



Working Paper 99-11

Distressed Corporate Debts in Korea

Jae-Jung Kwon

Joo-Ha Nam

**KOREA INSTITUTE FOR
INTERNATIONAL ECONOMIC POLICY**

Founded in January 1990, KIEP is a research institute with the responsibility of advising the government on major international economic policy issues, as well as keeping public and private sector participants informed of significant economic and policy developments abroad. KIEP maintains a research staff of about 80, including 30 fellows with Ph.D.s in economics.

KIEP deals in depth with international macroeconomic issues as well as international trade and investment topics. This approach allows KIEP to systematically monitor and analyze the challenges and opportunities faced by the Korean economy in all regions of the world. KIEP also studies those international issues related to promoting the integration and unification of the Korean peninsula.

KIEP maintains a pool of international economists (Korea's Official Pool of International Economists: KOPIE) who maintain contact with in-house researchers through regular study group activities. Similarly, KIEP maintains a pool of regional experts (KIEP's Official Pool of Regional Experts: KOPRE) who meet regularly in regional study groups to discuss developments abroad.

KIEP serves as Korea's National APEC Study Center and sponsors a nation-wide consortium of APEC study centers based at various universities. At the same time, KIEP serves as the secretariat for KOPEC, the Korea National Committee for the Pacific Economic Cooperation Council (PECC).

In addition, named by the government as the Northeast Asia Research and Information Center (NARIC), KIEP places special emphasis on the networking of Korean experts on the four major powers influencing Northeast Asia: the US, China, Japan, and Russia.

The international activities of KIEP are supported by its Beijing Office as well as the Korea Economic Institute (KEI) of America, which is KIEP's sister organization in Washington, D.C.

In these ways, KIEP hopes to contribute to the furthering of a more open international economic order, as well as integrating its efforts with those of research centers throughout the world. For this reason, KIEP looks forward to working closely with our international colleagues in the years to come.

Kyung-Tae Lee, *President*

**KOREA INSTITUTE FOR
INTERNATIONAL ECONOMIC POLICY**

300-4 Yomgok-Dong, Seocho-Gu, Seoul 137-747, Korea
Tel :02)3460-1045 / FAX: 02)3460-1144,1199
URL: <http://www.kiep.go.kr>

Distressed Corporate Debts in Korea

Jae-Jung Kwon

Joo-Ha Nam

1999. 4

**KOREA INSTITUTE FOR
INTERNATIONAL ECONOMIC POLICY (KIEP)**

300-4 Yomgok-Dong, Seocho-Gu, Seoul 137-747, Korea

Tel: (822) 3460-1080 Fax: (822) 3460-1144

URL: <http://www.kiep.go.kr>

Kyung-Tae Lee, President

KIEP Working Paper 99-11

Published April 30, 1999 in Korea by KIEP

© 1999 KIEP

Executive Summary

This paper undertakes an investigation of the loans extended by Korean financial institutions to their corporate borrowers based on forward-looking criteria—namely, corporations' debt levels and their debt-servicing capabilities while focusing on the future size of non-performing loans (NPLs). We define NPLs as loans and credits extended to corporations, whose interest coverage ratio commonly defined as the ratio of earnings before interest and taxes to interest expense is less than 100 percent.

Financial statements from 1998 demonstrate that the NPLs held by listed companies amount to 32.1 percent of their total debts carried. The ratio for unlisted companies in 1997 appears higher than that of listed companies. We classified our sample companies into four groups based on their sizes. The NPL ratios of unlisted companies consistently ascend in the order of second-tier *chaebols*, SMEs, third-tier *chaebols* and the top five *chaebols*. In the case of unlisted companies, the order is slightly different in that the ratio of third-tier *chaebols* precedes that of SMEs. However, the order in 1998 resembles that of unlisted companies.

Having classified our data by different industries, it has been shown that the NPL ratios of listed companies in industries, such as textile, apparel, non-metal mining products, automobiles, furniture, construction, and chemical have recently experienced relative increases. In the case of unlisted companies, their NPL ratios are high in industries, such as agriculture, fishing, wood and publishing, and transportation and telecommunications.

Our sensitivity test results show that the decline in interest rates by 5 percentage points will reduce the NPL ratio by 13.9 percentage points—from 35.7 percent to 21.8 percent. Although the reduced interest rates and the rebounding economy are alleviating the corporate debt problem to a certain extent, a significant proportion of the Korean corporate sector still remains subject to the various risks, such as commercial and market risks and external shocks. This study has the following policy implications: reflationary macroeconomic policy is the only option in the absence of plausible alternatives; debt restructuring by creditor financial institutions is necessary, given that the effects of cost reduction from lower interest rates and slimming-down efforts are proven insufficient; and additional public resources may be necessary even after the appropriate cost allocation.

Dr. Jae-Jung Kwon has been a Research Fellow of the Korea Institute for International Economic Policy since 1993. He has consulted the Ministry of Finance and Economy and the Financial Supervisory Commission on a variety of financial issues. He obtained his Ph.D. in Economics from Rice University. Corresponding address: 300-4 Yomgok-Dong, Seocho-Gu, Seoul 137-747, Korea. Ph. (822)3460-1209; Fax. (822)3460-1212; E-mail: jjkwon@kiep.go.kr

Dr. Joo-Ha Nam is Director of Research Coordination at the Korea Economic Research Institute. His main research interests are in corporate defaults and corporate financing. He earned his Ph.D. in Economics from Duke University in 1991. Corresponding address: FKI Building, 12th Floor, 28-1 Yoido-Dong, Youngdeungpo-Ku, Seoul, Korea. Ph. (822)3771-0013; Fax. (822)785-0270; E-mail: jhnam@keri.org

Contents

Executive Summary	3
I . Introduction	7
II . Problem Loans	10
1. Basic results	11
2. Breakdown by scale	12
3. Breakdown by sector	13
4. Comparison with official numbers of NPLs	17
III . Simulation of the NPL Size	21
1. Rate of return	21
2. Interest rates	22
3. Labor cost	24
4. Debt-equity ratio	25
IV . Conclusions: Policy Implications	27
1. Reflationary macroeconomic policy is the sole option in the absence of plausible alternatives	27
2. Debt restructuring by creditor financial institutions is necessary, given the effects of cost reduction from the lower interest rates and slimming-down efforts are proven insufficient ...	28
3. Additional public resources may be necessary even after the appropriate cost allocation	29
4. Inducement of foreign capital and skills still remain a high priority	30
References	31
국문요약	32

Tables

Table 1. NPLs held by listed companies	11
Table 2. NPLs held by unlisted companies	12
Table 3. NPLs held by listed companies (1998)	14
Table 4. NPLs held by unlisted companies (1997)	15
Table 5. NPL statistics (September 1998)	18
Table 6. NPL size and changes in ROIC	22
Table 7. NPL size and changes in borrowing costs	23
Table 8. NPL size and changes in labor costs	24
Table 9. NPL size and debt–equity ratio decline by 50% point ...	25
Table 10. NPL size and debt–equity ratio decline by 100% point ...	26

Figures

Figure 1. NPL trends based on scale (listed companies)	13
Figure 2. NPL trends based on scale (unlisted companies)	13
Figure 3. ICR distribution of listed companies	16
Figure 4. ICR distribution of unlisted companies	17

Distressed Corporate Debts in Korea

Jae-Jung Kwon · Joo-Ha Nam

I . Introduction

Since the financial crisis in late 1997, Korea has made positive inroads into reforming its weak financial sector through making purchases of non-performing assets from, and injecting funds into the severely undercapitalized banks. And by the third quarter of 1998, Korea had implemented almost two thirds of the fiscal support package, completing the first round of its financial restructuring.

