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**Research Report**

## Household Debt Vulnerability and Directions for Risk Management

KDI Focus, No. 41

**Provided in Cooperation with:**

Korea Development Institute (KDI), Sejong

*Suggested Citation:* Kim, Young Il (2015) : Household Debt Vulnerability and Directions for Risk Management, KDI Focus, No. 41, Korea Development Institute (KDI), Sejong, <https://doi.org/10.22740/kdi.focus.e.2015.41>

This Version is available at:

<https://hdl.handle.net/10419/200846>

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May 7, 2015 (No. 41, eng.)

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## Household Debt Vulnerability and Directions for Risk Management

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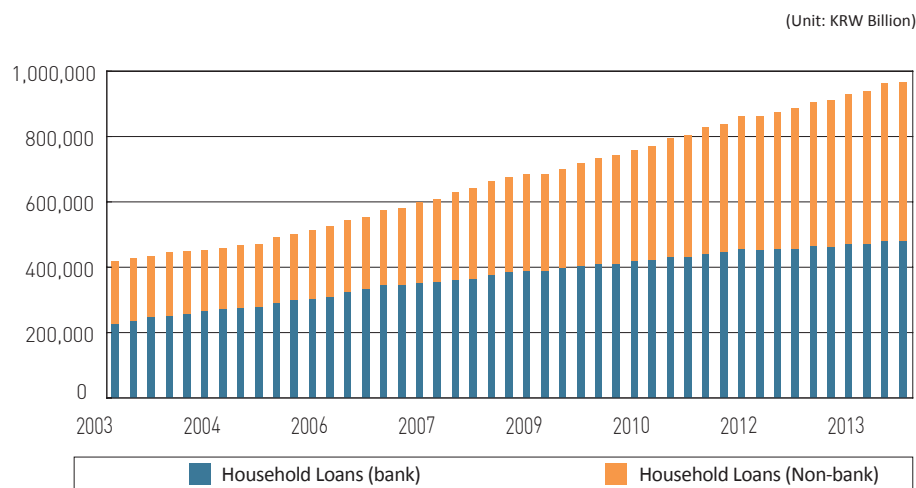
**“Korea’s households and banks seem relatively sound in terms of their loss-absorbing capacities. However, a number of worrying signs are present. Some of the negative indicators are the rising share of non-bank consumer loans; the large share of real estate out of household assets, borrowing in the form of short-term balloon payment loans, and the credit risk of low-income indebted households. Against this backdrop, a sound and effective risk management system needs to be designed based on a proper assessment of the current situation while differentiating normal from emergency measures and ex ante from ex post measures.”**

### I. Introduction

Korea’s household debt continues to be a topic of ongoing concern for its size, growth rate, and compositional quality despite concerns expressed in the past. Compared to the major economies of the OECD, Korea has a large size of debt relative to income, and its growth rate has continued to be higher than that of income. Household debt has been

\* This is the translated version of *KDI FOCUS* released on June 25, 2014.

\* This paper is an elaboration on the main points from Young-il Kim, “Household Debt Vulnerability and Directions for Risk Management: Analysis and Implications of the Household Asset-Liability Structure” in Man Cho, *Identifying New Directions for Real Estate Policy at a Turning Point I*, Vol. 7, Research Report 2013-01, Korea Development Institute, 2013.

**[Figure 1] Trends in Household Loans from Bank vs. from Non-Bank**

*Note:* This figure for household debt distinguishes between household loans (not including sales on credit) from bank and from non-bank financial institutions. The non-bank category includes non-bank depository institutions as well as other financial institutions. Non-bank depository institutions include mutual savings banks, credit unions, agricultural/fishery/forestry cooperatives, community credit cooperatives, and post offices. Other financial institutions include insurance institutions, pension funds, credit-specialized institutions, public financial institutions, and other financial intermediaries.

*Source:* Bank of Korea.

viewed by many as a significant risk factor for the economy, as its increase (as shown in [Figure 1]) has been primarily fueled by non-bank loans, with their relatively high borrowing costs and credit risk. Some have even suggested that a new critical threshold has been reached, where debt has begun constraining household expenditures, restricting savings potential and thereby weakening the growth potential of the national economy as a whole.<sup>1)</sup> The concerns about Korean household debt have typically brought in much research and government policies, but there still remains suspicion about the possibility of a successful “soft landing”. Concerns on household debt have not been just raised by the domestic or foreign press; international bodies like the IMF, as well as global credit rating agencies and foreign financial firms, have also pointed to household debt as a major risk factor for the Korean economy. This paper attempts a systematic review of past assessments on the household debt vulnerability, identifying the major tasks that lie ahead, and seeks to introduce the basic principles in the hopes of guiding the design of risk management system.

