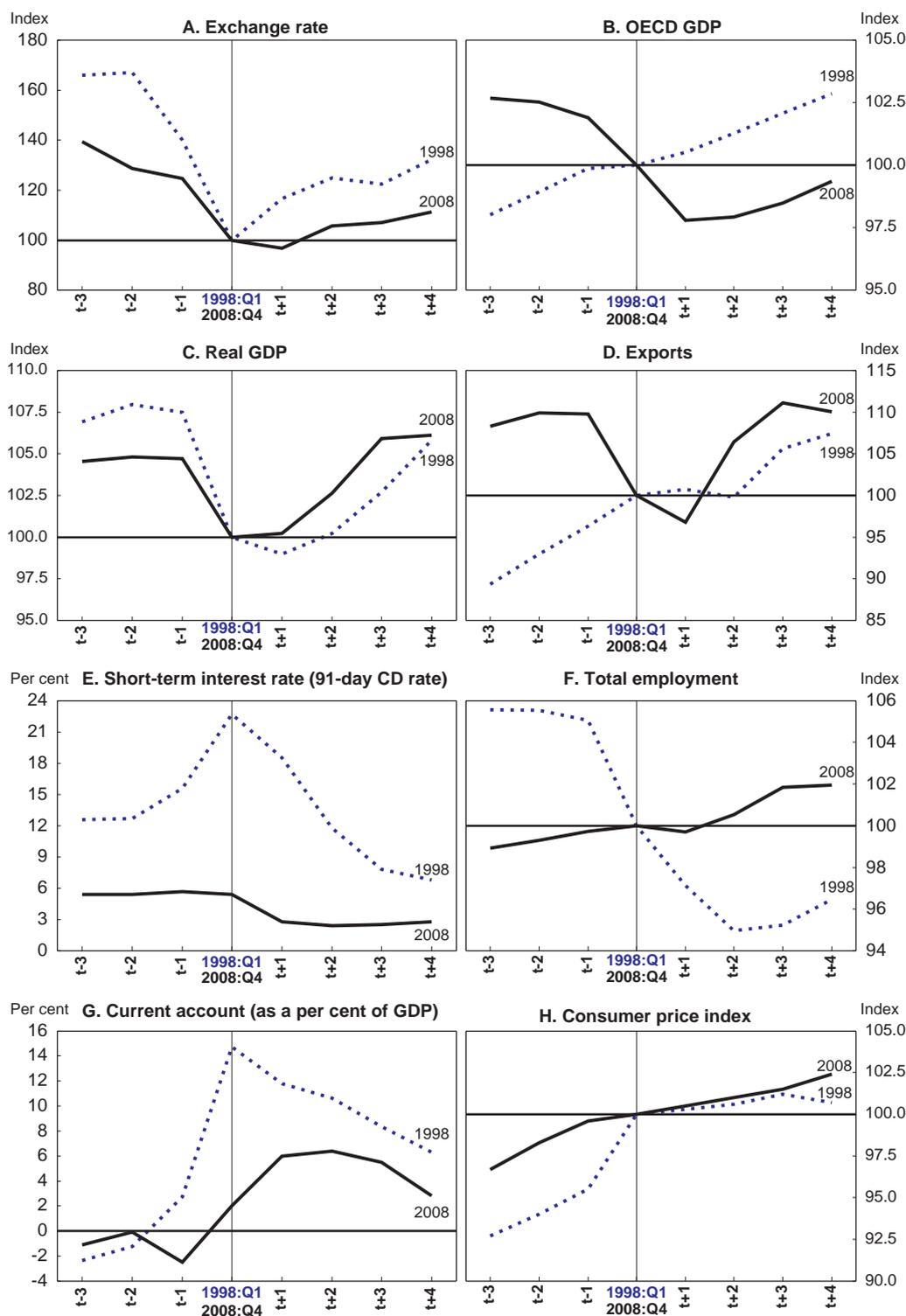
1. The ratio of operating profits to interest expenses.