Despite Korea's proactive restructuring effort, however, many critics argue that even KRW 64 trillion of the fiscal support package is yet insufficient to restore health to the financial system—at least for banks, per sé. Reasonable enough, the critics' skepticism toward the utility of the package may have stemmed from the fact that the size of non-performing loans (NPLs, hereafter) is likely to continue to experience a significantly increasing trend while the corporate restructuring is underway, on top of the fact that the disbursement for purchasing bad assets and facilitating recapitalization of the system leaves only approximately KRW 23 trillion from the appropriated funds to resolve NPLs.

It is no wonder that the disposal of NPLs is at the heart of Korea's financial reform because it serves to gauge how vigorously the sector has undergone the restructuring process and how much healthier the sector has become. Accordingly, the size of NPLs will point toward

the feasibility and effectiveness of the present and future reform measures, and will predict the mid- and long-term financial stability.

This paper undertakes an investigation of the loans extended by Korean financial institutions to their corporate borrowers based on forward-looking criteria—namely, corporate sector's debt levels and its debt-servicing capability—while focusing on the future size of NPLs. It also investigates contingent problems of the credits extended to the Korean corporate sector and the impact of different NPL scenarios on Korea's banking system and financial sector from a more broad perspective. Toward this end, we have selected the interest coverage ratio (ICR, hereafter) as a scale to determine whether the loans and credits extended to our sample corporations will be performing or not. As a matter of fact, this methodology has been identically employed by others, such as Goldman Sachs (1998), Classens, Djankov and Ferri (1998), and Credit Swiss First Boston (1998).

For the purpose of our exercises, we have sampled all non-financial listed companies and over five thousand unlisted companies that are subject to external auditing.¹⁾ Our sample is estimated to account for about 79.5 percent of the total corporate debts in Korea as of end-1997.²⁾ We begin by describing the financial conditions of a group

1) Coverage of the sample per year.

	1995	1996	1997	1998
Listed	662	654	641	600
Unlisted	4623	4722	5173	—

Note: All unlisted companies of our sample hold more than KRW 6 billion in their assets and are subject to external auditing.

- 2) Total debts held by the corporations in our sample amount to KRW 644.9 trillion. The Korea Development Institute (1998) estimates total debts in the corporate sector to be KRW 810.7 trillion.

of corporations from 1995 to 1998. In Section 2, we look into the trends of the NPL size during the same period. Then, Section 3 discusses the various aspects of the problematic loans in the Korean corporate sector. In Section 4, we perform simulations of the NPL size provided different values of the key factors. And finally in Section 5, we conclude with policy implications for how to deal with the distressed corporate debt problem based on the results from the simulations.

II . Problem Loans

We define NPLs as loans and credits extended to corporations with ICRs less than 100 percent. ICR is commonly defined as the ratio of earnings before interest and taxes (EBIT) to interest expense. In essence, it is the standard of assessing debt-servicing capability of a corporate borrower. When a corporate borrower is incapable of generating enough earnings to cover interest expenses, loans and credits extended to him are deemed 'problematic'. These problematic loans can be classified as NPLs when they are broadly defined.

Our broadly defined NPL implies that there is a significant difference between the definitions of NPL that are accepted by the authorities and this paper; hence, this paper would produce results with a significant difference compared with those of others. However, our definition of NPL appears to be a precise indicator of the trend in asset quality and a plausible point to begin a rigorous financial reform. Furthermore, taking into account the regulatory change, which has influence over the adoption of so-called forward-looking criteria for loan classification, we believe that the exercises in this paper would lead to a realistic assessment of the NPL size, especially under the persisting crisis circumstances.

In fact, Financial Supervisory Commission (FSC) has been enforcing the classification of loans extended by Korean commercial banks since July 1, 1998. With the International Monetary Fund (IMF) policy recommendation on the forward-looking criteria for NPLs to go into effect beginning year 2000, we speculate that the volume of NPLs in our paper would be similar to that of the international standard.

1. Basic results

As Tables 1 and 2 show, NPLs had sharply increased for two consecutive years during 1995–1997 prior to the financial crisis.

The NPLs held by listed companies amount to 32.1 percent of their total debts carried. If we solely account for borrowings, then the ratio would yield 39.1 percent. Further, the number of companies, whose ICR does not reach 100 percent, accounts for 37.5 percent of the total number of listed companies. Given this evidence, the NPL ratio of unlisted companies appears higher than that of listed companies. Especially, the unlisted companies' NPL ratio exceeded 30 percent level already in 1996 and substantially increased again in the following year to face the economy-wide crisis at its end. This finding convinces us that the financial crisis was mainly attributable to the mounting debts and low profits in the corporate sector.

Table 1. NPLs held by listed companies

Year	Total # of Comp.	Total debt	# of Comp. ICR<100%	Whose	NPL	
				Ratio(%)		Ratio(%)
1995	662 (199.8)	244,593	109 (17.5)	16.5	29,692	12.1
1996	654 (161.3)	291,058	158 (-6.9)	24.2	58,314	20.0
1997	641 (131.0)	392,980	226 (-56.0)	35.3	122,627	31.2
1998	660 (107.5)	393,426	225 (-151.9)	37.5	139,618	32.1

Table 2. NPLs held by unlisted companies

Year	Total # of Comp.	Total debt	# of comp. ICR<100%	Whose	NPL	Ratio(%)
				Ratio(%)		
1995	4,623 (192)	159,697	1301 (-88)	28.1	44,776	28.0
1996	4,722 (180)	202,274	1463 (-87)	31.0	59,655	29.5
1997	5,173 (140)	251,897	1956 (-117)	37.8	94,691	37.6

2. Breakdown by scale

The breakdown of our sample based on scale shows more dramatic results for the second-tier chaebols and small- and medium-sized enterprises (SMEs, hereafter). We classified our sample companies into four groups: top five chaebols, second-tier chaebols (ranking 6th to 30th), third-tier chaebols (ranking 31st to 64th), and small- and medium-sized enterprises (SMEs). The NPL ratios of unlisted companies consistently ascend in the order of second-tier chaebols, SMEs, third-tier chaebols and the top five chaebols. In the case of unlisted companies, the order is slightly changed in that the ratio of third-tier chaebols precedes that of SMEs. However, the order in 1998 resembles that of unlisted companies. Here, we can deduct from our analysis that chaebols in the second tier and SMEs have relatively more severe problems than others since the financial crisis. SMEs, which are competitively weaker than large conglomerates, have been suffering under the tight liquidity conditions. In our analysis, we evidence that many second-tier chaebols have undergone the so-called 'workout process' led by commercial banks as part of their difficulties.

