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Bank of Japan

## **The Bank of Japan's Initiatives on the Macroprudential Front**

Since the failure of Lehman Brothers Holdings in the United States, it has become globally understood that preventing a financial crisis from reemerging involves analysis and assessment of risks in the entire financial system and adequate measures to prevent systemic risk from materializing. This is the so-called emphasis on the macroprudential framework. The Bank of Japan has implemented a number of advanced initiatives on the macroprudential front. One example is the release in October 2011 of the new *Financial System Report*, which was formed by integrating the *Financial System Report* and the *Financial Markets Report*, with the aim of further improving analysis of the financial system.

Below is a description of the Bank's macroprudential perspective and initiatives.

### **I. Importance of the macroprudential framework**

#### **A. Macroprudential perspective**

The macroprudential perspective contrasts with the so-called microprudential perspective, which involves ensuring the financial soundness of individual financial institutions. In the macroprudential framework, risks are analyzed and assessed from the viewpoint of the entire financial system, and institutional designs and policy responses are formed on these assessments, thereby ensuring stability of the entire financial system. Particular attention is paid to the consequences of the following factors in the macroprudential framework: the interconnectedness among financial institutions, financial markets, and other components of the financial system; and a feedback loop between the real economy and the financial system.<sup>1</sup>

The emphasis on the macroprudential framework has increased its presence following various financial crises worldwide, including the emergence and bursting of the bubble economy in Japan. It has become a worldwide trend to attach importance to the macroprudential

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<sup>1</sup> The financial system comprises financial institutions, financial markets, and financial infrastructures, such as payment and settlement systems.

framework since the recent global financial crisis triggered by the failure of Lehman Brothers Holdings. Behind this trend lies a growing perception that the stability of the entire financial system is not necessarily achieved solely by ensuring the financial soundness of individual financial institutions. More specifically, the underlying recognitions are as follows.

First, risks that are supposed to be contained at individual financial institutions could in the aggregate destabilize the entire financial system, if similar risk-taking positions and simultaneous unwinding of their positions cause market prices to fluctuate and credit expansion or contraction to occur more than expected. Taking the situation before and after the recent global financial crisis as an example, many financial institutions and institutional investors aggressively took on risks before the crisis by purchasing increased amounts of U.S. subprime mortgage loans and securitized products backed by these loans. As a result, the amount of credit extended through securitized products backed by U.S. real estate assets or resecuritized products accumulated globally, and real estate prices in the United States continued to rise in line with active housing investment. Under these circumstances, domestic and overseas investors further increased investment in securitized products, and thus the rise in their prices continued. However, in 2007, credit downgrades of securitized products caused financial institutions and institutional investors to sell these products in haste. Then, market prices dropped, and market transactions contracted immediately. Consequently, some financial institutions suffered greater-than-expected losses from securities investment and even faced difficulty in funding due to inability to sell the securitized products. As they reduced their credit such as loans within a short period to ease their funding conditions, asset prices dropped and the real economy deteriorated, thereby aggravating the instability in the financial system.

Second, the spread of new financial technologies such as derivatives and the rise of new types of investors such as hedge funds have made it difficult to identify risks in the financial system and gauge their degrees. For example, in U.S. financial markets before the global financial crisis hit, banks actively traded securitized products and credit derivatives with various institutional investors and financial institutions in order to transfer credit risk. On the other hand, institutional investors received credit and liquidity support from banks and actively carried out funding and investment in repo transactions with securities companies. Such diverse and complex transactions hindered individual financial institutions from gauging properties and degrees of their risks as well as supervisory authorities and central banks from grasping risks in the entire financial system. The abrupt contraction of many market transactions following the failure of Lehman Brothers Holdings is attributed to extremely cautious risk-taking of financial institutions and institutional investors with the growing anxiety over obscure properties and degrees of risks.

## B. Macroprudential policy

What kinds of policy framework and measures should be taken to put the abovementioned macroprudential perspective into practice -- in other words, macroprudential policy -- have been discussed internationally. In general, macroprudential policy is understood to include the following functions: (1) analyzing and assessing the conditions of the entire financial system and systemic risk; and (2) conducting and recommending policy measures to contain systemic risk.

