

# Structural change in the corporate bond market in Korea after the currency crisis

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## 1. Introduction

Before the currency crisis, local bond markets in Korea, in particular those for government and government-guaranteed bonds, were not well developed as the government had not run a large fiscal deficit for some time. However, the corporate bond market had begun to grow in the early 1970s. Most corporate bonds carried guarantees from banks, securities houses or guarantee funds. In view of the small scale of issuance of government bonds until recently, the yield on the three-year corporate bond was taken as the benchmark bond yield.

Since the currency crisis in 1997, however, there has been remarkable growth in the size of the local bond market, together with structural changes. This growth reflects the following factors. First, since the government urgently needed to raise a huge volume of public funds for financial restructuring, as well as boosting the depressed economy by fiscal pump-priming, it had the urgent task of creating a well developed government bond and government-guaranteed bond market. Second, the Bank of Korea (BoK) had to issue a huge volume of monetary stabilisation bonds (MSBs) to absorb the expansionary effects of the rapid increase of its foreign reserves. Thirdly, the corporate sector had to raise more funds from the corporate bond market since financial institutions in the throes of financial sector restructuring were very reluctant to extend loans to the corporate sector. Finally, a huge amount of asset-backed securities (ABSs) needed to be issued during the restructuring of both the financial and corporate sectors. Consequently, as of the end of 2001, the total outstanding volume of bonds issued has doubled to 480 trillion won from 223 trillion won at the end of 1997 (Table 1).

Table 1  
**Outstanding volume of bonds in Korea**  
 (end-year, in trillions of won)

Issuer	1997	1998	1999	2000	2001
Government	28	42	62	71	82
Central bank (MSBs)	24	46	52	66	79
Corporations	90	123	120	134	154
Agencies	38	80	103	108	140
Financial institutions	39	43	36	36	34
Local governments	3	3	3	3	3
All issuers	223	336	374	419	480
(% to GDP)	(49%)	(76%)	(78%)	(81%)	(88%)

At the same time, the structure of the primary market, the secondary market and the market infrastructure, especially in the case of the government bond market, have changed substantially in

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the wake of the crisis. The government has aimed to develop the bond market following the active issuance of Treasury bonds since September 1998. In addition, after their introduction in late 1998, the issuance of ABSs has become very popular, and increased dramatically from 1999 during the restructuring of both the financial and corporate sectors. Furthermore, because of financial institutions' reluctance to provide credit guarantees for corporate bond issuance right after the currency crisis, the majority of corporate bonds have been issued in non-guaranteed form since 1998.

There have been frequent outbreaks of turmoil in the corporate bond market,<sup>2</sup> especially associated with debt rollovers following the collapse of the Daewoo Group in July 1999, while the development of the government bond and ABS markets has been generally very successful without giving rise to any serious problems. The problems in the corporate bond market caused by the liquidity troubles of investment trust companies (ITCs) prompted numerous measures by the authorities, including structural measures to reform and support ITCs and the establishment of a "bond market stabilisation fund" with contributions from banks during the period from mid-1999 until mid-2000. Subsequently, the difficulties experienced by lower-rated firms in rolling over their maturing debt prompted a further set of measures from mid-2000. Primary collateralised bond obligations (P-CBOs) were introduced, with partial credit guarantees by government-owned guarantee funds. A "Bond Fund" was established with capital contributions from 15 banks and other institutions for purchasing P-CBOs. The "Korea Development Bank's prompt underwriting scheme" to support the rollover of maturing bonds of larger firms having temporary liquidity problems was established. However, it is fair to say that most of the measures taken to stabilise the corporate bond market have been stopgap in nature, taken in response to turmoil in the market.

Against this backdrop, this paper explains recent developments in the local bond markets and policy responses after the currency crisis, with a primary focus on the corporate bond market, and draws policy implications based on these recent Korean experiences. Recent developments in the corporate bond market and policy responses are discussed in Section 2. Section 3 assesses the current status of the market with a primary emphasis on causes of recent problems. Some tentative conclusions and policy implications are drawn in Section 4.

## **2. The corporate bond market and policy responses after the crisis**

In describing the recent development of the corporate bond market, we can divide the period since the currency crisis into three phases. During the first phase, from end-1997 to June 1999, corporate bond issuance surged in the aftermath of the crisis and the structure of the corporate bond market changed swiftly from a predominance of bonds guaranteed by financial institutions to a predominance of non-guaranteed bonds, due to a huge surge in fund inflows to ITCs, particularly bond-like beneficiary certificates. During the second phase, from July 1999 to June 2000, the liquidity conditions of the corporate bond market deteriorated sharply, as the collapse of Daewoo Group in July 1999 raised investors' concerns as to the soundness of beneficiary certificates in ITCs, which consequently suffered huge withdrawals. During the final phase, from July 2000 until quite recently, financing conditions in the corporate bond market tightened considerably, reflecting the greater investor sensitivity to corporate credit risk in the face of a sharp downturn in economic growth and the overhang of bonds issued in 1998 or earlier approaching maturity.

### **Phase 1: Boom in corporate bond issuance**

As mentioned earlier, in the aftermath of the crisis in 1997, the corporate sector needed to raise more funds from the corporate bond market, as financial institutions in the throes of financial sector restructuring became extremely reluctant to extend loans to the corporate sector. At the same time,

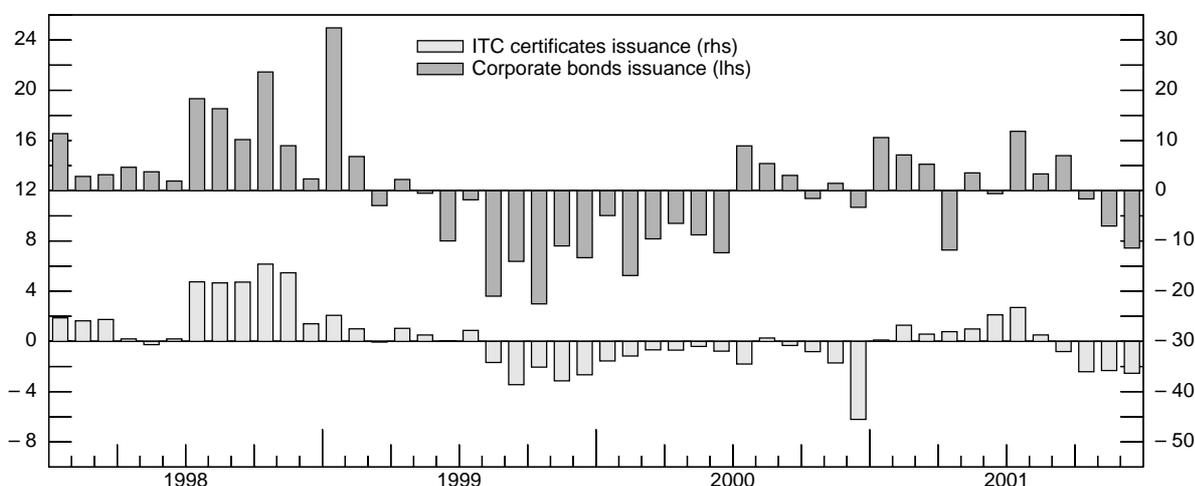
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<sup>2</sup> More specifically, following the collapse of Daewoo in mid-1999, financing conditions in the corporate bond market deteriorated sharply, reflecting investors' greater sensitivity to credit risk and the huge withdrawal of funds from ITCs, the prime investor in corporate bonds, which experienced large losses associated with their vast holdings of dishonoured bonds issued by Daewoo.

because of financial institutions' reluctance to provide credit guarantees for corporate bond issuance, the majority of corporate bonds had to be issued in the form of non-guaranteed bonds.

