Consumer Credit Market in Korea since the Economic Crisis

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1. Introduction

The purpose of the paper is twofold. One is to document the chronology of rapid growth of household credit in Korea since the foreign exchange crisis in 1997. The other is to examine the development of credit card crisis in 2003 and evaluate the adequacy of policy responses.

Increase in household debt was primarily the result of financial de-regulation and paradigm shift in financial industry. The new principle adapted by financial institutions after the financial de-regulation was to put most emphasis on resource allocation based on market mechanism. The de-regulation of financial industry after the foreign exchange crisis was not an exception in the sense that it was accompanied by a boom in financial market that eventually resulted in a violent crash lending.

We discuss the development of credit card crisis with the presumption that it is a classic example of regulatory failure. We argue that with timely and proper regulatory actions the much of difficulties inflicted by credit card crisis would have been alleviated if not averted.

The next chapter documents the chronology of recent increase in household debt in Korea. The third chapter examines the causes and consequences of fast increase in household debt. Chapter 4 will focus on credit card crisis occurred in 2003 and evaluate the adequacy of policy measures taken to respond to change in market condition. The conclusion follows.

2. Household Debt in Korea after the Economic Crisis

2.1. Increase in Household Debt

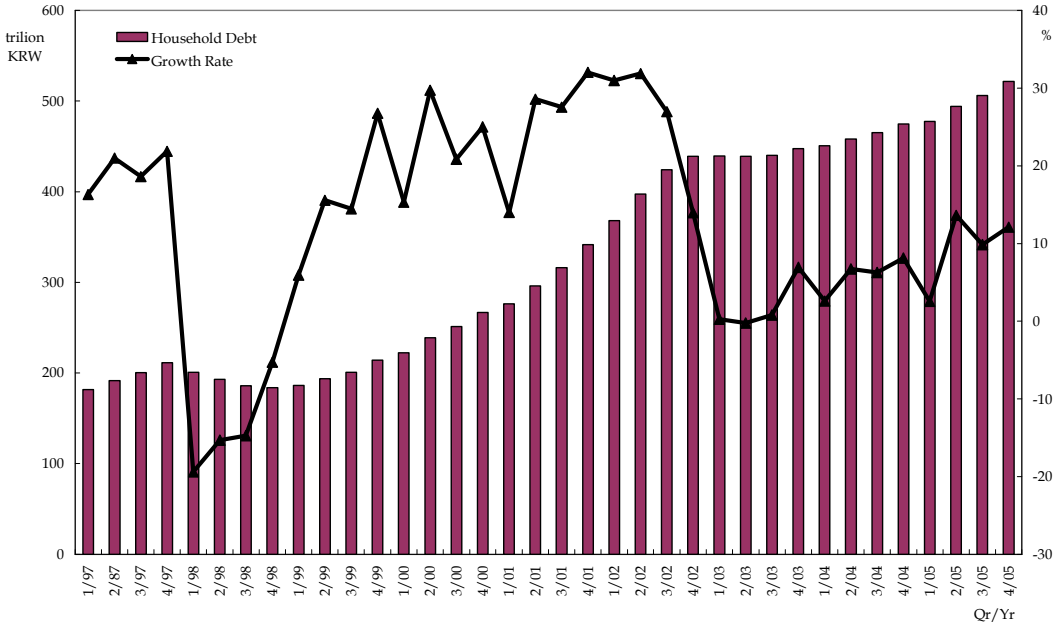
While showing a sign of stabilization, household debt in Korea has grown in a spectacular pace since the economic crisis in 1997. [Figure 1] illustrates trend in total outstanding stock of household debt from 1997 to 2005 and its annual growth rate. It seems that household debt market has gone through three distinguished phases since 1997. The first phase covers the period from 1997 to 1999 when household debt was hit severely hit by the economic crisis and subsequent recession that was induced in most part by high interest rate policy to restore stability in the foreign exchange market. Household debt decreased by 13% from the fourth quarter of 1997 to the fourth quarter of 1998 when the slumping household debt reached the lowest level. It was not until the year 2000 that household debt recovered the pre-crisis level and gained a momentum for the explosive growth in the subsequent three years that constitutes the second phase. Household debt increased by 120% from 2000 to 2002 while disposable income increased by 15.5% for the same period. As a consequence, debt burden deteriorated considerably. For example, debt-to-income ratio[1], the main aggregate indicator for households' ability-to-repay, dropped by 49.3% points, from 63.8% at the end of 1999 to 113.3% in 2002. Another indicator for households' ability to repay the debt debt-to-asset ratio[2] also rose considerably from 40.1% at the end of 1999 to 51.8% in 2002.

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[1] The measure is defined as the ratio between total household debt and disposable income for households and private unincorporated enterprises.

[2] It is defined as the ratio between total individual debt and total individual asset in Flow of Funds table published by the Bank of Korea. The individual sector in the table includes private unincorporated enterprises and various non-profit organizations as well as households. Therefore, household debt in [Figure 1] does not coincide with individual debt in Flow of Funds table. The change of basis is unavoidable since information on aggregate asset holdings by households is not available.

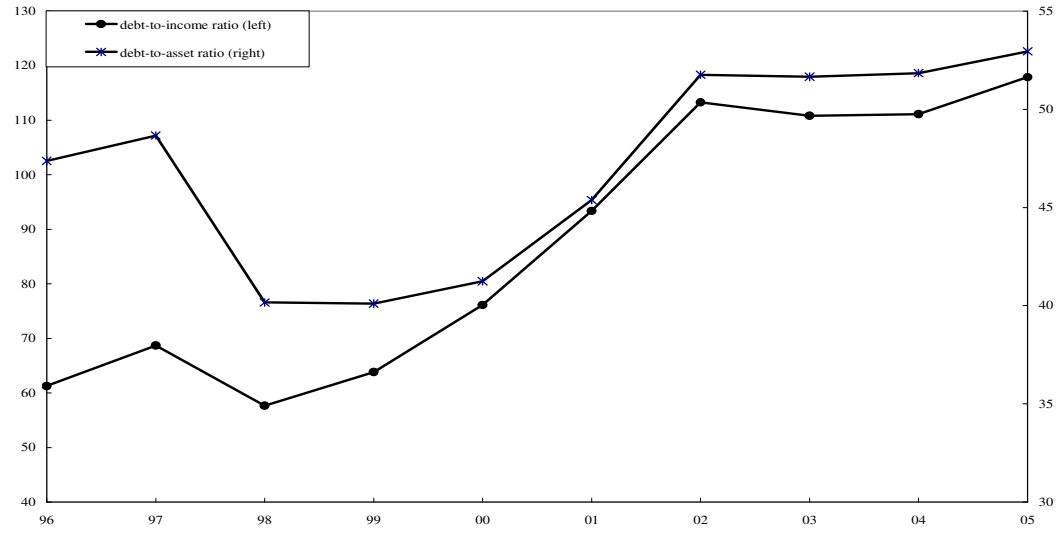
[Figure 1] Household Debt in Korea: 1997~2005



1. Growth rate is the annualized quarterly growth rate..

Source: Bank of Korea

[Figure 2] Trend in Ability-to-repay Indicators



1. Debt-to-income ratio is the ratio between household debt and household disposable income.

2. Debt-to-asset ratio is the ratio between individual debt and asset in Flow of Funds Table.

Source: Bank of Korea

Rapid accumulation of household debt invited serious concerns from both regulatory body and the market. The main source of the concerns was short-term stability and long-term sustainability. The tentative verdict from the market was negative to both of the concerns. Banks and credit card companies, two major providers of credit to households during the period, started to tighten screening process for further credit extension to curb credit supply to household sector. Alarmed by unprecedented pace of debt increase, the regulatory authority also took various measures to control the explosive growth of household debt. It was not until 2003 that the market showed a sign of slowdown. Annual growth rate of household debt dropped to and stayed around 10% that is believed to be sustainable level in the long run considering the current and expected condition of aggregate income growth. However, the price was steep. The biggest credit card company almost declared bankruptcy and financial market went through several turbulent episodes in 2003 and 2004. The third phase in development of consumer credit market after the economic crisis started in 2003 when seemingly uncontrollable increase in household debt came to a halt and cautious atmosphere took the place of feverish race to expand lending to individuals. While the speed of credit expansion was stabilized and the market regained sense of security, financial companies in consumer credit market underwent turbulent restructuring process to cope with serious degradation in quality of consumer loan portfolio.

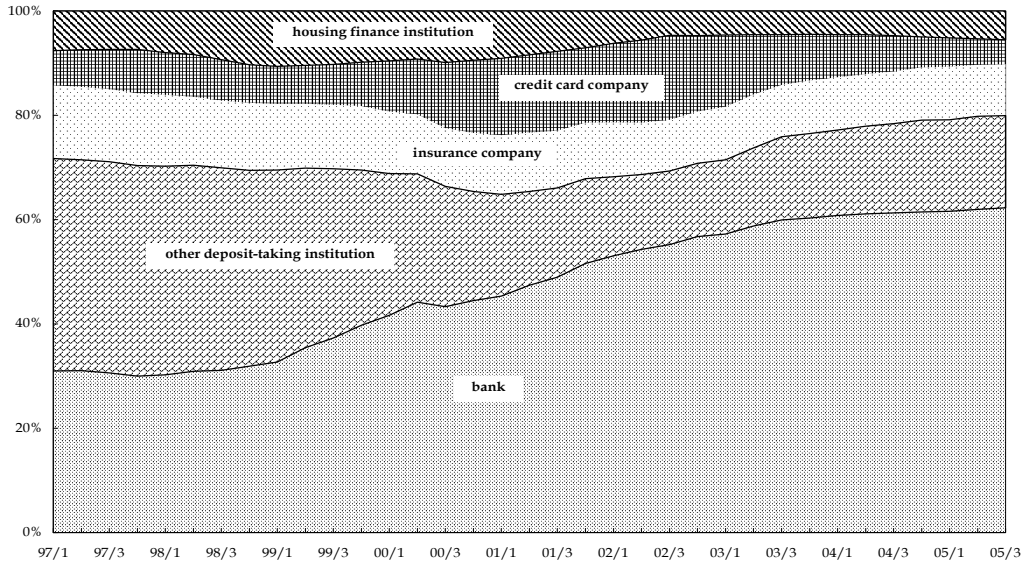
2.2. Household debt by lender type

2.2.1. Lending by banks

Banks and credit card companies played the crucial role in increasing household debt. Bank was not the biggest lender to household sector until the second quarter of 1999 when the bank loans to household sector outstripped loans provided by other deposit

taking institutions such as savings banks, credit unions and mutual saving cooperatives. Increase in bank's share in consumer credit market from 1997 to 1999 was mainly due to contraction of non-bank deposit taking institutions. They were hit especially hard by the economic crisis in 1997 and subsequent restructuring of financial industry. Banks were also seriously affected by the economic crisis but the amount households borrowed from banks has steadily increased except for the second half of 1998 when the economy was in deep recession triggered by the economic crisis and ensuing high interest rate policy pursued by Korean government. The status of banks as the biggest lender to household sector was further solidified during the second phase to reach the point where 56.7% of total debt owed by household sector was financed by banks in 2003.