1) Reinhart and Rogoff (2009) argue that the risk and negative impact of economic crisis are greater once the amount of debt exceeds a certain level, while Cecchetti et al. (2011), who used OECD data to present empirical findings on the relationship between debt level and economic growth, estimates the threshold level of household debt amounting to 85% of GDP. While this report concludes that the statistical significance of that threshold is weak, attention should certainly be paid to the potential risks of Korean household debt exceeding it, as it currently does.

## II . Understanding the Risks of Household Indebtedness

The recent concerns and debates about household vulnerability have been based on various degrees and forms of risks. The complexity of the debt issue is further complicated by the vast number of households and their heterogeneous circumstances, as well as by the number of financial institutions and characteristics of their different loan products; all too often, commentators tend to highlight or focus their discussions too much on a specific aspect of risk. In this paper, the vulnerability of indebted households is broadly discussed and assessed from the perspective of financial and macroeconomic stability in addition to social stability. With regard to the financial stability, loss absorbing capacity of indebted households is analyzed in terms of household income and (net) assets. Furthermore, the liquidity mismatch issue is assessed based on the asset-liability structure of household balance sheets that characterize Korean households. The vulnerability of low-income households in debt is assessed in terms of its implication for social stability.<sup>2)</sup>

The recent debate over household debt has included some mixed discussions in terms of risks to financial and social stability, micro-level conditions, and macro-level effects.

### 1. Risk Assessment from Financial Stability Perspective

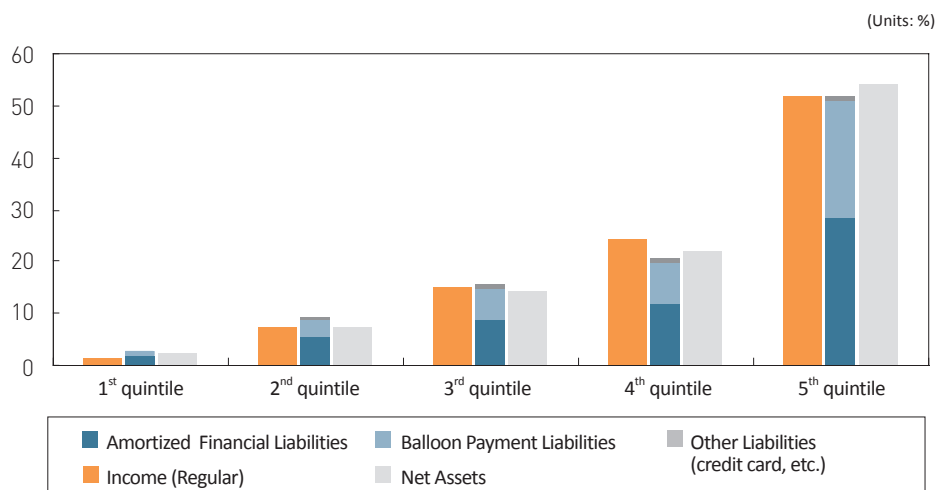
Risks of household debt from financial stability perspective may be assessed by analyzing the loss-absorbing capacities of households and financial institutions at times of macroeconomic stress, together with the liquidity risks to indebted households. Income and (net) asset levels, being the key indicators of loss-absorbing capacities at the household level, may be taken as gauges of debt repayment ability; for financial institutions, provisions and capital adequacy may serve as indicators of loss-absorbing capacity. With regard to liquidity risks of indebted households, the composition of asset and liability structure may be analyzed.

#### A. Loss Absorbing Capacities of Households and Financial Institutions

One appropriate means of assessing households' loss-absorbing capacity to gauge the credit risk would be to examine the repayment abilities (in terms of income and asset) of the households that hold the majority of the household debt. [Figure 2] shows the distribution of income, net asset, and liabilities for indebted households; the majority of debts are held by households with high levels of income and (net) asset. Around 50% of all household debt is held by the top 20% of households in terms of income and/or net asset, while the top 40% of households hold around 75% of the total. Likewise, stress tests

2) Here, the cases of potential social issues that are not necessarily associated with financial disruption are viewed as issues of social stability. For example, rising numbers of defaults by small amount borrowers might cause a rise in social insecurity without greatly impairing the financial intermediation functions of the financial markets.