With respect to the first function, many central banks and international organizations have already been releasing their analyses and assessments regularly in the form of financial system reports or other means. In doing so, importance is being attached to the following two dimensions.

- i. Analyzing and assessing the risks of the entire financial system at a particular point in time in the cross-sectional dimension.

The financial system comprises various participants, such as banks, securities companies, insurance companies, and investment funds. These participants interact with each other through links formed by daily transactions and settlements. As described earlier, in the face of the recent global financial crisis, loss in market confidence in securitized products eventually tightened funding conditions of securities companies and banks through the transactions involving investment funds and other financial institutions. Therefore, in assessing the entire financial system, the behavior of and risks borne by a broader type of participants and their interconnectedness should be analyzed.

- ii. Analyzing and assessing evolving risks of the financial system in the time-series dimension.

A feedback loop between the financial system and the real economy becomes operative with the passage of time. For example, in benign economic conditions, asset prices tend to rise. Such a rise in asset prices prompts financial institutions to take on more risks. This could result in a further rise in asset prices and overheating of the economy.<sup>2</sup> As a result, unsustainable financial imbalances could accumulate within the financial system.

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<sup>2</sup> In accommodative financial conditions, financial institutions tend to take on more credit and interest rate risks, which could narrow credit spreads and yield spreads between long-term and short-term instruments. As a result, profitability of bank loans and securities investment declines, and financial institutions strive to secure profits by further increasing the leverage and widening the maturity mismatch between investment and funding.

Conversely, a possible decline in risk tolerance of financial institutions and investors due to an adverse shock could prompt a decline in asset prices. This could further exert downward pressure on the economy. Therefore, in assessing the entire financial system, developments in financial markets and the real economy, as well as a feedback loop between them and the probability of its occurrence, should also be analyzed.<sup>3</sup>

As for the second function, the supervisory authorities and central banks utilize inspections/on-site examinations and off-site monitoring to perform the function. The conduct of these to encourage individual financial institutions while attending to risks and financial imbalances in the entire financial system should be considered crucial policy measures. Moreover, in light of the experience of the global financial crisis, there have been moves to emphasize the active use of macroprudential tools.

Macroprudential tools refer to the measures to directly or indirectly encourage the financial system and the real economy to restrain systemic risk. These measures include a restriction on the loan-to-value (LTV) ratio for real estate loans and the countercyclical capital buffer in the Basel III capital adequacy requirements to be introduced in 2013.<sup>4,5</sup> Other macroprudential tools cited by some countries include restrictions on cross-border capital flows and those on the loan-loss provision ratio in accordance with the business cycle. At present, the understanding of macroprudential tools varies from country to country.

Although they are not part of macroprudential tools, measures to strengthen the structure of the financial system -- such as enhancing the framework of banks' resolution or crisis management as well as the safety and efficiency of payment and settlement systems -- aim to contain systemic risk, as do macroprudential tools.

Moreover, the conduct of macroeconomic policy, such as monetary policy, does not aim to ensure stability in the financial system, but largely influence developments in asset prices and the financial system over the longer term. With the experience of the recent global financial crisis, central banks are increasingly aware of the importance of paying due attention to the

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<sup>3</sup> Risks detected from the cross-sectional dimension may abruptly change their form over time reflecting new investors' participation in financial markets and deeper trading ties between market participants. Accumulation of risks detected from the time-series dimension may be greater at some financial institutions depending on the type of business models they take. Therefore, it becomes important to analyze both types of risks simultaneously rather than separately.

<sup>4</sup> The restriction on the LTV ratio is concerned with the ratio of loans to the collateral market value in extending real estate loans. When risks in the financial system are expected to increase, lowering the LTV ratio would contain further credit expansion and accumulation of financial imbalances.

<sup>5</sup> The countercyclical capital buffer indicates a variable capital surcharge, one of the Basel III capital adequacy requirements. Capital reserves are required for materialization of potential losses in the banking sector, when risks in the financial system are expected to increase due to excessive credit extension.

feedback loop between the real economy and the financial system. The confidence in fiscal sustainability could also be a major factor affecting developments in the financial system, as evident from the impact of the sovereign debt problems in Europe after the recent global financial crisis.