Faced with these problems, the government raised the ceiling on an individual firm's corporate bond issuance from double its equity capital to four times its equity capital and eliminated any restrictions on investment in domestic bonds by foreigners in late December 1997. While the initial impact of these measures was not significant, market-driven factors made it possible for the corporate sector to raise funds on a vast scale by issuing non-guaranteed bonds, as interest rates declined sharply after their peak in mid-February 1998. With this abrupt downturn in interest rates, there was a huge surge of funds to ITCs, particularly their beneficiary certificates, which were expected to provide more attractive yields. In fact, funds placed in these certificates increased from 62 trillion won at the end of 1997 to a peak of 190 trillion at end-May 1999. As the ITCs therefore had more money to purchase corporate bonds, it was possible for many firms to issue large quantities of non-guaranteed bonds, resulting in a swift shift of the structure of the corporate bond market to one dominated by non-guaranteed bonds.

Graph 1  
**Net issuance of ITC certificates and corporate bonds**  
 In trillions of Korean won



Nevertheless, it is far from clear why investors, in the face of ongoing financial sector restructuring, invested such a huge amount of money in ITCs, even though such deposits are not protected by deposit insurance. Although there are many different explanations for this, it appears to reflect, to a large extent, a combination of sharply declining interest rates from the second quarter of 1998 and the maintenance of the principle of historical cost valuation in accounting for assets. Under this accounting principle, the beneficiary certificates were expected to provide more attractive returns due mainly to possible capital gains associated with declining interest rates. It also seems attributable to a widely held view among market participants at that time that restructuring of the ITCs would be implemented as the final stage of financial sector restructuring. In addition, the fact that some chaebol appeared to rely on ITCs affiliated with their groups to buy their bonds regardless of risk was another contributing factor, to a certain extent.

Consequently, there was massive issuance of corporate bonds in 1998 and early 1999, primarily three-year bonds but also some with shorter maturities. With only a modest amount of corporate bonds maturing, net issuance of corporate bonds in 1998 was 33 trillion won. Thanks to this huge net issuance, the proportion of funds raised from the corporate bond market in the total borrowings of private enterprises increased to 22% in 1998 and 21% in 1999, from 17% in 1997, while that of borrowings from financial institutions declined to 41% in both 1998 and 1999 from 43% in 1997.

Graph 2  
Corporate bond yield and net issuance of ITC certificates

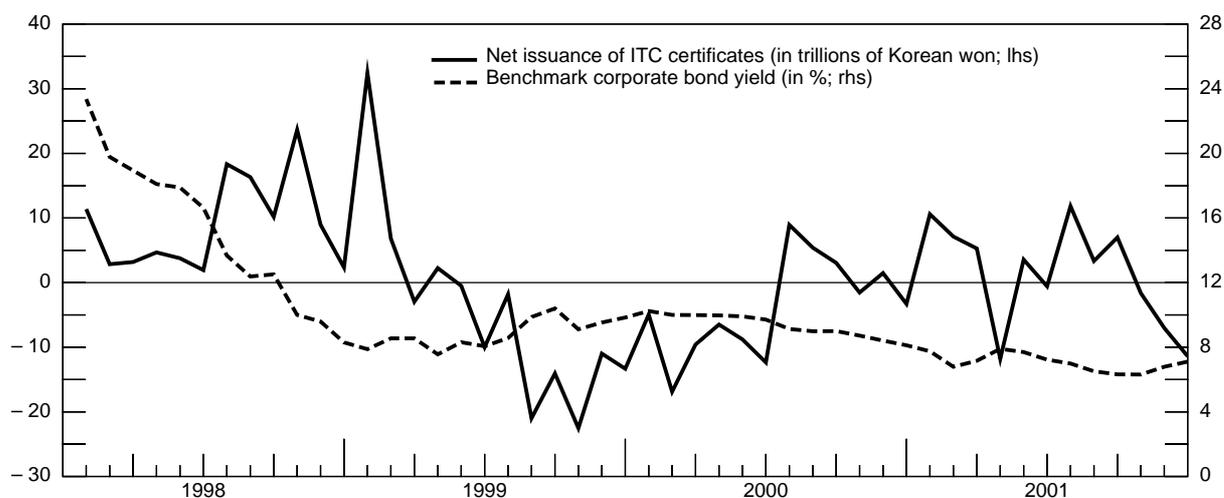


Table 2  
Financing by private enterprises  
(end-year, in trillions of won)

Sources	1997	1998	1999	2000	2001
Loans from banks	150	148	162	177	192
Other loans	161	143	127	130	144
Corporate bonds	121	158	148	124	180
Commercial paper	69	56	40	34	44
Other	225	204	227	271	268
Total	726	708	705	736	828

Source: Bank of Korea.

Although the corporate bond market contributed to easing the financial pressure on the corporate sector in the face of the credit crunch in the bank loan market, this kind of easy access to the corporate bond market offered by huge surges into ITCs also generated some adverse effects, notably hampering the progress of corporate restructuring. First, large chaebol could use the corporate bond market as a safety valve to ease restructuring pressure. More specifically, since chaebol could raise huge amount of funds from the corporate bond market easily, they had less incentive to restructure themselves than would otherwise have been the case. Some chaebol, especially Daewoo Group, kept expanding the scope and scale of their business by using the vast funds raised from the corporate bond market, even after the crisis. Second, since it was possible for various non-viable large companies, by raising funds from the corporate bond markets, to show sudden improvements in their liquidity conditions, some were able to survive, resulting in a further delay of corporate restructuring.

In response to these potentially adverse effects associated with easy access to the corporate bond market by large firms, the government implemented some measures to limit their excessive issuance of corporate bonds. More specifically, with effect from October 1998, the government imposed a temporary ceiling on purchases of corporate bonds issued by member companies of several conglomerates on the part of banks, ITCs and insurance companies which were subsidiaries of the same conglomerate. The financial supervisory agency also exercised moral suasion to guide the debt-to-equity ratios of the chaebol below 200% by the end of 2000.