[Figure 2] Distribution of Household Income, Liabilities by Loan Types, and Net Asset across Income Quintiles



Note: In the figure, financial liabilities are classified into three types: amortized, balloon payment, and others (including credit card debt).  
Source: Cited from Kim (2013), with calculations from Survey of Household Finances (2012).

The credit risk of households with loans from (systemically important) banks appears limited, while the risk of households with non-bank borrowings is relatively high.

based on household data show that households with the majority of debt have relatively sound repayment ability in terms of income and net asset (Kim and Yoo [2013]; Kim [2012]; Park and Bang [2011]). The favorable net asset positions of the indebted families are largely attributable to the loan-to-value (LTV) regulations on housing mortgage loans.<sup>3)</sup> Asset-based repayment capacity of Korean households is relatively higher compared to the nations that were heavily impacted by the recent financial crisis, including the UK and Spain. Korean indebted households may have sound capacities to absorb losses due to declining housing values (Kim, 2013).

As for financial stability, an important measure for assessment would be the loss-absorbing capacities of banking institutions with systemic importance and of bank-borrowing households in response to macroeconomic downside risks such as declining GDP growth rate, rising interest rates, falling housing prices, and etc. Stress tests for different types of financial institutions show only a limited credit risk for households with bank loans, but a relatively higher one for households with non-bank borrowings (Kim

3) The LTV ratio refers to mortgage borrowings as a percentage of residential value. Low levels signify a lower percentage of loans relative to residential assets, and thus a higher percentage of net asset buffer, or net assets (assets minus liabilities) relative to total assets. In Korea, the regulatory ceiling on LTV varies by collateral type, maturity, and by types of financial institutions, but typically ranges between 50% and 70%, while the average LTV ratio stands at around 50%. In contrast, regulatory LTV limits in major advanced economies like the UK, US, France, Canada, and Germany are much higher, at well upwards of 80%.

4) Kim and Yoo (2013) assessed the extent of losses to financial institutions due to household defaults predicted under macroeconomic stress scenarios. Specifically, they calculated the share of expected exposure at default and the share of expected losses out of household loans under stress scenarios for household borrowings from either bank or non-bank institutions. Their analysis showed a far lower level of anticipated losses for bank borrowings as opposed to non-bank borrowings, and they concluded that the banks, with their capital buffers taken into account, would be capable of withstanding the strains.

and Yu [2013]; Kim and Byeon [2012], Jeon, Lee and Choi [2008]).<sup>4)</sup> This can be traced to the tendency for bank loans to be found primarily in households with relatively favorable amounts of income and net asset, whereas non-bank loans are more typically found in households with smaller amounts of income and net asset.<sup>5)</sup> In addition, financial stability would not be much damaged by some extent of macroeconomic distress if the loss absorbing capacity of households in terms of income and net asset and that of banks with provisions and capital buffers were taken into account (Kim and Yoo, 2013).

### B. Liquidity Mismatch between Asset and Liability

Even households with relatively sound repayment abilities in terms of income and asset could be vulnerable to liquidity risk due to the nature and characteristics of asset and liability composition in their balance sheets. The typical indebted households in Korea have assets skewed toward real estate, which has very low liquidity, and short-term loans with balloon payment schedules. In this regard, the composition of household balance sheets differs strikingly from those typically found in the major advanced economies. [Figure 2] shows the distribution of income, financial liabilities, and net asset according to income quintile, which confirms the relatively heavy reliance on balloon payment loans even for households with strong income and net asset conditions. Likewise, when balloon payment loans account for a relatively large portion of household liabilities, it could expose those households to a greater refinancing risk at the maturity of the debt. This sort of asset-liability structure is characterized by relatively frequent payment due dates, which may be associated with higher risk of credit squeeze when the time of repayment comes around, or a vicious cycle of increased debt reduction pressures and falling real estate prices when housing prices decline.

