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Mortgage Lending in Korea

An Example of a Countercyclical Macroprudential Approach

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Abstract

Regulatory regimes are actively discussing macroprudential policy. Korea pursued a countercyclical macroprudential approach to prevent the overheating of mortgage lending and to minimize the risk of loan default. The Korean financial supervisory authority made adjustments in response to both the condition of the housing market and trends in mortgage loans. The lessons learned from the Korean experience are applicable to other situations. First, regulations regarding loan-to-value and debt-to-income ratios and other restrictions on mortgage lending can be employed as an important part of a countercyclical framework. Next, measures need to be applied in a timely manner and according to the specific conditions of each country. Finally, authorities should preemptively prepare macroprudential instruments before banks enter a period of rapid mortgage lending to avoid reckless mortgage lending operations and weaken any speculative motive in the housing market.

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Mortgage Lending in Korea: An Example of a Countercyclical Macroprudential Approach

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1. Introduction

"The procyclicality of the banking sector can amplify cycles in the real economy and financial market instability can lead to severe downturns."[1]

--- OECD *Economic Outlook*, Preliminary Edition (2010, p. 313)

Macroprudential[2] measures to moderate financial cycles and to manage systemwide risks have been actively discussed since the onset of the global crisis relating to the subprime mortgage boom and burst. However, it is difficult to find the appropriate level and timing for macroprudential policy since policies can significantly affect the economy, including the financial system.

Macroprudential tools are capable of targeting particularly weak sectors and can impact credit growth. Specific measures include setting limits on loan-to-value (LTV) ratios in mortgage lending, on loan servicing costs relative to income, and on the use of unusual mortgage products. However, these measures may present several difficulties when put to use. Relevant issues include: when these instruments should be put into effect, which indicators to consider, and whether the measures should obey a simple rule or allow for more discretion (OECD, 2010).

This paper provides an overview of the countercyclical approach taken by the Korean financial supervisory authority (the Financial Services Commission/Financial Supervisory Service, FSC/FSS)[3] in response to rapidly growing residential mortgage loans[4] in the boom cycle of the housing market (Figure 1), and discusses relevant policy implications relating to the concepts and use of macroprudential instruments.

This paper describes the various schemes applied to mortgage loans, from indirect supervisory approaches like regulations on loan loss provisions, to direct approaches[5] like the regulatory LTV ratio.[6] Other countries have used countercyclical provisioning, LTV ratios, and direct controls on lending in particular sectors to manage financial system procyclicality (Caruana, 2010). In comparison, Korea's case seems to be more dynamic and the applied criteria seem to be more restrictive. This difference in approach is attributed to several years of fierce lending competition by banks and rampant speculation by borrowers in housing markets, especially in the Seoul metropolitan area.

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[1] "Procyclicality refers to the mutually reinforcing interactions between the financial and real sectors of the economy that tend to amplify business cycle fluctuations and cause or exacerbate financial instability," according to the Committee on the Global Financial System (2010a, p. 8).

[2] "The term 'macroprudential' refers to the use of prudential tools with the explicit objective of promoting the stability of the financial system as a whole, not necessarily of the individual institutions within it" (Piet Clement, 2010, p.65).

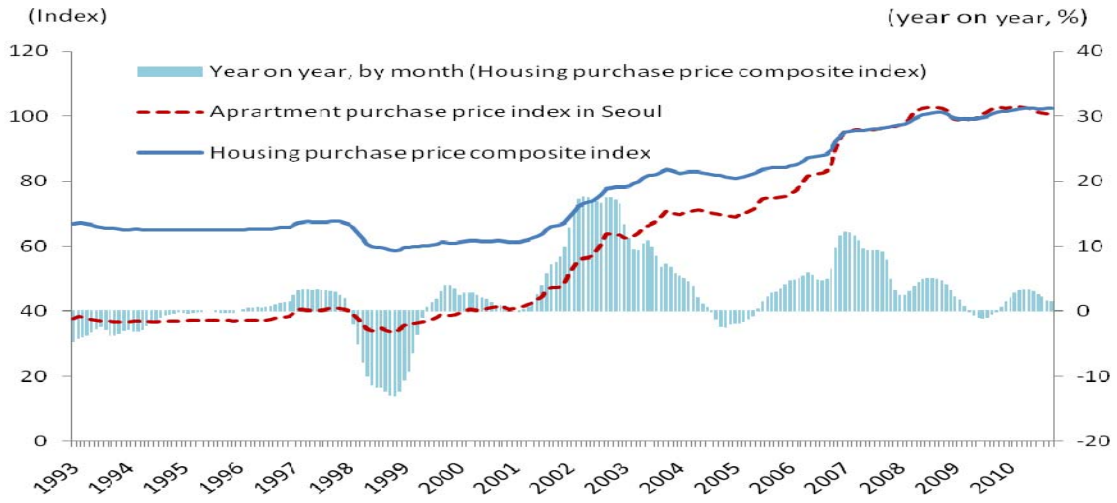
[3] The FSC serves as a consolidated policy-making body. The FSS primarily examines and supervises financial institutions. The FSS was established in 1999 by bringing together four supervisory bodies.

[4] This paper defines mortgage loans as banks' household loans for housing purchases and other uses, secured by mortgages on residential properties.

[5] Direct measures are those that directly regulate the terms and conditions of mortgage lending. Thus, the available amount of the loan for a borrower can be limited according to the criteria of the regulation.

[6] The LTV ratio is defined as the ratio of a possible loan amount against the value of collateral. "It is a key indicator of the ability of the mortgage market to provide access to financing" (Jones and Yokoyama, 2008, p.17).

Figure 1. Korea's Housing Purchase Price Composite Index, 1993:1–2010:8



Source: Kook Min Bank.

This paper also discusses relevant policy implications for policy makers working to put in place macroprudential policies designed to increase the stability and resilience of the financial system as a whole.

In December 2009, the Basel Committee introduced a number of macroprudential elements into the capital framework to help contain systemic risks (BCBS, 2009). The Committee on the Global Financial System (CGFS) recently assessed macroprudential policy, including the tools for property lending (GCFS, 2010b). Still, concerns remain about choosing the appropriate instruments to deal with financial system risks.

In Korea, macroprudential supervision[7] was in its infancy when the FSS began to use regulatory LTV ratios for mortgage loans around 2003 (Kim, 2006). Korea incorporated the ideas of macroprudential supervision into its prudential oversight framework, despite the newness of the concept, because of the lessons it learned from the collapse of the credit card bubble, according to Lee (2006). This paper offers examples of what can realistically be done with, and expected from, macroprudential regulations.

The rest of this paper[8] is organized as follows. The next section provides background on the increase of mortgage loans in Korea. The third section describes macroprudential policy in Korea and explains the experience with a countercyclical approach to mortgage lending, focusing on the application of a series of regulatory LTV adjustments. Applications of regulatory debt-to-income (DTI) ratio and other restrictions are presented in Appendixes A and B. The fourth section explores the policy implications from a perspective of cyclicality in banking and macroprudential supervision. The fifth and final section concludes.

[7] "Macroprudential supervision is aimed at protecting the financial system from macroeconomic shocks and preventing financial distresses from spilling over to the real economy," according to Lee (2006, p. 2).

[8] Unless otherwise stated, the factual details regarding the Korean prudential measures presented in this paper were obtained from guidelines, press releases and periodicals (*Annual Report*) of the FSS.

2. Background on the Growth of Mortgage Loans

2.1. Strong Housing Markets

Compared to other cities in Korea, housing prices in the Seoul metropolitan area have been high. Housing prices, including those in Seoul, dropped precipitously after the Asian financial crisis of 1997. By 2000, housing prices had recovered somewhat.

Prices began to increase steadily in 2001. There was widespread worry that the price rise for properties in the southern areas of Seoul, with their well-planned urban infrastructure and good schools, could cause a real estate bubble. Furthermore, possible ripple effects from such a real estate bubble increased government concerns about the growing gap in income (Jones and Yokoyama, 2008).

In August 2005, the government began to set up new real estate policy packages to steady volatile housing costs. The packages were aimed at increasing the supply of housing, lowering housing prices, and restructuring the Korean property tax system. This last measure was intended to curb speculative demand by increasing the tax burden on high-priced houses and on owners of multiple houses (Jones and Yokoyama, 2008).

At that time, the supervisory authority's prudential measure for mortgage lending was also included and considered one of the important measures to be used to reduce demand for housing.

2.2. Deregulation in Housing Finance[9]

Housing finance in Korea can be separated into two eras: pre-deregulation and post-deregulation. Before housing finance was deregulated in 1996, over four-fifths of the housing finance market was public.

These loans were provided by the National Housing Fund (NHF). Lower-income households were thus able to receive rates below the going market rate. The Korea Housing Bank (KHB), in turn, provided housing loans to those with higher incomes.

In 1996, the Korean housing market structure was changed drastically: commercial banks entered into the long-term mortgage business. This followed in 1997 by the privatization of KHB. The Asian crisis of 1998 rocked the finance industry and spurred Korea to relax the governmental control over the housing market. A major element in this change was removing the mandatory sub-market housing prices in February 1998.

In 2004, these changes were continued with the establishment of the Korean Housing Finance Corporation (KHFC), which purchases long-term mortgages from commercial banks. This increased both the available liquidity and the length of maturity for mortgage loans.

[9] The factual details presented in this section were obtained from "Determinants of house prices in nine Asia-Pacific economies" by Glindro and others (2008, p. 27-28).