## Phase 2: the crisis of investment trust companies

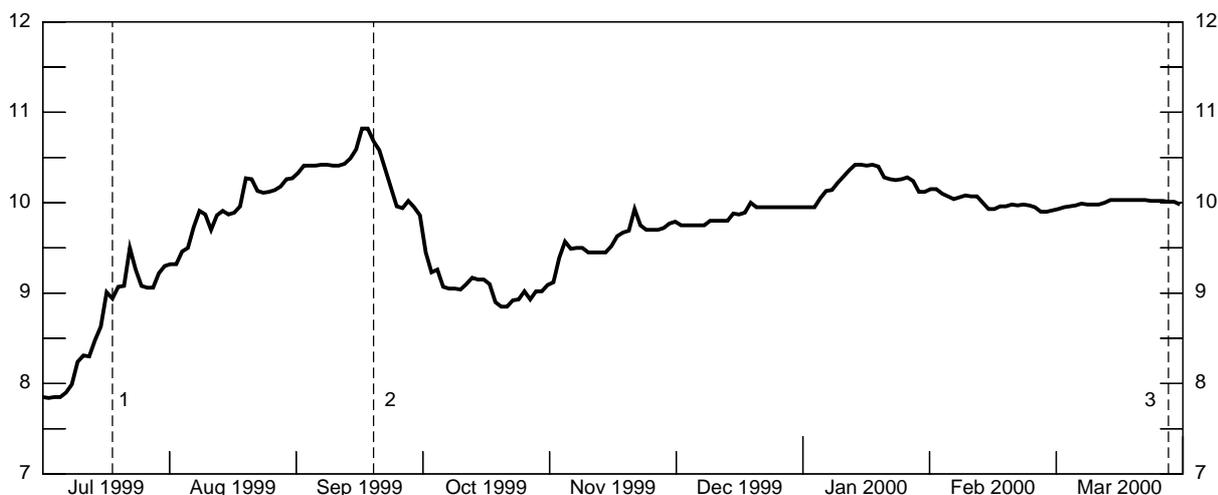
The favourable conditions of the corporate bond market, which had persisted since mid-1998, underwent a complete turnaround after the collapse of Daewoo Group, the third largest chaebol, and the associated liquidity problems of the ITCs in mid-July 1999. Specifically, since the ITCs experienced large losses associated with their vast holdings of dishonoured bonds issued by Daewoo, which raised investor concerns over the ITCs' soundness, the collapse of Daewoo triggered a huge withdrawal of funds from ITCs, leaving them with severe liquidity problems. The funds in the ITCs' beneficiary certificates decreased sharply, from 179 trillion won at the end of June 1999 to 53 trillion won at the end of June 2000.

As their liquidity dried up, the ITCs had to sell marketable liquid bonds in the secondary market, including high-quality corporate bonds and government bonds. This led to substantial rises in bond yields, including those on government bonds. At the same time, it raised new concerns for investors in beneficiary certificates that they might incur larger losses in two ways on their investments if they postponed withdrawals. First, since ITCs tried cherry-picking by selling the most marketable and liquid bonds to meet withdrawals, certificate holders became concerned that their asset quality could deteriorate, leaving a higher proportion of non-marketable junk bonds as time went by and incurring larger losses for remaining holders. Second, as the secondary market price of bonds declined in line with rising bond yields, ITCs had to sell larger amounts of bonds in order to raise a certain quantity of the funds needed to repay investors. In this situation, these investors became very nervous that they would receive less money if they delayed further. This concern could well have accelerated investors' redemption of beneficiary certificates.

These problems prompted numerous responses by the authorities, with three aims: to stabilise bond yields in the secondary market, to prevent a massive outflow of funds from ITCs and to implement structural reforms of ITCs in order to restore investors' confidence in them.

First, in an attempt to stabilise bond yields in the secondary market, the authorities introduced a "Bond Market Stabilisation Fund" (BMSF) in September 1999. The fund was financed mainly by contributions from banks and insurance companies and its goal was to keep bond yields below a certain level. The amount of funds to be subscribed was initially set at 2 trillion won, but this had to be raised to 3 trillion won by mid-November 1999. The BMSF was initially allowed to purchase Treasury bonds, MSBs and corporate bonds rated higher than BBB-, with the purchase of lower rated corporate bonds permitted after mid-October 1999. The BMSF proved to be very effective in achieving its goals, bringing down the benchmark three-year corporate bond yield from 11% to 9.5%, and yielding profits to its subscribers when it was dissolved in March 2000.

Graph 3  
**Benchmark corporate bond yield**  
In per cent per annum



<sup>1</sup> Collapse of Daewoo. <sup>2</sup> Establishment of Bond Market Stabilisation Fund (BMSF). <sup>3</sup> Dissolution of BMSF.

Second, a number of measures were put in place to prevent a massive outflow of funds from the ITCs. A two-pronged approach was adopted: involving discouragement of large-scale redemptions of beneficiary certificates while attracting redeemed funds back into ITCs by introducing new instruments, which were substitutes for the beneficiary certificates. In mid-August 1999, restrictions were imposed in an effort to discourage a sudden and massive wave of certificate redemptions. In principle, financial institutions were prohibited before July 2000 from redeeming early those certificates with exposure to Daewoo. Moreover, redemption claims by individuals and non-financial corporations were discouraged by introducing a scheme of gradually increasing the payout ratio for the portion of Daewoo paper on the surrender of the certificates in line with the length of time they had been held.<sup>3</sup>

Furthermore, in October 1999 the authorities allowed the conversion, upon application by investors, of bond-type beneficiary certificates to equity-type certificates, without imposing any early withdrawal penalty. In addition, funds specialising in investing in corporate bonds with sub-investment grades, which could absorb lower-graded corporate bonds held by ITCs, were subsequently introduced during the period November 1999 to May 2000. The main features of each fund are described in Table 3 below. The funds had some special features to attract investors' interest, including preferential tax treatment and the right to subscribe to a certain portion of initial public offerings listed on either the Korea Stock Exchange (KSE) or the Korean Association of Securities Dealers Automated Quotations (KOSDAQ). Finally, the ceiling of trust-type securities savings managed by three ITCs which offered fixed yield to investors was lifted from 5.2 trillion to 10.2 trillion won in January 2000, in an attempt to lure more funds from investors who preferred financial products providing fixed yields.

Table 3  
New ITC products

	High-yield fund	CBO fund	New High-yield fund
Investment scheme	Over 50% in low-grade bonds (BB+ and below) and low-grade CP (B+ and below).  Less than 50% in stocks (less than 30%), investment bonds and other liquid assets.	Over 50% on subordinated CBOs (more than 25%), low-grade bonds (BB+ and below) and low-grade CP (B+ and below).  Less than 50% in stocks (less than 30%), investment bonds and other liquid assets.	Over 30% on subordinated CBOs (more than 15%), low-grade bonds (BB+ and below) and low-grade CP (B+ and below).  Less than 70% in stocks (less than 30%), investment bonds and other liquid assets.
Duration	6 months to 3 years	6 months to 3 years	1 year to 3 years
Loss compensation provisions	Closed-end funds: up to 5% of principal for individuals. Open-end funds: none.	Closed-end funds: up to 5% of principal for individuals. Open-end funds: none.	None.
IPO allocation scheme	40% of IPO shares in KSE, 50% of IPO shares in KOSDAQ and 60% of rights offering not taken up in initial capital increases are to be allocated to the three types of fund.		
Tax exemption	Tax waiver of 50% of interest income tax on investments up to 20 million won per person.		

There were three main structural reforms for ailing ITCs:

- *Recapitalisation* with either additional shareholder funds or public funds. The two largest troubled ITCs, which did not have major shareholders, were recapitalised through the injection of 7.7 trillion won of public funds.