<Table 1> shows the distribution of mortgage loans in Korea. A large portion of mortgage loans exceed the LTV regulatory ceiling, having high refinancing risks, which suggests that the size of household debt exposure to such risks could further increase if housing prices fall.<sup>6)</sup> The table shows that there is a large amount of loans whose LTV ratio is relatively high (60% or more) while many of them are balloon payment loans for which only interest is paid at present. Then, a large portion of such balloon payment loans are due in 2014. Meanwhile, the amount of mortgage loans exceeding a certain level of the LTV ratio (for example, 60%) would increase if housing prices fell. According to <Table 1>, large declines in housing prices (by 10% or 20%) would lead to a large increase in the amount

The majority of debt can be found in households whose repayment ability is relatively strong in terms of the level of income and (net) asset.

The characteristics of asset and liability composition of household balance sheets have raised concerns about a liquidity mismatch between assets and liabilities and the risk of debt deflation.

5) Loans from banks tend to be held by households in the upper tiers of income and net assets, whereas loans from non-bank financial institutions tend to be held by households with less income and less net assets according to analyses of household level data.

6) For the purposes of this analysis, situations where the LTV ratio is in excess of the regulatory ceiling are seen as posing difficulties for refinancing.

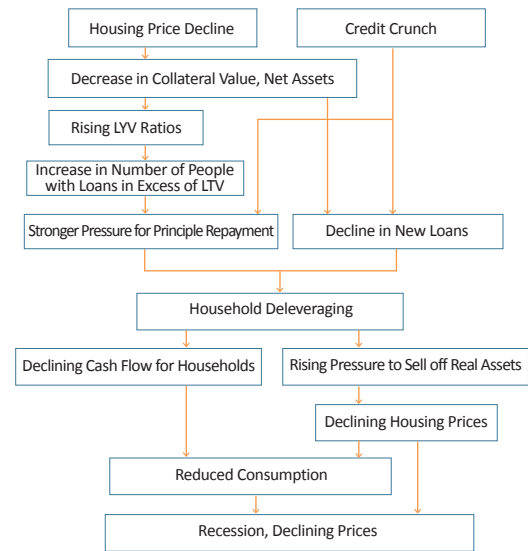
**<Table 1> Loan Characteristics of High-LTV Mortgage Holders under Different Housing Price Scenarios**

Housing Price Scenario	Bank Mortgage	LTV over 60%	Interest Payment Only	
			2014 Due Date	
Basic	KRW 307 trillion (100%)	KRW 50.9 trillion (16.6%)	KRW 35.3 trillion (11.5%)	KRW 28 trillion (9.1%)
Prices fall by 10%		-	KRW 71 trillion (23.1%)	KRW 56 trillion (18.5%)
Prices fall by 20%		-	KRW 93 trillion (30.3%)	KRW 74 trillion (24.1%)

Note: Table shows outcomes under different housing price scenario for loans with LTV ratios of over 60% among all Korean bank mortgage loans (as of late March 2012); the segment of these for which only interest is paid without the payment of the principal; and the sub-segment of the aforementioned loans with due dates in 2014. The "basic" scenario here is the mortgage loan situation as of late March 2012.

Source: Cited from Song and Kim (2013); related data reconfigured from Bank of Korea's *Financial Stability Report* (2012).

**[Figure 3] Example of Possible Pathways for the Effects of a Credit Squeeze and Real Estate Market Decline**



Source: Cited from Kim (2013).

of mortgage loans with the LTV ratios in excess of 60%, and an increase in the amount and share of loans due in 2014 for which only interest is paid currently.

As illustrated above, declining housing prices or a credit squeeze in the financial market could trigger a vicious cycle of increased pressure to reduce debts and falling housing prices. This in turn, could exacerbate economic downturns, as illustrated in [Figure 3]. Given that a large portion of loans are balloon payment loans with short-term maturity, falling real estate prices or a credit squeeze would expose debt-carrying households to greater refinancing risks and would reduce the amount of new lending, creating the pressure to deleverage. As such pressure translate into pressures to sell off low-liquidity housing assets, it could worsen the conditions of real estate markets. Moreover, the liquidity mismatch problem between asset and liability sides of household balance sheets could diminish the resilience of the real economy by amplifying the negative effects from macroeconomic shocks (declining economic growth rates or financial market instability) or by delaying the recovery.