Figure 1. NPL trends based on scale (listed companies)

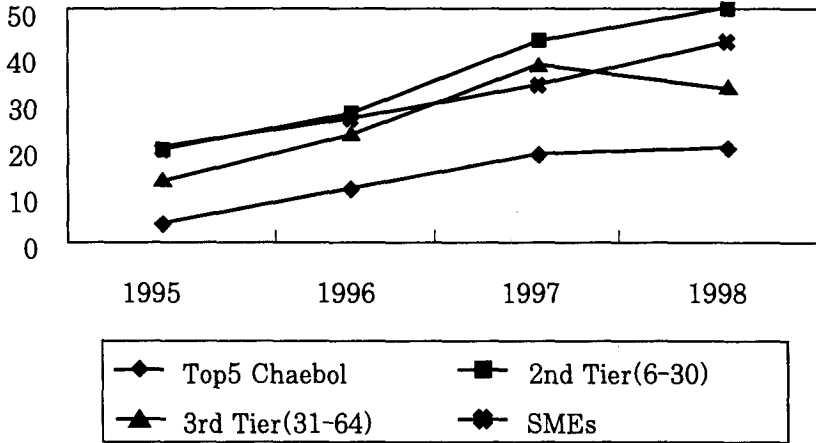
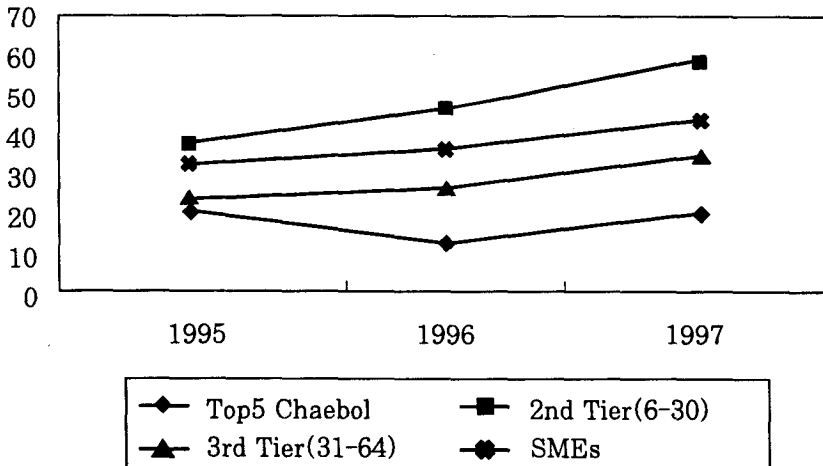


Figure 2. NPL trends based on scale (unlisted companies)



3. Breakdown by sector

As Table 3 shows, listed companies' NPL ratios in industries, such

Table 3. NPLs held by listed companies (1998)

Industry	Total # of Comp.	Total debt	# of Comp.		NPL	
			ICR<100%	Ratio (%)		Ratio (%)
Fishing	4(348.5)	417	1(72.1)	25.0	154	36.9
Mining	2(87.7)	498	1(54.8)	50.0	157	31.5
Food & Beverage	43(100.4)	17,916	18(-111.2)	41.9	9,132	51.0
Textile	30(120.9)	12,033	14(-58.0)	46.7	7,388	61.4
Apparel	25(88.9)	3,481	10(-256.3)	40.0	2,695	77.4
Wood & Publishing	27(73.6)	7,316	14(-74.5)	51.9	3,498	47.8
Petroleum	6(327.1)	16,287	1(75.7)	16.7	3,247	19.9
Chemical	96(127.1)	28,027	23(-221.6)	24.0	9,128	32.6
Plastics	15(374.5)	3,787	1(15.6)	6.7	42	1.1
Non-metal mining products	47(13.3)	10,123	20(-182.5)	42.6	7,101	70.2
Metal products	55(52.3)	29,630	23(-195.5)	41.8	9,337	31.5
Machinery	27(143.4)	12,572	12(-104.9)	44.4	1,048	8.3
Electronic machinery	21(92.1)	5,012	9(-266.7)	42.9	2,201	43.9
Electronics	55(118.5)	55,731	24(-216.8)	43.6	17,210	30.9
Precision equipment	6(155.3)	501	2(-32.9)	33.3	100	19.9
Automobiles	33(24.5)	27,873	17(-152.1)	51.5	26,252	94.2
Vehicles & Transportation	4(125.1)	3,644	1(-10.2)	25.0	208	5.7
Furniture	8(71.8)	1,155	5(-235.7)	62.5	1,005	87.0
Utilities	10(418.4)	33,388	0	0.0	0	0.0
Construction	42(77.1)	42,019	18(-74.3)	42.9	14,697	35.0
Wholesale/Retail trade	39(45.7)	46,662	16(-159.4)	41.0	9,755	20.9
Hotels, Transportation & Telecommunications	20(167.2)	33,450	4(4.5)	20.0	1,222	3.7
Others	5(199.0)	838	1(14.9)	20.0	565	67.4
Total	600(107.5)	393,426	225(-151.9)	37.5	126,144	32.1

Table 4. NPLs held by unlisted companies (1997)

Industry	Total # of Comp.	Total debt	# of Comp.		NPL	
			ICR<100%	Ratio (%)		Ratio (%)
Agriculture	16(-8)	470	10(-116)	62.5	252	53.6
Fishing	19(-127)	516	14(-213)	73.7	427	82.8
Mining	30(157)	936	11(-109)	36.7	338	36.1
Food & Beverage	206(121)	8,057	89(-83)	43.2	4,322	53.6
Textile	275(95)	6,688	112(-116)	40.7	2,518	37.6
Apparel	149(154)	3,811	44(-150)	29.5	947	24.8
Wood & Publishing	219(134)	9,574	102(-91)	46.6	5,701	59.5
Petroleum	17(190)	9,260	5(4)	29.4	61	0.7
Chemical	389(187)	16,765	112(-67)	28.8	3,946	23.5
Plastics	110(170)	1,970	30(-21)	27.3	510	25.9
Non-metal mining products	224(138)	5,271	82(-35)	36.6	2,203	41.8
Metal products	379(136)	13,763	123(-66)	32.5	3,914	28.4
Machinery	301(152)	6,955	93(-122)	30.9	2,863	41.2
Electronic machinery	136(209)	3,114	36(-51)	26.5	843	27.1
Electronics	211(263)	5,716	43(-85)	20.4	1,647	28.8
Precision equipment	54(174)	835	13(-177)	24.1	233	27.9
Automobiles	288(94)	17,013	113(-93)	39.2	4,156	24.4
Vehicles & Transportation	28(189)	8,475	6(13)	21.4	538	6.3
Furniture	79(216)	1,191	21(-10)	26.6	407	34.2
Utilities	21(247)	1,288	2(-546)	9.5	46	3.6
Construction	805(179)	41,139	268(-120)	33.3	14,306	34.8
Wholesale/Retail trade	512(100)	30,096	229(-166)	44.7	15,961	53.0
Hotels, Transportation & Telecommunications	318(47)	34,427	185(-156)	58.2	17,886	52.0
Others	387(92)	24,558	213(-184)	55.0	10,653	43.4
Total	5,173(140)	251,897	1,956(-117)	37.8	94,691	37.6

as textile, apparel, non-metal mining products, automobiles, furniture, construction, and chemical, recently experienced relative increases. In the case of unlisted companies, their NPL ratios are high in industries, such as agriculture, fishing, wood and publishing, and transportation and telecommunications.