<sup>3</sup> Specifically, investors could redeem funds whose holdings included Daewoo paper but receive only 50% of the face value of the Daewoo holdings if they withdrew before 10 November 1999, while they could claim redemption of their certificates and receive 80% of the face value of their investments in Daewoo between 10 November 1999 and 9 February 2000. Individuals and non-financial corporations who withdrew their money from ITCs' bond-type funds after 9 February 2000 received 95% of the face value of their share of the investments in Daewoo paper.

- *Cleaning-up non-performing assets.* First, from January 2000, 18.5 trillion won of non-guaranteed Daewoo paper held by ITCs was sold to Korea Asset Management Corporation (KAMCO) at 35% of face value. Second, from February 2000, non-performing assets held by ITCs were securitised as collateralised bond obligations (CBOs) with the senior tranches of these CBOs being sold in the market, while junior tranches were invested as underlying assets of ITCs' High-Yield Funds, New High-Yield Funds and CBO Funds. Specifically, the ITCs issued 20.4 trillion won of CBOs from February 2000 to end-June 2000. Third, the government announced that by June 2000, KAMCO would purchase 1.8 trillion won of ITCs' holdings of commercial paper collateralised by Daewoo Group. Fourth, for Seoul Guarantee Insurance Corporation, which had guaranteed a large share of the Daewoo bonds, the government announced a plan to inject public funds to honour these guarantees. Finally, the ITCs and securities houses which had acted as sales representatives agreed to loss-sharing arrangements. These were based on the proportion of the fee income they had received from the sale of beneficiary certificates.<sup>4</sup>
- *Strengthening the transparency of asset management.* This included the staged mandatory application by July 2000 of the mark-to-market accounting principle for the assets held by ITCs' funds established for bond-type beneficiary certificates. Furthermore, the establishment of three private pricing agents was permitted in June 2000. The asset management sections of ITCs also began to operate as independent entities. In addition, various measures and guidelines were introduced in order to strengthen ITCs' internal risk management systems.

Instability in the bond market caused by the collapse of Daewoo Group and the liquidity problems of ITCs placed a substantial burden on the BoK as regards its implementation of monetary policy. In particular, this increasing uncertainty in the bond market made it very difficult for the BoK to take pre-emptive action to maintain price stability in the face of increasing inflationary pressure in the second half of 1999. Consequently, the BoK had to delay raising its overnight call rate target until February 2000, when the turmoil in the bond market associated with the huge withdrawal of funds from ITCs had subsided. In addition, BoK purchased 1 trillion won of government bonds in its open market operations on 9 November 1999 in an effort to stabilise bond yields. Yields had risen sharply, reflecting the growing uncertainty over the scale of the funds outflow from ITCs after the relaxation of restrictions on the redemption of beneficiary certificates with Daewoo exposure.

Following the implementation of this package of measures, market sentiment improved gradually. Redemptions of beneficiary certificates remained at manageable levels as investors' confidence in ITCs was partially restored. The benchmark corporate bond yield stabilised at below 10%. Therefore, it is fair to say that the measures mentioned were quite effective in resolving the initial problems posed by the collapse of Daewoo Group and the ITCs' subsequent liquidity problems in mid-1999.

Despite the successful resolution of these initial problems, the collapse of Daewoo Group and ITCs' liquidity problems have inflicted long-lasting and profound damage on financing conditions in the corporate bond market. The net issuance of corporate bonds began to shift to net redemption from the second half of 1999. However, this did not cause any serious disruptions in the corporate bond market since the volume of maturing corporate bonds was not large enough to pose serious problems until the second half of 2000.

### **Phase 3: the crisis at maturity**

As mentioned earlier, there had been massive corporate bond issuance in the second half of 1998 and early 1999, primarily in the form of bonds with three-year maturity but also some shorter maturities. Consequently, many corporate bonds needed to be rolled over from the beginning of the second half of 2000. At the same time, financing conditions in the corporate bond market had already deteriorated sharply since the collapse of Daewoo Group and the ITC problems of mid-1999. As the ITCs, which had held a large share of the stock of corporate bonds outstanding, had been hit by heavy losses and large outflows of funds from their beneficiary certificates, new issues of corporate bonds had been

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<sup>4</sup> In general, securities houses receive 70-80% of the fee income from the sale of beneficiary certificates, with the remainder going to the ITCs.

very weak with limited appetite on the part of other investors since the second half of 1999. In addition, the deterioration of the liquidity conditions of some chaebol-linked companies (including certain Hyundai subsidiaries) since mid-2000, together with a sharp fall in economic growth, raised investors' awareness of the increasing credit risk of the corporate sector and deepened their risk aversion, resulting in a widespread "flight to quality" in the local bond market.

Consequently, financing conditions in the corporate bond market deteriorated further from the second half of 2000. In particular, firms with lower credit ratings began to face extreme difficulties in rolling over their maturing bonds. In this context, it should be mentioned that the fact that some firms commonly regarded by market participants as non-viable continued to cling on often made the situation even worse, since it became far from easy for investors to distinguish between bonds of good quality for investment purposes and those of dubious quality. Net redemption of publicly offered corporate bonds during 2000 amounted to 16 trillion won, with a heavy concentration in the second half of the year. As can be seen from Table 4 below, the situation was even worse in the case of corporate bonds issued by lower-rated and relatively small firms.

Table 4  
**Corporate bonds issuance and redemption<sup>1</sup>**  
(in trillions of won)

Rating	1999	2000				2001					
	year	year	Q1	Q2	Q3	Q4	year	Q1	Q2	Q3	Q4
<b>A or higher grades</b>											
Issuance	8.3	10.2	1.0	2.1	3.7	3.4	20.8	5.1	3.7	6.3	5.6
Redemption	8.0	12.2	1.5	1.8	2.6	6.3	15.4	1.8	1.0	4.5	8.2
Net increase	0.3	-2.0	-0.5	0.3	1.1	-2.9	5.4	3.3	2.8	1.8	-2.6
<b>BBB</b>											
Issuance	9.8	4.6	0.7	1.5	1.6	0.8	9.0	2.9	1.6	3.2	1.4
Redemption	6.1	12.1	2.1	2.3	3.2	4.4	9.6	2.2	0.9	1.8	4.7
Net increase	3.7	-7.6	-1.4	-0.9	-1.6	-3.6	-0.6	0.7	0.7	1.3	-3.3
<b>BB or lower</b>											
Issuance	6.8	1.3	0.4	0.4	0.2	0.2	1.9	0.0	1.7	0.1	0.1
Redemption	10.5	8.2	1.9	2.0	2.3	2.1	5.9	2.0	1.3	1.2	1.4
Net increase	-3.7	-7.0	-1.4	-1.5	-2.1	-1.9	-4.0	-2.0	0.4	-1.1	-1.3
<b>Total<sup>2</sup></b>											
Issuance	26.3	17.6	2.6	4.3	6.0	4.7	32.4	8.1	7.1	9.9	7.2
Redemption	30.4	33.4	5.8	6.3	8.3	13.0	31.5	6.2	3.3	7.5	14.5
Net increase	-4.1	-15.8	-3.3	-2.0	-2.3	-8.3	1.0	1.9	3.9	2.4	-7.3

<sup>1</sup> Public issuance and redemption only (excluding ABSs, workout and debt rescheduling corporations). <sup>2</sup> Including secured bonds.