## 2. Household Vulnerability and Social Stability: the Credit Risk of Low-income Households

The discussion so far suggests that the loss-absorbing capacities for household credit risks are relatively sound in terms of household repayment abilities and capital buffers of financial institutions unless hit by extremely severe level of shocks. However, the

liquidity mismatch between asset and liability sides of household balance sheets may raise concerns about the likelihood of debt deflation and weakening resilience or stability of the economy as a whole. To date, the debate about financial stability has chiefly focused on the amount of total liabilities exposed to a credit risk. However, even small amounts of debt could cause social instability when a great number of households with small amount of debts are exposed to default risks. As [Figure 2] shows, the lower-earning 40% of indebted households account for around 10% of all household debts, which seems to suggest a relatively minor level of risks to the financial stability. Nevertheless, these low-income households tend to show relatively high debt-to-income ratios, debt service-to-income ratios, and high rates of delinquency (as shown in [Figure 4]). Considering the large number of low-income households with small amounts of debt, there may be legitimate concerns about social cohesiveness or stability (Kim and Yoo [2013]; Kim and Byeon [2012]).

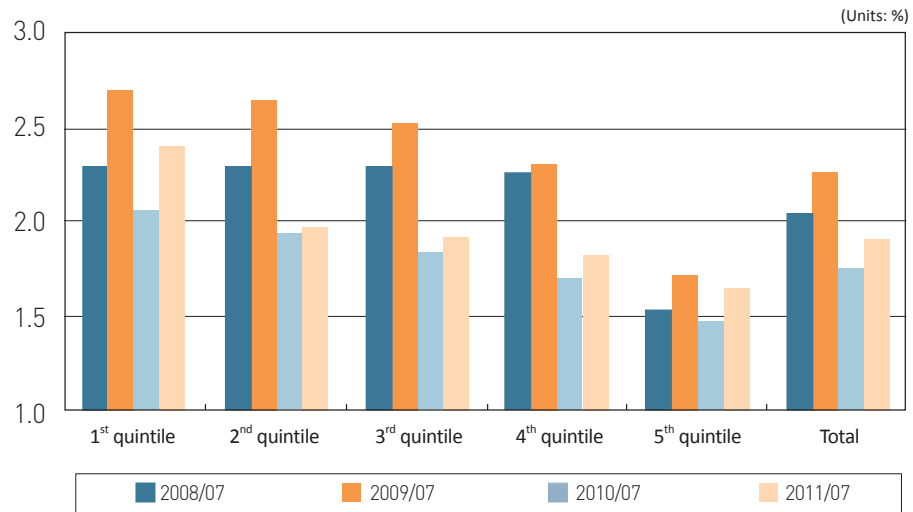
As credit activity becomes increasingly common for Korean households, arrears or defaults are becoming a routine occurrence. Since the 1997-98 Asian financial crisis, there have been a sharp rise in total household debts and an increase in household credit activities, which may explain the common occurrences of delinquencies and the rise in the number of people going into defaults. As the number of defaults spiked during the credit card crisis years of 2003-04 with worsened credit market conditions, a large extent of private and public debt-restructuring programs were introduced to support economic rehabilitation of the default households.<sup>7)</sup> Household debt has also increased at a rapid rate, especially from non-bank financial institutions since the global financial crisis of 2008-09. As a consequence, the share of non-bank household loans has increased dramatically as shown in [Figure 1]. Over the same period, the credit risks appear to have risen for vulnerable low-income households (Kim and Byeon, 2012). Recent years have seen a sharp rise in the number of individuals in default who applied for the court rehabilitation procedures. In addition, the "National Happiness Fund" for writing off low-income household debt had nearly 250,000 applicants within one year since its introduction.<sup>8)</sup> In short, the increase in credit risks, especially that of vulnerable indebted households, suggests a need for a firm establishment of lending practices of financial institutions based on repayment abilities on ex ante terms, and an improved debt-restructuring system for those in default on ex post terms.

**The large increase in household credit activity has led to a rise in the number of people in default, suggesting a need for a firm establishment of lending practices of financial institutions based on repayment abilities and an improvement in consumer debt-relief programs.**

7) Examples of private debt-relief programs include the pre-workout and individual workout programs offered by the (private) Credit Counseling and Recovery Service, while public debt-relief programs include individual rehabilitation procedure (a form of court-operated individual bankruptcy procedure) and personal bankruptcy.

8) Data from "National Happiness Fund" press releases (Nov. 4, 2013; Mar. 27, 2014).