2.3. Monetary Policy Response to Rising Housing Prices[10]

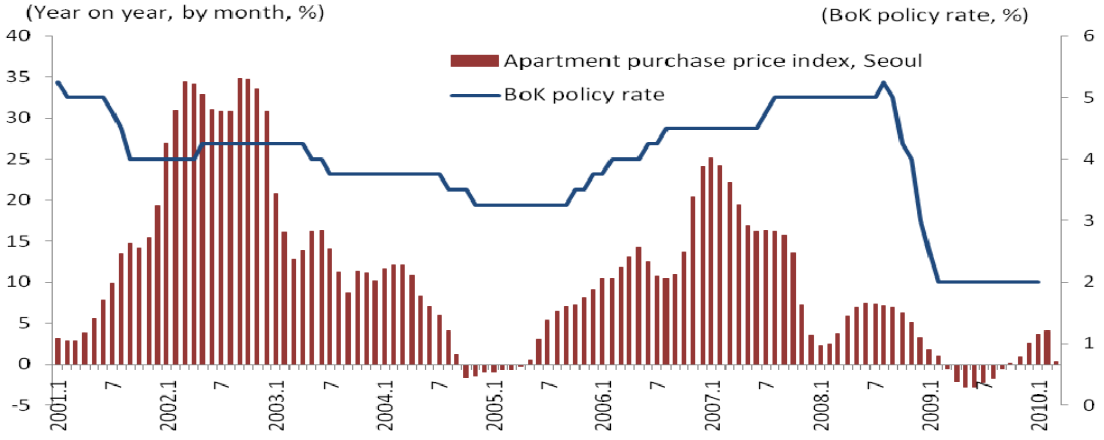
Some advocated countering the rapid rise in housing prices through the use of monetary policy. The argument that the policy rate should be increased was more appealing to the public, particularly when housing prices began to rise again after February 2003.

The Bank of Korea (BoK) argued that expansionary monetary and fiscal policies should be used in a positive manner to deal with the economic downturn. In addition, the BoK believed that the government should deal with the rapid increase of housing prices by lessening the imbalance between the housing supply and demand and weakening the speculative motive in the housing market. Accordingly, the BoK lowered its policy rate twice in 2003.

Later, this expansionary policy changed. The BoK increased its policy rate beginning in the fourth quarter of 2005. This increase was made to moderate the side-effects generated by the continually low interest rate and to deal preemptively with the expected upward pressures on prices. Prices remained generally stable, but there were latent upward pressures on prices generated by the economic recovery and higher oil prices. Additionally, the BoK increased the policy rate to 5.25 percent in August 2008 because the bank judged that the upward trend in prices could stimulate inflation expectations.

In early 2009, while the world economy continued its downturn and domestic demand and exports contracted sharply, the central bank lowered its policy rate by 0.5 percentage points, bringing the policy rate down to its lowest-ever level of 2.0 percent. These cuts followed the bank's reduction of the policy rate in 2008, totaling 2.25 percentage points, after Lehman Brothers filed for bankruptcy in September (Figure 2).

Figure 2. Apartment Purchase Price Index in Seoul, and BoK Policy Rate, 2001:1–2010:1



Source: BoK, Kook Min Bank.
Note: Policy rate is the overnight call rate target. The policy rate has been changed from overnight call rate to 'the Bank of Korea Base Rate' since March 2008 (BoK).

[10] The factual details presented in this section were obtained from the *Monetary Policy Report* (MPR) published annually (2001–10) by the BoK.

2.4. Preference for Mortgage Loans

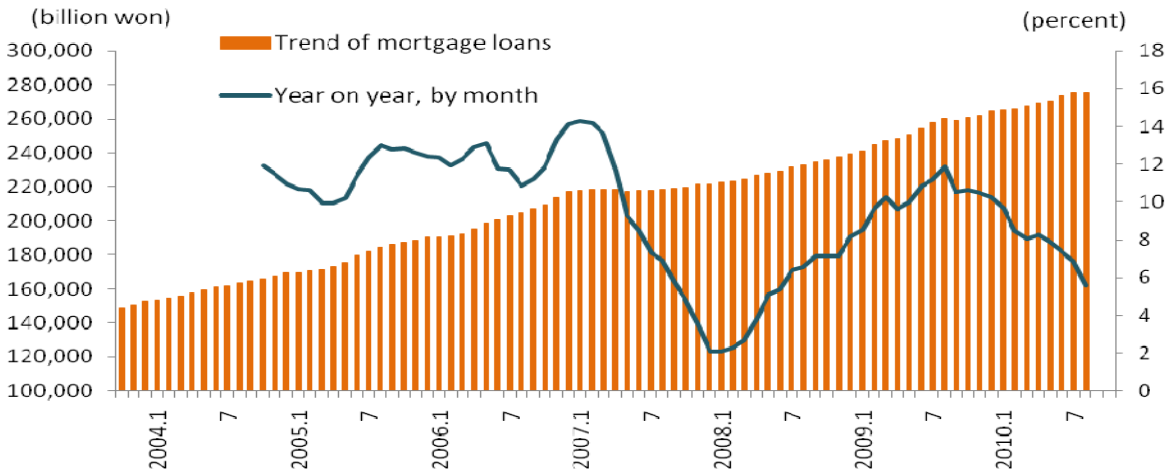
Banks favor mortgage loans because they are generally less risky and more profitable than corporate lending. For several years in the mid-2000s, excessive competition between commercial banks led to a high concentration in mortgage loans. In addition, households increased their demand for housing loans in anticipation of rising asset prices and a continuation of low interest rates (MPR, 2002).

Another reason for the rapid increase in mortgage lending was the growth of installment financing. Previously, consumers would first accumulate a substantial sum by setting aside regular installments with which to purchase a house. More recently, it has become increasingly common to purchase a house by taking out a loan and then paying off the principal and interest over a long period through installments (MPR, 2002).

As of July 2010, the amount of outstanding housing mortgage loans extended by banks stood at 275.4 trillion won (Figure 3), and the share of mortgage loans in banks' household lending was 65.4 percent (420.4 trillion won). Mortgage loans held by non-bank financing corporations stood at 69 trillion won.[11]

Despite the continuous increase of household debt, driven by mortgage loan growth, the likelihood of a large-scale default on household debt does not appear large (MPR, 2005). Banks' delinquency rate on mortgage loans was 0.45 percent at the end of August 2009. This is far below the delinquency rates for household credit loans (1.05 percent) or loans to small and medium enterprises (SMEs) (2.18 percent).[12]

Figure 3. Trend of Mortgage Loans of Banks in Korea, 2003:10–2010:8



Source: BoK.

[11] BoK Press Release, September 2010. "Household Loans by Depository Corporations during July 2010." Non-bank financial corporation refers to mutual savings banks, credit cooperatives, community credit cooperatives, mutual credits, trust companies, and postal savings.

[12] *Financial Stability Report* (FSR), BoK, November 2009.

3. Macroprudential Policy in Korea

3.1. Emergence of Macroprudential Supervision

Macroeconomic instability greatly affected the financial crisis in Korea at the end of 1997. The need for macroprudential supervision in Korea was highlighted by the bursting of the credit card bubble in 2003.[13]

During the credit card lending boom, the supervisory authority did not respond adequately to the growth of household delinquencies stemming from the reckless behavior of credit card issuers. The authority was not sensitive to systemic distress originating from households because its prudential oversight was primarily focused on the soundness of individual financial institutions (Lee, 2006). This case underlined the importance of placing greater emphasis on detecting early warning signs before the build-up of excessive imbalances continued for too long (Kang and Ma, 2009).

After the credit card bubble burst, there was a new, widespread appreciation of macroprudential policy. Mortgage loans had increased sharply since 2000, which undermined the stability of the overall housing market. The supervisory authority has taken steps to prevent overheating in mortgage lending and to minimize the risk of loan default.

First, the supervisory authority raised the risk weighting for mortgage loans. The authority also raised the minimum loan loss reserve ratios for banks' household and corporate loans that were classified[14] as normal and precautionary in November 2002 and in December 2006.

Second, in 2002, the authority started to reduce the maximum LTV ratio for mortgage loans, from approximately 75 percent to 40 percent in the Seoul metropolitan area.[15]

The authority imposed additional measures, such as a ceiling of 40 percent on the DTI ratio for certain types of borrowers, as well as other restrictions on granting mortgage loans and maturity extensions on existing mortgage loans for properties in the Seoul metropolitan area. These various restrictions on mortgage lending were imposed on both banks and non-banking financial institutions.

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[13] "From mid-1998 to early 2002, the government pursued expansive economic policies to stimulate an economy struggling under the weight of a severe financial crisis. Credit card issuers began to compete fiercely for new card members in an attempt to expand their market share. What ensued from the perverse behavior were spiraling credit card delinquencies, which left the credit card companies with rapidly growing bad assets on their balance sheet. The distress in the credit card sector then quickly spread to other financial sectors. And with the economy in recession, many marginal companies and low-income households began to default on their debt." (Lee, 2006, p. 3).

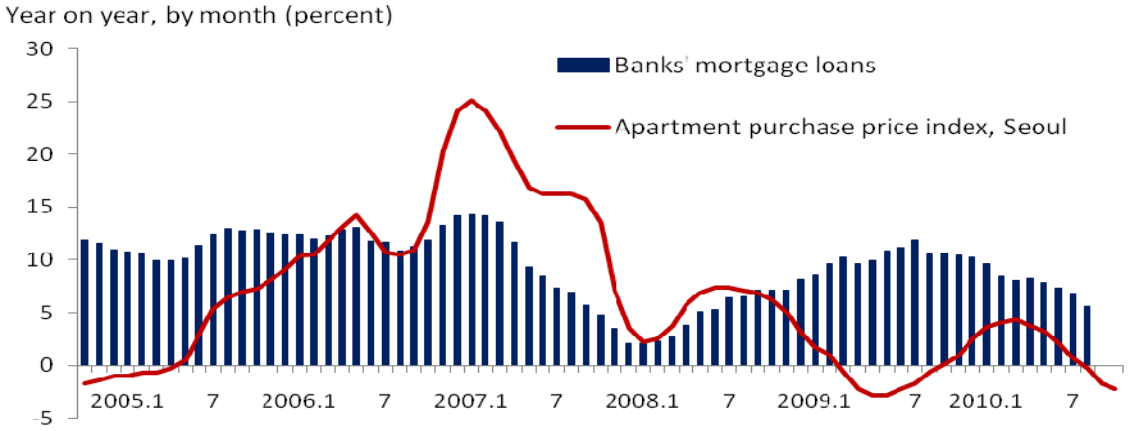
[14] According to the FSS Handbook (2010): "Banks are required to appropriately classify their assets and ensure their soundness. Bank assets are classified into five categories: (i) normal; (ii) precautionary; (iii) substandard; (iv) doubtful; and (v) estimated loss. Under these asset classification standards, the definition of each asset classification reflects the debt-servicing ability of the borrowers. Banks are required to set aside loan loss reserves in excess of the minimum regulatory ratios."