The difficulties experienced by relatively small firms with lower credit ratings in rolling over their maturing obligations prompted a set of measures early in the second half of 2000. These measures included the introduction of primary collateralised bond obligations (P-CBOs) for the securitisation of

lower-rated corporate bonds and the establishment of a 10 trillion won “Bond Fund”,<sup>5</sup> with subscriptions from 15 banks and other financial institutions, for the purchase of lower-rated corporate bonds from primary market or P-CBOs. In addition, two state-owned guarantee funds, the main one being Korea Credit Guarantee Fund (KCGF), undertook partial guarantees on senior tranches of P-CBOs as a means of enhancing their creditworthiness. By these expedients, the authorities attempted to increase the amount of bond financing going to relatively small firms with lower credit ratings. They were reasonably successful, and 7.3 trillion won of P-CBOs were issued in the last five months of 2000. About 40% of firms raising funds via P-CBOs were rated sub-investment grade.

Table 5  
**Issuance of primary CBOs**  
(in trillions of won)

	Amounts	of which senior tranche	Underlying assets by grade				Credit guarantee ratio <sup>1</sup>
			A	BBB+ to BBB	BBB-	BB and lower	
2000	73.1	70.1	2.9	20.4	28.3	21.5	34%
2001	55.7	53.7	2.3	18.5	13.6	21.4	53%
Total	128.8	123.8	5.1	38.8	41.9	42.8	42%

<sup>1</sup> Ratio of credit guarantee to senior tranche.

Despite these measures, financing conditions in the corporate bond market continued to deteriorate. As the issuance of corporate bonds in the form of public offerings became increasingly weak, net redemptions increased from 5.2 trillion won in the first half of 2000 to 10.7 trillion won in the second half. Taking account of corporate bonds issued through P-CBOs, the corporate sector redeemed corporate bonds to the value of 3.4 trillion won during the second half of 2000. However, as some firms used P-CBOs to raise new funds instead of rolling over their maturing obligations, the BoK estimated<sup>6</sup> that the corporate sector was compelled to redeem 5.7 trillion won of maturing bonds during the second half of 2000.

As financing conditions in the corporate bond market, especially those for relatively large firms with lower credit ratings, worsened further in late 2000, some additional support measures for the bond market were implemented. A second 10 trillion won “Bond Fund” was established,<sup>7</sup> with similar goals to the first fund, with contributions from a smaller number of banks and in addition from postal savings and pension funds.

A further scheme, often called “the Korea Development Bank (KDB) prompt underwriting scheme”, was announced at the end of December 2000 and was designed to remain in place for one year.<sup>8</sup> It

<sup>5</sup> Subscribers to the Bond Fund deposit their money with ITCs, which then establish dedicated funds. According to the investment guidelines set by subscribers, ITCs’ purchases of P-CBOs may represent up to 50% of subscribed funds.

<sup>6</sup> The BoK conducted a survey of firms which had used P-CBOs for financing in early 2001. According to the survey, of a total of 7.3 trillion won, 5 trillion won was raised to roll over maturing bonds while 2.3 trillion won represented new financing.

<sup>7</sup> The purchase guidelines of the second tranche were changed to allow the direct purchase of P-CBOs by subscribers. This was because the risk weighting of subscribers’ direct purchases can be reduced in line with the proportion of partial credit guarantees provided by the government-owned credit guarantee agencies, whereas beneficiary certificates of ITCs carry a risk weight of 100% for bank capital requirements.

<sup>8</sup> The scheme operated in the following way. If firms under consideration were judged to be viable by a committee consisting of the KDB, their creditor banks and the KCGF, they would be allowed to participate in the scheme if they repaid 20% of their maturing bonds and presented credible rehabilitation plans. The KDB would then act as underwriter for the rollover of the remaining 80% of maturing bonds at the average prevailing secondary market yield on similarly rated bonds plus 40 basis points. As the underwriter of 80% of the maturing bonds, the KDB would repackage and sell 70% of them, have the

provided funding for the rollover of maturing bonds issued by large firms that had temporary liquidity problems but good prospects of survival. As of end-2001, 2.6 trillion won of corporate bonds had been issued through this scheme.<sup>9</sup> Initially, six larger firms including four subsidiaries of Hyundai Group, were allowed to participate. However, the number of eligible firms was reduced to only one from September 2001, as one had achieved improved liquidity conditions and four had debt rescheduling programmes with their creditors.

These measures, together with a sharp decline of interest rates from the beginning of 2001, and market participants' optimism that the economy would soon recover and corporate cash flow conditions improve accordingly, led financing conditions in the corporate bond market to improve substantially during the first eight months of 2001. To a certain extent, this also reflected market participants' optimistic view that the economy would move into a recovery phase from the second half of the year and that cash flow conditions in the corporate sector in general would improve accordingly. During the first eight months of 2001, the monthly amount of new corporate bond issuance in the form of public offerings regularly began to exceed that of corporate bonds redeemed for the first time since July 1999. Table 4 above shows that, during this period, firms with credit ratings of A or above made net issuances while those of sub-investment grade made net redemptions.

It is puzzling why firms with higher credit ratings issued a huge amount of corporate bonds during this period, although their demand for long-term funds for capital investment was very weak, given the ongoing rapid downturn of the economic cycle. According to a BoK survey, almost half of net issuance of bonds was designed to raise funds to repay obligations falling due within the second half of the year, when the maturities of these firms' bonds were concentrated.

Since September 2001, however, overall redemptions of corporate bonds have begun to exceed new issuance again. To a certain extent, this reflects the fact that many firms with higher credit ratings are repaying their maturing bonds using funds they raised from their large-scale bond issuance. However, as can be seen from Table 4, the fact that redemption of bonds issued by firms with lower credit ratings has increased further implies that financing conditions in the corporate bond market have again deteriorated. This reflects not only market participants' expectations of a further delay in the recovery in economic growth but also greater uncertainty over the scale and duration of Korea's economic downturn after the terrorist attacks on the United States on 11 September.

### **3. Current state of the corporate bond market and causes of its problems**

#### **The primary market**

The size of the corporate bond market in Korea is now by no means small; 134 trillion won of corporate bonds (including ABSs) were outstanding as of end-2000. Furthermore, in terms of the ratio of outstanding corporate bonds to GDP, the Korean corporate bond market is the largest in the world.

Given the relatively large scale of the corporate bond market, one of its important tasks is to facilitate the periodic rollover of a huge amount of corporate bonds. Before the currency crisis, the market could keep growing as long as financial institutions could afford to provide credit guarantees as the majority of corporate bonds issued carried such guarantees. Since financial institutions were not very cautious about providing credit guarantees for corporate bond issuance during that period, the corporate bond market was able to expand rapidly.

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main creditor banks absorb 20% and take the remaining 10% onto its own books. The corporate bonds underwritten by the KDB are sold through private placement rather than public offering.