[Figure 3] Household Debt by Lender Type



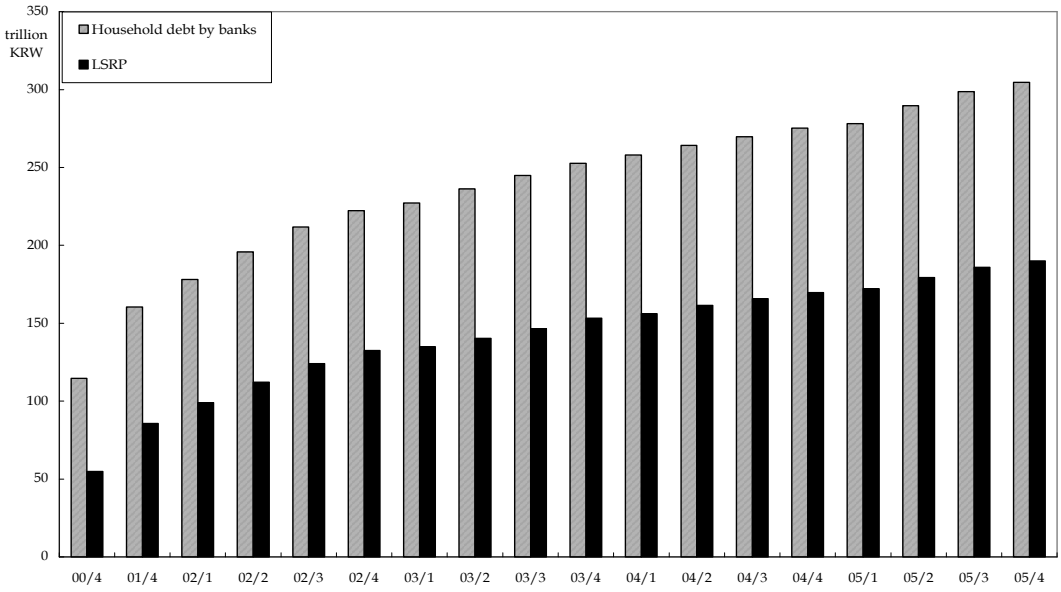
1. Housing finance institution includes Korea Housing Finance Corporation and National Housing Fund.

2. Other deposit-taking institution includes savings bank, credit unions and mutual saving cooperatives.

Source: Bank of Korea

As shown in [figure 4], the lion's share of bank loans to household sector was taken up by loans to households secured by residential properties (LSRP)[3]. While the proportion of LSRP in total bank loans to household sector was mere 47.8% at the end of 2000, it continuously rose to reach 62.4% after 5 years. During the five-year span from 2001 to 2005, 71% of increase in household debt provided by banks was attributable to increase in LSRP. As we discuss later, LSRP has very unique contract structure and many commentators pointed out that the unique aspects of LSRP, especially short maturity and repayment method, could be the possible source of system-wide instability.

[Figure 4] Bank Loans to Household



1. LSRP is the loans to household secured by residential properties.

2. Note that end-of-the-year balances are presented for 2000 and 2001 due to lack of data.

Source: Bank of Korea

[3] Except for the National Housing Fund, long-term mortgage market had not existed in Korea until the Korea Housing Finance Cooperation was established in 2004. Since the target of the National Housing Fund was limited to low and middle income workers, most of the mortgage financing was intermediated through short-term bank loans collateralized by residential properties (LSRP). LSRP has several distinguished features different from the traditional long-term mortgage product in terms of maturity, repayment method, and loan decision criteria, etc. It is called bullet mortgage due to these special aspects of loan contract. We discuss the detail in the next chapter.

2.2.2. Credit card debts

Another major player in growth of consumer credit was credit card companies. The financial law[4] in Korea allows financial institutions other than banks to issue credit cards and provide various services related to credit card such as installment service and cash advance service. Observing lucrative profit opportunity in consumer credit market, several big non-financial companies[5] enter credit card industry in late 1980's and several banks[6] also established credit card companies as independent business to bypass restrictive regulations on banking sector[7].

The credit card companies led early stage of consumer credit expansion starting from 2000. Credit card debt increased by 270% from 13.6 trillion Korea Won at the end of 1999 to 50.6 trillion KRW in the third quarter of 2002. Loans by credit card companies constituted only 8.4% of the total household debt at the end of 1999. However, the proportion of credit card debt doubled in 3 years and it peaked at 16.2% in the third quarter of 2002. The explosive growth of credit card debt came to a sudden halt in the fourth quarter of 2002 mainly due to increasing suspicion on the sustainability of credit card industry and various supervisory measures to restrain the growth of credit card debt. Total outstanding credit card debt decreased from 50.6 trillion KRW in the third quarter of 2002 to 17.6 trillion KRW in the third quarter of 2005 when outstanding balance of credit card debt hit the lowest level. It was turbulent period in the sense that default of credit card debt in massive scale and subsequent deterioration of viability of

[4] Credit-specialized financial company law

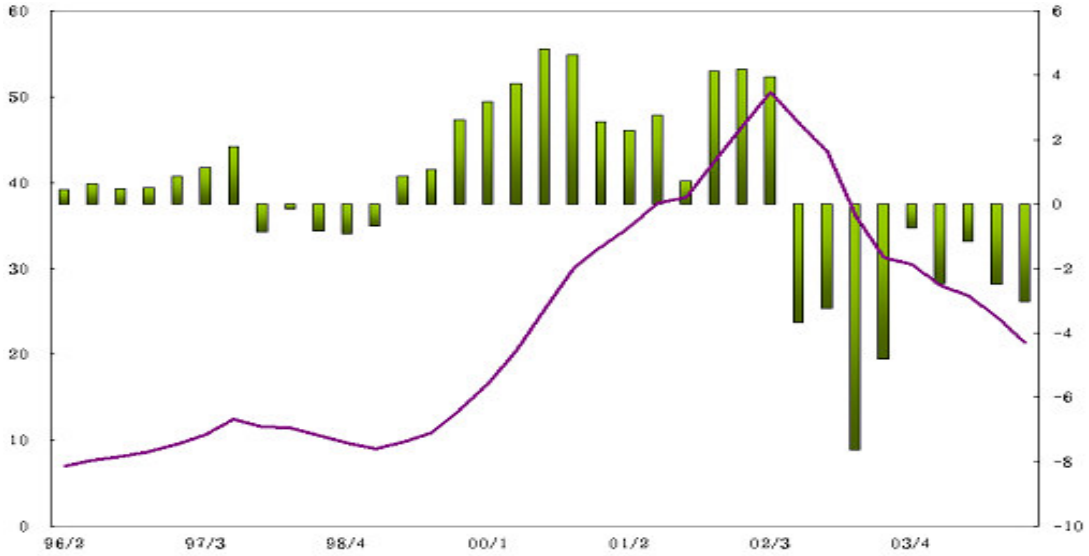
[5] Samsumg and LG are two notable examples.

[6], Kookmin bank, the largest commercial bank in Korea and Korea Exchange Bank were two examples.

[7] There were also banks that maintained credit card business as business unit inside. Most of the banks internalizing credit card business participated in the market through a credit card association, BC Card.

credit card companies caused serious concern on the possibility of system-wide instability.

[Figure 5] Trend in Credit Card Debt



1. The bar chart indicates quarter-to-quarter change in outstanding balance and should be read by the scale in the right hand side.

2. The line graph indicates the outstanding balance at the end of each quarter and should be read by the scale in the left hand side.

3. All scales are in trillion Korean Won.

Source: FSS

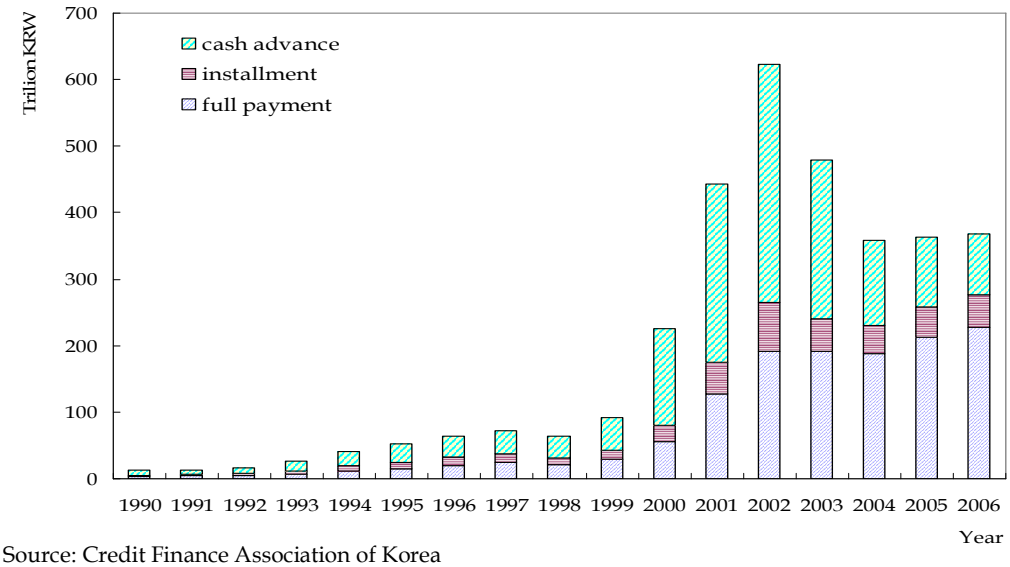
Credit card provided three types of services to cardholders; full payment, installment, cash advance. Since full payment service is minimally involved in granting credit, a typical categorization does not include temporary credit extension through full payment service in credit card debt. [Figure 6] illustrate the trend in volumes of transactions intermediated by three categories of credit card services.

From [Figure 6], we can find that the accumulation of credit card debt was primarily driven by cash advance services[8]. It is a widely accepted conventional wisdom that cash advance service is more vulnerable to credit risk than forms of credit card services.

[8] We treat card loan as a form of cash advance service.

One can easily appreciate validity of the claim considering typical situations when people resort to cash advance services in spite of very high interest rate. The transactions initiated by cash advance service occupied 57% of total transaction intermediated by credit cards. That was an obvious sign of troublesome events to follow in 2 or 3 years.

[Figure 6] Credit Card Transaction Volumes by Service Type



Source: Credit Finance Association of Korea

2.3. Distribution of household debt: analysis of micro data

In this section we briefly analyze micro-level data in order to investigate the distribution of increased household debt. Korea Labor and Income Panel Study (KLIPS) maintains a panel data set that started in 1998. The annual survey mainly on labor-related issues also provides information on households' debt. Among seven waves of surveys available for public use, we drop the first wave for reliability reason and analyze the change in debt distribution from 1998 to 2002. The period coincides with the first and second phases we discussed earlier.

[Table 1] reports the average debt from 1999 to 2003 and its distribution by the age of

household head. The overall pattern generally conforms to the trend we observed in aggregate level data. After a sluggish trend in 1998 and 1999, household debt increased in a considerable degree. For example, average debt per household increased by 40% from 17.3 million KRW in 1999 to 24.2 million in 2002. Even though household debt increased in all age groups during the period, households with head in 50's experienced the fastest debt increase. The average debt for the age group doubled from 1999 to 2002 while the overall dent increased by 40%. Households with head aged below 30 also experienced a significant jump in debt. Their average debt increased by 75% during the same period.