## **II. The Bank's initiatives on the macroprudential front**

### **A. Macroprudential policy and the central bank**

As for the policymaker and its institutional framework for the macroprudential policy, reviews have been carried out in various countries based on the lessons learned from the recent global financial crisis. In Japan, reflecting the post-bubble experience, a number of measures were taken during the period from the late 1990s to the early 2000s, including the establishment of the Financial Services Agency, the amendment of the Bank of Japan Act with a clear statement of its on-site examinations, and the formulation of crisis management framework.<sup>6</sup> At present, on the basis of these, the Financial Services Agency -- which is legally authorized to conduct industry-wide supervision and inspections -- and the Bank of Japan -- the central bank in Japan -- take the initiative in carrying out macroprudential activity. They cooperate to fulfill their respective functions in monitoring risks and financial imbalances in the entire financial system. The Bank's macroprudential activity, similar to its conduct of microprudential activity of on-site examinations and off-site monitoring, is in line with the purpose stated in the Bank of Japan Act.<sup>7</sup>

Among the various types of post-financial crisis reviews of the institutional framework, a feature common across the border is to enhance the role of central banks to implement the macroprudential perspective. Central banks have the purpose of contributing to achieving sustainable economic growth by ensuring stability in prices and the financial system. To this end, they have the following functions and characteristics, which are effective in implementing the macroprudential perspective.

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<sup>6</sup> In 2001, a financial crisis response committee was established, chaired by the Prime Minister. The committee discusses guidelines to respond to financial crises such as a series of large-scale bankruptcies of financial institutions and encourages the administrative institutions concerned to take adequate measures based on the guidelines. The Bank's Governor is a member of this committee. Article 102 of the Deposit Insurance Act stipulates that funds can be injected into financial institutions when the stability of the financial system becomes extremely difficult to maintain and when decided by the committee.

<sup>7</sup> Article 1 of the Bank of Japan Act prescribes the purpose of the Bank as to issue banknotes and to carry out currency and monetary control as the central bank of Japan and to ensure smooth settlement of funds among banks and other financial institutions, thereby contributing to the maintenance of stability in the financial system.

- i. Central banks have been working to rigorously gauge developments in the macroeconomy, financial markets, and financial transactions by conducting monetary policy and operating payment and settlement systems.
- ii. Central banks have a function as the lender of last resort for individual financial institutions and other entities in order to ensure financial system stability.
- iii. In pursuit of the above roles, central banks gauge and analyze developments in the real economy and financial system from a macro perspective.
- iv. Central banks are deeply involved in financial markets and financial systems worldwide and have constructed a global network for exchanging information and making cooperation.

## B. The Bank's approach to macroprudential tools

As shown by a series of financial shocks -- such as the bursting of Japan's bubble economy, the Asian currency crisis, and the Lehman shock -- a shock threatening the financial system emerges through a different channel each time. This reflects the fact that financial innovation and structural changes in the economy have caused risks to take new forms and channels of spillover.

Based on these lessons, as prerequisites to take macroprudential tools, risks in the entire financial system must be adequately gauged and measures effective to restrain risks must be taken at an appropriate time. To this end, the Financial Services Agency and the Bank should appropriately cooperate to analyze and assess the financial system stability and then to take macroprudential tools.

## C. The Bank's initiatives

The Bank makes use of its characteristics as a central bank in taking various initiatives on the macroprudential front. The following list describes the Bank's specific initiatives with importance attached to the macroprudential perspective, which pays particular attention to risks and accumulation of financial imbalances in the entire financial system and to a feedback loop between the financial system and the real economy.

### 1. Analysis and assessment of the financial system stability

The Bank analyzes and assesses risks in the entire financial system and regularly releases its

findings in the *Financial System Report*. The *Report* aims to gauge risks in and challenges for Japan's financial system and to share recognition of the risks with a broad range of concerned parties, including financial institutions, so as to ensure stability of the financial system.