<sup>9</sup> 1.6 trillion won had been issued in Q1, 0.3 trillion in Q2, 0.4 trillion in Q3 and 0.3 trillion in Q4.

Table 6

**Corporate bond markets**

	<b>Korea<sup>1</sup></b>	<b>United States</b>	<b>Japan</b>	<b>United Kingdom</b>	<b>Germany</b>	<b>France</b>
(End-year)	(2000)	(1998)	(1998)	(1998)	(1998)	(1997)
Billions of US dollars	71 (106)	1,622	626	224	51	18
Ratio to GDP	17.3% (25.6%)	19.1%	16.5%	16.0%	2.4%	1.3%

<sup>1</sup> Figure in brackets includes ABSs.

Sources: Bank of Japan; Bank of Korea.

However, the structure of the corporate bond market changed dramatically after the crisis. With the subsequent predominance of non-guaranteed corporate bonds, financing conditions in the primary market have become increasingly vulnerable to changes in prevailing macroeconomic fundamentals which may affect the credit quality of the issuers, together with demand and supply conditions in the market such as the liquidity conditions of major investors and the size of the overhang of corporate bonds awaiting rollover.

The abnormal surges of funds into ITCs' beneficiary certificates made possible the absorption of the vast amount of non-guaranteed corporate bonds issued during the second half of 1998 and early 1999. By contrast, demand conditions, especially in the lower-grade segment, have not been favourable since mid-1999 following the correction of fund inflows into ITCs' beneficiary certificates after the collapse of Daewoo Group. In addition, investors have become increasingly sensitive to credit risk as the credit quality of the issuers in general has deteriorated sharply with the continuous rapid slowdown of economic growth since the third quarter of 2000. At the same time, the huge amount of corporate bonds issued right after the crisis generated a bunching of maturities which needed to be rolled over from the second half of 2000 until early 2002. The government's introduction of a method of securitisation using P-CBOs, involving the pooling of risky bonds in an attempt to narrow the wide preference gap between bond investors and issuers, together with other measures including the KDB prompt underwriting scheme, proved to be very effective in preventing the worst case scenario of the problems in the primary market for corporate bonds.

This, however, does not mean that all the problems in the primary market for corporate bonds have come to an end. As can be seen from Table 7, while the amount of maturing corporate bonds awaiting rollover will moderate slightly compared with 2001, it still remains high.

On the other hand, demand conditions in the primary market for non-guaranteed corporate bonds have deteriorated further. Investors have become highly sensitive to corporate credit risk in general, amid the ongoing severe economic downturn and growing concerns over its scale and duration after the events of 11 September. Consequently, the range of firms that are unable to raise funds through public offerings in the corporate bond market is becoming increasingly wider. For instance, it has become very difficult for BBB-rated firms to issue their bonds by public offering. This reflects:

- *A lack of progress in corporate sector restructuring.* Right after the crisis, the ITCs had large funds available for the purchase of corporate bonds, due to the surge of funds into their beneficiary certificates. This allowed a number of non-viable large firms to raise funds from the corporate bond markets, which permitted them to survive on the basis of a sudden apparent improvement in their liquidity conditions. However, as the surge in fund inflows to ITCs subsided and an overhang of corporate bonds awaited maturity, it became almost impossible for these firms to tap the corporate bond market. In addition, the fact that some firms commonly regarded by market participants as non-viable continued to survive often made the situation even worse.

Table 7  
**Redemption schedule of corporate bonds<sup>1</sup>**  
(in trillions of won)

	2001	2002				
	Year	Year	Q1	Q2	Q3	Q4
Total	45.9	32.2	10.8	8.6	6.2	6.5
Public offering;	31.5	18.6	7.4	5.6	3.3	2.3
(A or higher)	15.5	9.1	2.8	2.6	2.0	1.7
(BBB)	9.6	6.5	3.2	2.2	0.8	0.3
(BB or lower)*	6.4	3.0	1.4	0.8	0.5	0.3
Workout	14.4	4.2	1.1	0.4	1.0	1.6
P-CBO;	0	6.9	0.9	2.3	1.5	2.1
(BBB grade)	0	4.8	0.5	1.7	1.0	1.6
(BB or lower)*	0	2.1	0.3	0.6	0.5	0.6
KDB scheme*	0	2.6	1.4	0.3	0.4	0.5
Low-grade <sup>2</sup>	6.4	7.7	3.1	1.7	1.4	1.4

<sup>1</sup> Including primary CBOs and the KDB scheme. <sup>2</sup> Sum of those marked \*.

- *Investor protection* remains very poor for non-guaranteed corporate bonds. Currently, there is no practice of inserting protective bond covenants to safeguard the interests of corporate bondholders against a deterioration of the issuer's ability to repay interest and principal, while, in contrast, the entry into covenants for bank loans is a common practice. The main reason is that the relatively short history of active issuance of non-guaranteed corporate bonds means that neither investors nor issuers are alert to the importance of writing specific bond covenants.
- *Low recovery ratio* of bonds in default. Although official figures are not available, anecdotal evidence from bonds issued by Daewoo suggested that the ratio is well below 30% of face value, much lower than the 50% norm in the United States. This reflects the frequent decline of the liquidation value of insolvent firms after the long and complicated process of their bankruptcy and winding-up, due mainly to the complexities of the associated legal arrangements. Specifically, where a company is in default and there is a move to have it wound up, the matter is governed by three laws,<sup>10</sup> each with a different philosophy and a different specification of the process. Thus, under the Korean system, it takes much more time and effort to collect debt holders' claims from troubled firms.
- *Credit ratings* provided by local credit rating agencies are not very reliable. As can be seen from Table 8 below, the historical default rates for A- and BBB-rated firms are higher than for BB-rated firms. This reflects a long tradition of window-dressing of the financial statements of firms, dubious audit practices, inadequate accumulation of historical data for the credit analysis of individual firms and frequent government intervention in support of ailing firms.

<sup>10</sup> Bankruptcy Law, Consolidation Law and Corporate Liquidation Law.

Table 8

**Default rates by credit rating, 1991-2000**

AAA	AA	A	BBB	BB	B
0.0%	2.3%	5.0%	5.2%	4.3%	11.2%

At the same time, notwithstanding their success so far, the recently introduced government measures to support the rollover of maturing corporate bonds including P-CBOs and the KDB scheme do not appear to be a sustainable way to handle the problems of the primary market for corporate bonds. Since the KDB scheme will be discontinued in 2002,<sup>11</sup> the only supportive measure associated with the government will be P-CBOs. However, the growing use of P-CBOs itself has the following problems:

- While a few issues of P-CBOs were voluntarily purchased by some financial institutions, the majority of P-CBOs were absorbed by either the Bond Fund or its subscribers as a part of meeting their mandated ratios for the purchase of P-CBOs.
- Since the credit enhancement scheme for P-CBOs relies solely on government-backed guarantees, the growing use of P-CBOs intrinsically involves the possibility of substantial contingent liabilities for the government if some portion of the underlying assets of P-CBOs go into default.
- Since almost all P-CBOs were issued with a credit rating of AAA and maturity of between one and a half and two years, it is difficult for their issuers to diversify the investor base.
- The growing use of P-CBOs gives rise to a moral hazard problem by weakening the incentives for originators to speed up their restructuring efforts. It could also result in a predominance of privately placed corporate bonds with lower credit ratings designed for P-CBOs matched by a shrinking share of issuance of lower-grade corporate bonds by public offering, a typical case of an adverse selection problem.