[Table 1] Average Household Debt by Age: 1998~2002

(thousand KRW)

Year	Age Group					Total
	30-	30~39	40~49	50~59	60+	
1998	5,540	15,198	24,718	18,836	11,598	17,301
1999	3,963	13,690	22,892	19,965	12,000	16,592
2000	4,442	13,833	25,385	20,962	11,151	17,406
2001	8,896	16,576	26,585	29,480	13,659	20,669
2002	9,217	18,533	31,811	37,759	13,972	24,226

1. Age group is classified by age of household head.

2. The surveys were conducted from 1999 to 2003.

Source: Author's calculation based on KLIPS

[Table 2] reports the average debt by income and asset holding percentile. First of all, we can find that the increase in debt concentrated in low and middle income households. Households belong to 21%-40% income group saw their debt ballooned by 41% from 11.8 million KRW in 1998 to 16.7 million KRW in 2002. Households belong to

21%-40% income group also experienced significant debt increase. However, it is quite interesting to note that the highest income group did not go through considerable fluctuation in outstanding stock of debt and their average debt actually decreased different from other income group. We confirm the phenomenon that increase in debt was concentrated in relatively poor households by inspecting distribution of household debt in accordance with amount of asset held.

We can find two noticeable features from [Table 2]. First, the table provides an indirect evidence for alleviation of liquidity constraint in consumer credit market. The fact that lower income households experienced faster debt accumulation may imply alleviation of severe liquidity constraint placed on them under the practice prevailed in financial market before the economic crisis. The claim is further supported by the fact that some households were able to borrow even though they did not possess enough asset to offer as collaterals.

[Table 2] Average Household Debt by Income and Asset Holdings: 1998~2002

(thousand KRW)

		1998	1999	2000	2001	2002
Income percentile	81%-100%	44,210	39,730	33,724	35200	41316
	61%-80%	22,131	18,711	18,105	19943	23369
	41%-60%	12,934	13,057	15,544	14831	17035
	21%-40%	11,789	12,260	13,148	20425	16647
	≤ 20%	8,808	7,853	9,686	6793	9760
Asset percentile	81%-100%	-	61,138	37,849	56,096	43,986
	61%-80%	-	20,269	15,423	27,087	18,488
	41%-60%	-	11,157	8,401	11,420	11,753
	21%-40%	-	9,091	6,359	12,435	11,282

	≤ 20%	-	11,788	12,449	13,049	15,011
Total		17,301	16,592	17406	20,669	24,226

1. The surveys were conducted from 1999 to 2003.

Source: Author's calculation based on KLIPS

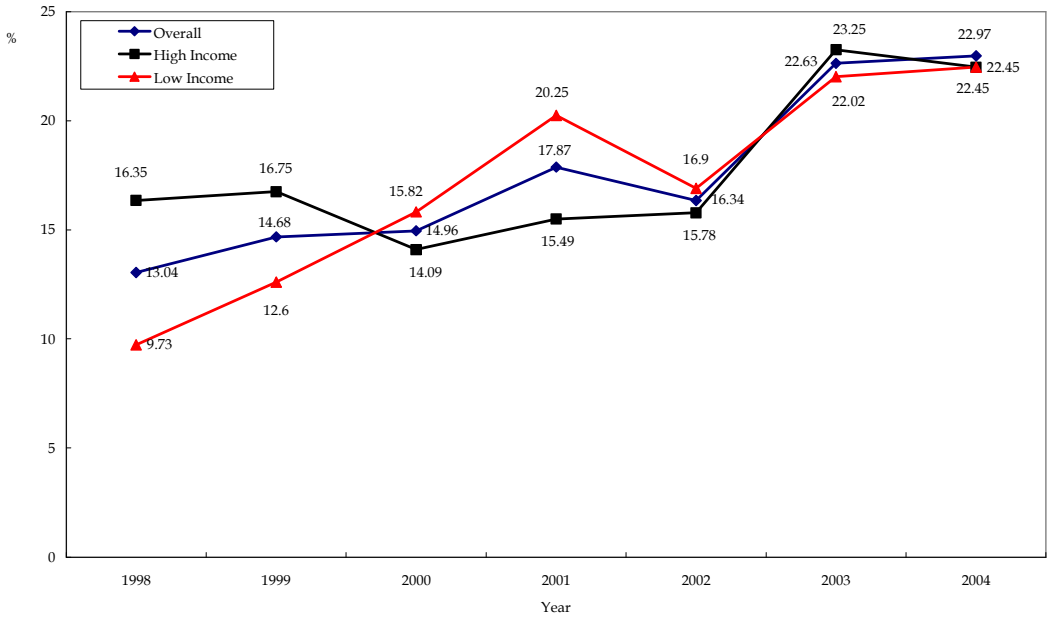
Second, from [Table 2] we can find some subtle hints for the turmoil in financial market occurred in 2003 and 2004. While it could be utilized as an evidence for lessening liquidity constraints, it is quite surprising that low income and asset-poor households were provided credit in such a scale in a very short amount of time. Without offering a compelling explanation, it is very difficult to reconcile with a sensible economic inference that families belonging to the lowest 20% in terms of asset holding were provided on average more credit than those belonging to 20%-60% groups. This could be the result of explosive increase in credit card debts that do not require collaterals. It used to be a common practice in credit card industry that credit cards were issued to consumers with very poor credibility without proper check on the ability to repay.

A corroborating evidence for mounting debt burden on households could be found in micro level data, too. [Figure 7] summarizes change in average debt service ratio (DSR)[9] from 19998 to 2004. DSR reported in [Figure 7] was calculated based on Survey of Household Income and Expenditure (SHIE) conducted annually by Korea National Statistical Office. The survey contains vast amount of detailed information on household expenditure and income that KLIPS does not cover. The proportion of income dedicated to pay interest and repay principal on matured loans if not rolled over had been consistently increased from 13.04% in 1998 to 22.97% in 2004. Even under persistently low interest rate and generous rollover policy, debt pressure almost

[9] Debt service ratio is defined as the ratio between the amounts used to pay interest and principal, if any, to income.

doubled just in 6 years. Low income families were affected more by increased debt burden than high income families, which corroborates with the result in [Table 2] where low income families were the main beneficiaries of extended credit opportunities.

[Figure 7] Debt Service Ratio



1. High (low) income indicates the average DSR of households belonging to upper (lower) 50% of income distribution.

2. All figures are in percentile.

Source: Author's calculation based on SHIE.

In order to investigate the determinants of debt accumulation by households, we employ the following empirical model[10].

$$y_{iy}^{*} 1_{[y_{it}^{*}>0]} = \beta' x_{it} + \mu_i + \varepsilon_{it}$$

where y_{it}^{*} is the difference between desired level of debt-to-asset ratio and supply of

[10] For theoretical background of the empirical model, see Crook(2006)

debt-to-asset ratio, x_{it} is a vector of explanatory variables, μ_i is individual fixed effect, and ε_{it} is error term. Imposing the usual i.i.d. normality assumption on the error term, we estimate the model via trimmed least squares (TLS) estimator proposed by Honoré(1992)[11]. We include the variables frequently cited in the literature as plausible explanatory variable. They are household head's age and age squared, total income, dummies for educational attainment, homeownership, type of employment, the proportion of wage income in total income and amount of financial asset. The estimation result is reported in [Table 3].

[Table 3] Determinants of Debt Accumulation

	Dependent variable	
	(Debt/Financial Asset)	(Debt/Total Asset)
Age	22.8701*** (4.4563)	3.9161*** (0.8424)
Age square	-2.4654*** (0.4592)	-0.4212*** (0.0861)
Financial asset	-0.6323*** (0.0919)	0.1020*** (0.0188)
Type of employment (wage earner =1)	-6.7148*** (0.2018)	-1.4926*** (0.2282)
Pro. Of wage income	0.6414* (0.3698)	0.0739** (0.0354)
Total income	0.8122*** (0.2497)	0.0308 (0.0282)
Education 1 (lower than high school=1)	-4.0002* (2.3822)	-0.0281 (0.0177)
Education 2 (high school=1)	-0.7465 (1.7940)	0.0108 (0.0127)
Homeownership (own home=1)	- 4.9838*** (1.0191)	0.0384*** (0.0.091)

[11] Precisely peaking, the estimator used is $\hat{\beta}_4$ in the paper obtained by optimizing the loss function defined as $T_n(b)$.

# of observations	10,030	6,114

1. Quadratic loss function is minimized for fixed effect Tobit model as suggested by Honoré(1992).

2. Standard errors are in parentheses.

3. *: significant at 10% level, **: significant at 5% level, ***; significant at 1% level

In order to inspect the importance of homeownership in household decision on debt, we defined dependent variable in tow different ways. The first column in [Table 3] is the estimation result when we divide debt by financial asset in defining the dependent variable and the second column by total asset including both financial asset and real estate. We can point out three noticeable features from [Table 3]. First, age of household head is strongly correlated with debt-to-asset ratio. Both estimates indicate that debt-to-asset ratio peaks when age of household head reaches mid-forties and decreases thereafter. Such a pattern may reflect the characteristic feature of household portfolio in Korea stemming from lack of functioning long-term mortgage market. In the absence of long-term mortgage market, a typical family would stockpile financial asset until accumulated financial asset can cover down-payment required to purchase a home, which is, in most cases, at least 40% of price of the house purchased. The remaining amount would be borrowed from financial institutions by offering house as collateral. Therefore, the average age of first-time home buyer in Korea is higher than that in other countries where long-term mortgage market is well established and burden for down-payment is lighter. Since most of home purchases are related to debt increase to some degree, pattern of debt accumulation is likely to be closely correlated with the pattern of home purchase. People start to buy home in late 30's and the number of first-time home buyer peaks at mid 40's in Korea. Second, homeownership is negative correlated with debt-to-financial asset ratio and positively with debt-to-total asset ratio. The finding could be justified if we accept the importance of

homeownership in household portfolio and the special feature of mortgage market in Korea. Third, while income is a good predictor for the change in debt-to-financial asset ratio, it has no explanatory power for variation in debt-to-total asset ratio. One can claim that the finding may reflect the practice in loan decision process in Korea, that is, financial institutions in Korea did not pay much attention to borrower's income in loan decision as long as collateral is offered.

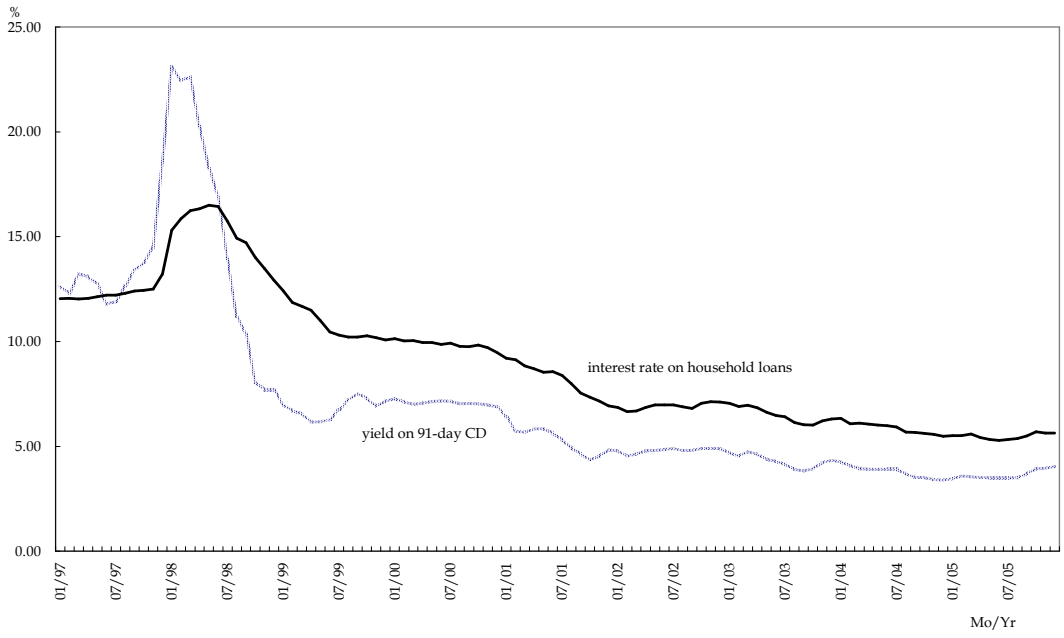
3. Causes and Consequences

3.1. Causes of increase in household debt

3.1.1. Changes in market environment

The most obvious reason why household debt increased in such a remarkable speed was the low interest rate started from 1999 when high interest policy after the economic crisis was given up.