Debt distribution based on interest coverage

Figures 3 and 4 summarize debt distribution among the five different ICR intervals during 1998. It is surprising to find that the listed companies, whose ICR figures even under 50 percent, reached 30.3 percent of the whole listed companies from 14.5 percent in 1996. Further, from the fact that the average ICR of the same group of companies is negative 204.6 percent, we could draw an implication that their debt-servicing capability would be seriously undermined. In this regard, unlisted companies do not differ significantly from listed

Figure 3. ICR distribution of listed companies

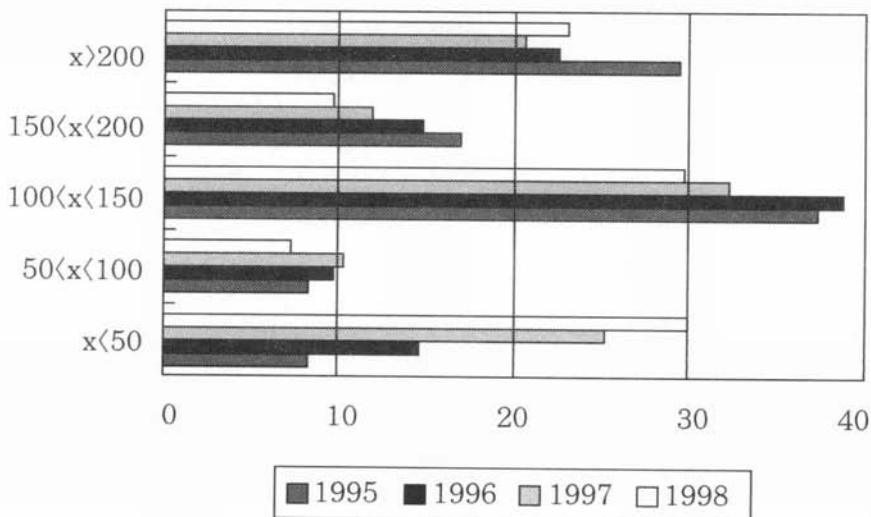
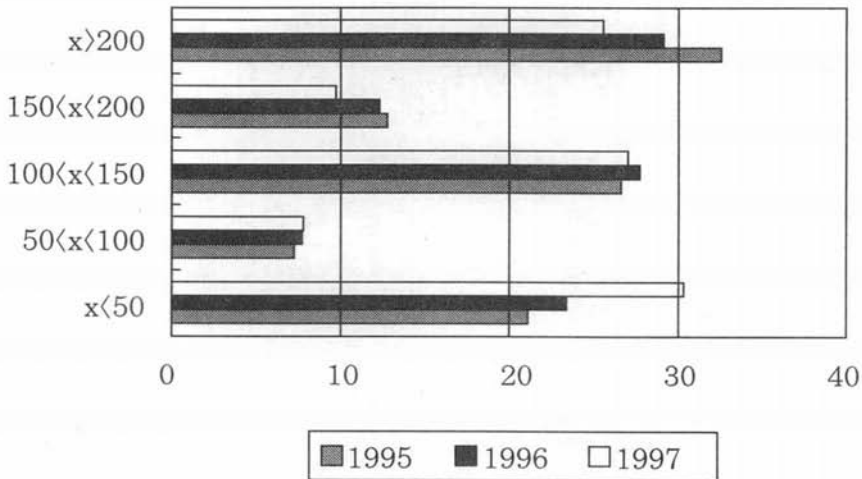


Figure 4. ICR distribution of unlisted companies

companies. We speculate that many listed and unlisted companies are maintaining weak structure in their financial management.

Even the companies, whose ICR reaches over 100 percent, are being classified in the 'greater than 100 and less than 150 percent' area on an increasing basis. This leads to a further speculation that they would be vulnerable against the changes and the increasing instability in economic environment.

4. Comparison with official numbers of NPLs

In this study, we have utilized forward-looking criteria based on corporate borrowers' debt-servicing capability, which is considered an international norm, to determine whether loans are performing or not. However, there is no assurance as to whether the volume of non-performing loans, as measured here, agrees with that of domestic financial institutions.

Table 5. NPL statistics (September 1998)

(In KRW trillion)

	Total Assets			Loans			Securities		
		NPL1	NPL2		NPL1	NPL2		NPL1	NPL2
Banks	640.1	5.7%	16.4%	461.6	7.6%	21.4%	178.5	0.8%	3.6%
Commercial	461.7	5.1%	17.3%	314.5	7.1%	23.6%	147.1	0.8%	3.9%
Specialized	178.4	7.2%	14.0%	147.1	8.6%	16.6%	31.3	0.6%	1.9%
NBFIs	341.6	13.2%	16.0%	152.7	19.0%	23.9%	188.9	8.4%	9.7%
Merchant banks	41.7	12.7%	14.5%	35.4	13.9%	15.9%	6.3	5.7%	6.6%
Securities	15.4	15.8%	17.1%	7.2	30.2%	32.3%	8.3	3.3%	4.0%
Insurance	72.9	16.7%	20.3%	41.9	9.1%	14.0%	31.0	26.9%	29.0%
ITCs	141.1	4.8%	5.9%	—	—	—	141.1	4.8%	5.9%
Leasing	32.9	29.5%	36.1%	32.5	29.9%	36.5%	0.4	0%	0%
Mutual savings	25.8	21.6%	31.5%	24.0	22.7%	33.1%	1.8	6.8%	11.0%
Credit unions	11.8	24.9%	24.9%	11.8	24.9%	24.9%	—	—	—
Total	981.7	8.3%	16.3%	614.3	10.4%	22.0%	367.4	4.7%	6.7%

Note: 1) NPL1 = (substandard and below)/total

2) NPL2 = (precautionary and below)/total

3) non-bank financial institutions

4) investment trust companies.