Throughout the issues of the *Report*, risks and the robustness of the banking system in particular have been analyzed and assessed. In October 2011, the Bank integrated the separately released *Financial System Report* and *Financial Markets Report*, and started to release the new *Financial System Report* in order to further advance its analysis made from the macroprudential perspective. The Bank strives to better analyze and assess risks in domestic and overseas financial systems, including the examination of risks observed in financial markets. The enhanced contents of the new *Report* are as follows.

i. Better assessment of the robustness using macro stress testing

The Bank has effectively used macro stress testing to better assess the robustness of the financial system. The Bank, for example, strives to examine whether or not materialization of credit and market risks in Japan's financial system would seriously threaten the financial sector's prospective profits and capital bases by applying diverse stress scenarios in macro stress testing.

ii. Assessment of a dynamic feedback loop between the real economy and the financial system

The Bank has enhanced analysis and assessment of the feedback loop between the financial system, financial markets, and the real economy. Specifically, the Bank strives to gauge, using the newly developed Financial Macroeconometric Model, the feedback process of a stress exerted on economic conditions and asset prices spreading to the real economy through behavioral changes of financial institutions.

iii. Cross-sectional analysis of risks borne by the financial sector

The Bank has enhanced its analysis of risks borne by the nonbank financial sector that includes insurance companies, securities companies, credit card companies, and consumer finance companies. The Bank strives to gauge risks across the entire financial system in view of the interconnectedness between the nonbank financial sector and the banking sector.

iv. Assessment of financial imbalances using macro indicators

The Bank has been developing indicators useful in analyzing excessive credit expansion and the financial sector's risk-taking as well as in detecting signs of instability in the

financial system, based on macro financial and economic data. With the comprehensive analysis and assessment of these indicators, the Bank strives to gauge accumulation of macro financial imbalances.

v. Identification of risks observed in financial markets

The Bank has been striving to detect risks and their changes in the financial system by analyzing developments in market prices and transactions of, for example, derivatives and securitized products from multilateral perspectives. The Bank has also expanded its analysis of correlations between domestic and overseas asset prices to gauge risks that might spill over from domestic and overseas financial markets to Japan's financial system and to grasp the channels of such spillover.

2. Coordination with microprudential activity of on-site examinations and off-site monitoring

The Bank reinforces coordination of macroprudential and microprudential activity in order to prevent the financial system from becoming destabilized.

The Bank draws on various micro information obtained from on-site examinations and off-site monitoring of individual financial institutions both in assessing their financial soundness and in gauging and analyzing risks in the entire financial system. The Bank aims to capture the sign of systemic risk as early as possible by using the analysis of this micro information together with macroeconomic and financial data to compensate for the publication lag of the latter.

The Bank's analysis and assessment of the financial system from the macroprudential perspective are reflected in its on-site examinations and off-site monitoring, seminars of the Bank's Center for Advanced Financial Technology, and international discussions. For example, the Bank decides points to be focused in on-site examinations and states them in its "On-site examination policy" released every fiscal year, taking into account issues concerning individual financial institutions' business conditions and risk management as well as analysis and assessment of the entire financial system. Moreover, the frequency and scope of on-site examinations of individual financial institutions are determined by considering their respective financial soundness and the degree of possible impact on the financial system if a financial institution triggers systemic risk. Furthermore, the Bank, in cooperation with the Financial Services Agency, provides guidance and advice to individual financial institutions through daily off-site monitoring in view of the risks they bear and domestic and overseas

financial system conditions.<sup>8</sup>

### 3. Implementation of measures to ensure stability of the financial system

The Bank implements necessary measures in order to ensure stability when it detects risks threatening the stability of the entire financial system.