[Figure 8] Trend in Interest Rate: 1997~2005



Source: Bank of Korea

The policy especially advocated by International Monetary Fund was adopted by Korean government to restore stability in foreign exchange market. Confronted with a severe recession in 1998 due to high interest rate and positive signs on foreign exchange market stability, Korean government gave up the policy and lowered interest rate to stimulate the economy. Propped by the condition in global financial market, low interest rate policy has been retained thereafter as shown in [Figure 8]. Since low interest rate, *ceteris paribus*, implies lower cost for debt financing and stronger demand for borrowing, low interest rate must have significantly contributed to rapid increase in household debt.

Another fundamental change in market environment is the change in financing pattern in corporate sector. Before the economic crisis, Korean government adopted strategy to pursue economic development by utilizing conglomerates called *Chaebul* consisting of large manufacturing firms as the main engine. The government mobilized massive amount of credit resources required for large scale investment through banking sector.

[Table 4] Source of Corporate Finance

(billion KRW)

Year	Bank loan	Bond and equity	Total
1995	35,525	29,865	65,390
1996	44,977	35,191	80,167
1997	37,728	37,731	75,459
1998	-63,634	70,253	6,619
1999	-3,759	71,785	68,026
2000	19,658	73,011	92,669
2001	-27,487	99,363	71,875
2002	34,002	87,421	121,423

2003	28,129	72,909	101,038
2004	2,526	58,743	61,269

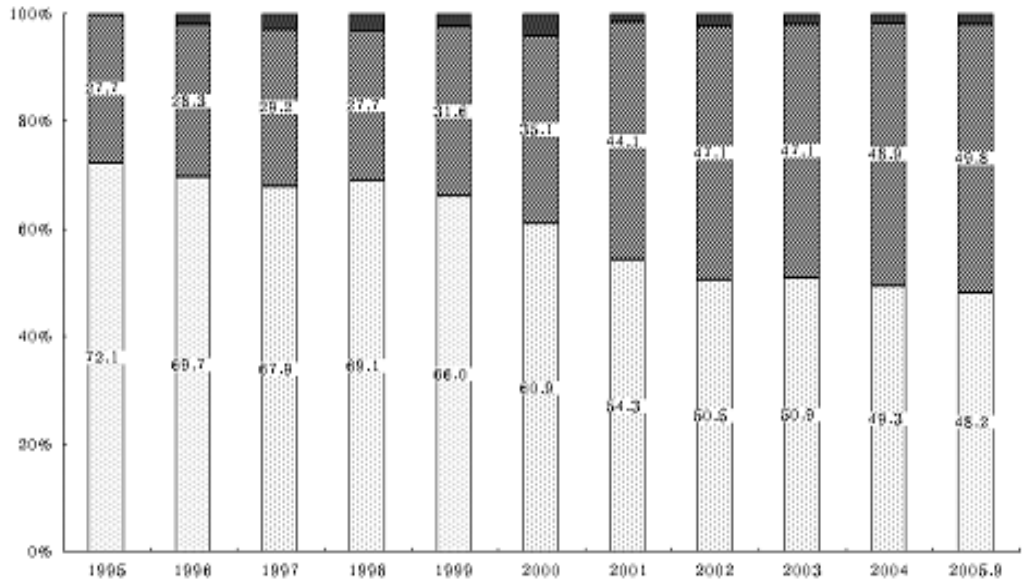
Source: Bank of Korea

Therefore, bank loan rather than bond or equity in capital market had been the main financial vehicle through which corporate sector raised fund for investment. However, the structural fragility of large accumulation of debt was clearly revealed when the economy was hit hard by mass exodus of capital from the domestic market. Many conglomerates were forced to declare bankruptcy or resort to restructuring procedure. Several commercial banks suffered severe losses from massive non-performing loans concentrated on failing conglomerates and were taken over by Korea Deposit Insurance Corporation or other less affected banks to prevent collapse of financial system. Out of 33 commercial banks operating at the end of 1997, 10 banks disappeared from the list. Five were liquidated and the other five were acquired by other surviving banks. Once financial system regained stability, the old policy of pursuing economic development through provision of bank credit to selected sectors was abandoned and corporate sector was required to strengthen their financial structure by reducing debt and injecting more capital. As a result, the focus of funding for corporate investment shifted from banking sector to capital market. [Table 4] illustrates the inflow of funds to corporate sector from banks and capital market. We can confirm that after the economic crisis capital market replaced banking sector as the main funding source for corporate sector. Shrinking demand for bank loans from corporate sector put pressure on banks to pursue more aggressive approach in promoting loans to household sector.

The structural transformation of banks' loan portfolio is clearly illustrated in [Figure 9]. The proportion of household loans in banks' total loan portfolio had stayed well below 30% until 1998 but increased continuously to reach 48.9% in 2004. In 2005, hitting the

historical high at 49.8%, the outstanding stock of loans to household sector finally surpassed that of loans to corporate sector for the first time.

[Figure 9] Composition of Loan Portfolio



1. From bottom to top, household loan, corporate loan, and others

Source: Bank of Korea

3.1.2. De-regulation of financial sector

Though deregulation of financial sector had already begun in 1990's, it was not until the onset of the economic crisis in 1997 that the liberalization and deregulation of financial market was vigorously pursued. Amid various policies and actions taken during the deregulation process, the most important change was the paradigm shift in the way financial institutions are managed. Under old regime, banks were simply regarded as instrumental agents to mobilize savings and channel them to strategically selected industries. Profitability of individual banks was not primary concern as long as banks served policy goals set by the government. Even banks themselves did not

regard themselves as private business but as semi-public entity with important mission to serve the public interest by contributing to economic development. Under the new regime, the government gave up the traditional approach to financial sector as well as to economic development. Enhancement of the efficiency in allocation of credit resource became the primary policy goal of financial regulation and price mechanism replaced the government as the main player in credit resource allocation.

Aside from fundamental paradigm shift in financial regulation, numerous measures were taken to embody the philosophical transformation at operational level. Entry barrier to financial industry was lowered significantly and foreigners were allowed enter the industry by establishing local subsidiary or acquiring the existing domestic companies. Financial Holding Company Act was enacted to promote competition among different sectors in financial industry. Implicit regulation on interest rate and service fees on financial services was also abolished and financial institutions were given discretion to choose the level of prices for the services they provide. Financial companies were allowed to be involved in numerous activities that had required authorization or consent from the regulator by simply reporting to the regulator.

As a result of fundamental changes brought by deregulation efforts, profitability was firmly established as the primary goal of all sorts of financial companies. Banks converted their attention to loans to household sector from corporate loans they had consistently focused on. Except for intervention by the government implicit or explicit, it is quite difficult to find a justification on the large share of corporate loans before the economic crisis as shown in [Figure 9] considering the fact that loan to household sector had consistently been, on average, more lucrative and less risky than loan to corporate sector at least until 2003 according to [Table 5]. It was then natural in some

sense to observe sudden shift of business practice in banking industry and fast growth of loans to household sector.

[Table 5] Average Loan Rate and Default Rate

Year	Loan rate		Default rate		
	Household	Corporate	Household	Credit card	Corporate
1997	12.30	11.75	3.3	3.3	7.3
1998	15.21	15.20	7.1	17.9	8.9
1999	10.85	8.91	3.2	6.8	4.4
2000	9.88	8.18	2.4	7.7	3.4
2001	8.20	7.49	1.3	7.5	2.1
2002	6.92	6.50	1.5	11.9	2.0
2003	6.50	6.17	1.8	10.9	2.1
2004	5.88	5.92	1.8	5.5	2.1
2005	5.64	5.75	1.4	3.9	1.9

1. All interest rates are average rate charged for new loans in each category.

2. Default rate of credit card loan is for all credit card debt granted by banks.

3.2. Consequences of increase in household debt

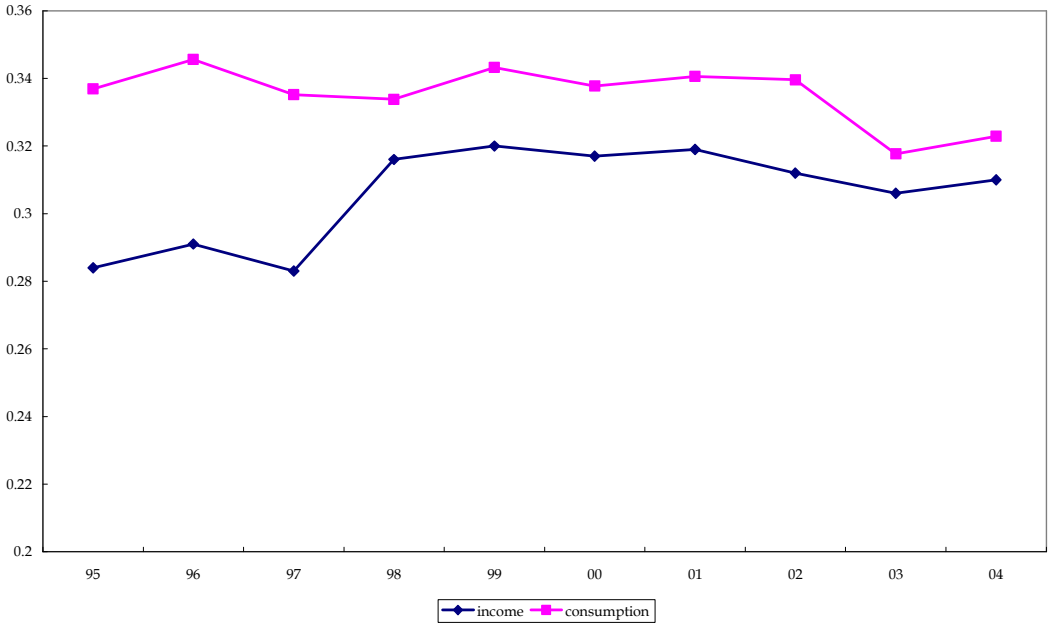
3.2.1. Efficiency improvement and welfare gain

Since wider penetration of financial intermediation offers more opportunities for mutually beneficial voluntary exchanges, it, in general, results in more efficient resource allocation and higher welfare. Even if it is difficult to draw a firm conclusion due to lack of hard evidence, we can offer some circumstantial evidences for the claim that the increase in household debt may have brought several positive effects. Based on the discussion in the previous section, one can argue that increased inflow of credit resources into household sector itself reflects efficiency improvement in allocation of credit resources. Free from the government intervention, lending financial institutions

were able to take the full advantage of benefits from loans to household sector, higher interest rate and lower default rate. Borrowers also benefited from more generous provision of credit resources. As more and more consumers free themselves from credit and liquidity constraints, it became easier for them to achieve inter-temporal reallocation of consumption in pursuing smoother lifetime consumption path. According to an extensive study by Kim (1995), household sector had been under very severe credit and liquidity constraints before the economic crisis and it was virtually impossible for to borrow from banks without providing collateral[12]. At least to some degree, one cannot deny the fact that large inflow of credit into household sector contributed to alleviating restrictions imposed on inter-temporal budget constraint and helped consumer achieve better resource allocation.