As Table 5 shows, the NPL ratio of commercial banks was much lower in 1997 than our bottom-up analysis results from the previous sections. The difference may be ascribable to several factors. Among those several factors, we present five. First, the loan classification, which is practiced by financial institutions, is too lax to capture the current and future debt-servicing capability of their client borrowers. The currently accepted loan classification continues to stress the collateral value of bank loans, and underestimates the debt servicing

capability of the underlying borrowers.

Such a less rigorous loan classification could not capture both the current and future debt-servicing capability, as loans continue to be extended to corporate borrowers, whose debt-servicing capability is critically undermined. Thus, based on the international standard, the companies with less than 100 percent ICR cannot be classified as 'risky' in such a short period, especially given the actual volume of the NPLs reaching only approximately 50 percent level against the NPL ratio. Further, the same companies could turn their loans into bad debts.

Second, it would take a while for loans extended to troubled companies to turn out non-performing. Even when its ICR falls under 100 percent, a troubled company could be service its debts, or avoid defaulting, as long as it capitalizes interest expenses or receives additional financing from its creditors. The sharply increased growth rate of bank loans made to the corporate sector is an evidence for this speculation.

Third, a sizable amount of public resource has been injected for banks to dispose of a considerable portion of their NPLs through the Korea Asset Management Corporation (KAMCO).

Based on our broad definition taking into account the borrowers' debt-servicing capability, the total distressed debts of the entire corporate sector would easily reach approximately KRW 260 trillion level, which accounts for 32.1 percent of the KRW 820 trillion-worth total credit extended to the corporate sector. When the same ratio is applied for the household sector, the size of NPL in the banking sector will surpass KRW 200 trillion.³⁾ Evidently, our estimation calls for a

3) The banking sector Includes specialized banks as well as commercial banks.

As of end-September, 1998, the total assets size is estimated at KRW 640 trillion, which is the sum of loans and guarantees (KRW 462 trillion) and

serious need to make fundamental changes in the Korean government's policies for the financial restructuring program, given that the speculated NPL size is much higher than the government's current estimation of KRW 118 trillion.

III. Simulation of the NPL Size

Future size of NPLs depends on many variables. Among the many reasons for the rise of NPLs in Korea may be the downsliding corporate profitability, high interest rates, and debt ratios. Hence, in this section, we perform simulations⁴⁾ to see how the NPL size could be reduced under favorable conditions of one or two of these factors. Each simulation result prescribes appropriate policy measures for reducing NPLs on banks' balance sheets and strengthening the weak financial system to prevent banking crises.

1. Rate of return

The rate of return is the most important factor in assessing the debt-servicing capability of a corporate borrower. Based on the increases of 1, 3, and 5 percentage points in the listed companies' return on the invested capital (ROIC)⁵⁾ in 1998, the rates of reduction for NPLs would be 3.9, 12.2, and 13.3 percentage points, respectively. In the case of unlisted companies, the reduction effect of NPLs, caused by an increase in the rate of return, was relatively small, compared with that of the listed companies.

4) ICRs of 2,000 percent and above, or -2,000 percent or below, are excluded from the analysis. Also, average interest rates for borrowing, which either exceed 100 percent or fall under 5 percent, are excluded from the analysis.

5) Rate on the Invested Capital (ROIC) = (EBIT / Total Capital Employed) × 100.

Table 6. NPL size and changes in ROIC

ROIC Increase	Listed companies		Unlisted companies	
	# comp.	NPL/ratio	# of comp.	NPL
Base	207 (-131.6)	121,435 35.7%	1,623 (-75)	77,073 39.8%
1%	197 (-130.2)	108,044 31.8%	1,496 (-70)	71,288 36.8%
3%	177 (-130.6)	86,035 23.5%	1,256 (-61)	59,102 30.5%
5%	155 (-138.4)	76,222 22.4%	1,029 (-57)	49,673 25.7%

Note: Numbers in parentheses indicate the average of interest coverage.

2. Interest rates

Since it is difficult to expect profits to increase in a short period of time, the debt-servicing capability of over-leveraged domestic companies would depend a lot on the level of interest rates. While corporate default rate is being reduced, enhancement of profitability through productivity and management improvement and reduction of the financial and labor costs, in conjunction with the improvement of high-cost structure, are being urgently called for.

The sensitivity test results for the declined interest rates of listed companies are listed in Table 8. Our analysis suggests that the decline in interest rates by 3 and 5 percentage points will lead to the reduction of NPL volume by 11.1 and 13.9 percentage points, respectively. Further, because the reduction effect of the NPL ratio, triggered by a decline in interest rates, depends on the ICR distribution in 1998, the change in NPL ratio, following a 1 percent decrease in interest rates, may not best represent the situation.

Furthermore, our analysis suggests that the effect of the unlisted companies' decline in interest rates over their NPL ratio is quite similar to that of the listed companies. Moreover, according to the 1997 figures, we estimate that a 3 percentage point decrease in interest rates would cause 9.9 percentage points reduction of NPLs, and a 5 percentage point decrease in interest rates would cause 16.4 percentage point reduction of NPLs.

Table 7. NPL size and changes in borrowing costs

Borrowing Costs Decline	Listed companies		Unlisted companies	
	# comp.	NPL/ratio	# of comp.	NPL
Base	207 (-131.6)	121,435 35.7%	1,623 (-75)	77,073 39.8%
1%	199 (-145.1)	98,065 28.8%	1,512 (-88)	72,177 37.3%
2%	189 (-164.8)	93,045 27.3%	1,388 (-106)	62,738 32.4%
3%	176 (-196.0)	83,734 24.6%	1,254 (-133)	57,908 29.9%
4%	164 (-238.9)	76,603 22.5%	1,127 (-173)	52,667 27.2%
5%	154 (-316.5)	74,243 21.8%	1,020 (-236)	45,232 23.4%

Note: Numbers in parentheses indicate the average of interest coverage.

A sharp decrease in local interest rates has certainly given a break for the corporate borrowers, who have been suffering from excessive debts and weak demand, as the next chart shows. However, this alone could not warrant any visible improvement in the corporate sector's debt servicing capability, as the simulation results from the previous case show.

Given the still-high level of risk premium involved in the Korean corporate sector, particularly by foreign creditors and local banks' reluctance to cut their lending rates aggressively, funding costs in the corporate sector may be reduced only by a limited scale. Further, not all the firms will benefit from the downward trend in interest rates as long as there exists considerable credit risk in the corporate sector.

3. Labor cost

Reduction of the labor cost may be a reliable policy tool to reduce NPLs. Because labor cost is an important part of a corporation's profit,

Table 8. NPL size and changes in labor costs

Labor Costs Decline	Listed companies		Unlisted companies	
	# comp.	NPL/ratio	# of comp.	NPL
Base	207 (-131.6)	121,435 35.7%	1,623 (-75)	77,073 39.8%
5%	204 (-130.0)	112,774 33.1%	1,546 (-72)	75,428 39.0%
10%	201 (-128.5)	112,523 33.1%	1,470 (-70)	71,373 36.9%
15%	195 (-130.7)	112,094 32.9%	1,409 (-68)	68,811 35.6%
20%	193 (-128.7)	112,015 32.9%	1,344 (-67)	67,206 34.7%
25%	190 (-127.9)	109,228 32.1%	1,286 (-65)	65,771 34.0%
30%	185 (-129.7)	106,428 31.3%	1,238 (-64)	63,794 33.0%

Note: Numbers in parentheses indicate the average of interest coverage.

its reduction will contribute to increase the profit and, further, increase the ICR.