[15] The typical LTV ratio in OECD countries is generally much higher than in Korea and the guidelines on LTV ratios in other OECD countries limit the availability of loans by changing borrowing costs based on the LTV ratio (Jones and Yokoyama, 2008).

3.2. Countercyclical Approaches

The financial supervisory authority's effort began to slow the growth of mortgage lending, thus, preempting potential distress on the financial system from an overheated housing market in 2002 (Figure 4).

Figure 4. Apartment Purchase Price Index in Seoul, and Banks' Mortgage Loans, 2004:10–2010:8



Sources: BoK, Koon Min Bank.

3.2.1. Indirect Measures

Risk weighting for mortgage loans

Between 2001 and 2002, the risk weighting for mortgage loans related to capital requirement was raised from 50 percent to between 60 and 70 percent, with due consideration given to borrowers' credit history and debt repayment ability.

Minimum provisioning for household loans, including mortgage loans

To help banks better contain a variety of credit risks, the FSS amended supervisory regulations regarding loan loss provisions.[16] This was done by analyzing past loss rates and accordingly adjusting the minimum loan loss reserve ratios for household loans upward.

In November 2002, the banks' minimum loan loss reserve ratios for household loans classified as both normal and precautionary were pushed up from 0.5 percent to 0.75 percent and from 2 percent to 8 percent, respectively. For loans classified as doubtful, the provisioning ratio was raised from 50 percent to 55 percent (Table 1).

In December 2006, the minimum loan loss reserve ratios for household loans classified as both normal and precautionary were further raised from 0.75 to 1.0 percent and from 8 to 10.0 percent, respectively. Additionally, provisioning requirements were expanded to cover all unused credit commitments (Table 1).

[16] "Under the loan loss provisioning scheme, banks set aside less money for losses during economic upturns when the credit risk of borrowers is low and banks set aside more money during economic downturns when the borrower credit risk is higher" (FSR, April 2010, p. 87).

Table1. Adjusted Minimum Loan Loss Reserve Ratios for Banks, 2010 (percent)

Classification	Household Loans			Corporate Loans			Credit card receivables		
	Until 2002.11	2002.12–2006.11	2006.12 **and after**	**Until** 2006.11	2006.12–2007.11	2007.12 **and after**	**Until** 2002.11	2002.12–2006.11	2006.12 **and after**
Normal	0.5	0.75	1.0	0.5	0.7	0.85	0.5	1.0	1.5
Precautionary	2.0	8.0	10.0	2.0	7.0		2.0	10.0	15.0
Substandard	20			20			20		
Doubtful	50	55		50			50	60	
Presumed loss	100			100			100		

Source: FSS.

3.2.2. Direct Approach Focused on Regulatory LTV Ratio

The supervisory authority determined that two of the major reasons for the surge in mortgage lending were the collateral-focused lending practices of financial companies and the willingness of households to take on mortgage debt beyond their ability to repay it, to take advantage of rising housing prices. In addition, the indirect approaches described above were thought to be insufficient to deal with the banks' rapidly growing housing loans. Thus the FSS chose the LTV ratio[17] as the main policy instrument to constrain the growth of mortgage loans starting in 2002.

Calculating the LTV ratio

The amount of a housing mortgage loan[18] is calculated by using the regulatory LTV ratio. The regulatory LTV ratio is the ratio of the maximum amount of a possible loan against the value of its collateral for each loan account (Box 1).

In principle, when calculating the value of security, a bank will use one of the four categories of evaluation data prepared by highly credible evaluation agencies.

Box1. Calculation of the Regulatory LTV Ratio

$$\frac{\text{The amount of housing mortgage loan + senior loans}^{a} + \text{leasehold deposit}^{b}}{\text{The collateral value (value of security)}} \times 100$$

Source: FSS

a. Senior loans have the right to be paid before other loans at the time of disposal of securities.

b. Leasehold deposits of a lessee fulfilling requisites for counteraction. The paid deposit from the *Chonsei* contract[19] is included. Additionally, in cases where there are rooms with no leasehold, the expected leasehold deposits of small amounts should be calculated and included in the leasehold deposit.

[17] These requirements for LTV ratios were integrated into the July 2007 regulations.

[18] In cases where any financial institutions is deemed to extend a credit loan for the purpose of avoiding the application of loan-to-value of a housing mortgage loan, the amount of that credit loan shall be added to the amount of housing loan.

[19] "*Chonsei* is a unique rental contract in the Korean housing market, in which the tenant pays an upfront deposit in the beginning of the contract period with no requirement for paying the monthly rent. The deposit is fully refundable at the end of the contract period" (Glindro and others, 2008, p.27).

Lowering the LTV ratio in 2002 and 2003

In September 2002, the FSS required banks to lower the LTV ratio on mortgage loans to below 60 percent of the value of the borrower-pledged real property from the prevailing 70 percent to 80 percent. In June 2003, the LTV ratio was lowered from 60 to 50 percent for loans with maturity of 3 years or less and backed by real properties located in speculative areas (Table 2).

Table 2. LTV Ratios, June 2003

	Speculation Zone[a]		Overheated Speculation District[b]		Other Areas	
	House[c]	Apartment	House[c]	Apartment	House[c]	Apartment
Not more than 3 years	**50% or less**	**50% or less**	**50% or less**	**50% or less**	60% or less	60% or less
More than 3 years	60% or less	60% or less	60% or less	60% or less	60% or less	60% or less

Source: FSS.

a. An area designated by the Minister of Strategy and Finance pursuant to the Article 104-2 of the Income Tax Act.
b. An area designated by the Minister of Land, Transport and Maritime Affairs or the Mayor/Provincial Governor pursuant to the provisions of Article 41 of the Housing Act.
c. Refers to houses excluding apartments and apartments for commercial and residential purposes.

In October 2003, the LTV ratio for loans with 10 years or less maturity and backed by apartment units in speculative areas was further reduced from 50 percent to 40 percent (Table 3).

Table 3. LTV Ratios, October 2003

	Speculation Zone		Overheated Speculation District		Other Areas	
	House	**Apartment**	House	Apartment	House	Apartment
Not more than 3 years	50% or less	**40% or less**	50% or less	50% or less	60% or less	60% or less
More than 3 yrs but not more than 10 yrs	60% or less	**40% or less**	60% or less	60% or less	60% or less	60% or less
More than 10 yrs	60% or less	60% or less	60% or less	60% or less	60% or less	60% or less

Source: FSS.

Adjusting the LTV ratio upward in 2004

In 2003, government intervention, including the prudential measures, successfully resulted in the slowing of the growth in housing prices. As a consequence, there were fewer loan defaults and the growth of new loans was slowed. In March 2004, the FSS raised the LTV ratio from 60 percent to 70 percent for mortgage loans not generally used for speculative purposes: those with a maturity of 10 years or more and less than one year of interest-only payments (Table 4). This step aimed to promote longer maturity by addressing the short-term maturity structure of mortgage loans. The FSS did this to address concerns that excessively low LTV ratios were unfair to both borrowers and non-speculative homebuyers.

Table 4. LTV Ratios, March 2004

	Speculation Zone		Overheated Speculation District		Other Areas	
	House	Apartment	House	Apartment	House	Apartment
Not more than 3 years	50% or less	40% or less	50% or less	50% or less	60% or less	60% or less
More than 3 yrs but not more than 10 yrs	60% or less	40% or less	60% or less	60% or less	60% or less	60% or less
More than 10 yrs	60% or less	60% or less	60% or less	60% or less	60% or less	60% or less
Payment in installments (10 yrs or more)[a]	**70% or less**	**70% or less**	**70% or less**	**70% or less**	**70% or less**	**70% or less**

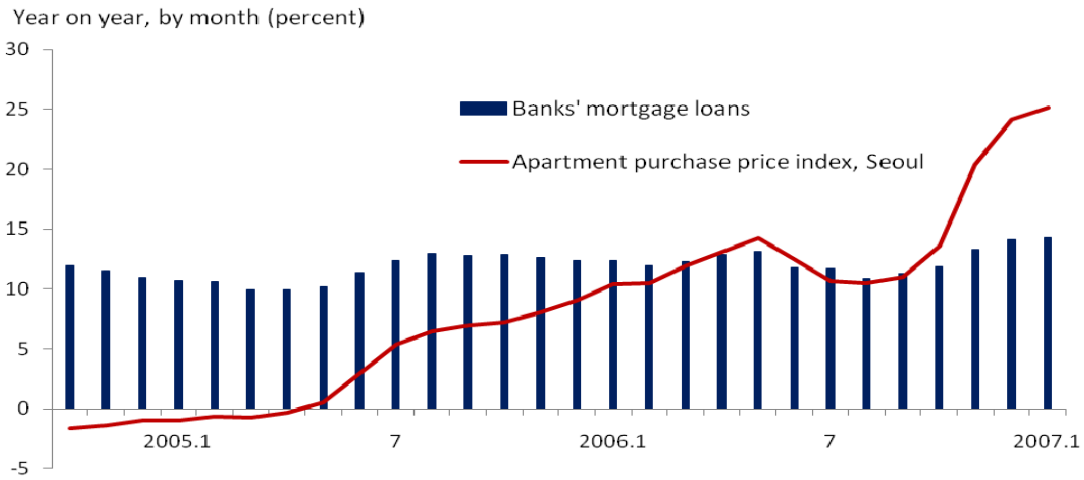
Source: FSS.

a. Refers to loans with fixed interest rates (and a grace period of one year or less, DTI of 40% or less), having a plan to sell the loan to the Korea Housing Finance Corporation or a plan for self-securitization.

Lowering the LTV ratio in 2005 and 2006

Mortgage loans continued to grow in 2005 (Figure 5).