[Figure 10] Trend in Gini Coefficient: Income and Consumption

[12] Here is a paradoxical evidence for the claim that consumer loans were severely discouraged. Two special purpose banks specializing in consumer credit were established by the government. Kookmin bank, now privatized and the biggest commercial bank in Korea, was established to deal with the consumer and SOHO loans. Another bank specializing in consumer finance was the Korea Housing Bank, merged with Kookmin Bank in 2001, whose business area was in mortgage finance.



Source: Author's calculation based on NHIES

According to [Figure 10], while income distribution in Korea shows the tendency to be worsening as indicated by rising Gini coefficient for income distribution after the economic crisis, inequality in consumption seems to be reducing. As long as the improvement in consumption equality was not totally financed by reckless loan provision by lenders who did not recognize the importance of credit evaluation in loan decision[13], this could imply that less consumers are affected by imperfection in financial market and able to attain better position in allocating consumption in inter temporal context.

3.2.2. Potential deterioration of stability in financial system

In the previous section, we show that one of the main driving forces behind the explosive growth of household debt between 2000 and 2002 was the increase in LSRP[14]

[13] One cannot deny that some part of the consumption was financed by debt that was recklessly extended without scrutinizing the credibility of borrowers.

[14] LSRP is the term used in Basel II accord to represent any form of loan contract collateralized by residential properties. That includes various kinds of loan contracts such as equity loan and

supplied by banks. LSRP quadrupled in five years from 1999 to 2003 during which total loans to household by banks tripled so that the proportion of LSRP in household loan portfolio rose from 58.1% in 2001 to 62.4% in 2005. The pace of LSRP growth in the booming period between 2000 and 2002 was especially spectacular with annual growth rate over 50%.

Compared to the conventional long-term mortgage contract, we can point out three distinguished characteristics in LSRP contract prevalent in Korea: short maturity, no amortization of principals, and low loan-to-value (LTV) ratio. First, LSRP has a very short maturity structure. A typical LSRP matures in 3 years and the maturity is shortened further when conditions in credit market deteriorate. According to a survey by Financial Supervisory Service (FSS) in 2005, 47.6% of LSRP have the (original) maturity no longer than 3 years, 21.4% for 3 to 5 years. On the other hand, LSRP with maturity longer than 10 years occupies 25.3% of total LSRP and the weight increased by 15.7% points compared to the previous survey in 2003. The rapid increase is mainly attributable to the establishment of Korea Housing Finance Corporation in 2003[15] in the wake of rapid increase in LSRP and subsequent rising concerns on its long-term stability. According to [Table 6], all countries surveyed by Bank for International Settlement (BIS) other than Korea have long-term mortgage with maturity no shorter than 10 years as the primary instrument in housing finance market.

[Table 6] Features of Mortgage Contract in Selected Countries

bullet mortgage as well as conventional long term mortgage. We use the term "LSRP" to indicate the bullet mortgage explained later in detail in order to distinguish it from the conventional long term mortgage.

[15] KHFC started to sell long-term mortgage loans from March, 2004.

Country	Usual length of contract (years)	Estimated average LTV ratio (new loans)	% of owner-occupiers with mortgages
Australia	25	60-70%	45
Belgium	20	80-100%	56
Canada	25	75-95%[1]	54
France	15-20	78%	37.5
Germany	20-30	80-100%; 60% for Pfandbrief	na
Italy	5-20	80%	na
Korea	3-20	56.4%; max 70%	na
Japan	20-30	na[2]	na
Luxembourg	20-25	80%	na
Mexico	10-15	80-100%	na
Netherlands	30	87%; max 125%	85
Spain	15-20	70-80%	na
Sweden	30-45	80-95%	na
Switzerland	15-20	Max 80%; 65% for Pfandbrief issuance	na
United Kingdom	25	70%	60
United States	30	Typically about 85%	65.1[3]

[1] 75% for conventional (non-insured) mortgage loans and 95% for insured mortgage loans. [2] The Government Housing Loan Corporation discloses the average LTV ratio for the underlying mortgages of its MBSs. The ratio has been around 70-80% from the first issue in March 2001 to date. [3] 2001 Survey of Consumer Finances, Board of Governors of the Federal Reserve System.

Source: BIS(2006)

The second feature of LSRP in Korea is that borrowers are not required to repay the principal till maturity. Borrowers pay only interest on regular basis[16] and the loan is rolled over unless serious events that may harm the credibility of the borrower or collateral such as delayed interest payment, default, and sharp decrease in housing value[17] happen. In order to deal with possible risk factor embodied in the second feature of LSRP in Korea mentioned above, LTV is set at very low level compared to long-term mortgage with amortization. The average LTV for LSRP in Korea is currently well below 60%. According to [Table 6], in most of the countries with the conventional mortgage system, LTV are set at 70%~80% when the loan contract originates.

Literatures call the type of mortgage loan dominating housing finance market in Korea

[16] Monthly interest payment is the usual arrangement.

[17] In some cases, borrowers are asked to pay very small portion (typically less than 5%) of the principal as a precondition for roll-over of the matured loan.

as bullet mortgage to emphasize the risk factor embodied in the loan contract (Fabozzi and Modigliani (1992)). Since the principal is carried to the maturity without amortization, borrowers are required to pay very large amount of money when maturity arrives. Borrowers have three ways to deal with the arrival of maturity; refinance the debt through roll over or borrowing from other lenders, repay the debt by liquidating other assets, sell the collateralized property and settle the debt. If the first option is available, no significant disruption would occur. A new debt contract will be signed and borrower is required to pay only interest without amortization of the principal until the maturity. The maturity clock restarts. The second option is available for the borrowers who have already accumulated enough assets to cover the amount of debt. Considering high income-to-house price ratio in Korea, people qualifying to choose the second option would be very few especially among young borrowers[18]. Should neither the first nor the second option is available, a borrower would be forced to sell the collateralized house to meet the repayment obligation. Under the usual circumstances, the sales receipt would be large enough to cover the repayment as long as LTV was set and maintained at acceptable level. Liquidation of collateral voluntary or not, in most cases implies that the borrower confronts with a stress situation. When the stress situation occurs at personal level, borrowers would be able to execute the strategy. However, when it comes to stress situation at economy wide level such as severe depression, they will have considerable difficulties. Under

[18] Average income-to-house price ratio for an urban residence is known to be around 10 in Korea. Assuming that average propensity to consume is 0.3 and average LTV is 60%, an average worker should save at least 10 years to accumulate asset enough to cover the principal repayment. With the bullet mortgage with maturity of 3 years, mortgage contract should be rolled over three or four times for an average borrower to exercise the second option in the text. In other words, no major events that make lenders refuse rollover of matured debt should occur for a very long period of time.

the circumstances, lenders would become very selective in granting rollover and renewing the debt contract and a significant chunk of maturing debt would be denied renewal of contract and most of the borrowers who are rejected in rollover application would have to resort to liquidating the collateralized house. Enormous pressure applied in supply side of housing market is highly likely to result in considerable price shock or in some cases panic in housing market. Disappearing liquidity, plummeting prices, rush to dump assets at all costs are a few examples of chaotic events we observe in a depressed asset market. Kindleberger and Aliber (2004) documented numerous historic events when abrupt change in investors' mood or market environment led to panic in financial market and crisis in economic system. With the average maturity of 3 years, roughly a third of total outstanding debt will mature within a year. Therefore, rapid accumulation of bullet mortgage debt has already become one of the major risk factors that might harm stability of financial system. Moreover, banks did not regard borrower's income as the main variable on which the loan decision was based. In other words, as long as he could provide enough collateral that could cover the principal, a borrower did not have little difficulty in obtaining mortgage loan even if both borrower and lender knew that the borrower did not have the ability to accumulate enough savings to repay the debt when it matured. The strategy was acceptable to both lenders and borrowers in Korea. Under bullet mortgage contract, neither party expects borrower to accumulate enough savings to repay the debt by the time the loan matures in 2 or 3 years. Instead, both parties expect that during the contract house price will increase significantly and borrower will be able to repay the debt by using capital gain. Even if their expectation is not materialized, borrower is easily granted a rollover of the maturing loan unless serious events occur, which make

impossible to renew the loan contract such as delayed interest payment or violation of LTV condition due to drop in price of property offered as collateral. However, if the serious events occur in an extraordinary scale, rollover for the significant portion of matured dent will be denied and most debtors will be forced to respond to call for repayment by liquidating the collateral. It is highly likely that downward spiral of housing price will be initiated and further deterioration of mortgage market follows, which, if not properly controlled, may lead to disastrous collapse of financial market and the economic system.

In a theoretical exploration on structural characteristics of the bullet mortgage contract, Park and Hur (2006) argue that bullet mortgage contract is more robust to adverse income shock, but more vulnerable to adverse housing price shock than the conventional mortgage contract. Since borrowers under the conventional mortgage arrangement are required to pay interest and part of principal, they have to set aside larger portion of income to meet periodic repayment obligation than borrowers under bullet mortgage. Affected by the same adverse shock to income, borrowers with conventional mortgage will be more prone to default than borrowers with bullet mortgage. On the other hand, borrowers with conventional mortgage are less prone to adverse shock to housing price than borrowers with bullet mortgage since they are not subject to LTV condition as long as they fulfill scheduled repayment. Under bullet mortgage contract, borrowers are required to meet LTV condition when the debt contracted is renewed after the maturity for the old contract arrives. Affected by a large adverse shock on housing price, borrowers will have much difficulty in meeting the LTV condition when they try to get rollover granted by banks.

Fabozzi and Modigliani (1992) provided a convincing evidence on the fragility of bullet

mortgage system. After the economy was seriously hit by the Great depression, massive foreclosure of homes under the bullet mortgage contracts occurred as a result of the collapse of housing price and failure to renew maturing mortgage contracts. Wealth effect made the recovery of private consumption very sluggish and the economy suffered greatly from the delayed recovery. Fabozzi and Modigliani (1992) argue that US Congress enacted the National Housing Act of 1934 that offered the legal foundation for the Federal National Mortgage Association (Fannie Mae) in order to circumvent the structural problem embodied in bullet mortgage system by encouraging the development of long-term mortgage market.

