

MACROPRUDENTIAL SUPERVISION IN KOREA: EXPERIENCES AND CASE STUDIES

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I. CONCEPT OF MACROPRUDENTIAL SUPERVISION: FINANCIAL SUPERVISOR'S PERSPECTIVE

(A) Concept of Macroprudential Supervision

For financial supervisor, macroprudential supervision is an approach that can help them better protect the stability of the financial system.

The essential goal of macroprudential supervision is to limit system-wide distress, while that of microprudential approach is to limit distress of individual institutions, regardless of their impact on the financial system and the overall economy.

Microprudential supervision is what financial supervisors know well, since the oversight of individual financial institutions is their primary responsibility. And this could be easily rationalized in terms of consumer protection.

In recent years, however, changes in the origin and nature of financial crises have it clear that financial stability cannot be secured through a microprudential approach alone.

Examples include the East Asian financial crises of 1997, where severe banking problems had their origins in weak corporate investment and volatile capital flows.

So, macroprudential supervision gives financial supervisors a new way to approach financial stability, one that puts emphasis more on the health of the financial system than on individual institutions.

Moreover, it is important not to mistake macroprudential supervision as a substitute or replacement for microprudential supervision because it is a complement to the existing supervisory framework.

(B) Macroprudential Supervision and Macroeconomic Policy

Macroprudential supervision is aimed at protecting the financial system from macroeconomic shocks and preventing financial distresses from spilling over to the real economy.

More specifically, macroprudential supervision can be divided into three key steps:

- (i) identify distress in the financial system;
- (ii) preempt systemic risks, and
- (iii) respond promptly in the event of a crisis.

Macroprudential supervision puts the emphasis on how financial distress can arise from common exposure to macroeconomic risk factors and mutually-reinforcing interactions between the financial and real sectors.

So, close monitoring of economy-wide developments is needed for effective macroprudential supervision.

However, macroprudential supervision should not be understood as a tool to facilitate economic growth or other non-prudential policy objectives.

As I will explain next, we learned a valuable lesson from what can happen when the independence of supervisory policy is compromised by conflicting economic policy objectives.

II. IMPORTANCE OF MACROPRUDENTIAL SUPERVISION: KOREA'S EXPERIENCE

The bursting of the credit card bubble in 2003 highlighted the need for macroprudential supervision in an unmistakable fashion.

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.

One was to encourage the use of credit cards with the goal of promoting consumption and at the same time improving the transparency of consumer transactions.

Emboldened by this policy, credit card issuers began to compete fiercely for new card members in an attempt to expand their market share. In the process, they issued credit more or less indiscriminately to anyone who wanted it.

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 via the information channel and common exposure-channel among financial institutions.

Following the bursting of the credit card bubble, consumer spending sharply contracted, 1.2% in 2003 and 0.3% in 2004. And with the economy in recession, many marginal companies and low-income households began to default on their debt.

In retrospect, it is clear that Korea's supervisory authority did not respond adequately to the growth of household delinquencies stemming from the reckless behavior of credit card.

The supervisory failure left several important lessons for us. First, because our prudential oversight primarily focused on the soundness of individual financial institutions (i.e., microprudential supervision), we were not sensitive to systemic distress originating from households.

Within the FSS, there really wasn't any systematic monitoring of the debt-servicing ability of households at the time.

Second, effective financial supervision was limited by inadequate policy coordination between the MOFE and the FSC/FSS. The FSC/FSS began to recognize the seriousness of the credit card bubble as early as 2001, and proposed to MOFE tightening of the supervisory criteria on credit card businesses.

(The implementation decrees of the Law on Credit-Specialized Financial Institutions had to be revised to change the supervisory criteria).

But it did not materialize, because assessments varied on how serious the systemic risk was and how it would evolve over time.

The case for tougher supervision was undermined somewhat by the government's effort to stimulate the economy, particularly by overtly optimistic outlook on growth and credit card delinquencies.

The FSC/FSS continued to monitor the situation closely, but its response to the rapidly rising risk in the financial system was tamed by pressure for regulatory forbearance.

The lesson from this experience was that the regulatory authorities should be cautious when overly optimistic economic forecasts challenge prudential policies or overshadow distress in the financial system.

The lesson is that predictions of overly upbeat portrayal of the economy or its future performance should be met with “healthy skepticism” by financial supervisors.