Figure 5. Apartment Purchase Price Index in Seoul, and Banks' Mortgage Loans, 2004:10–2007:1



Source: BoK, Koon Min Bank.

In June 2005, the LTV ratio for apartment units priced more than KRW600 million (about US$600,000) in speculative areas was lowered from 60 to 40 percent.

The LTV ratio for mortgage borrowers who regularly paid both the principal and the interest on loans with more than 10 years maturity was left unchanged. At that time, borrowers with long maturity mortgage loans were not considered speculative housing buyers.

In September 2006, the FSS announced additional measures amid a continuing surge in housing prices. All mortgage borrowers seeking an apartment unit priced more than KRW600 million in speculative areas became subject to the 40 percent LTV ratio (Table 5). Previously, mortgage borrowers whose loan maturity was more than 10 years had been only subjected to a 60 percent LTV.

Table 5. LTV Ratios, September 2006

			Speculation Zone		Overheated Speculation District		Other Areas	
			House	Apartment	House	Apartment	House	Apartment
Not more than 3 years			50% or less	40% or less	50% or less	50% or less	60% or less	60% or less
More than 3 yrs but not more than 10 yrs			60% or less	40% or less	60% or less	60% or less	60% or less	60% or less
More than 10yrs	**Collateral value**	**More than 600 Mil won**	60% or less	**40% or less**	60% or less	60% or less	60% or less	60% or less
		600 Mil won or less	60% or less	60% or less	60% or less	60% or less	60% or less	60% or less
Payment in installments(10 yrs or more)[a]			70% or less	70% or less	70% or less	70% or less	70% or less	70% or less

Source: FSS.

a. Refers to loans with fixed interest rates (and a grace period of one year or less, DTI of 40% or less), having a plan to sell the loan to the Korea Housing Finance Corporation or a plan for self-securitization.

Integrating the measures into the regulations on supervision in July 2007

The supervisory authority has made numerous announcements regarding measures for risk management of housing mortgage loans since 2002. In actuality, the announced measures were treated as requirements. However, the structure of the administrative guidelines did not support either a stronger administrative power or a strong legal basis for implementation.

In July 2007, a series of measures to strengthen the risk management of mortgage lending were rearranged into the Regulation[20] and the Detailed Regulation[21] on Supervision of Banking Business (Box 2). The measures that applied to non-banking financial institutions were also written in during the same time.[22] The official integration of the measures sent a signal that these measures would not easily be weakened within a short period of time.

The Regulation contains a section entitled "Standards for Risk Management of Housing Mortgage Loan" (see Appendix C). The separate Detailed Regulation contains a section entitled "Detailed Standards for Risk Management of Housing Mortgage Loan."[23]

Box 2. Excerpt from the Regulation on Supervision of Banking Business[a]

The regulation on risk management on housing mortgage loans reads as follows:
Article 29-2

(1) A financial institution, when dealing with housing mortgage loans, shall abide by LTV (Loan-to-Value ratio), DTI (Debt-to-Income ratio) and other restrictions, etc. on granting housing mortgage loans and extensions of maturity provided for in Appendix 6 in order to maintain the sound management pursuant to Article 45 of the Act.

(2) In cases where the Governor deems it urgently necessary in view of the management soundness of financial institutions, the Governor may adjust LTV and DTI provided for in Appendix 6 within the limit of adding or reducing 10 percentage points. In such cases, the Governor shall immediately report the details of such adjustment to the FSC (Financial Services Commission).

(3) The detailed criteria on calculation methods and applicable objects of the LTV and DTI provided for in Paragraph (1), and the details of handling housing mortgage loans and limitations on extending maturity shall be subject to the determination of the Governor.

Source: FSS, Regulation on Supervision of Banking Business.
a. The regulation of Risk Management on Housing Mortgage Loans was newly established on July 26, 2007.

[20] "The purpose of the Regulation is to prescribe matters necessary for the enforcement of matters within the jurisdiction of the Financial Services Commission in relation to the supervision of financial institutions pursuant to the Banking Act and the Enforcement Decree thereof, and other relevant Acts and subordinate statutes" (FSS, Regulation on Supervision of Banking Business).

[21] "The purpose of the Detailed Regulations is to prescribe matters relating to the enforcement of those under the jurisdiction of the Governor of the Financial Supervisory Service provided for in the Banking Act and the Enforcement Decree of the Banking Act, and other relevant Acts and subordinate statutes, or regulations established by the Financial Services Commission, such as the Regulations on Supervision of Banking Business" (FSS, Detailed Regulation on Supervision of Banking Business).

[22] Those measures consisted of the Regulation (and Detailed Regulation) on Supervision of Insurance Business, the Regulation (and Detailed Regulation) on Supervision of Mutual Savings Bank Business; the Regulation (and Detailed Regulation) on Supervision of Mutual Financial Business; and the Regulation (and Detailed Regulation) on Supervision of Credit-Specialized Financial Business.

[23] Available on the FSS website at "Detailed Regulation on Supervision of Banking Business <Appendix 18>", <<http://english.fss.or.kr/fsseng/emdc/prs/fss_v.jsp?btmIndex=174&fssIndex=10090&selectType=0&find=>>.

Easing the mortgage servicing burden in November 2008

Through 2008, housing prices continued to rise, but at a constrained rate. Due to the massive worldwide economic crisis, the FSS provided temporary relief to household borrowers to address their concerns about falling housing prices and their deteriorating ability to serve household mortgage debt.

In November 2008, the government and the financial supervisory authority took a number of separate actions to provide relief to household borrowers. First, certain residential areas in southern Seoul were no longer designated as "speculative." This significantly reduced the debt burden of many mortgage borrowers, and in turn eased the LTV and DTI regulations imposed in these areas.

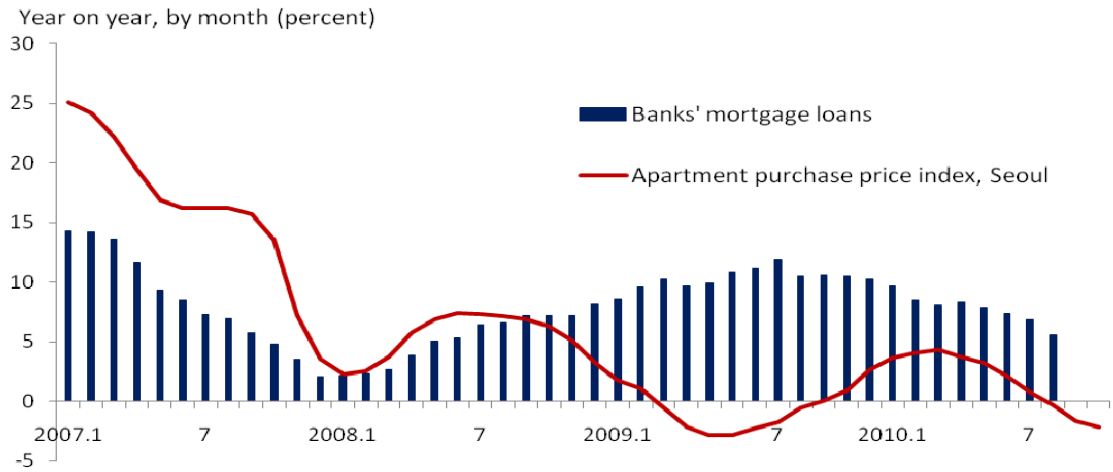
Second, an exemption was given to qualified borrowers who took out a second mortgage loan, which meant that they did not have to sell their first house.[24] Borrowers were considered qualified if the location of the second house was recategorized as no longer in a speculative area.

Additionally, temporary relief was provided in the form of extension of maturities, rescheduled loan payments, and extension of the interest-only period for consumer loans.

Strengthening risk management for the previously lifted speculative areas in July 2009

In 2009, the expectations of rising house prices, along with other factors, such as the November 2008 easing of real estate regulations,[25] caused an increase in mortgage loans (Figure 6).

Figure 6. Apartment Purchase Price Index in Seoul, and Banks' Mortgage Loans, 2007:1–2010:8



Source: BoK, Koon Min Bank.

[24] This exemption is related to the regulation that states, "A financial institution may not newly extend a loan for a borrower who has already secured a housing mortgage loan against an apartment in a speculation zone" (FSS, 2007).
[25] As part of its "Comprehensive Policy Measures to Overcome the Ongoing Economic Difficulties," the government revoked the designations of "Overheated Speculation Zones" and "Speculation-Prone Zones" in all regions, with the exception of three districts in Seoul.

In July 2009, the FSS asked banks to voluntarily strengthen their mortgage loan risk management. In October 2009, the request was extended to non-banking financial companies.[26]

The recommendations called for lowering the LTV and raising the DTI ratios for properties in certain zones of the Seoul metropolitan area, which were no longer classified as overheated speculative districts or speculative designation zones.[27] At that time, there were only three speculative districts in Seoul where the LTV ratio requirement remained at 40 percent.

As a result of these changes, the LTV limit was lowered from 60 percent to 50 percent in the following cases (Table 6):

- For apartment units with mortgage maturities of less than 10 years.
- For apartment units with mortgage maturities of more than 10 years but with a collateral value over KRW600 million.
- For non-apartment, detached units with mortgage maturities of less than 3 years.

Table 6. Change in the LTV Ratio for Banks in the Seoul Metropolitan Area, 2009

			Apartment units		Detached units	
			Before	After	Before	After
Not more than 3 years			60% or less	**50% or less**	60% or less	**50% or less**
3–10 yrs			60% or less	**50% or less**	60% or less	60% or less
More than 10 yrs	Collateral value	more than 600Mil won	60% or less	**50% or less**	60% or less	60% or less
		600 Mil won or less	60% or less	60% or less	60% or less	60% or less
Payment in installments (10 yrs or more)[a]			70% or less	70% or less	70% or less	70% or less

Source: FSS Press Release, July 2009.

a. Refers to loans with fixed interest rates (and a grace period of one year or less, DTI of 40% or less), having a plan to sell the loan to the Korea Housing Finance Corporation or a plan for self-securitization.