**The secondary market**

In the secondary market, the liquidity of corporate bonds remains very poor compared with government bonds. In addition, the trading volume of corporate bonds shrank sharply after the collapse of Daewoo Group and the liquidity problems of ITCs in July 1999. This is in stark contrast to the remarkable growth of the trading volume of government bonds (Table 9).

As can be seen from Table 10, the decline in the trading volume of lower-rated corporate bonds is quite notable. Bond transactions in the secondary bond markets have increasingly concentrated on sovereign bonds and corporate bonds with higher credit ratings.

Looking at the investor base of corporate bonds shown in Graph 4, financial institutions hold 60% of total corporate bonds outstanding, while the shares of contractual savings institutions such as life insurance companies and pension funds are relatively low compared with similar markets in advanced economies. A number of factors underlie their relative lack of interest. The maturities are not long enough for them to be suitable for assets and liabilities management by these institutions. Although the average maturity of corporate bonds has begun to lengthen after the active issuance of government bonds with maturities longer than five years, the majority of corporate bonds continue to be issued with maturities of three years or less. The institutions also have poor credit analysis skills and rigid investment guidelines.

<sup>11</sup> The KDB recently announced that it would no longer underwrite corporate bonds previously eligible for its prompt underwriting scheme.

Table 9  
**Transactions in the secondary market**

	1997	1998	1999	2000	2001
<b>Daily turnover</b> (in trillions of won)					
Corporate bonds	0.4	1.3	1.5	0.9	0.9
Government bonds	0.0	0.2	2.3	2.0	3.3
Total	0.8	2.3	4.7	6.3	9.4
<b>Turnover ratio</b>					
Corporate bonds	1.5	3.7	3.6	2.1	1.7
Government bonds	0.6	1.6	11.3	8.6	11.7

Table 10  
**Corporate bonds:<sup>1</sup> monthly trading volume**  
(in trillions of won)

	2000	2001				
	Year	Year	Q1	Q2	Q3	Q4
Non-guaranteed corporate bonds	15.2	16.0	12.7	16.5	13.9	20.7
AA and higher	5.2	8.5	5.4	7.3	7.3	13.8
A	3.7	3.2	3.5	4.0	2.6	2.9
BBB	4.9	3.0	2.7	3.9	2.7	2.5
BB and lower	1.4	1.3	1.1	1.3	1.3	1.4
Total bonds	156.3	232.6	246.0	207.1	255.6	221.7

<sup>1</sup> Includes ABSs.

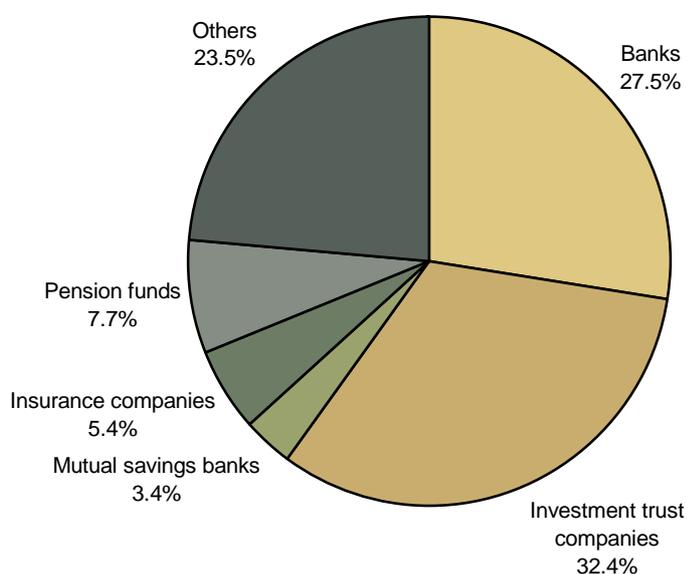
ITCs, whose share of corporate bond holdings is twice their share of government bonds, have become more active in transactions in the secondary market since the implementation of mark-to-market valuation of their assets. However, banks are not, in general, active traders in the secondary market since they usually buy and hold bonds until maturity.

While a combination of the increasing credit risk of the issuers and investors' greater attention to credit risk is fundamentally responsible for the low liquidity of corporate bonds, it also reflects the fact that market-making in the secondary market remains in its infancy. There is virtually no difference between the market-making role of dealers and brokers. In particular, securities houses, the major dealers in the bond market, do not take any bond positions onto their books; instead they simply match their clients' orders in a labour-intensive and less transparent brokerage process. Moreover, no dealers, including primary dealers in the government bond market, provide two-way quotations on bonds.

The absence of bid and ask price quotations makes the price discovery function of the secondary market inefficient. In addition, as the business of brokers and dealers is based on personal networks maintained through telephone contacts the market is less than transparent, with serious potential for

Graph 4

### Investor base of corporate bonds



abuse and market manipulation. Moreover, the liquidity of the bond market in general could be highly vulnerable to prevailing market conditions. This is particularly the case for the corporate bond market, whose liquidity is much more vulnerable to prevailing market conditions than that of the government bond market. Because of this, most institutional investors prefer government bonds to corporate bonds, further removing liquidity from the corporate bond market.

## 4. Conclusions and policy implications

Since the crisis of 1997, there have been substantial structural changes in the corporate bond market in Korea. It has changed from one characterised by a predominance of corporate bonds carrying bank credit guarantees to one in which non-guaranteed bonds predominate. The issuance of ABSs has also become very popular and has contributed to the provision of a greater range of products and their heightened sophistication. In addition, investors have come to pay greater attention to credit risk of issuers, while issuers have become keener to enhance their credibility by disclosing more transparent financial statements to potential investors.

Notwithstanding these improvements, financial conditions in the corporate bond market have become increasingly vulnerable to changes in prevailing market conditions, including macroeconomic fundamentals and the demand and supply interplay of the corporate bond market. This fragility underlay the boom and bust cycle of the corporate bond market. In particular, the boom in corporate bond issuance during the second half of 1998 and early 1999, resulting from the huge surge in fund inflows to ITCs' beneficiary certificates, was followed by the bust of the corporate bond market after the bursting of the ITC deposit bubble from mid-1999. At the same time, participants in the market have paid far more attention to the credit risk of non-guaranteed corporate bonds, while a large proportion of non-guaranteed bonds issued during the earlier boom need to be rolled over at maturity. This dramatic shift in financing conditions of the market has prompted various measures by authorities.