It seems that policy makers started to notice the risk factor involved in rapid accumulation of bullet mortgage debt around 2002 and took various policy measures to help smooth rollover of maturing debts and introduce conventional mortgage instruments into Korean housing finance market. Korean Housing Finance Corporation was established in 2003 to promote conventional mortgage market. KHFC was assigned important instruments to accomplish the mission. First, unlike Fannie Mae or Ginnie Mae in US, KHFC sells conventional long-term mortgage products to consumers thorough various financial institutions. Financial institutions are not legally involved in loan contracts and they are simply agents employed by KHFC. Second, KHFC securitizes the mortgage loans by issuing mortgage backed securities.

It is too early to make a verdict on the effectiveness of government policies to reduce the risk factor in housing finance market by promoting long term mortgage products. However, it is very difficult to claim those policies showed stellar performances. Due to lack of accurate official statistic on the proportion of LSRP, we do not know how prevalent the bullet mortgage is in Korean housing finance market. According to FSS

survey in 2005, 70.5% of LSRP in May, 2005 were bullet mortgage loans but the proportion declined very fast. The good news is that the proportion of LSRP with amortization doubled in 2 and half years. It was only 14.1% in 2003 but rose to 28.3% in May, 2005[19].

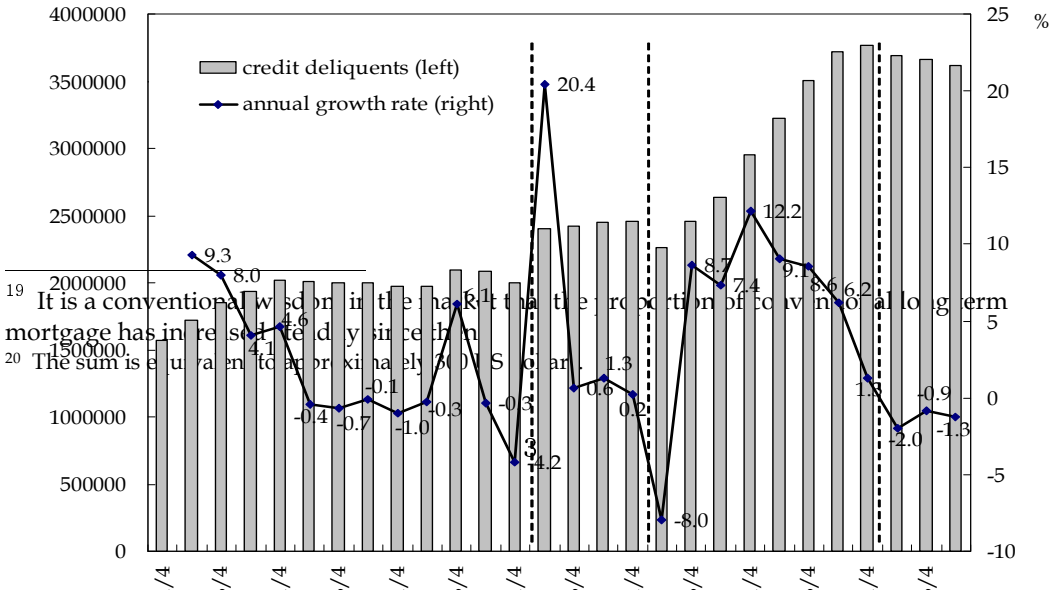
In spite of various policy efforts, banking sector in Korea is still exposed to considerable risk factor stemming from structural fragility of bullet mortgage debts. It should also be mentioned that slow but steady progress toward a housing finance system with more robust structure is clearly observed.

3.2.3 Increase in credit delinquents

In Korea, credit delinquent is the term reserved to indicate people who are in arrears for the amount larger than 0.3 million Korean Won[20] for longer than 3 months and recorded at the public registry maintained by Korea Federation of Banks. The information stored at the Registry is shared among the member financial institutions.

The explosive increase in household debt and subsequent deterioration in households' ability to repay resulted in rapid increase in household arrears and credit delinquents.

[Figure 11] Trend in Credit Delinquents



[19] It is a conventional wisdom in the market that the proportion of conventional long term mortgage has increased steadily since then.

[20] The sum is equivalent to approximately 300 US dollars.

1. KFB tightened the criteria of registration at the second quarter of 2001. The change was reflected in a sudden jump of number of registered credit delinquents. On the other hand, KFB lowered the criteria of registration at the first quarter of 2002.

2. Several administrative errors were cleared in March, 2004 to lead to a slight decline in the number of credit delinquents. Many were already deceased or were registered more than twice.

Source: Korea Federation of Banks

According to [Figure 11], the number of credit delinquents increased significantly in 1998 and declined slightly from 1999 to 2000. The number rose again in a rapid pace from the latter half of 2002 and continued to rise until the first quarter of 2004.

The large increase in credit delinquents in 1998 was attributable to severe depression initiated by the foreign exchange crisis at the end of 1997. Rebounding of economic conditions from the last quarter of 1998 was reflected in the slight decline in credit delinquents from 1999. The second wave of increase in registered credit delinquents started from the second half of 2002 and was closely associated with the increase in household debt between 2000 and 2002 and sluggish economy in 2002. In the first quarter of 2003, the number of credit delinquents increased by 11.2% compared to the previous quarter. That was the biggest jump since the foreign exchange crisis[21]. The

[21] The number of credit delinquents increased by 20.4% in the second quarter of 2001. But the increase was due to change in registration criteria in March, 2001 and does not represent change in economic

number of credit delinquents finally exceeded 3 million and continued to reach 3.83 million in the first quarter of 2004. The term 'credit delinquent' was officially discarded in 2005[22] and the statistics on credit delinquents has not been announced since then. However, it is known that the decline that started in the second quarter of 2004 continued until the number dropped to approximately 3 million at the end of 2005. The decline was mainly due to active restructuring of non-performing household loans rather than improvement of ability to repay the debt such as increased in income or decrease in debt burden.

Shin *et. al.* (2003) pointed out four reasons for the rapid increase of credit delinquents after the second quarter of 2003; adverse macroeconomic condition, serious moral hazard committed by credit card companies, inefficient allocation of credit resources due to the lack of adequate scheme to share credit information, improper and untimely financial regulation.

The slumping economy since the third quarter of 2000 generated adverse shock on income as well as debt burden and ultimately made ability to repay deteriorated. That would result in increase of arrears in household debt and registered credit delinquents. Equation (1) based on Shin *et. al.* (2003) indicates that the number of credit delinquents is positively correlated with household debt and negatively with income. The result conforms with the literature reporting the empirical findings that households' ability to repay debts are associated with income, debt burden, and interest rate[23]. Change in credit delinquents is regressed on lagged change in household debt and income

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condition.

[22] Public registration of credit delinquents was discarded but collection and sharing of credit information continued. Policy to register credit delinquents had been subject to severe criticism that the classification was not only arbitrary one void of sound economic justification but became an obstacle that prevented individual financial institutions from developing credit scoring system.

[23] For an excellent survey on the topic, see CBO(19??)

employing the quarterly data from 1998 to 2004. An increase in household debt would result in increase in credit delinquents a year later. Similarly, an increase in income measured by Gross National Income (GNI) would lead to decrease in credit delinquents a year later.

$$\Delta \ln CD_t = 6.1354 + \underset{(0.8153)}{0.3199}\Delta \ln HD_{t-3} + \underset{(1.5634)}{0.6005}\Delta \ln HD_{t-4} - \underset{(-0.7764)}{0.3232}\Delta \ln GNI_{t-1} - \underset{(-1.5039)}{0.4971}\Delta \ln GNI_{t-2} - \underset{(-0.9082)}{0.2116}\Delta \ln GNI_{t-3} - \underset{(-1.8634)}{0.4318}\Delta \ln GNI_{t-4} + \underset{(2.3568)}{8.3342} D_{01/2} \quad (1)$$

$R^2 = 0.5034$ number of observations = 28

In equation (1), $D_{01/2}$ indicates the dummy for change in registration criteria occurred in the second quarter of 2001 and t-values are in parentheses under the estimates.

Explosive growth of credit card loans in 2000 and 2001 and subsequent increase in default rate is another important factor that sparked increase of credit delinquents. De-regulation of credit card industry in 1999 triggered a throat-cutting competition to expand market share among credit card companies. The competition was a blind race to take top position in size. Many borrowers with very high credit risk who would have been refused to obtain loans were allowed to access credit market without proper credit evaluation. Owned by banks or large conglomerates credit card companies under-evaluated the possibility of their failure and charged into the competition with no prudence. They believed that they were too big to fail and the government would not be able to watch them get into trouble. That was a reckless moral hazard committed by credit card companies. Moreover, majority chunk of bonds issued by credit card companies to finance credit card loans were possessed by banks and money

market funds that are generally regarded to be linked to system risk. That also fueled the belief that the government would not allow credit card companies to get into difficulty. Credit cards were issued recklessly without proper check on credit risk and limit on cash advance service was lifted up frequently even if the borrower had already held significant outstanding balance to repay.

As we have already seen in [Figure 6], increase in credit card debt during the boom in 2000 and 2001 was led by cash advance service that embodied much higher credit risk than other forms of services credit cards provide. Confronting with mounting arrears and accumulation of distress assets[24], the financial regulator took decisive measure to stop rapid expansion of credit card debts and prevent further deterioration of the situation.

The growing concern on the viability of credit card companies and sudden turning of policy stance resulted in a violent crash lending in the fourth quarter of 2002. Already having huge difficulty in paying the monthly bill, significant portion of credit card debtors had managed to escape falling into arrears by financing a new debt from other credit card companies or usurious private loan market. Sudden strengthening of regulatory measures and subsequent tightening of credit risk management by credit card companies resulted in massive increase in arrears. That could explain the majority part of the steep increase of credit delinquents in 2003.

In order to see the role played by credit card companies in growing credit delinquents, we decompose the credit delinquents according to the financial institutions that reported the overdue satisfying the registration criteria. [Figure 12] illustrates the change in credit delinquents registered by a single type of financial institutions. It is

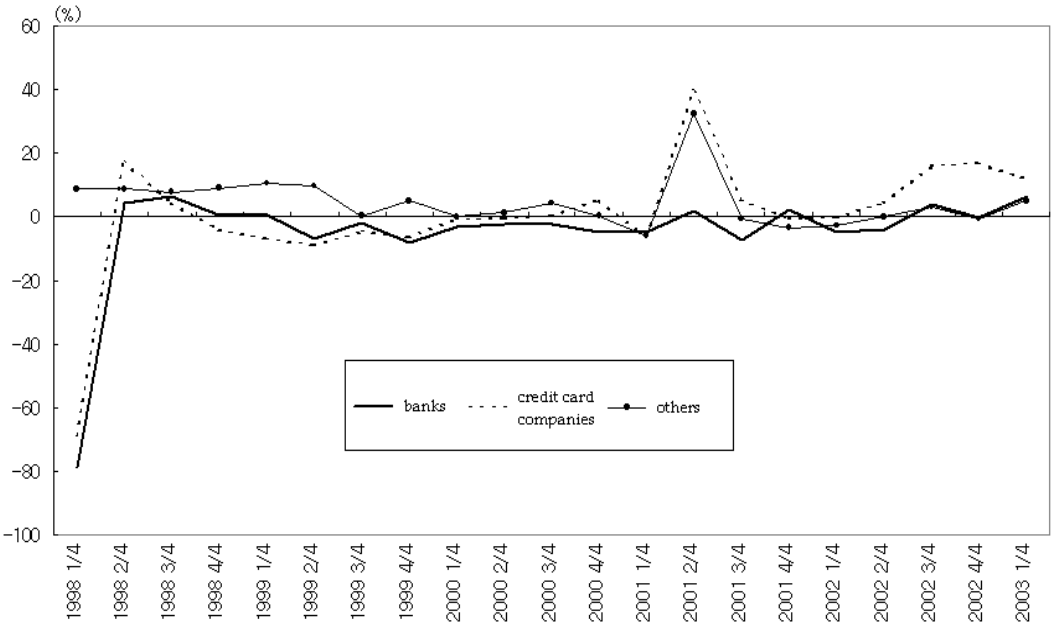
[24] We will discuss the development of credit card crisis in 2003 in the next chapter.

obvious that credit card companies played the most significant role in increase of credit delinquents both in the second quarter of 2001 and in the second half of 2002.