The strengthened LTV and DTI regulations have subdued the upward trend of housing prices. Since early 2010, despite signs of economic recovery, several restraining factors have held this rising trend in check. These factors include anxiety about overvaluation of housing prices and the amount of unsold housing (FSR, April 2010).

This series of prudential measures seem to have generally protected the quality of loans. This is evaluated by using the average LTV ratio as an indicator of banks' mortgage loan quality. At the end of July 2009, the average LTV ratio was 47.1 percent, compared to 74.9 percent in the United States (FSR, November 2009).

[26] The currently applicable LTV ratio of 70 percent for non-banks (mutual finance companies, savings banks, and credit-specialized financial companies) was strengthened to 60 percent, starting in October 2009. The currently applicable LTV ratio of 70 percent or less in regard to non-apartment detached units will remain in force unchanged.

[27] The strengthened LTV limit excluded mortgage loans that have a combined total of less than KRW50 million from all lenders, mortgage loans for relocation, and balloon payments and mortgage loans for unsold residential units.

4. Policy Implications

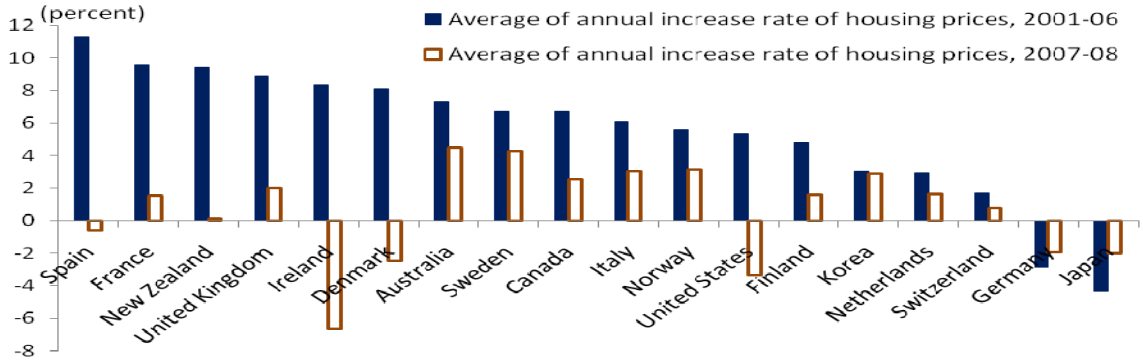
Korea's experience offers three lessons for macroprudential policy makers in other countries.

First, direct measures regarding the LTV ratio, DTI ratio, and other restrictions on mortgage lending can be employed as an important part of a countercyclical framework, along with other credit cycle moderation instruments.

The Committee on the Global Financial System has stated that LTV ratio caps at a certain level can contribute to enhancing financial system resilience and can moderate the financial cycle like automatic stabilizers. It has also noted that the moderation effect can be enhanced when the caps are adjusted to their normal range in a countercyclical manner (CGFS, 2010b).

This kind of discretionary intervention[28] by the Korean authority has been working relatively well (Figure 7). The regulatory tools were deployed in a countercyclical way in the real economy.

Figure 7. Average Annual Rate of Increase in Real House Prices, OECD Countries[29]



Source: OECD *Economic Outlook* (average was calculated from the Economic Outlook database).

Wezel (2010, p. 3) notes that, "Among the causes of procyclicality are backward-looking loan loss provisioning rules that do not recognize the build-up of credit risks in boom phases and thus facilitate credit expansion and excessive risk-taking. Procyclical lending and provisioning occur when a period of high credit growth and lax lending standards is followed by a downturn, which triggers a rise in non-performing loans and, hence, specific loan loss provisions."

Concerning countercyclical measures, Wezel also notes that dynamic loan loss provisioning can be one of the alternative tools to mitigate procyclicality since the basic idea of the tool is to build loan loss reserves during good times, which can then be used to absorb losses in bad times.[30]

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[28] The July 2007 regulation allows the Governor to adjust the LTV ratio and the DTI ratio within the range of adding or reducing 10 percentage points in cases where the Governor deems it urgently necessary in view of the management soundness of financial institutions without changing the regulation.

[29] The idea of Figure 7 comes from the IMF Seminar of Tao Sun and Prakash Loungani (2010).

[30] Wezel (2010, p. 3) explains that "Dynamic provisioning is one of the approaches recommended by the Financial Stability Forum (2009) to recognize and measure loan loss that incorporate a broader range of credit information. During an economic upswing, the stock of dynamic provisions grows rapidly as loan origination is high and loan losses are typically low. The reverse is true during economic downturns, and additional provisions for actual loan losses are then covered by drawing on the stock of dynamic provisions."

However, Caprio (2010) shows that the method used in Spain and Colombia to vary provisions on a countercyclical basis demonstrated no ability to reign in or reduce an asset bubble. In Korea, the upward adjustments in provisioning requirements for mortgage loans were unsuccessful in limiting the expanding housing loans in times of the housing boom because the provisions were not designed to cover extreme events.

As mortgage lending continued to increase rapidly during the boom cycle, the ratio of loans classified as substandard or below (SBL ratio) to total outstanding loans fell from 1.22 to 0.84 percent in December 2006, the lowest level to that date (Table 7).

Table 7. Bank SBL Ratio
(Percent, end of period)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
SBL ratio	12.9	8.0	3.41	2.33	2.63	1.90	1.22	0.84	0.72	1.14

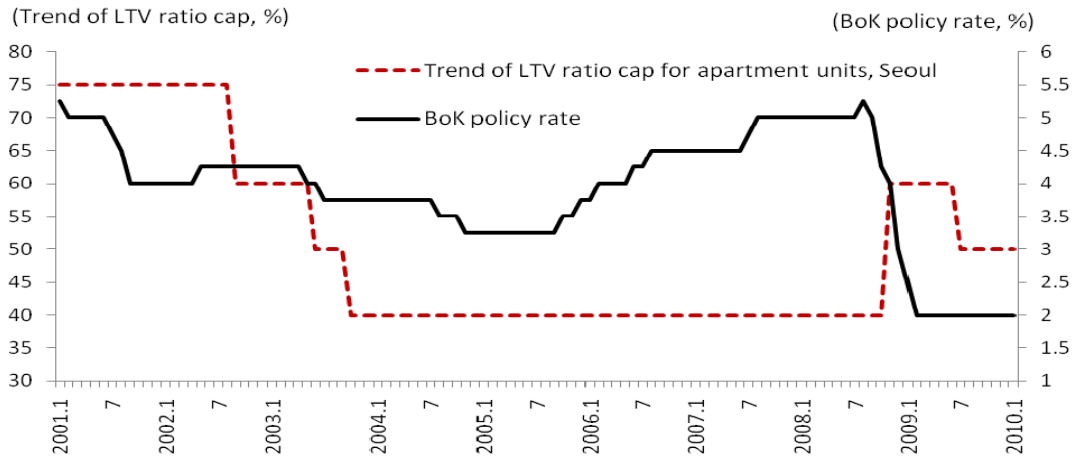
Source: FSS.

Even though the mortgage loans seemed to be healthy, prudential measures for them were strengthened because of an increase in the proportion of mortgage loan to total credit, as well as the exposure to interest rate risk and falling collateral values (Lee, 2006).

Regarding monetary policy and macroprudential policy, Blanchard, Dell'Ariccia, and Mauro (2010) suggest that policy makers use regulatory tools, rather than the policy rate, to deal with excess leverage, excessive risk-taking, and apparent deviations of asset prices from fundamentals. Regulatory tools such as the LTV and DTI ratios are more likely than the policy rate to have the desired impact on the targeted variables (Figure 8).

Most central bankers tend to be cautious regarding the use of monetary policy to counter rises in the price of assets because it is hard to tell whether the rise results from the formation of a bubble or from an improvement in fundamental economic conditions (MPR, during 2003).

Figure 8. Trend of LTV Ratio Cap[a] for Apartment Units in Seoul, and BoK Policy Rate



Sources: FSS, BoK.
a. Less than three years maturity.

The Basel Committee recently suggested that authorities deploy a countercyclical capital buffer, possibly in tandem with other macroprudential tools, in order to ensure that the banking system had an additional buffer of capital to protect it from future potential losses when excess aggregate credit growth is judged to be associated with a buildup of systemwide risks. [31]

The Committee also suggested that alternative tools, such as LTV limits, interest rate qualification tests, and sectoral capital buffers, be deployed in situations where excess credit growth is concentrated in specific sectors, but aggregate credit growth is judged not to be excessive or accompanied by increased systemwide risk.

Still, the buffer alone is not sufficient. Therefore, the authorities in each jurisdiction must use wide discretionary power to make concrete decisions on macroprudential policies and tools.[32]

The second lesson for macroprudential policy makers is that measures need to be applied in a timely manner and according to the specific conditions of each given country.

Policy makers should examine and diagnose the country's housing and mortgage lending market, including the government's housing policy, as it may affect the supply of housing. Supervisors' responses should adapt to changing economic conditions, including the response of the credit and housing markets. Regulatory measures need to be reviewed in response to fluctuations in the financial cycle.[33] In general, the fluctuations can be measured or evaluated by the increasing rate of credit or the amount of loans supplied for a certain period.

The rapid growth of the mortgage loans was not expected when the Korean government relaxed its controls over the housing market and finances after the Asian crisis. Therefore, it seems necessary to examine possible effects on the markets when an authority deregulates a prudential regime.

Stress tests also need to be conducted to check systemic weaknesses and risks. Since 2006, the FSS has conducted a series of stress tests on the likely impact of a sharp drop in real estate prices. The authority focused on the banking system's exposure to mortgage lending and analyzed the effect of falling housing prices on bank profitability (Lee, 2006). Banks were also required to regularly conduct similar tests.

An effective collateral evaluation system and an income certification method are indispensable to banks in order to efficiently identify the risks in the financial environment.

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[31] "The Basel Committee agreed that a building block approach should be adopted to organize the work on procyclicality. The aim of this approach was to align the development of tools to address procyclicality according to a specific set of objectives" (Countercyclical capital buffer proposal, BCBS, July 2010, p.1).