According to the 1997 figures, it could be further estimated that 20 percentage points decrease in the labor cost would cause 4.3 percentage points reduction of NPLs, and 30 percentage points decrease in the labor cost would cause a 8.6 percent reduction of NPLs. Our analysis suggests that the effect, which labor costs has had on the NPL ratio in 1998, was less than that in 1997. This was primarily due to a significant reduction in labor cost while the economic restructuring proceeded; thus, it reflects a considerably less effect of the NPL ratio, which was initially caused by the labor cost reduction.

4. Debt-equity ratio

A drastic change in the ICR can be made through asset sales or debt restructuring by creditor financial institutions. Debt restructuring includes a variety of options, such as debt-equity swap, debt forgiveness, debt relief, and many more. The choice and related prices are, of course, negotiable between debtor and creditor. Debt-equity swap and debt reduction will alleviate the debt burden of corporate

Table 9. NPL size and debt-equity ratio decline by 50% point

Debt-equity Ratio Decline	Listed companies	
	# comp.	NPL/ratio
Base	131 (-46.7)	85,530 34.3%
50%	109 (-72.0)	56,398 28.5%

Note: Numbers in parentheses indicate the average of interest coverage.

Table 10. NPL size and debt–equity ratio decline by 100% point

Debt–equity Ratio Decline	Listed companies	
	# comp.	NPL/ratio
Base	117 (–47.5)	82,697 40.8%
50%	79 (–129.3)	38,343 27.5%

Note: Numbers in parentheses indicate the average of interest coverage.

borrowers, thereby improving their ICRs. Without taking into account the related restructuring options or loss allocation, this section performs sensitivity tests with different debt–equity ratios.

IV. Conclusions: Policy Implications

Our study has shown that many Korean corporations are suffering from high leverage and low profitability problems. In particular, over 37 percent of the listed companies could not afford to pay interests on their debts through their operating profits during 1998. Although the reduced interest rates and the rebounding economy are relieving the corporate debt problem to a certain extent, a significant proportion of the Korean corporate sector is still subject to the various risks, such as commercial and market risks and external shocks. In the end, we have come to the following policy implications based on our sensitivity test results.

1. Reflationary macroeconomic policy is the sole option in the absence of plausible alternatives

In early stages of economic reform, too tight macroeconomic policies could jeopardize the sustainability of the reform as the economy runs the risk that NPLs will rise. Therefore, a modest amount of macroeconomic stimulus is called for to secure the sustainability of financial restructuring.

Since the domestic demand is unlikely to pick up its speed rapidly while a higher level of unemployment rate is expected after a rigorous corporate restructuring, a strong recovery in exports would be the key to improving cash flows for the Korean corporations. Nevertheless, the external environment is not yet so friendly to the Korean exporting businesses. The corporate sector's operating profits are likely to come under increased pressure while the domestic currency is strengthened.

Thus, to encourage and nurture profitability in its corporate sector, the Korean government must implement policies to reduce the interest rates on an feasible basis, in order to protect the viable and profiting agents in the real economy sector. Further, it must seek ways to develop policies to stimulate asset markets and to foster increases in exports, thereby speeding up a return to the positive economic growth. In the meanwhile, of course, corporate entities ought to take voluntary initiatives to improve their productivity and inefficient management.

2. Debt restructuring by creditor financial institutions is necessary, given the effects of cost reduction from the lower interest rates and slimming-down efforts are proven insufficient

Our analysis demonstrates that many Korean corporations will not be able to generate positive cash flows, despite the sharp falls in interest rates and cost-saving efforts by themselves. While many expense-reducing efforts are underway, and the funding costs are remaining lower than previously, the currently high debt-equity ratio suggests that the corporations are significantly exposed to shocks, wherever they originate from. Here, we have a clear idea that a drastic corporate debt-restructuring is necessary to prevent further rises of, and flows of NPLs into the financial sector.

Again, as our simulation shows, a large portion of the non-financial firms cannot generate profits to cover their interest expenses even under the improved economic environment. Thus, in addition to the reflationary policy measures, improving the capital structure of the corporate sector would require a deep capital market, through which corporations could directly raise their funds. However, since market augmentation may takes years, mobilization of additional public

resources seems to be necessary for the financial restructuring, or, at least for the bank restructuring.

3. Additional public resources may be necessary even after the appropriate cost allocation

A sizable amount of public resource has been already mobilized and injected to recapitalize financial institutions in congruence with measures to dispose of NPLs. Moreover, sharp declines in interest rates have had a favorable effect on the NPL formation, and the improvement of macroeconomic environment would improve the liquidity conditions of the corporate sector and bank balance sheets. In effect, additionally raised resources could help financial institutions to remove the structural NPLs, as they would not keep the non-viable corporate borrowers afloat or refinance them.

Thus far, eighty corporations including those from fifteen *chaebols* have undergone the corporate workout process. Their aggregate debts at the end of March this year had exceeded KRW 30 trillion, the bulk of which had been already classified as either 'precautionary' or 'non-performing.' More debt restructuring would seem to follow, as the more troubled *chaebols* will ask their creditors to restructure their debts. Further, the top five *chaebols*, which are demanded by the government to voluntarily improve their capital structures, may well need to carry out at least some forms of debt restructuring on the several pending deals among themselves. Financial institutions cannot drive their financially weak corporate borrowers toward a rigorous restructuring without the financial resources buffering credit losses from potential debt reduction.

4. Inducement of foreign capital and skills still remain a high priority

Given that the local capital environment has limitations of its own in reducing the corporate debts, the Korean corporations must seek ways to invite increased foreign capital participation, thereby strengthening and solidifying their capital positions and improving their capital structures. Further, to ensure that corporations are fully operational, the Korean government must place an attentive and greater policy emphasis on the development of market principles and sound management. Toward this end, strengthening of corporate governance, capital market development, and more deregulations must be vigorously followed. Nevertheless, because any direct measures for these purposes would not produce immediate results, increased attraction of the foreign capital and the adoption of foreign management skills would serve to improve the local knowledge and practices.