We can draw the same conclusion from [figure 13] that reports the changes in the number of credit delinquents registered by more than one kind of financial institutions. Among the increase in the registered by multiple categories of financial institutions, nearly 90% were involved with credit card in 2002 and 95% in 2003.

Lack of well-functioning credit information system is pointed out as another major contributing factor to aggravation of the problem. Roughly speaking, credit information system consists of credit reporting system that collects and distributes credit information among financial institutions and credit evaluation system of individual financial institutions that evaluate the creditworthiness of individual borrowers such as credit scoring system (CSS) and behavior scoring system (BSS).

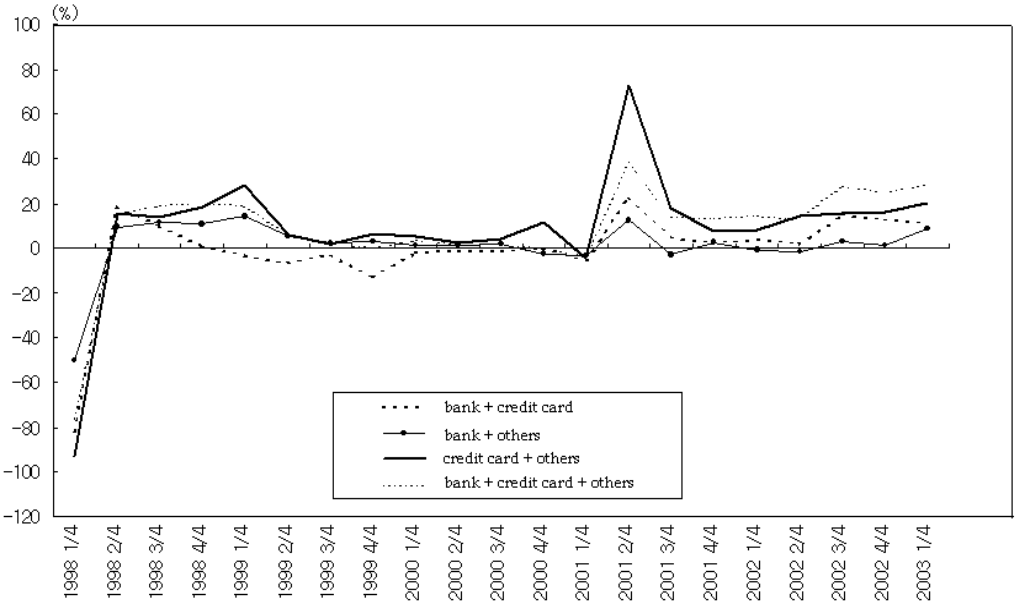
[Figure 12] Change in Credit Delinquents by FIs; Single Registration



1. Others include insurance companies, mutual savings banks, mutual cooperatives.

Source: Korea Federation of Banks

[Figure 13] Change in Credit Delinquents by FIs; Multiple Registrations



1. Others include insurance companies, mutual savings banks, mutual cooperatives.

Source: Korea Federation of Banks

The current form of credit reporting system was established in Korea in 1955 when the Bank Supervisory Office[25] introduced compulsory reporting system that obliged all participating financial institutions to report delinquent credit information satisfying criteria set by agreement among participating financial institutions. Under the law "Use and Protection of Credit Information Act (UPCIA)" enacted in 1995, the Korea Federation of Banks was appointed as the agent of the Banking Supervisory Office to maintain the public registry empowered by the law[26]. The credit information gathered by the public registry and shared among participating financial institutions consisted

[25] The integrated body of financial regulators, Financial Supervisory Commission and Financial Supervisory Service, was established after the foreign exchange crisis. Before FSC was established in 1998, three were three main separate financial regulators, the Bank Supervisory Office in Bank of Korea, the Securities Supervisory Office, and the Insurance Supervisory Office.

[26] The Korea Federation of Banks had already performed as *de facto* public registry of credit information since early 1980's through the authorization from the Bank Supervisory Office. However, the authorization was not based on the legal mandate but on the convenience of the supervisor.

mainly of negative information such as loan delinquency, default and fraud. Positive information maintained by the registry was limited to outstanding loan balance and number of credit cards held. Moreover, it was not until 2001 that the limited range of positive information was started to be collected by the registry. It is a well-known proposition that the use of credit information limited to negative information results in inefficient allocation of credit resources by lowering the accuracy of credit evaluation system[27]. Therefore, the lack of adequate credit information must have, at least in part, contributed to inefficient allocation of credit resources and ultimately increase in credit delinquents. However, the practice to evaluate credit risk of individual borrowers was more important reason for the serious development of the problem. According to Shin and Park (2006), it was not until 2003 that banks seriously regarded credit scoring system as an integral part of decision making on consumer loans[28]. Moreover, credit card companies also did not have workable credit scoring system until 2003 when the credit card crisis hit the industry very hard. In sum, we can conclude that the startling growth of household debt between 2000 and 2002 was not issued based on sound practice of evaluating borrowers' credit risk and huge jump in credit delinquents in 2001 and 2003 was a somewhat predictable event.

Lastly, we can point out the role of untimely and improper regulatory responses in deterioration of conditions in the market. The mistakes committed by the regulatory authority during the development of events become more conspicuous when we examine the series of policy measures taken in response to development in credit card

[27] See Barron and Staten (2003) for a detailed discussion on the value of positive information on the performance of credit scoring system.

[28] The first credit scoring system in Korean banking sector was introduced by Hana Bank in 1996. Other banks followed in introducing credit scoring system in late 90's. However, traditional evaluation system utilizing score card had been the primary tool used in loan decision. Credit scoring system was not regarded as the integral part of the process and used as a supplementary device.

market since 2002. We will present a detailed discussion on the policy responses to credit card crisis in next chapter.

4. Credit Card Crisis: Policy Responses and Evaluation

4.1. Development of credit card crisis

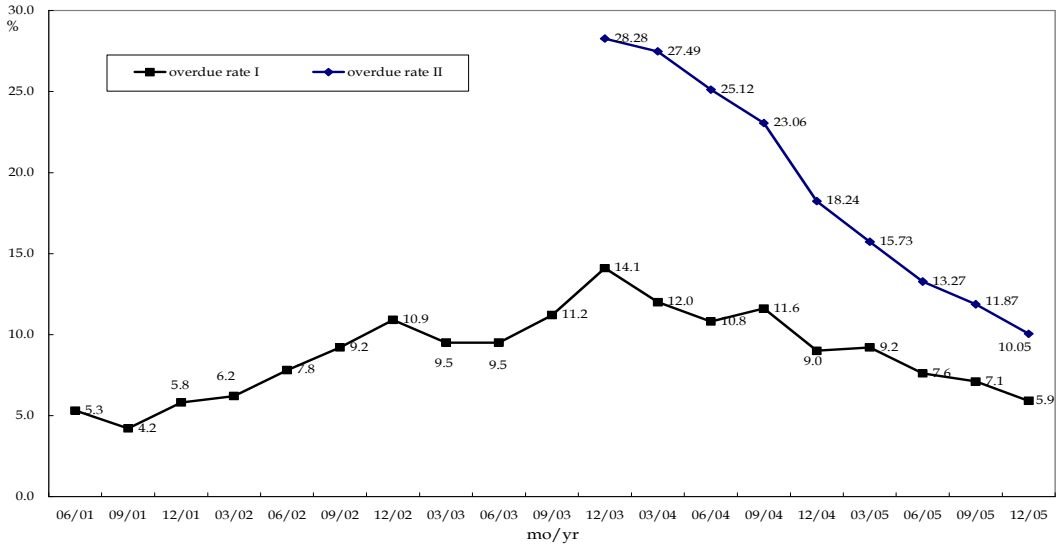
Even though credit card was first introduced to Korea in 1979, the appearance of credit card as a major financial instrument in consumer credit market should wait about 20 more years as we discussed in previous chapters.

In additional to the spectacular growth of credit card debt since 2000 we discussed in the previous chapters, one can quote the following statistics in order to give more hints on how fast the credit card usage had penetrated Korean economy since the foreign exchange crisis,. The number of merchants accepting credit cards was less than one million in 1992 and it increased by 17 folds just in ten years to mark 17 million participating merchants in 2003. On the other hand, the average number of credit card an economically active person in Korea possesses also increased very fast from one in 1993 to two in 1998 and peaked at 4.6 in 2002. The use of credit card has become so common that about a half of total private consumption expenditure has been intermediated by credit card since 2002. The comparable figure was only 15.5% in 1999.

As an almost inevitable consequence of fast credit expansion, the average quality of loan portfolio started to drop. Overdue loan rate was already crawling up in the second half of 2001 when few raised question on possible risk factor behind the fast loan growth. Overdue loan rate for debt by credit card companies increased very fast to reach 10.9% at the end of 2002. It seemed that the steep increase in overdue rate was temporarily halted during the first half of 2003. However, the official statistics on

overdue loan rate was quite misleading because confronting with mounting overdue loans credit card companies tried to window dress the quality of their loan portfolio by replacing overdue loans with additional credit to debtors in serious arrears. Official statistics did not include the overdue loans once they were replaced by new loans[29]. It is natural that we expect very high overdue rate on that type of loans. Therefore, the temporary halt in increase of overdue loan rate in the first half of 2003 was the result of strategic behavior by credit card companies to disguise the seriousness of the problem. One can confirm from [Figure 14] that the overdue rate with replacement loans could be twice as high as the overdue rate without them. Hence, we can conclude that the overdue loan rate had increased steadily at least until the end of 2003. Additionally, we also find in [Figure 15] that both profitability and quality of loan portfolio showed a significant decline from the second half of 2002.

[Figure 14] Overdue Rate of Credit Card Loans



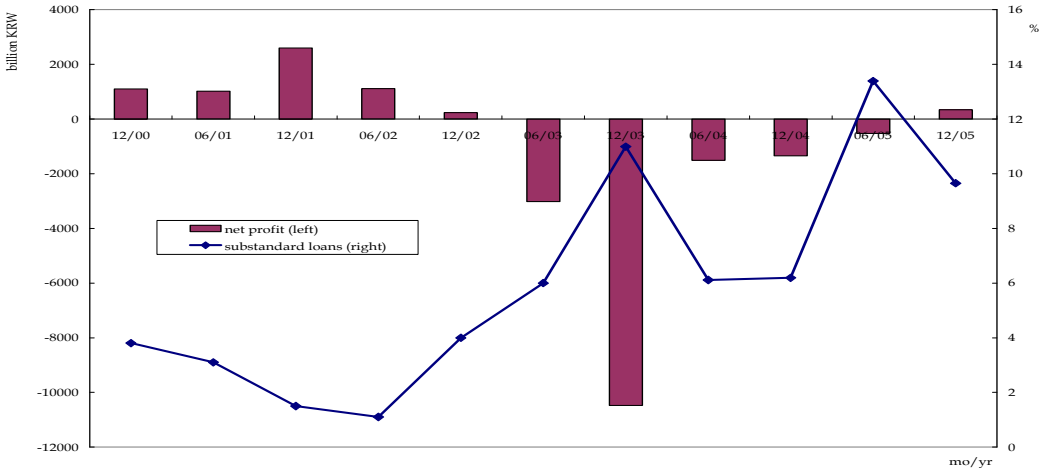
1. Overdue rate I indicates the overdue loan rate excluding replacement loans.