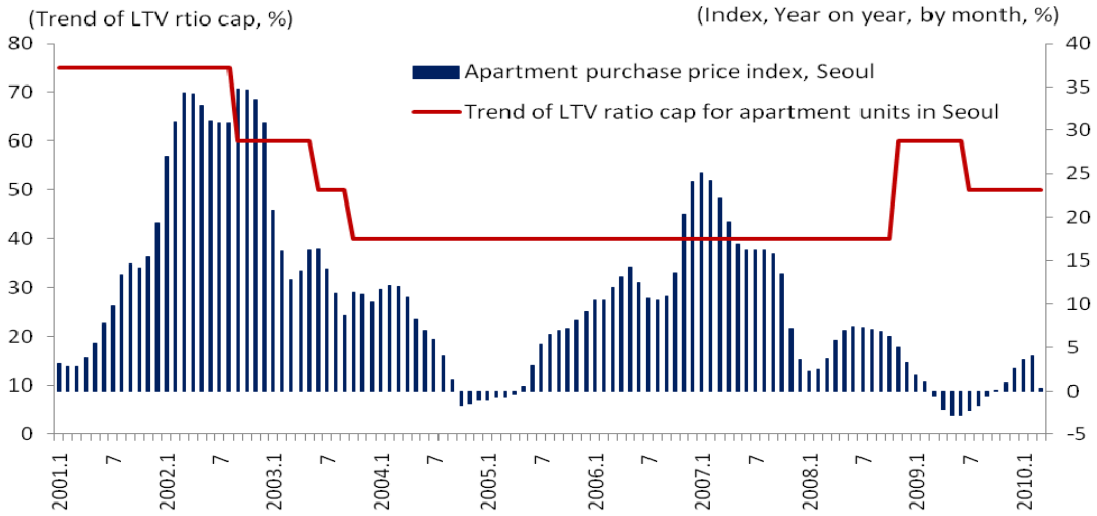
[32] N'Diaye (2009, p.21) notes that "countercyclical macro prudential rules, such as countercyclical capital adequacy rules, could support monetary policy in reducing output fluctuations while maintaining financial stability. The simulations also show that countercyclical capital adequacy rules can help mitigate swings in asset prices and, potentially, lower the risks of financial instability. Nevertheless, implementing and appropriately calibrating countercyclical macro prudential rules to individual country circumstances may be complex, particularly in cases where banks already exceed the existing capital adequacy requirements."

[33] There is a possibility that economic cycle is not consistent with the financial cycle.

The Korean measures have been strengthened in response to both the housing market condition and mortgage loan trends. In particular, the measures were especially focused on borrowers of large loans, as well as on the speculative areas (where apartment prices shot up at an abnormal pace and the demand for housing loans was simultaneously severely concentrated).

In the speculative areas, the LTV ratio was lowered to 40 percent (Figure 9). The application of the DTI ratio was extended to mortgage applicants who purchased a housing unit in a speculative area with collateral value over KRW 600 million.

Figure 9: Trend of LTV Ratio Cap[a] for Apartment Units in Seoul, and Apartment Purchase Price Index of Seoul



Sources: FSS, Kook Min Bank.
a. Less than three years maturity.

The speculative areas were designated by the government, mainly on the basis of the increasing rate of housing prices and other considerations. Thus, in November 2008, when the government abolished the designation, the mortgage lending criteria of those particular areas were automatically lowered. As a result, housing prices were expected to rise and mortgage lending was expected to increase again.

Other restrictions on granting mortgage loans and maturity extensions were implemented for certain cases. For example, one regulation incorporated loans for borrowers who had already secured a housing mortgage loan against an apartment in a speculative zone. These restrictions were successfully executed by banks and non-banking financial companies with the help of the credit information sharing system of the Korea Federation of Banks (KFB). [34]

[34] The Korea Federation Banks (KFB) serves as the public credit information registry under the applicable Korean law. It's credit information sharing system has broad data coverage, including outstanding loans (dates, amounts, and names of lending institutions, mortgage collateral); encompasses every financial institution in Korea; and helps them perform efficient credit assessment of their customers as well as strengthen the monitoring of borrowers. KFB pools the credit information of individual consumers and corporations from banks and non-banking financial companies in Korea. (KFB) (http://www.kfb.or.kr/kfb_eng_09/functions/functions01.htm).

One requirement related to small and medium enterprises (SMEs) is particularly notable. It requires that no financial institution should grant a new corporate loan for small and medium enterprises secured by mortgage on an apartment in a speculation zone for the purpose of acquiring a residential house. This was announced in response to fierce competition among domestic banks to expand the scale of their assets in the wake of a real estate market boom. This was also intended to prevent SME loans from being used for speculative investing in the housing markets.

In 2007, the FSS announced proposals for systemwide improvement of mortgage loan reviews with the KFB and the banking industry, in order to shift loan review practices from being focused on collateral to being based on an assessment of ability to repay debt. The proposal encouraged lenders to improve their internal loan review processes based on best practices.

The third and last lesson is that it is advisable for supervisors to preemptively prepare macroprudential instruments before banks enter a period of rapid mortgage lending. This would avoid reckless mortgage lending operations and weaken any speculative motive in the housing market.

It was a tremendous challenge for the Korean authority to strengthen the standards needed to counteract rapidly growing mortgage lending and to slow run-ups in housing prices. Despite the fact that many of the borrowers lodged protests against policies that reduced access to credit for some people, prudential measures for mortgage lending have been recognized as an important instrument for reducing housing demand.[35]

In fact, the rapid increase of housing prices was (and is) one of the main national issues, as it affects the distribution of wealth. Announcements of prudential measures have generated considerable criticism and a debate about the role of the financial authority. Some academics commented that the banking regulation had temporary and limited effects in restraining the demand for loans, and such regulations cannot be the essential remedy for the housing bubble. Newspapers commented that the measures were disadvantageous for the poor because some lower-income borrowers could find it harder to access credit to buy their houses in a boom phase.

By contrast, others pointed out that the measures should be toughened further because bank lending was continuously increasing after a brief slow down. Having experienced the housing boom and the recent crisis, most financial institutions and borrowers have gradually begun to understand the necessity for regulations on the mortgage market.

Although the quality of mortgage loans has remained generally sound, household debt has been rising faster than income because of mortgage loans for some time. Thus, the accumulation of household debt should be watched because it could weaken potential growth by reducing saving rates, thereby decreasing future capacity to consume (MPR, March 2010).

[35] When a downward spiral of housing prices continues, the construction sector or house suppliers tend to want the authority to weaken the measures so that banks can provide more loans to homebuyers in a bid to spur housing transactions.

5. Concluding Remarks

"It is a challenge to sound the alarm when profits are going up during lending booms."

--- Taesoo Kang and Guonan Ma (2009)

In good times, when businesses and banks enjoy large growth in profits, it can be daunting for policy makers to make decisions that may counteract that growth. Similarly, during times when deregulation is popular, policy makers may be intimidated by going against public opinion and pushing new regulation.

However, it is imperative to maintain a big picture perspective. Rampant asset growth in the banking sector, as well as in the nonbanking sector, can lead to unsustainable bubbles in the financial and real sectors of economy. Therefore, it is vital that financial supervisors ensure that credit stability is a priority over rapid growth in profits.

Korea learned this lesson after suffering from both the Asian crisis of 1997 and the credit card collapse of 2003. The Korean financial supervisory authority was able to stabilize the overheated housing and mortgage lending markets by working jointly with the Korean government and the Bank of Korea.

Many other countries are currently undergoing events in their housing markets similar to those experienced by Korea in the mid-2000s. These countries are seeing their mortgage lending starting to expand, along with the level of risk associated with these loans. Instituting countercyclical measures now, such as those used by Korea, will help prevent financial institutions from becoming insolvent.

The applicability of Korea's risk management scheme is not limited to mortgage loans. This concept is adaptable to other vulnerable sectors in the financial industry, such as credit loans and corporate loans. This method is most effective when paired with an early warning system to monitor the health of the financial industry.

Lessons in macroprudential policy learned from Korea can hopefully help financial supervisors and policy makers from other countries avoid the repetition of a similar crisis in the future.

Appendix A. Mortgage Lending Policy: Regulatory DTI Ratio

The regulatory debt-to-income (DTI) ratio is the total annual amount of redemption in principal and interest of the loan against the borrower's annual income (Box A.1).

Box A.1. Calculation of Debt-to-Income (DTI) Ratio

$$\frac{\text{The redemption amount of principal per year for the relevant mortgage loan} + \text{the redemption amount of interest per year for other loans}}{\text{Annual income}} \times 100$$

Source: FSS.

In addition to the applicable LTV ratio, the DTI ratio for some applicants has been limited since 2005. In October 2005, the DTI ratio was limited to 40 percent for married borrowers whose spouse already had mortgage credit and for unmarried mortgage applicants 30 years or younger seeking housing units in speculative areas (Box A.2).

In March 2006, the application of the DTI ratio was extended to include mortgage applicants purchasing a housing unit in a speculative area whose collateral value exceeded KRW600 million, in addition to the LTV requirement already in effect.

In November 2006, the application of the DTI ratio was expanded to include some additional speculative areas outside Seoul.

Box A.2. Regulation on the DTI Ratio[a]

The 40 percent DTI regulation was set for a very limited range of cases:

1. For loans secured by apartments in areas of high speculation as designed by the government or certain metropolitan areas designated as areas of excessive investment by the government, with appraisal values of more than KRW600 million where the loan application date is within 3 months of the ownership transfer; or

2. For the following borrowers who:
i) have a spouse who already has a loan secured by housing, or
ii) are single and under 30 years old, applying for loans secured by apartment(s) located in areas of high speculation as designated by the government.

Source: FSS

a. Added to the regulation in July 2007.

In February 2007, the FSS announced proposals for systemic improvement of mortgage loan reviews with the Korea Federation of Banks and the banking industry, to shift loan review practices from being collateral-focused to being based on assessment of borrowers' ability to repay debt. The proposal encouraged lenders to improve internal loan review processes through their own plan based on best practices.