Specifically, the Bank provides necessary liquidity as the lender of last resort, when shocks such as a failure of a financial institution could render the entire financial system unstable. Upon the need to prevent systemic risk from materializing, the Bank extends uncollateralized loans to the financial institution based on the so-called four principles for extending special loans and a decision made by the Policy Board.<sup>9,10</sup>

### 4. Operation and oversight of payment and settlement systems

The Bank provides central bank money such as banknotes and deposits in current accounts that financial institutions hold at the Bank. It operates a funds transfer system via current accounts and Japanese government bond (JGB) settlement system, and operates a computer network system -- the Bank of Japan Financial Network System (BOJ-NET) -- thereby ensuring smooth settlements. The BOJ-NET serves as Japan's core payment and settlement system, and therefore its secured safety and efficiency is essential to ensure stability of Japan's financial system. The Bank has continually worked, while taking account of user needs, to enhance the safety and efficiency of the BOJ-NET, as evident from the introduction of the delivery-versus-payment mechanism for both funds and JGB transactions and the real-time gross settlement system.

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<sup>8</sup> The Bank, where necessary, makes public its views and actions concerning points to be focused in daily off-site monitoring. For example, from the experience of the recent global financial crisis, when funding conditions rapidly deteriorated amid the turmoil in global financial markets, the Bank released two reports to encourage financial institutions to reinforce their liquidity risk management of both domestic and foreign currencies: (1) "The Bank of Japan's approach to liquidity risk management in financial institutions," released in June 2009; and (2) "Liquidity risk management in financial institutions following the global financial crisis," released in July 2010.

<sup>9</sup> The Bank articulated and made public four principles that should be met to provide loans (the so-called "special loans") pursuant to Article 38 of the Bank of Japan Act: (1) there must be a strong likelihood that systemic risk will materialize; (2) there must be no alternative to the provision of central bank money; (3) all relevant parties are required to take clear responsibility to avoid moral hazard; and (4) the financial soundness of the Bank itself must not be impaired.

<sup>10</sup> In addition to this, the Bank has taken the following measures extraordinary for a central bank in order to ensure stability of the financial system: (1) purchases of stocks held by financial institutions (from November 2002 through September 2004 and from February 2009 through April 2010); and (2) provision of subordinated loans to them (from April 2009 through March 2010).

The Bank oversees payment and settlement systems and clearing houses, which are privately operated.<sup>11</sup> Oversight is defined as the activity to monitor the institutional design, risk management arrangements, and operations of systems by the private sector; to assess the systems against established safety and efficiency objectives; and to induce improvements where necessary. Oversight of payment and settlement systems plays an important role in ensuring stability in Japan's financial system, since payment and settlement systems potentially pose systemic risk.

## 5. Conduct of monetary policy

Monetary policy is conducted to achieve price stability and not to ensure financial system stability. However, as stated previously, there is a close interactive relationship between monetary policy and financial system stability. For example, the experience of domestic and overseas financial crises to date shows that the prolonged monetary easing might have caused a bubble to form and expand through various channels before the crisis occurred. Once the functions of the financial system deteriorate significantly due to the bursting of a bubble, the monetary policy effects are largely constrained.

In view of this, the Bank also emphasizes the macroprudential perspective when conducting monetary policy. The Bank assesses the economic and price developments from two perspectives when it decides the monetary policy. The first perspective involves assessing the most likely outlook for economic activity and prices over the coming one to two years and examining whether the economy is on a sustainable growth path with price stability. The second perspective assesses the risks considered most relevant to the conduct of monetary policy, including risks that have a longer time horizon than the first perspective, in order to realize sustainable economic growth with price stability. The Bank examines risks in the financial system as one of risk factors with a medium- to long-term horizon according to the second perspective.

Japan's financial system is maintaining its stability, following the recent global financial crisis and the Great East Japan Earthquake. However, risks threatening the stability of the entire

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<sup>11</sup> For the Bank's approach concerning the payment and settlement system, see *Payment and Settlement Systems Report*. For the purpose and guidelines of the Bank's oversight, see its papers released in May 2010: "Policy on oversight of payment and settlement systems" and "Policy on oversight of offshore yen payment systems."

financial system have emerged so far through a different channel each time. The Bank with the macroprudential perspective in mind will constantly strive to analyze and assess risks in the entire financial system and to plan and conduct necessary policy measures, and will contribute further to ensuring financial system stability with the effective use of its characteristics as a central bank, in cooperation with the Financial Services Agency and with overseas central banks and supervisory authorities.