[29] Financial Supervisory Service changed the stance on the official statistics only after they faced with severe criticism against the practice in 2004.

2. Overdue rate I indicates the overdue loan rate including replacement loans.

Source: Financial Supervisory Service

[Figure 15] Net Profit and Quality of Loan Portfolio of Credit Card Companies



1. Substandard loans indicates the proportion of loans classified as substandard or below.

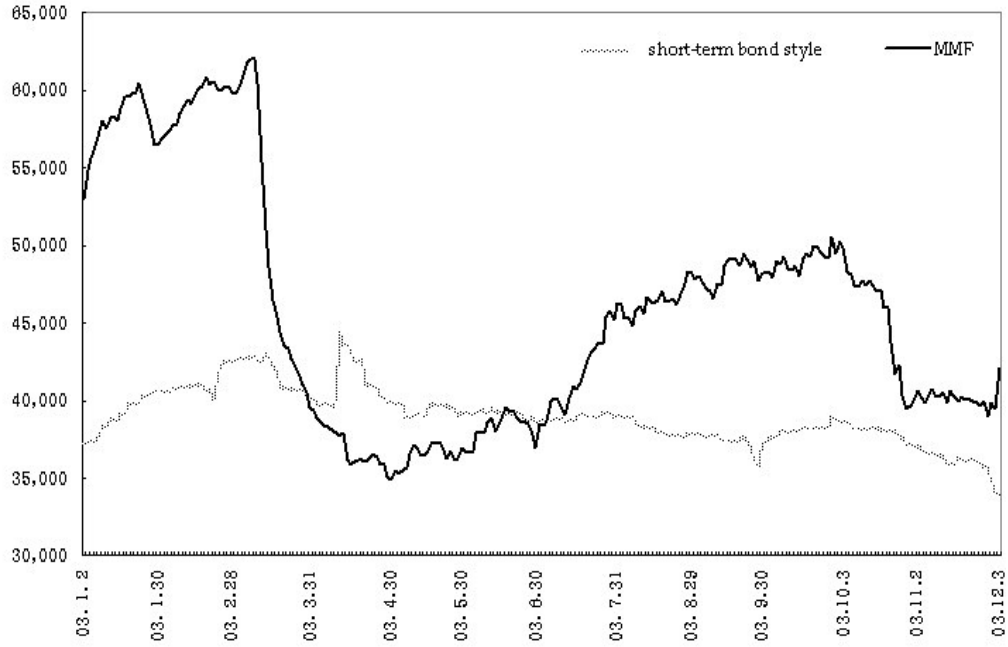
Source: Financial Supervisory Service

The pressure was building up in credit card industry as the overdue loans accumulated and quality of loan portfolio deteriorated. The momentum that brought in the turbulent crisis in credit card industry was offered by exogenous events outside the credit card market.

The accounting fraud committed by SK Global Corporation was uncovered in March, 2003[30], which sparked the spread of pessimistic perspective across financial market. The growing concern on the strength of financial market hit the weakest spot at the time. The liquidity of the bonds issued by credit card companies suddenly evaporated.

[Figure 16] Outstanding Stock of MMF and Short Term Bond Fund

30 The amount of accounting fraud committed by SK Global was 1.56 trillion Korean Won. Virtually all imaginable kinds of accounting irregularities were utilized to camouflage the deterioration of balance sheet. Liability was undervalued while asset was grossly overvalued.



Source: Korea Association of Asset Management Corporations

The most conspicuous symptom of liquidity evaporation is illustrated in [Figure 16] that depicts the change in outstanding stock of money market fund and short term fund around the revelation of accounting fraud by SK Global in March, 2003. Those funds carried portfolio focusing on bonds issued by credit card companies. Investors rushed to secure their investment on those funds and fund managers were forced to dump credit card bonds to meet the call for repurchasing from investors. Confronted with severe liquidity crisis, credit card companies were not able to secure enough capital to meet the repayment requirement for the maturing bonds they had issued.

Alarmed by the possibility of contagion of the crisis to other sectors in financial market, especially the banking sector, due to complex transactions among financial institutions, Korean government promptly intervened and mediated debt rescheduling negotiations

between credit card companies and lending financial institutions to avert a catastrophic collapse of financial market. Credit card companies issued various debt instruments such as commercial paper, corporate bond, and asset-backed security. The total debt of credit card companies was 17.6 trillion KRW at the end of 2002. Invest trust companies that managed various kinds of funds were the biggest lender with the outstanding balance of 25.5 trillion KRW. Banks followed in a close distance by lending 21.7 trillion KRW to credit card companies. Insurance companies, security companies, and pension funds also extended significant amount credit to credit card companies.

[Table 7] Lenders of Credit Card Companies

(unit: trillion KRW)

Financial institution	Investment Trust	Banks	Insurance company	Security Company	Pension Fund	Total
Amount	25.5	21.7	12.7	2.1	8.0	89.4

1. The table illustrates the position at the end of 2003.

Considering the size of debt held by banks and insurance companies that are widely regarded to be related to system risk, some argue that the government intervention was well warranted.

Agreement between credit card companies and lending financial institutions was reached in April, 2003. Credit card companies promised to strengthen their financial structure by injecting more capital and lending financial institutions agreed to delay the redemption of matured bonds issued by credit card companies. Financial market regained the sense of stability and credit card companies were able to secure liquidity by selling newly issued bonds and structured securities that were backed by portfolio of credit card loans.

However, the market had not retracted the doubt on viability of credit card companies

and kept a watchful eye on fulfillment of promised injection of additional capital to strengthen the financial structure. The largest credit card company, LG Card, had become the main target in the bond market. The overdue rate on LG Card's loan portfolio stayed at very high level and the proportion of non-performing loans rose very fast even after the agreement in April between credit card companies and financial institutions that provided credit to them. Moreover, the fulfillment of capital expansion plan promised by the group of large shareholders consisting of the family members controlling LG Group, then the third largest conglomerate in Korea, was procrastinated. When the news that the group of large shareholders had sold their shares in discrete manner hit the market, it suddenly became impossible to trade the bonds issued by LG Card and the company again faced with severe difficulty in securing liquidity. The company was overtaken by lending financial institutions led by Korea Development Bank and a series of negotiations among creditors to devise a plan to bail out the company came into fruit finally in December, 2003.

4.2. Regulatory missteps

The first regulatory misstep was committed in 1999 when the ceiling on cash advance service was removed as a part of de-regulation and liberalization of financial market. It is very hard to question the legitimacy of the de-regulation measure in that setting the limit of cash advance service should be left to the private contract negotiated between credit card company and customer. However, it is also true that in the absence of adequate credit evaluation system the uniform ceiling on maximum amount of cash advance service played an important role of checking the uncontrollable increase in cash advance services and keeping the soundness of loan

portfolio held by credit card companies. Before the de-regulation measure was taken, cash advance service was limited to 700,000 KRW and that was not linked to creditworthiness of individual borrowers. Credit card companies did not have either the will or the resources to be equipped with credit evaluation system evaluate. Free from harness, credit card companies plunged into brutal competition to increase market shares. Along with the removal of ceiling on cash advance service, credit card companies made a decision not to share credit information about customers' available credit amounts and card issuances that made unfettered increase in credit card debt possible. As an inevitable result of ill-advised de-regulation measure, credit card debt accumulated in an unprecedented pace in 2001 and 2002 and fast increase in registered credit delinquents in 2003 followed.

The second regulatory misstep was committed during the boom between 2000 and 2002. Despite increasing risks due to fast growing credit card debts, the financial regulator did not fully understand the fundamental nature of the problem. During the booming era, credit card industry was regarded as highly profitable sector and many financial institutions were willing to provide credit to credit card companies by buying various debt instruments issued by them. [Table 8] reports the amount of credit financed by various debt instruments. The outstanding stock of debt instruments issued by credit card companies increased by 5 folds from 1999 to 2002 and most of the debts were taken by banks and investment trust companies in which banks had invested significant portion of funds under management as shown in [Table 7].

[Table 8] Financing by Various Debt Instruments

(unit: billion KRW)

	1999	2000	2001	2002

CP	4,084	9,649	11,324	20,888
Bonds	10,850	16,731	18,665	29,612
ABS	-	4,476	26,712	33,535
Others	2,905	2,666	4,445	3,632
Total	17,839	33,264	61,146	87,666

The high profitability of credit card companies that attracted huge amount of credit into the sector was primarily based on high interest rate charged on overdue loans. Borrowers were able to pay the high interest charged on overdue loans as long as they were allowed to access to other credit provision. In other words, debtors already in arrear were able to borrow from another credit card company to pay overdue loans. It looked as if high profitability of credit card companies lasts forever. However, that was correct presumption only if borrowers could find another credit card company to grant credit that would be used to pay the existing overdue loan. That, however, is a form of financial pyramid that cannot be sustained and could be busted down anytime.

Knowing the fragility of the scheme and observing the fast inflow of huge credit into credit card companies, the financial regulator should have intervened promptly. They should have blocked the inflow of credit by tightening supervisory activities on banks and investment trust companies. The financial regulator had the legitimate power to ask those financial institutions to stop providing further credit from the perspective of prudential regulation.

The third misstep was committed in 2002 when the financial regulator took several measures to curb rapid credit expansion by credit card companies. Giving up the laissez faire attitude toward credit card industry, financial regulator suddenly changed

the policy stance and imposed several very strong policy restrictions on them. The objective of the policies was to restore stability in the credit card market and to avoid realization of system risk. More specifically, the proportion of cash advance service out of total financial activities should be maintained under 50% and prompt corrective action for failing credit card companies was introduced. Most notably, the provision standard for bad debts was strengthened. The new standard was even higher than the one required for banks and credit card companies suffered loss of confidence due to deteriorated position in income statement. Position in income statement declined simply because credit card companies were required to set aside more resources to meet the strengthened provision standard.

No one can raise a question to the necessity of the policy measures to restore stability of the market. But the timing and strength of regulatory interventions invited strong criticism from both the market and the expert commentators. Already in deep trouble in repaying the monthly bills, significant portion of credit card debtors managed to avoid falling into arrears by financing a new debt from other credit card companies or usurious private loan market. Sudden strengthening of regulatory measures and subsequent tightening of credit risk management by credit card companies resulted in rapid increase in arrears and decrease in credit card debts. Consequently, the number of credit delinquents recorded at public registry soared by more than 50% in a year. Many observers claim that the regulatory authority could have been able to avoid such a violent crash landing with more cautious choice of timing and intensity of policy execution.

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