III. BUILDING MACROPRUDENTIAL FRAMEWORK: MACROPRUDENTIAL SUPERVISION DEPARTMENT

(A) Background on FSS Macroprudential Supervision Department

Following the credit card crisis, the need for effective macroprudential supervision to help financial supervisors deal with systemic risks became obvious.

In late 2004, the FSS undertook major internal organizational changes. And it was during this time that the idea of creating a department within the FSS exclusively dedicated to macroprudential supervision began to take shape.

In early 2005, the FSS newly created Macroprudential Supervision Department and pushed hard to establish a solid foundation for macroeconomic surveillance.

In November the same year, the FSS invited IMF Technical Assistance Mission for consultation and advice on macroprudential supervision. Its review and recommendations have brought FSS macroprudential work more in line with international best practice.

(B) Macroprudential Supervision Department: Structure & Functions

Let me briefly explain how the Macroprudential Supervision Department is organized and functions within the FSS.

The department currently consists of three teams: Macroprudential Supervision Team, Financial Industry & Market Team, and Early

Warning Team.

The Macroprudential Supervision Team analyzes macroeconomic developments at home and abroad, identifies risk factors in the financial system, and supports FSS risk management policy.

The Financial Industry & Market Team monitors the debt, equity, and foreign exchange markets on a real time basis and analyses major market developments and trends.

Lastly, the Early Warning Team manages the early warning systems for distress at individual financial institutions and in the financial system as a whole. It also conducts stress testing at the macroprudential level.

We see these teams working well together and conducting macroprudential surveillance effectively.

Approaches to Macroprudential Surveillance

The Macroprudential Supervision Department takes several different approaches to macroprudential surveillance.

Macroprudential soundness requires (i) soundness of the financial service industry, (ii) stability of the financial market, and (iii) debt-servicing ability of households and companies.

So the Early Warning Team monitors the soundness of the financial service industry, the Financial Market & Industry Team the stability of the financial market, and the Macroprudential Supervision Team household and corporate borrowers' debt-paying ability.

Surveillance Methodologies

The Macroprudential Supervision Department utilizes a number of methodologies to perform macroprudential surveillance.

Both the Macroprudential Supervision Team and the Financial Industry and Market Team primarily employ qualitative and analytical methods to assess the market situation or changes in key economic variables.

The Early Warning Team mostly uses econometric and other quantitative methods to assess the propagation and effect of a shock to the financial system.

(C) Work Flow at Macroprudential Supervision Department

Let me briefly mention the work flow at the Macroprudential Supervision Department.

The department prepares policy reports on risk factors and recommendations to senior FSS officers on a regular or as-needed basis to support their decision-making. Preparing these reports is a multiple-step process.

Monitoring

The first step is monitoring.

As I explained earlier, the Macroprudential Supervision Team monitors macroeconomic developments and the Financial Industry & Market Team the financial markets. When a significant or unusual development is identified, an issue paper is prepared.

In particular, the report by the Financial Industry & Market Team can be issued with a varying frequency from intra-day to monthly report, based on the real-time monitoring of the financial market.

One key risk factor the two teams closely monitor is concentration risk, e.g., in the overheated property market and concentration of new loans to a specific industry such as construction industry. Such a risk can lead to herd behavior and could potentially pose a threat to the

financial system.

The Macroprudential Supervision Department also regularly meets with outside economists, analysts, chief financial officers and others to gain and assess market's perception of risks.

Risk Identification and Assessment

The next step is identifying potential risk factors in the financial system.

When identifying a risk factor, we consider its probability as well as its potential impact on the financial system. The selection of the risk factors requiring close monitoring takes place at the department level.

Reporting to the Senior Officers

The department prepares a report on the selected risk factors, including their characteristics and expected effects and suggested actions, and presents the report to a bi-weekly meeting of senior officers.

The bi-weekly meeting is where the macroprudential views of the department are officially communicated to the decision-makers to help them with their microprudential supervision.

IV. OPERATION OF EARLY WARNING SYSTEM & STRESS TEST

(A) Early Warning System

Let me speak a little bit about our early warning system.

The early warning team works with the supervision and examination

departments to develop and run early-warning models.

Each quarter, the team also reports the results from models covering the entire financial sectors to the senior decision-makers.

In January, the early warning team implemented several measures to fine-tune the existing models.

First, the team developed two to three additional models for each financial sector to build a multi-layer monitoring system and thus avoid reliance on a single model.

The system was computerized so that the relevant departments can easily access the latest results from the models.

The old models primarily relied on microprudential approach using financial ratios to identify problematic companies. The new models now take macroprudential approach by utilizing macro-economic variables.