References

- Classens, Stijn, Simeon Djankov and Giovanni Ferri. 1998. "Corporate Distress in East Asia: Assessing the Impact of Interest and Exchange Rates Shocks." mimeo, World Bank.
- Credit Suisse First Boston. 1998. *Corporate Debt Monitor*. Equity Research-Asia.
- Davis, E. Philip. 1995. *Debt Financial Fragility and Systemic Risk*. New York: Oxford University Press.
- Goldman Sachs. 1998. *Asset Quality for Korean Banks: Bottom-Up Approach for Estimating NPL*.
- Korea Development Institute. 1998. "Corporate Debts in Korea." mimeo (in Korean).
- Joo-Ha Nam. 1998. *Asset Quality for Korean Banks: Bottom-Up Approach*. Korea Economic Research Institute (in Korean).

國文要約

본 논문은 채무기업의 상환능력에 초점을 맞추어 금융기관의 부실여신을 추정한다. 즉, 이자보상비율(이자비용대비 세전영업이익 비율)이 100% 미만인 기업에 공여된 여신을 부실여신으로 정의하는 bottom-up 방식을 이용하여 부실여신을 추정한다.

1998년 재무제표에 의하면, 비금융 상장기업의 경우 부실여신이 전체여신의 32.1%에 이른다. 비상장기업은 1997년 현재 가용한 재무제표를 기준으로 부실여신비율이 37.6%에 달한다. 기업크기에 따라 4그룹으로 나누었을 때, 상장기업 부실의 정도는 6~30대기업, 중소기업, 31~64대기업, 5대기업의 순으로 심하게 나타났다. 비상장기업의 경우에는 31~64대기업이 중소기업보다 더 부실한 것으로 보인다.

데이터를 업종별로 구분한 결과, 상장기업의 경우에는 섬유, 의류, 비금속, 자동차, 가구, 건설 및 화학부문에서 부실이 확대되었으며, 비상장기업의 경우에는 농업, 어업, 목재출판, 운수 및 통신업 등이 상대적으로 더 부실한 것으로 나타났다.

수익률, 금리, 임금 등 여러 변수의 변화에 대해 부실율의 변화를 알아보는 민감도테스트(sensitivity-test) 결과, 특히 금리인하로 인한 부실율의 감소가 두드러졌다. 즉, 상장기업의 경우 다른 조건이 같은 상태에서 금리가 5%포인트 인하하면, 부실율은 35.7%에서 21.8%로 13.9%포인트 낮아진다. 따라서 1998년 하반기 이후 금리인하로 인한 부실율이 크게 감소되었을 것으로 판단된다. 그러나, 정부의 본격적인 경기부양책과 금리인하에도 불구하고, 부실율은 여전히 높기 때문에 정책적으로 지속적인 확장적 거시경제정책이 필요하며, 기업이 정상적으로 돌아서기 위해서는 채권금융기관의 보다 적극적인 부채구조조정 노력이 필요하다. 특히, 후자의 경우 금융기관에 발생하는 대손을 고려하면 추가적인 공적자금의 동원이 필요할 것으로 보인다.

發刊資料 目錄

■ Working Papers/資料論文

- 90-01 Regional Economic Cooperation Bodies in the Asia-Pacific :
Working Mechanism and Linkages Cheong-Soo Kim
- 90-02 Strategic Partnering Activity by European Firms through the
ESPRIT Program L.Y. Mytelka
- 91-01 Models of Exchange Rate Behavior : Application to the Yen
and the Mark Seoung-Young Gwak
- 91-02 Anti-dumping Restrictions against Korean Exports : Major Focus on
Consumer Electronic Products Tae-Ho Bark
- 91-03 Implications of Economic Reforms in CEECs for DAEs :
with Emphasis on the Korean Case Yoo-Soo Hong
- 91-04 The ANIEs-an Intermediate Absorber of Intraregional Exports? Jang-Hee Yoo
- 91-05 The Uruguay Round Negotiations and the Korean Economy Tae-Ho Bark
- 92-01 Changing World Trade Environment and New Political Economics
Jang-Hee Yoo
- 93-01 Economic Effects of Import Source Diversification Policy(ISDP)
In-Soo Kang
- 93-02 Korea's Foreign Direct Investment in Southeast Asia
Jai-Won Ryou · Byung-Nak Song
- 93-03 German Economy after Unification-Facts, Prospects and Implications for Korea
Sung-Hoon Park
- 93-04 A Note On Korea's Anti-dumping System and Practices Wook Chae
- 93-05 Structural Changes in Korea's Exports and the Role of the EC Market
Chung-Ki Min
- 93-06 Tax Implications of International Capital Mobility Joo-Sung Jun
- 93-07 Leveraging Technology for Strategic Advantage in the Global Market :
Case of the Korean Electronics Industry Yoo-Soo Hong
- 93-08 Changing Patterns of Korea's Trade in Goods and Services Jin-Soo Yoo
-

-
- 94-01 Current Status and Prospects for Korea-Russian Economic Cooperation
Chang-Jae Lee
- 94-02 Development of Foreign Trade Relations Between Korea and Russia
Je-Hoon Park
- 94-03 Technology Transfer : The Korean Experience Yoo-Soo Hong
- 95-01 Issues in Capital Account Liberalization in Asian Development Countries
Jae-Jung Kwon
- 96-01 Globalization and Strategic Alliance Among Semiconductor Firms in
the Asia-Pacific : A Korean Perspective Wan-Soon Kim
- 96-02 Toward Liberalization of International Direct Investment in Korea :
Retrospects and Prospects Yun-Jong Wang · June-Dong Kim
- 96-03 International Trade in Software Su-Chan Chae
- 96-04 The Emerging WTO and New Trade Issues - Korea's Role and
Priorities in the WTO System Chan-Hyun Sohn
- 96-05 An Economic Assessment of Anti-Dumping Rules : From the
Perspective of Competition Laws and Policy Wook Chae
- 96-06 Cultural Differences in the Crusade Against International Bribery
Joon-Gi Kim · Jong-Bum Kim
- 96-07 Competition Policy and Transfer Pricing of Multi-national Enterprise
Young-Soo Woo
- 97-01 Impact of Foreign Direct Investment Liberalization :
The Case of Korea June-Dong Kim
- 97-02 APEC's Eco-Tech : Prospects and Issues Jae-Bong Ro · Hyung-Do Ahn
- 97-03 기업지배구조에 관한 OECD 논의와 우리경제에의 시사점
王允鍾 · 李晟鳳
- 97-04 Economic Evaluation of Three-Stage Approach to APEC's Bogor Goal
of Trade Liberalization In-Kyo Cheong
- 97-05 EU의 企業課稅와 韓國企業의 直接投資戰略 李晟鳳
- 97-06 In Search of an Effective Role for ASEM : Combating International Corruption
Jong-Bum Kim
- 97-07 Economic Impact of Foreign Debt in Korea Sang-In Hwang
- 97-08 Implications of APEC Trade Liberalization on the OECD Countries:
An Empirical Analysis Based on a CGE Model
Seung-Hee Han · In-Kyo Cheong
-