In March 2007, banks set forth detailed criteria to apply different lending limits to each borrower within a 40 percent to 60 percent DTI ratio, varying according to the size of the housing unit, lending amount, borrower's credit rating, repayment method, interest rate, and evidence of income.

In July 2007, the FSS released proposals (Best Practice) for systemic improvement of mortgage loan reviews for mutual savings banks, credit unions and credit cooperatives, and credit-specialized financial companies. The scope of application for the financial institutions is loans for apartments within areas of high speculation as designated by the government, and areas of excessive investment in the Seoul metropolitan area. DTI ratios of 40 percent to 60 percent are required for mortgage loans on apartments exceeding KRW300 million. The ratios are slightly higher for loans on apartments of lesser value (Table A.1).

Table A.1. Best Practice DTI Ratios, July 2007

<table>
<tr><th colspan="2" rowspan="2">Collateral value</th><th rowspan="2">Loan amount</th><th colspan="4">DTI base</th></tr>
<tr><th colspan="2">Banks, Insurers</th><th colspan="2">Savings banks, mutual finance companies, credit specialized financial companies</th></tr>
<tr><td colspan="2" rowspan="3">More than KRW 300mil.</td><td>More than KRW100mil.</td><td>40%</td><td rowspan="2">Less than 60%</td><td colspan="2" rowspan="3">(same)</td></tr>
<tr><td>KRW50mil.–KRW100mil.</td><td>50%</td></tr>
<tr><td>KRW50mil. or less</td><td colspan="2">-</td></tr>
<tr><td rowspan="4">KRW300 mil. or less</td><td rowspan="2">Surface area more than 85m^2</td><td>More than KRW100mil.</td><td>40%</td><td rowspan="2">Less than 60%</td><td>45%</td><td rowspan="2">Less than 70%</td></tr>
<tr><td>KRW50mil.–KRW100mil.</td><td>50%</td><td>55%</td></tr>
<tr><td></td><td>KRW50mil. or less</td><td colspan="2">-</td><td colspan="2">(same)</td></tr>
<tr><td>Surface area less than 85m^2</td><td>More than KRW50mil.</td><td colspan="2">50%, less than 60%</td><td colspan="2">55%, less than 70%</td></tr>
<tr><td></td><td>KRW50mil. or less</td><td colspan="2">-</td><td colspan="2">(same)</td></tr>
<tr><th colspan="7">Adjustments to DTI base</th></tr>
<tr><td colspan="2">Fixed interest</td><td>Amortization</td><td colspan="2">Credit ratings</td><td colspan="2">Income</td></tr>
<tr><td colspan="2">+ 5%p</td><td>+ 5%p</td><td colspan="2">- 5%p or + 5%p</td><td colspan="2">- 5%p</td></tr>
</table>

Source: FSS.

In September 2009, the continued upward trend in the metropolitan area's mortgage loans led the FSS to recommend that the banks apply the DTI ratio to cover some non-speculative areas (previously designated speculative) in the metropolitan area (Table A.2).

Table A.2. DTI Ratios of Banks and Insurers, September 2009

<table>
<tr><th rowspan="3">Collateral value</th><th rowspan="3">Loan amount</th><th colspan="3">DTI ratio</th></tr>
<tr><td>Current coverage</td><td colspan="2">Expanded coverage</td></tr>
<tr><td>Speculative area</td><td>Seoul(excluding speculative area)</td><td>Incheon, Kyunggi</td></tr>
<tr><td rowspan="2">More than KRW600 mil.</td><td>More than KRW50 mil.</td><td>40%</td><td>50%</td><td>60%</td></tr>
<tr><td>KRW50 mil. or less</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td rowspan="3">More than KRW 600 mil. (holding title for more than 3 months)</td><td>More than KRW100mil.</td><td>40%</td><td rowspan="2">50%</td><td rowspan="2">60%</td></tr>
<tr><td>KRW50 mil.–KRW100 mil.</td><td>50%</td></tr>
<tr><td>KRW50 mil. or less</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td rowspan="5">KRW300 mil.–KRW600 mil.

Surface area more than 85 m^2

Surface area less than 85 m^2</td><td></td><td></td><td></td><td></td></tr>
<tr><td>More than KRW100 mil.</td><td>40%</td><td rowspan="2">50%</td><td rowspan="2">60%</td></tr>
<tr><td>KRW50 mil.–KRW100 mil.</td><td>50%</td></tr>
<tr><td>KRW50 mil. or less</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>More than KRW85 mil.</td><td>50%</td><td>50%</td><td>60%</td></tr>
<tr><td>KRW50 mil. or less</td><td>-</td><td>-</td><td>-</td></tr>
</table>

Source: FSS Press Release, September 2009.

Note: Insurers were recommended with the same criteria in October 2009.

In October 2009, the FSS made recommendations to the non-banking financial companies[36] to include applying debt to-income (DTI) ratios for all the metropolitan areas (Table A.3).

TableA.3. DTI Ratios of Non-banks, October 2009

Collateral value	Loan amount	DTI ratio			DTI adjustments
		Current coverage[a]	Expanded coverage[b]		
		Speculative area	Seoul (excluding speculative area)	Incheon, Kyunggi	
More than KRW600 mil. (holding title for 3 months or less)	More than KRW50 mil.	**40%**	**50%**	**60%**	-
	KRW50 mil. or less	-	-	-	
More than KRW600 mil. (holding title for more than 3 months)	More than KRW100 mil.	**40%**	**50%**	**60%**	• Fixed interest rates : + 5%p • Amortization schedule: + 5%p • Credit ratings: - 5%p or + 5%p • Income: - 5%p
	KRW50 mil.–KRW100 mil.	**50%**			
	KRW50 mil. or less	-	-	-	
KRW300 mil.– KRW600 mil.	More than KRW100 mil.	**40%**	**50%**	**60%**	
	KRW50 mil.–KRW100 mil.	**50%**			
KRW300 mil. or less	KRW50 mil. or less	-	-	-	
Surface area more than 85 m^2	More than KRW100 mil.	**45%**	**55%**	**65%**	
	KRW50 mil.–KRW100 mil.	**55%**			
	KRW50 mil. or less	**-**	-	-	
Surface area less than 85 m^2	More than KRW50 mil.	**55%**	**55%**	**65%**	
	KRW50 mil. or less	-	-	-	

Source: FSS Press Release, October 2009.

a. Supervisory regulation (in excess of KRW600 million, mortgage loans taken out less than 3 months subsequent to title transfer) and financial companies' internal guidelines (other loans)

b. Maximum DTI ratio for apartments valued in excess of KRW300 million:
60% or less for Seoul
70% or less for Incheon and Kyunggi Province (currently 60% or less for speculative areas)
Maximum DTI ratio for apartments valued at KRW300 million or less:
70% or less for Seoul
75% or less for Incheon and Kyunggi Province (currently 70% or less for speculative areas)

[36] Non-banking financial companies refer to mutual finance companies, savings banks and specialized credit financial companies.

Appendix B. Other Oversight of Bank Lending Activities

The following limitations were also issued by the financial supervisory authority.

Limitations on Housing Mortgage Loans

June 2005. A new home mortgage loan for purchase of an apartment unit in speculative areas will be allowed once for any single borrower. For those borrowers who ended up temporarily owning two housing units, mortgage credit for the new house in the speculative area will be allowed with the condition that the old housing unit be sold within a year of new mortgage date.

August 2005. No new mortgage applications for the legally under-aged borrowers will be accepted. (Prior to this, there was no guidance on borrower's age.) For borrowers with three or more mortgages in speculative areas, mortgage loans will be reduced to two.

January 2007. Rollover will be allowed for only one mortgage loan if a borrower has two or more mortgage loans backed by an apartment in a speculative area. The prohibition of multiple mortgage lending measures will be expanded to all financial sectors.

Limitation on Corporate Loans based on Apartment in Speculation Zone

June 2005. No financial institution should grant a new corporate loan secured by a mortgage on an apartment is to be acquired after July 2005 in a speculation zone, except with special approval.

Response to the Herd Behavior in Bank Lending to SMEs

To ensure the health of small and medium-size business loans, the financial authority stepped up its oversight on the credit evaluation methods used at banks to ensure that they are appropriate and watched over the use of loans to prevent funds from being used for purposes other than intended.

Easing of Mortgage-Servicing Burden in 2008

November 2008. Borrowers who took out a second mortgage on the condition of the sale of the first property within one year will be exempted from having to sell the first property if the area of the second property was no longer declared a "speculative" area.

The exclusion coincided with the lifting of speculative designation of certain residential areas in southern Seoul by the government and significantly reduced the debt-servicing burden of many mortgage borrowers. Furthermore, borrowers who own two housing units and received financing on the condition that either of the units be sold within one year will be allowed to retain both housing units for up to two years.

Additionally, financial institutions will be allowed to grant a new corporate loan secured by mortgage on an apartment in a speculation zone, unless the corporate loan is for the purpose of acquiring a residential house, except with special approval.

Appendix C. Standards for Risk Management of Housing Mortgage Loan

CHAPTER I. General Provisions

1. (Definitions) The terms used in these Standards shall be defined as follows:

a. "Housing mortgage loan" means a loan for household (including an asset-backed securitized loan) extended by a financial institution against houses. The loan falling into any of the followings shall be deemed as housing mortgage loan unless otherwise prescribed:
(1) Intermediate payment loans and balance payment loans in case of parceling-out houses;
(2) Or relocation expense loans for houses under rebuilding and/or redevelopment, intermediate payment loans and balance payment loans for additional allotted charges.

b. "House" means a house prescribed under Article 2, Item 1 of the Housing Act.

c. "New loan" means a newly extended loan, including increase of the existing loan amount, renewal of the loan agreement, refinancing, taking over of obligations, etc. However, in cases of extension of loan maturity, renewal of the loan agreement or refinancing in which only the conditions for interest rate or maturity are changed and the transfer of the existing intermediate payment loan to a balance payment loan without increasing the amount of loan, they shall not be deemed to be new loans.

d. "Loan-to-Value ratio (LTV)" means the ratio of maximum amount of possible loan against the value of mortgage, which is considered at the time of extending a housing mortgage loan.

e. "Debt-to-Income ratio (DTI)" means the ratio of the total annual amount of redemption of principle and interest of the loan against the borrower's annual income.

f. "Speculation zone" means an area designated by the Minister of Strategy and Finance pursuant to the Article 104-2 of the Income Tax Act.

g. "Overheated speculation district" means an area designated by the Minister of Land, Transport and Maritime Affairs or the Mayor/Do Governor pursuant to the provisions of Article 41 of the Housing Act.

h. "Seoul Metropolitan Area" means Seoul Metropolitan City, Incheon Metropolitan City, and Gyeonggido.