**[Figure 4] Household Loan Delinquency Rates by Income Bracket**

Note: "2008/07" in figure represents July 2008, while "2011/07" represents July 2011.  
 Source: Data taken from Kim and Byeon (2012), with calculations based on individual CB data.

### III . Major Future Tasks and Ideas for the Design of Risk Management System

#### 1. Major Tasks

Major tasks that lie ahead include a moderate degree of debt-deleveraging and mitigation of its downward pressure, stabilizing the loan structure, reconfiguring the consumer debt-relief programs, redefining the role of credit policies from the areas of social safety net, and improving labor market conditions and household income.

Taken together, the household debt vulnerabilities and issues discussed above suggest a number of areas that need to be focused on for the resolution of risks. First, moderate degree of deleveraging efforts may be necessary along with measures to mitigate downward pressures on the housing asset markets. In particular, policy efforts should be focused on reducing the growth rates of consumer loans from non-bank financial institutions taking into account that the recent rise in household debt has been primarily driven by household borrowings from the non-bank sector. At the same time, supplementary measures may also need to be devised to mitigate the downward pressure on housing markets that may come from the debt-deleveraging process because housing assets account for a large portion of total household assets. Second, the household loan structure should be changed into more stable forms. In particular, a transition toward medium and long-term amortized loans away from the short-term balloon payment loans may be necessary in order to address the refinancing risk of the indebted and the liquidity mismatch problem due to the asset-liability structure. Such transition would also contribute greatly to reducing household debt, as it would increase the repayment burden in contrast to household income, and thus discourage the tendency of being overly indebted (Kim, 2013).<sup>9)</sup> Third, there should be a distinction between the role of consumer credit policies and the areas of the state spending for social safety net and social services.

In particular, politically oriented credit policies which tend to lower barriers to credit markets and encourage consumer borrowings in the name of financial support to the disadvantaged in low-income segments could result in distortions in credit markets and misallocation of credits, leading to over-indebtedness and arrears. In this aspect, the role of credit policies should be reassessed and carefully designed in distinction from the areas of social safety net and public services. Fourth, the personal debt-relief programs and the relevant institutional arrangements may be reassessed and improved. The process of debt-deleveraging and debt-restructuring may entail defaults and bankruptcies of indebted households. A well-designed institutional arrangements for loan modifications and bankruptcies may assist those over-indebted and in arrears for economic rehabilitation and may facilitate a transition to productive activity while minimizing moral hazard. Fifth, continued efforts are needed to improve the labor market conditions and household income, which may contribute to lowering credit risks of low-income households and the self-employed.

## 2. Ideas for the Design of Risk Management System<sup>10)</sup>

A well-designed risk management system which takes various scenarios into account may be necessary to effectively deal with the household vulnerability due to credit risks. The experiences of Korea and other major nations point to the need for well-designed risk management systems to effectively deal with consumer delinquencies and its subsequent financial instability ex post, as well as for initiatives to address the over-indebtedness and to improve the resilience of the household sector in the ex ante (pre-default) stages. Various degrees of measures could be taken in accordance with the extent and types of the household vulnerability and its related financial instability. A normal measure may be implemented to address normal issues that may arise in normal phases of economic growth, while more extreme policy measures may be taken in order to deal with issues that arise in exceptional instances such as economic recessions and other abnormal conditions. In other words, distinctions can be drawn between ex ante and ex post responses depending on whether it is before or after the occurrence of defaults, and between normal and emergency measures depending on the extent of the household vulnerability and the financial instability. Measures that do not fully take into account the given situation would not only be an inefficient policy, but would also increase the vulnerability of household sector. Accordingly, accurate and neutral assessments of the given circumstances should come first, providing a background understanding that may

**Suitable responses should be chosen and implemented for different situations based on objective assessment and understanding on the given situations.**

9) Loans with a balloon payment schedule have been preferred over amortized loans as a means of over-borrowing since borrowers face no repayment burden beyond interest until the due date. See Kim (2013) for the analysis.

10) See Kim (2013) for a more detailed discussion.