-
- 97-09 IMF 救濟金融 事例 研究: 멕시코, 태국, 인도네시아의 事例를 중심으로
金元鎬 · 李景姬 · 盧相旭 · 權耿德 · 元容杰 · 金完仲
- 97-10 韓 · EU 主要通商懸案과 對應方案 李鍾華
- 97-11 러시아의 外國人投資 現況 및 制度的 與件 鄭鎔株
- 98-01 韓 · 日 主要通商懸案과 對應課題 程 勳 · 李鴻培
- 98-02 Bankruptcy Procedure in Korea : A Perspective Mi-Kyung Yun
- 98-03 美國의 兩者間 投資協定 : 韓 · 美 投資協定の 意義 및 展望 金寬濤
- 98-04 The Role of Foreign Direct Investment in Korea's Economic Development:
Productivity Effects and Implications for the Currency Crisis
June-Dong Kim · Sang-In Hwang
- 98-05 Korea's Trade and Industrial Policies: 1948-1998
Chan-Hyun Sohn · Jun-Sok Yang · Hyo-Sung Yim
- 98-06 ASEM Investment Promotion Action Plan (IPAP) Revisited: Establishing the
Groundwork for Regional Investment Initiative Chong-Wha LEE
- 98-07 해외투자사례연구시리즈 ① 외환위기 이후 한국해외현지법인의
구조조정실태와 애로사항: 英國 申東和
- 98-08 해외투자사례연구시리즈 ② 외환위기 이후 한국해외현지법인의
구조조정실태와 애로사항: 인도네시아 金完仲
- 98-09 해외투자사례연구시리즈 ③ 외환위기 이후 한국해외현지법인의
구조조정실태와 애로사항: 美國 朴英鎬
- 98-10 해외투자사례연구시리즈 ④ 외환위기 이후 한국해외현지법인의
구조조정실태와 애로사항: 中國 金琮根
- 98-11 해외투자사례연구시리즈 ⑤ 외환위기 이후 한국해외현지법인의
구조조정실태와 애로사항: 泰國 權耿德
- 98-12 APEC's Ecotech: Linking ODA and TILF Hyung-Do Ahn · Hong-Yul Han
- 98-13 경제난 극복의 지름길 : 외국인투자 金準東 外
- 98-14 最近 國際金融環境變化和 國際金融市場動向 王允鍾 外
- 98-15 Technology-Related FDI Climate in Korea Yoo-Soo Hong
- 98-16 構造調整과 國家競爭力 洪裕洙
- 98-17 WTO 무역원활화 논의현황과 정책과제
－통관절차 및 상품의 국경이동을 중심으로－ 孫讚鉉 · 任曉成
- 98-18 주요국의 투자자관계 관리사례 申東和
- 98-19 공기업 매각방식의 주요 유형: 해외매각을 중심으로 尹美京 · 朴英鎬
- 99-01 改革推進 外國事例와 示唆點 金元鎬 外
- 99-02 WTO 뉴라운드의 전망과 대책 蔡 旭 · 徐暢培
-

-
- 99-03 Korea-U.S. FTA: Prospects and Analysis In-Kyo Cheong · Yun-Jong Wang
99-04 Korea's FTA Policy Consistent with APEC Goals In-Kyo Cheong
99-05 OECD 부패방지협약과 후속이행조치에 관한 논의와 평가 張槿鎬
99-06 Restructuring and the Role of International Financial Institutions:
A Korean View Yun-Jong Wang
99-07 The Present and Future Prospects of the North Korean Economy
Myung-Chul Cho · Hyoungsoo Zang
99-08 APEC After 10 years: Is APEC Sustainable? Hyung-Do Ahn
99-09 Inward Foreign Direct Investment Regime and Some Evidences of Spillover
Effects in Korea June-Dong Kim
99-10 전자상거래 소비자보호에 관한 OECD의 논의와 정책적 시사점 姜聲鎭
99-11 Distressed Corporate Debts in Korea Jae-Jung Kwon · Joo-Ha Nam
-

權才重

서울대학교 경제학과 졸업(1985)

미국 라이스대학교 경제학 박사(1993)

대외경제정책연구원(KIEP) 연구위원

著書 및 論文 『국제금융시장의 통합과 자본비용』, 대외경제정책연구원(1995)

“Issues in Capital Account Liberalization in Asian Developing Countries”(ADB

주최 제5차 국제금융세미나 발표논문, 1995)

『아시아 금융위기와 국제협력과제』, 대외경제정책연구원(1997) 외 다수

南周廈

서강대학교 경제학과 졸업(1983)

미국 듀크대학교 경제학 박사(1990)

한국경제연구원(KERI) 연구위원

論文 「한국상장기업의 자본비용 추정」(『재무관리연구』, 1997)

「기업의 부도원인과 부도예측모형 분석」(『금융연구』, 1998)

「금융기관의 부실화 예측모형 분석」(『국제경제연구』, 1998) 외 다수

KIEP Working Paper 99-11

Distressed Corporate Debts in Korea

1999년 4월 25일 인쇄

1999년 4월 30일 발행

발행인 李景台

對外經濟政策研究院

발행처 137-747 서울특별시 서초구 염곡동 300-4

전화: 3460-1080 FAX: 3460-1144

인쇄 오름시스템(주) 전화: 2273-7011 대표 이호열

등록 1990년 11월 7일 제16-375호

【本書 內容의 無斷 轉載·複製를 금함】

ISBN 89-322-4054-X

값 2,000원

89-322-4026-4(세트)



KIEP is on-line. Access <http://www.kiep.go.kr> for details of our latest publications.

KOREA INSTITUTE FOR INTERNATIONAL ECONOMIC POLICY ORDER FORM

■ Fax number: 822-3460-1144

■ Address:

Publication Section, Department of Information & Library Services

Korea Institute For International Economic Policy

300-4 Yomgok-Dong, Seocho-Gu, Seoul 137-747

Seoul, Korea

■ E-mail: shbae@kiep.go.kr

■ Please call: 822-3460-1080 if you have any questions.

ALL ORDERS MUST BE PREPAID

Date of Order: _____

Name: Mr / Ms _____

Department/Institution: _____

Street Address: _____ City: _____

State / Post Code: _____ Country: _____

Telephone: _____ Fax: _____

E-mail: _____

Quantity	Title/Author/Series No.	ISBN	Price

• Total Cost of book(s) is US\$ _____.

• Cost of postage is US\$ _____.

* Postage charge per copy is US\$ 5 within Asia. For all other countries, the postage charge per copy is US\$ 9.

All orders will be shipped by airmail.

Payment

☐ Check (payable to KIEP)

☐ International Money Order

☐ Visa Card

☐ Master Card

• Card Number _____

• Expiry date _____

• Signature _____

Standing Order for Residents Outside Korea

Type of Membership (One-Year)	Annual Fee*	
	Institutions	Individuals
All publications (60-70 titles, including periodicals, annually)	US\$ 500	US\$ 250
Only English publications (10-15 titles annually)	US\$ 300	US\$ 150

* Airmail charges are included.

* Subject to change without prior notice.