CHAPTER II. Loan-to-Value Ratio

2. (Application of LTV)

a. LTV at the time of extending new housing mortgage loans by financial institutions is as follows:

		Speculation Zone		Overheated Speculation District		Other Areas	
Maturity		House [1]	Apartment	House	Apartment	House	Apartment
Not more than 3 years [2]		50% or less	40% or less [2]	50% or less	50% or less [2]	60% or less [4]	60% or less [2] [4]
More than 3 yrs but not more than 10 yrs		60% or less	40% or less	60% or less	60% or less	60% or less [4]	60% or less [4]
More than 10 yrs	Mortgage value: more than 600 Mil won	60% or less	40% or less	60% or less	60% or less	60% or less [4]	60% or less [4]
	Mortgage value: less than 600 Mil won	60% or less	60% or less	60% or less	60% or less	60% or less [4]	60% or less [4]
Payment in installments (10 yrs or more) [3]		70% or less	70% or less	70% or less	70% or less	70% or less	70% or less

Note: (1) Referring to the houses excluding apartments and apartments for commercial and residential purposes.
(2) In case of the intermediate payment loans and relocation expense loans for an apartment, the equivalent ratio shall be applied without taking the maturity into account.
(3) Referring to the loan with fixed interest rate (and with the grace period of one year or less, DTI of 40% or less), having a plan to sell itself to the Korea Housing Finance Corporation or a plan for self-securitization.
(4) In case of a house outside of the Seoul Metropolitan Area, for which a parceling-out contract was not

concluded until June 10, 2008 after parceling-out procedures, if the house newly concludes a parceling-out contract between June 11, 2008 and June 30, 2009 and pay the contract deposit, the LTV of 70% or less applies. In such cases, the financial institution shall receive from the borrower a copy of the document issued by the Mayor or the head of *Gun/Gu* proving that the house has not been parceled-out and a copy of the document issued by the Mayor or the head of *Gun/ Gu* proving that there was a self-helping effort to parcel-out the house such as decreasing sales price by 10% or more or relaxation of parceling-out conditions whose effect is equivalent in its degree to the said decrease of sales price, and after checking the copy of the documents the financial institution shall calculate the LTV based on the decreased sales price (including the case of relaxation of parceling-out conditions).

b. Despite the LTV prescribed in the above Sub-item (a), in case of taking over the loan of the existing borrower without changing balance amount, maturity, method of redemption and without extending additional loans, the LTV which was applied for the existing borrower may be applied for such taking over, and in case of transfer of the existing intermediate payment loan to a balance payment loan without increasing the amount of loan or change of the financial institution etc., the LTV at the time of extending the intermediate payment loan may be applied.

CHAPTER III. Debt-to-Income Ratio (DTI)

3. (Applicable Objects and its Standards) In case a new housing mortgage loan falls under any of the followings, financial institutions shall extend the loan within the borrower's DTI of not exceeding 40%:

a. Apartment mortgage loan in a speculation zone for the borrower whose spouse has taken out a housing mortgage loan more than once: Provided, however, in case where the borrower inevitably takes over the loan obligations in order to inherit or to participate in auction procedures or others held to secure creditor's debt obligations, the application of DTI may be exempted.

b. Apartment mortgage loan in a speculation zone for an unmarried borrower who is less than full 30 years of age: Provided, however, in case where the borrower inevitably takes over the loan obligations in order to inherit or to participate in auction procedures or others held to secure creditor's debt obligations, the application of DTI may be exempted.

c. Household loan in order to finance a borrower who newly purchases an apartment as a mortgage, whose market price is more than 600 million won, in a speculation zone or in an overheated speculation district within Seoul Metropolitan Area: Provided, however, in case of any of the followings, the application of DTI may be exempted:

(1) A loan against an apartment for which three months, as at the date of extending the loan, have passed from the date of registration of title transfer (referring to the date on which the application for title transfer is filed with the registry office): Provided, however, if the purpose of the loan is deemed to avoid application of DTI, it shall be excluded;

(2) A loan against shares (proportional ownership) of the rebuilding or redevelopment for which three months have passed from the date of application for the change of association member list, or from the date of registration of proportional ownership transfer;

(3) A loan against an apartment which falls under any of the followings and three months have not passed from the date of registration of title transfer:

a) Small amount of loan covering 50 million won or less (aggregated amount of loans in all financial institutions);

b) Loan exceeding 50 million won which is deemed to be inevitably necessary to finance urgent business needs or other purposes and

obtained approval of the Credit Committee (or, other decision-making organization equivalent to the Credit Committee); or

c) In case where the borrower inevitably takes over loan obligations in order to inherit or to participate in auction procedures or others held to secure creditor's debt obligations; or

(4) Loan for relocation expenses or additional allotted charges to be received as a result of the progress of rebuilding or redevelopment of houses after three months have passed since the acquisition of the houses.

CHAPTER IV. Execution, Limitations on Extension of Maturity, etc. of Housing Mortgage Loan

4. (Limitations on Execution of Apartment Mortgage Loan in Speculation Zone by Same Borrower) A financial institution may not newly extend a loan for a borrower who has already secured a housing mortgage loan against an apartment in a speculation zone: Provided, however, that this shall not apply in any of the following cases:

a. Regarding a borrower who has already secured a housing mortgage loan, if the balance of existing loan against an apartment in a speculation zone is within LTV, in the case of extending an additional loan (inferior priority) against the said apartment within the scope of LTV; or

b. Where another loan is granted to a borrower, who already owes a housing mortgage loan, on condition that the residential house that the borrower already owns shall be disposed of (the transfer of title shall be completed) within two years after the new loan is granted (based on the registration date of transfer of ownership after the construction of a new apartment is completed, if the new loan is for intermediated payments or moving expenses) in connection with a contract for purchasing a new apartment and where a special agreement that the term of the mortgage loan for the new apartment shall be accelerated if the borrower is unable to prove that the disposition of the residential house that the borrower already owns and the repayment of the pre-existing loan have been completed on or before the prescribed deadline. <Amended on November 7, 2008>

5. (Limitations on Maturity Extension of Apartment Mortgage Loan in Speculation Zone) Regarding a borrower who has already secured two or more apartment mortgage loans (referring to household loans), a financial institution shall retrieve the loans in the order that whichever loan's maturity becomes due earlier than that of others without extending the maturity and thereby eventually reduce the number of apartment mortgage loans for the same borrower in speculation zones to one case: Provided, however, that this shall not apply in any of the following cases:

a. Maturity may be extended within the period of one year if there is a special agreement that the number of apartment mortgage loans in speculation zones be reduced to one case within a year from the time of maturity, and the borrower loses the benefit of time from the case of loan whose grace period is over if the borrower fails to perform the special agreement;

b. In case of two loans, if the maturity of the existing apartment mortgage loan becomes due earlier than that of the loan for financing intermediate payment (including the loan for relocation expenses), the maturity may be extended if there is a special agreement that the number of loans be reduced to one case within a grace period (one year) from the time of maturity of the loan for financing intermediate payment; thereafter, even when the maturity of the loan for financing intermediate payment becomes due, the maturity may be extended with a special agreement that the number of loans be reduced to one case within a grace period (one year);

c. In case where the title transfer by sale is restricted for all the owned apartments, the grace period may be adjusted if there is a special agreement that the number of loans be reduced to a case within one year from the first time when the maturity restriction ends;

d. A grace period of additional one year each may be granted in any of the followings:

(1) In case of the loan secured by a house as mortgage to be inevitably used by the borrower's parents, children, or spouse who is/are actually residing in the address (referring to the address on the copy of resident registration) different from that of the borrower: Provided, however, the total number of such loan shall be one case; or

(2) In case where the disposition of a house owned is impossible due to court's provisional seizure or injunction for prohibition of disposition, destruction of the house by fire or natural disaster, or objection to the sale by a co-inheritor or a co-owner of right of share, etc; or

e. In case of the loan under a special agreement with the condition of disposition pursuant to the Sub-item (b) of Item 4; and the case of the loan secured by an existing house (i.e., the house to be disposed).

6. (Limitations on Acquisition of Mortgage and on Execution of Housing Mortgage Loan for Minor Borrower)

a. A financial institution shall not extend a new housing mortgage loan for a minor (excluding a minor who is married) as at the date of loan extension: Provided, however, this shall neither apply to the loan within 40% of DTI for a minor who has no parents such as the minor who is the head of a household, etc., nor to the loan for a minor who inevitably takes over the loan obligations due to inheritance, etc.

b. A financial institution may extend the maturity, only one time and for maximum one year, of the residential mortgage loan for a minor borrower (including the case in which a third party provides a mortgage): Provided, however, the financial institution may exceptionally extend maturity for a minor borrower who has no parents, such as a minor who is the head of a household, etc.

c. In case where a borrower was a minor at the time of the loan extension and thereafter became an adult when the maturity is due (including the time when the grace period of a year is over), a new loan may be extended after the existing loan is retrieved.

7. (Limitation on Corporate Loan based on Apartment in Speculation Zone) No financial institution shall grant a new corporate loan secured by mortgage on an apartment in a speculation zone for the purpose of acquiring a residential house, except where it is approved inevitable. <Amended on November 7, 2008>

8. (Principles of Deliberation for Residential Mortgage Loan) A financial institution shall, at the time of extending a residential mortgage loan, thoroughly conduct the credit review, by comprehensively taking into account of the overall credit rating, etc. based on the borrower's ability to repay, such as income etc., and on the evaluation of the borrower's personal credit

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