Although the problems in the Korean corporate bond market are likely to persist in the foreseeable future, the many policy implications include:

- A sudden and large increase in the outstanding volume of corporate bonds above a certain sustainable level is more likely to impose a substantial burden on and pain for the economy in maintaining financial stability sometime in the near future. Moreover, the fact that the

abrupt and large increase in corporate bonds outstanding in Korea was accompanied by a dramatic shift of the market structure from a predominance of guaranteed bonds to that of non-guaranteed bonds made the situation even worse. Although the total outstanding volume of corporate bonds had shrunk back by the end of October 2001 to a level similar to that seen at the end of 1997, it is far from clear whether this level is any more sustainable than that of the pre-crisis period. The shift towards predominantly non-guaranteed bonds makes this assessment more difficult. In addition, the huge amounts of government bonds, government-guaranteed bonds and ABSs issued after the crisis could restrict the capacity of the economy to absorb this amount of corporate bonds.

- The prevailing credit quality of corporate bonds has important implications for maintaining the financial stability of the economy. Since the credit quality of corporate bonds is intrinsically volatile during a process of corporate sector restructuring, financing conditions in the corporate bond market in general are more likely to deteriorate sharply during such a period. However, a unique feature of the Korean experience is that there was a huge surge in the issuance of non-guaranteed corporate bonds during the process of corporate sector restructuring.
- In retrospect, these huge surges in fund inflows to ITCs' bond-type beneficiary certificates made it possible for various large firms including some non-viable "zombies", to raise funds by issuing non-guaranteed corporate bonds. This in turn allowed them to post sudden improvements in their liquidity conditions. This helped bring about a quick recovery of the economy in the aftermath of the currency crisis. However, as investors have become more concerned about credit risk of issuers after the bursting of the ITC deposit bubble and a large proportion of the corporate bonds then issued have matured, financing conditions in the market have deteriorated sharply, threatening the financial stability of the economy. In particular, a large proportion of the maturing corporate bonds to be rolled over were issued by firms with lower credit ratings, including these zombie firms, which exacerbates the situation even further.

The fact that more "zombies" are operating and gaining access to the financial market poses two problems for the financial markets: one from the financial side and the other from the operational side. On the financial side, as more non-viable firms access financial resources, even more financial resources are needed to support them. As a result, more financial resources, which might otherwise be allocated to viable sectors, are diverted to potentially non-viable sectors, resulting in serious distortions in the efficient allocation of financial resources within the economy. In addition, the fact that some firms commonly regarded by market participants as non-viable continue to tap the financial markets makes the situation even worse and introduces additional question marks over the financial stability of the economy, since it becomes hard for market participants to distinguish viable from non-viable firms, creating more uncertainty in the financial markets.

On the operational side, the existence of more non-viable zombie firms in the economy generates another channel of contagion to the economy and financial markets. If firms face liquidity problems, they tend to improve their short-term liquidity conditions for survival at the expense of their long-term profitability. For example, they often sell their products at bigger discounts to increase their market share and improve their liquidity conditions. Because of these unfair trading practices by non-viable firms, their otherwise viable major competitors may suffer from deteriorating profitability due to their narrowing profit margins. This, in turn, increases the credit risk in the corporate sector as a whole.

From this, it is obvious that a necessary, though not a sufficient, condition for the early normalisation of the corporate bond market is the elimination of "zombies" from the economy. Therefore, one of most urgent tasks is to put more effort into speeding up the pace of corporate sector restructuring.

- Weaknesses in the institutional setup including poor accounting practices by financial institutions, a weak system of investor protection and an inefficient liquidation process have been shown to contribute substantially to turmoil in the corporate bond market and to amplify the magnitude of the disturbances. Specifically, to the extent that the maintenance of the principle of historical cost valuation accounting for ITCs, together with sharply declining interest rates, was mainly responsible for the massive inflow of funds into their beneficiary certificates and made possible the vast issuance of non-guaranteed corporate bonds in the

earlier stages, these poor accounting practices may have contributed to the turmoil in the corporate bond market and amplified its magnitude at later stages. In addition, the weakness of investor protection mechanisms caused by the absence of covenants to protect bondholders, as well as the possibility of sharp declines in the liquidation values of failed firms after the long and complicated bankruptcy proceedings, decreased investment in non-guaranteed bonds, especially lower-grade ones.

In view of this, greater efforts need to be exerted to establish a more appropriate institutional framework to support the development of the non-guaranteed corporate bond market. As the mark-to-market accounting principle has been in place since July 2000, the remaining tasks ahead include strengthening investor protection mechanisms for non-guaranteed corporate bonds. In this context, it is important to encourage the use of protective bond covenants, particularly in the case of issues with lower credit ratings, and to streamline insolvency proceedings by consolidating the three different laws governing corporate bankruptcy.

- When investors in the corporate bond market become highly risk-averse while the credit risk of bonds supplied is increasing, the securitisation of corporate bonds by pooling risky bonds proves to be very effective in bridging the wide gap in preferences between investors and issuers. In the Korean experience, the introduction of P-CBOs was very effective in avoiding the worst case scenario of the corporate bond market by lessening the burden of rolling over a huge amount of maturing corporate bonds issued by firms with low credit ratings.

Notwithstanding these positive aspects of the securitisation of a pool of lower-rated corporate bonds issued by private placement, the current method of issuing P-CBOs also has negative aspects. These include the almost complete reliance on their purchase by the Bond Funds, the possible accumulation of substantial government contingent liabilities as a consequence of their exclusive use of credit guarantees provided by government agencies, the potential moral hazard problems of originators including the weakening of their incentives to implement self-rescue plans such as restructuring, and the increasing tendency of firms with inferior credit ratings to rely on P-CBOs instead of public offerings as a means to issue their corporate bonds.

To reduce these negative aspects of the growing use of P-CBOs, it is important to allow market forces to play a larger role in the entire process of their issuance from the design to the final sale of the products. In this context, the following issues need to be addressed appropriately. First, in order to expand the investor base of P-CBOs, their maturities and credit ratings need to be broadened sufficiently to attract various investors with different risk appetites and investment horizons. This could be effective in attracting either many institutions lacking the capacity to create their own diversified portfolios or others with a poor ability to assess the credit risk of individual issuers. Second, to reduce government contingent liabilities caused by government agencies' provision of credit guarantees on P-CBOs and to discourage lower-rated firms from an increasing reliance on P-CBOs in raising funds, the fees need to be set on a commercial basis. Finally, to reduce the potential moral hazard problems of originators of P-CBOs, the practice of writing protective bond covenants should be mandated in the case of the underlying assets of P-CBOs and the observance of bond covenants by originators of P-CBOs needs to be tightly monitored by either designated trustees or special purpose companies.

- The development of the secondary market is very important in reducing the magnitude of the impact on the bond market of external shocks. The Korean experience was that the underdeveloped nature of market-making in the secondary market made the situation in the corporate bond market even worse. Therefore, efforts should be devoted to developing more efficient market-making and enhancing transparency in the secondary market.
- The financial market instability caused by turmoil in the corporate bond market may pose a challenge for the central bank in balancing its goals of maintaining price stability and ensuring stability in financial markets, and may severely limit the scope for monetary policy implementation in pursuit of its ultimate goal, achieving price stability. The turmoil in the corporate bond market placed a substantial burden on the BoK's implementation of monetary policy. This experience leaves it an open question to what extent the central bank can juggle its goals of maintaining price stability and financial market stability in the face of turmoil in the financial markets.