**<Table 2> Examples of Risk Management Approaches for Different Scenarios**

Approach	Normal Condition	Emergency Condition
Ex ante	Manage and reduce potential risks (improve loan structure, boost household and financial institution soundness, mitigate information asymmetries, etc.)	Operate preemptive tail risk management system (strengthen monitoring, develop contingency plans, etc.)
Ex post	Operate ongoing support systems for individuals in default (debt relief programs, social safety net systems, etc.)	Implement crisis management system (expansionary monetary/fiscal policy, secure financial institution soundness, run limited-time debt restructuring programs or social safety net systems, etc.)

**Approaches for risk management should be designed in a way that differentiates between normal and emergency measures and between ex ante and ex post measures.**

serve to identify and to implement optimal policy responses in given situations. The suitable risk management approaches distinguished above for each given situation may be summarized as the following. First, ex ante approaches in normal conditions may involve promoting the soundness of household and financial institutions, improving the loan structure, and mitigating informational asymmetries of the financial market in order to manage and to reduce relevant risks. Second, ex ante approaches in emergency conditions could involve a careful monitoring of tail risks associated with credit risks as well as the development and operation of contingency plans. Third, ex post approaches in normal conditions would involve reconfiguring the consumer debt-relief programs as ongoing support systems for indebted individuals in difficulties and managing the social safety nets.<sup>11)</sup> Fourth, ex-post approaches in emergency conditions may be to keep financial institutions sound, to introduce transitory debt-restructuring programs, and to make active use of social safety net systems while implementing expansionary monetary and fiscal policies for the sake of a crisis management.<sup>12)</sup> These approaches are summarized in <Table 2>. Obviously, various combinations of the above situations may occur which means that an optimal combination of policies could be chosen depending on the given situation.

11) Increased credit activity among households, and the greater frequency of defaults on an ongoing basis as a result, suggest that the response should focus more on expanding and reconfiguring the existing normal debt-relief programs rather than on introducing a new and limited-time debt-relief program. Institutional rearrangements may be sought that support debt restructuring while minimizing moral hazard taking into account the substitutable and complementary relationship between the private and public debt-relief programs.

12) Obviously, any accommodating economic policies introduced for the sake of crisis management could also be combined with economic restructuring to prevent moral hazard and to improve economic efficiency in the medium and long-term.

#### IV . Summary and Major Implications

This paper examined the household debt risks in terms of financial and social stability aspects. With regard to the financial stability, the quality of the overall amount of debt may be significant. Much of Korea's household debt appears to be found in households that have some buffers in terms of income and (net) asset, suggesting that the country has a relatively sound loss-absorbing capacity. Meanwhile, credit risks of household borrowers from non-bank financial institutions should be of concern, suggesting a need for an ongoing monitoring of non-bank loans while the risks of household borrowers from banks, which may matter for financial stability, are somehow limited. It was also noted that attention should be paid to the peculiarity of the asset-liability structure of household balance sheets and the vulnerability associated with the liquidity mismatch problem. The liquidity mismatch problem could potentially trigger a vicious cycle of debt-deleveraging and falling asset prices under conditions of credit market turmoils or decline in real estate prices, thereby weakening the overall economy's resilience. With respect to the social stability, it was mentioned that an ongoing monitoring and the improvement of soundness are needed for loans held by low-income borrowers, whose credit risk is somewhat high, although their relatively small amount of debt may pose little systemic risk. In addition, the debt-restructuring programs may be reassessed and improved in a way that supports the economic rehabilitation of those who are over-indebted and in default.

We have examined major issues to mitigate household vulnerability and the basic principles for designing suitable risk management approaches for each given situation based on the aforementioned assessment and on understanding of household debt risk. Policy initiatives for household debt-deleveraging should be pursued while minimizing (or buffering) the possible side-effects from debt-deleveraging, in particular, the downward pressures on the housing market. Also mentioned was the need to make a distinction between the role of credit policies and that of state spending for social safety nets. This means differentiating between areas where the social safety net or social services are needed and those which call for policies to ease credit market accessibility to support low-income households. It was further noted that the measures for risk management should be designed and implemented after selecting appropriate approaches for the circumstances based on objective assessments. The aforementioned discussion was intended to give warnings against seeking out crisis measures even in situations that do not qualify as emergencies. In other words, it is desirable to implement suitable policy measures that are based on objective assessments of the situation in question rather than basing our approach on vague fears about household debt or on unnecessary concerns. ■

Attention should be paid to the vulnerability of low-income borrowers though their credit risk may not pose systemic risks to the economy.

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