2. Commercial banks in 1996-97. All banks in 2006-07. As a per cent of total lending.

Source: Financial Supervisory Service.

**Figure A1. Comparison of the economic recoveries from the 1997 and 2008 crises**

1998 first quarter and 2008 fourth quarter<sup>1</sup> are set at 100



1. These quarters were chosen as they recorded the largest output declines and won depreciation.

Source: OECD Economic Outlook Database.

The corporate-sector problems were reflected in the banks that lent to them. Banks went into the crisis with insufficient capital as a result of consistently low or negative earnings and the burden of large non-performing loans, which amounted to 4% of their lending in 1996. In addition, Korea's short-term foreign debt doubled to \$76 billion between 1994 and 1996, reflecting a regulatory framework that favoured short-term over long-term borrowing. Much of the borrowing was by "merchant banks", wholesale financial institutions that operated in a regulatory blind spot. Short-term debt before the crisis erupted in 1997 was more than double Korea's foreign exchange reserves, which had been squandered by the government's futile attempts to defend the won's exchange rate (Figure 3.8).

The corporate and financial sectors were in far better shape by the time of the 2008 crisis. Firms had sharply boosted their profitability and reduced their average debt burden to below 100%, helping to push up their interest-coverage ratio. The improved financial situation enabled the corporate sector to overcome the 2008 crisis without the wave of bankruptcies that occurred during the first episode. Meanwhile, the banking sector was better capitalised, more profitable and had lower NPLs, putting it in a much better position to cope with the much smaller impact from the second crisis. The difference between the two crises is illustrated by the amount of public funds needed for restructuring. By the end of 2000, the Korea Asset Management Corporation (KAMCO) had spent 37 trillion won (7% of 1997 GDP) to purchase impaired assets, while the Korea Deposit Insurance Corporation had spent 54 trillion won (11%) to recapitalise financial institutions and reimburse depositors in failed institutions. In contrast, only 7 trillion won (0.7% of 2009 GDP) has been spent thus far to recapitalise financial institutions and purchase impaired assets following the 2008 crisis (Chapter 3).

Despite the depressed global environment, the Korean economy grew slightly more during the four quarters following the 2008 shock (6.1%) than during the four quarters from early 1998 (5.8%) (Panel C). One factor was a somewhat stronger rebound in exports following the 2008 crisis (Panel D), despite the smaller depreciation of the won. This may reflect the increased concentration of Korean exports in medium and high-technology products and closer trade ties with China. Indeed, China's share of Korean exports (including Hong Kong, China) tripled from 10% in 1997 to nearly 30% in 2009.

A second major difference between the two crises was the policy response. During the first crisis, the Bank of Korea raised its policy rate to as high as 30% in an attempt to reverse the won's depreciation, leading to sharp spike in short-term rates (Panel E). The impact of such high rates on a highly leveraged economy was devastating, resulting in the bankruptcy of 58 large corporations in 1997 alone. In contrast, the central bank responded to the 2008 crisis by cutting its policy rate to a record low of 2%. There was also a major difference in the fiscal policy response. In 1997, the government initially cut spending and raised taxes in a misguided attempt to balance the budget that was only reversed once the severity of the downturn became evident. In 2008, the government responded promptly with the largest fiscal stimulus package in the OECD area. This included a significant number of additional public employment jobs, helping to support household income and consumption. Indeed, the number of employees increased by 2% in the year from the fourth quarter of 2008, compared to a drop of nearly 4% during the 1997 episode (Panel F), which lifted the unemployment rate to above 8%. In contrast, the unemployment rate remained below 4% in 2009.

Thanks to government policies, domestic demand has been stronger in the wake of the 2008 crisis. Consequently, the spike in the current account surplus – which reached 14% of GDP in the first quarter of 1998 – was smaller than in the 2008 episode (Panel G). In addition, the inflation performance has been different. Consumer prices increased by 2.4% in the year from the fourth quarter of 2008, compared to almost no change in the earlier episode (Panel H).

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