They also incorporate Merton's model (to predict the probability of default using share price movement) for banking, insurance and securities sectors.

The FSS also developed "Daily Financial Soundness Indicators" to continuously monitor the soundness of financial institutions and the financial service industry as a whole.

These indicators look at asset soundness, liquidity and profit indicators for each financial sector on a daily basis to evaluate the soundness of financial institutions.

(B) Stress Test

The Early Warning Team has been spending most of its time on macroprudential stress tests for systemic weaknesses and risks.

We have a two-tiered stress testing system in place. That is, the

Macroprudential Supervision Department conducts macroprudential stress tests and the individual departments in charge of the financial sectors microprudential stress tests.

One area of particular interest to the Early Warning Team is the contagion effect among the financial sectors and the dynamic process of shock propagation from the financial sector to the real sector. Since the assets of a financial company are liabilities of a company in the real economy and vice versa, changes in the soundness of the real economy usually precede changes in the soundness of the financial sector. Therefore, an external shock to the real economy eventually reaches the financial sector one way or another.

So the Early Warning Team is paying close attention to this process and conducting stress tests in order to assess the impact of, say, a sharp drop in property prices or other similar shocks on the soundness of financial institutions.

Case Study of Macroprudential Supervision

Earlier in 2006, the FSS conducted a series of stress tests to estimate the likely impact of a sharp drop in real estate prices, particularly on the construction industry, real estate-related asset-backed securities, and lenders highly exposed to the property market.

In June 2006, the Macroprudential Supervision Department focused more on the banking system's exposure and analyzed the effect of falling housing prices on bank profitability.

This stress test was carried out with VAR (Vector Auto-Regressive) models with time-series data of interest rates, housing prices and bank's ROA from 1991 through the first quarter of 2006.

Because of the characteristics of the model, we were able to consider comprehensively both indirect and long-run effects as well as direct effects. One result of the analysis showed that, if real estate price falls

by 20% during four quarters, bank ROA would drop by more than 0.5 percentage points.

On the basis of the stress tests, the prudential standards on mortgage lending were tightened (which I will speak more in few minutes).

This was a preemptive step by the bank supervisors to prevent property bubble in the real estate market, a good example of how macroprudential supervision can help the bank supervisors avoid systemic risks to the banking sector.

V. SHARING OF OVERSIGHT RESPONSIBILITIES

Because of its multi-faceted nature, financial stability is more likely to be achieved through the collective endeavor of the public institutions involved in financial oversight.

In Korea, four separate entities share the responsibility:

- (i) Ministry of Finance and Economy
- (ii) FSC and FSS
- (iii) Bank of Korea, and
- (iv) Korea Deposit Insurance Cooperation.

(A) Shared Responsibilities

The laws that provide the legal basis for the creation of the aforementioned oversight entities stipulate the purposes for which these entities are created.

But what these laws do not tell us is (i) how the oversight responsibilities should be shared, or (ii) how the checks and balances among the oversight entities should be managed.

As a result, the possibility exists for lack of accountability,

overlapping oversight, and conflict arising from institutional bias and self-interest.

In an effort to address these issues, we formed a consultation body known as “Financial Policy Coordination Committee.”

The committee is made up of high-ranking officials from the Finance Ministry, Bank of Korea, and Financial Supervisory Commission.

It is primarily intended to facilitate exchange of information, but it does not have any legal basis or authority under the law.

The committee usually convenes once or twice each quarter, and the agenda for the meetings typically relate to financial policies. The specific topics for meetings are usually decided by the Finance Ministry.

I may also note that, in October, 2002, the Bank of Korea and the FSS agreed on an MOU that provides for joint bank examination and exchange of information.

So we do have a framework in place for policy discussions and information sharing. And each entity works to contribute to financial stability based on the policy stances in line with the purposes for which it is created.

And with the integration of macroprudential supervision into the supervisory framework, the FSS has stepped up its oversight of the financial system.

(B) Response to 2003-2005 Real Estate Bubble: A Case of Shared Oversight Responsibilities

Tightening of Regulations on Mortgage Lending

Property prices have been moving up strongly since late-1990s

worldwide with historically low interest rates. Korea was not an exception to this global phenomenon.

Since 2000, the Bank of Korea took accommodative stance on interest rates out of concern for sharp economic downturn from the bursting of household credit bubble.

As of September 2006, bank household loan volume stood at 352.1 trillion Korean won, accounting for 41.0% of the total credit of 859.6 trillion Korean won.

Among these, housing mortgage loan amounted to 206.9 trillion won, accounting for 58.8% of the household loan. For reference, the share of housing mortgage loan in US is 68.7%.

The asset soundness of household loans remains healthy as evidenced by the low NPL ratios of 1.2% and 1.0% in the household loan and the mortgage sectors, respectively.

However, the supervisory authorities have been strengthening risk-based supervision as housing mortgage loans are taking a greater part of the total credits, and most of the mortgage loans are exposed to interest rate risk as well as housing price fall.

In an effort to preempt potential distress from overheated housing market on the financial system, the FSS lowered the loan-to-value (LTV) ratio from 60% to 50% in May, 2003, and from 50% to 40% in October the same year, for the highly speculative areas.

For its part, the government continued to impose heavier tax burden on capital gains from real estate transactions. The concerted effort paid off, and housing unit prices in the Seoul metropolitan area began to fall (up 30.8% in 2002, 10.2% in 2003, and 1.0% in 2004).

The average LTV ratio in the banks' housing mortgage loan sector stood at 51.3% as of June 2006, down from 56.4% in 2004. But we did see some signs of property prices rising again in recent months.

In March this year, the FSS took additional preemptive measures. That is, as part of the effort on improving risk management, the Debt to Income (DTI) regulation was introduced to restrict borrowers with debt-to-income ratio greater than 40% for high-end house financing.

Stability of the Macroeconomy & Financial System from Policy Coordination

Thus, given the dampening effect that an interest rate hike would have on the economy, the Bank of Korea was in a difficult situation. So the FSS took steps to preempt property bubble in the housing market.

Domestic demand began to show signs of a pickup in the second half of 2005. And during the first half of 2006, the real GDP posted a 5.7% growth. This, together with rising inflationary pressures, gave the Bank of Korea some room to maneuver in countering overheating in the property market.

Therefore, beginning in the second half of 2005, the Bank of Korea steadily raised interest rates (five times) from 3.25% to 4.5% and sharply dampened expectations of continued real estate price hikes.

So what we experienced can be summed up as follows.

First, the supervisory measures the FSS took to preempt the housing price bubble were clearly motivated by macroprudential considerations.

Had “microprudential” orientation been our only consideration, we would have had no reason to tighten the already low 60% LTV ratio for bank mortgage loans.

It was the judgment of the FSS that, just as in the aftermath of the bursting of consumer credit bubble, housing price bubble, if left unchecked, would have put the financial system under severe strain.

Second, our experience also suggests that interest rate policy narrowly aimed at financial stability by the central bank may not be a realistic instrument to address system-wide risks flexibly.

Obviously, the impact of monetary policy by the central bank is “indiscriminate” and broad in scope. So, it is often regarded as a blunt instrument.

On the other hand, the supervisory authority does have some tools that can be tailored to achieve narrowly defined objectives, such as limiting mortgage lending to ensure financial soundness.

In short, our experience suggests that the FSS, together with the Bank of Korea, did manage to preempt housing price bubble without putting brakes on a sluggish economy.

VI. CONCLUDING REMARKS: TASKS AHEAD

So this has been our experience with macroprudential supervision.

Although the concept and practice of macroprudential supervision are yet to be clearly established, Korea has moved aggressively to integrate it into its prudential oversight framework because of lessons it has learned from the credit card bubble not long ago.

At the FSS, we have Macroprudential Supervision Department in charge of our macroprudential supervision, providing early warning of weaknesses in the financial system.

As we put greater emphasis on macroprudential supervision, I see two key questions that we will need to address to strengthen macroprudential supervision in Korea:

First, as a supervisory authority, how do we create synergy from macro and microprudential supervision? Second, how should the supervisory authority, the central bank, and other regulators interact with each other to improve cooperation?

The first of the two can be addressed by building on each supervisory department's experience when developing a macroprudential framework, such as stress testing framework with the FSS.

The second task can also be addressed by strengthening the Financial Policy Coordination Committee and by leveraging on the respective strength of the three institutions.

Lastly, much work lies ahead on the implementation of macroprudential supervision that takes into account procyclicality, such as (i) adjustment in regulatory capital and (ii) dynamic provisioning.

So I think we can safely say that macroprudential supervision will continue to challenge financial supervisors with the difficult task of (i) turning the “desirable” into the “executable,” and (ii) separating the “possible” from the “impossible.”