

# **Liquidity Risk Management in Financial Institutions**

## **Following the Global Financial Crisis**

**Bank of Japan**

**July 2, 2010**

## **Executive Summary**

The turmoil in global financial markets and the financial crisis since the summer of 2007 have left many important lessons on the financial institution's risk management front. One of them is that the foundation of financial institution management could be threatened by a liquidity crunch, even though the financial institution had a solid capital base. Appropriate liquidity risk management is vital both for achieving sound management of financial institutions and for maintaining financial system stability. With such recognition growing, central banks as well as the regulatory and supervisory authorities have been reviewing the framework for financial regulation and supervision, including liquidity regulation.

In highly globalized financial markets, liquidity risk could immediately spread once it manifests itself and might induce a global liquidity crisis. Financial institutions need to strive constantly to improve liquidity risk management. The financial authorities also need to encourage financial institutions to steadily pursue such efforts in order to preempt a future financial crisis.

As the central bank of Japan, the Bank of Japan has been providing funds to counterparty financial institutions through its complementary lending facility and market operations. To prepare for appropriate fund provisioning, the Bank investigates financial institutions' business and financial conditions through on-site examinations and off-site monitoring. In doing so, it is important to check the liquidity risk and how such risk is managed. Moreover, the "appropriateness of liquidity risk management" has been stipulated as one of the requirements for becoming eligible counterparties for the Bank's complementary lending facility and market operations. The Bank has been monitoring the liquidity conditions of financial institutions on a daily basis, and providing advice and guidance when necessary to encourage improvement in their liquidity risk management.

The Bank's liquidity monitoring, advice, and guidance are characterized by their flexible and fine-tuned approaches through daily dialogues with financial institutions while taking account of financial conditions at different times. This practice has proved effective in the recent financial crisis. That, together with the efforts by financial institutions, appears to have contributed significantly to preventing Japan's financial system from experiencing a grave liquidity crisis.

At the same time, through the financial crisis, challenges in financial institutions' liquidity risk management have also become clear. First, financial institutions need to gauge their liquidity risk profiles, taking into account the characteristics of their businesses and funding measures, and establish an institution-specific liquidity risk management system. That should be addressed with a high priority especially in a financial institution that does not have a stable funding source of deposits. Second, financial institutions are required to further strengthen their resilience in a liquidity stress phase. For example, in addition to formulating contingency plans, financial institutions are required to hold a sufficient level of liquid assets in normal times. Third, there are challenges to internationally active financial institutions. To begin with, those financial institutions should thoroughly recognize risks concerning funding at each business base in local markets and risks concerning intra-group funding, respectively. On top of that, they are required to further enhance their liquidity risk management system on a global basis.

Taking into account those challenges and recent international discussions, the Bank believes it necessary to encourage financial institutions to further improve their liquidity risk management. To that end, from now on, the Bank will check, both in terms of on-site examinations and off-site monitoring, financial institutions' liquidity risk management system by focusing on the following points. New points have been added to the points raised in "The Bank of Japan's Approach to Liquidity Risk Management in Financial Institutions" issued in June 2009, reflecting the experience of the recent financial crisis. The Bank also intends to use those points to check the "appropriateness of liquidity risk management," which is one of the requirements for an eligible counterparty for the Bank's complementary lending facility and market operations.

- (1) Developing a governance structure in risk management
- (2) Gauging the liquidity risk profile and balance sheet management
- (3) Ensuring stability in daily cash management
- (4) Strengthening resilience in a stress phase
- (5) Action plan in case of emergency
- (6) Establishing a global liquidity management system

The Bank will check on a regular basis whether the checklist for liquidity risk

management is appropriate in light of the then prevailing financial and economic environment as well as financial transaction methods. Together with that, to further improve the effectiveness of its monitoring, advice, and guidance, the Bank will strive to improve information collection from and the exchange of views with financial institutions as well as analytical methods of the collected information, while paying due attention to the burden of financial institutions.

## 1. Introduction

In the turmoil in global financial markets and financial crisis after the summer of 2007, several overseas financial institutions failed. The financial institutions were forced to fail<sup>1</sup> because liquidity<sup>2</sup> became tight despite the fact that those institutions had maintained a sufficient regulatory capital adequacy ratio. Moreover, some financial institutions located here in Japan, including foreign financial institutions, faced funding difficulties at home and abroad and were forced to reduce the size of balance sheets. Through such experiences, the importance of liquidity risk management has been recognized again. Namely, it is critically important for financial institutions to have both a sufficient capital base and an appropriate liquidity risk management system in order to ensure the soundness of management and thereby exert the stable financial intermediation function.<sup>3</sup>

Against such a backdrop, central banks and the regulatory and supervisory authorities have been strengthening monitoring financial institutions' liquidity risk management. In addition, the review of the framework for financial regulation and supervision is underway. For example, the Basel Committee on Banking Supervision (hereafter the Basel Committee) presented in December 2009 a proposal on new capital adequacy requirements and also proposed the introduction of liquidity regulations.<sup>4</sup> The Committee plans to finalize specific requirements after the process of public consultation and impact assessment.

In highly globalized financial markets, liquidity risk could immediately spread once it manifested itself and might induce a global liquidity crisis. Given such characteristics

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<sup>1</sup> For example, "Report of Anton R. Valukas, Examiner," issued in March 2010, which was an examination into the demise of Lehman Brothers, described that the firm's liquid assets rapidly evaporated in the run up to September 15, 2008, when the firm filed for Chapter 11.

<sup>2</sup> In general, the word "liquidity" is used as either "funding liquidity" which straightforwardly refers to the ease of funding or "market liquidity" which is the ease of trading financial products in the markets. In this paper, in principle, the word "liquidity" indicates the former, "funding liquidity."

<sup>3</sup> Capital and liquidity are not perfect substitutes for each other. While they do have substitutability when both are at certain levels, a possibility of crisis increases when one of them is at an extremely low level. For detailed discussion on this point, see "Calibrating the Level of Capital: The Way We See It," Bank of Japan Working Paper Series, May 2010, <http://www.boj.or.jp/en/type/ronbun/ron/wps/wp10e06.htm>.

<sup>4</sup> See the consultative document "International framework for liquidity risk measurement, standards and monitoring" (<http://www.bis.org/publ/bcbs165.pdf?noframes=1>).

of liquidity risk, financial institutions need to strive constantly to improve liquidity risk management. The financial authorities need to encourage financial institutions to steadily pursue such efforts in order to preempt a future financial crisis.

As the central bank of Japan, the Bank of Japan has been monitoring the liquidity conditions of financial institutions on a daily basis, and providing advice and guidance as necessary. The Bank's framework for liquidity monitoring was introduced in detail in "The Bank of Japan's Approach to Liquidity Risk Management in Financial Institutions"<sup>5</sup> issued in June 2009 (hereafter June 2009 paper). The Bank's measure has a characteristic of encouraging improvement in liquidity risk management flexibly and in a fine-tuned manner through a daily dialogue with each individual financial institution. Such liquidity monitoring, advice, and guidance by the Bank, together with the efforts to improve risk management by financial institutions themselves, appear to have contributed significantly to enabling Japan's financial system to avoid a deep crisis on the liquidity front. The recent financial crisis has, however, revealed that there are remaining challenges in liquidity risk management in financial institutions located in Japan.

Based on the June 2009 paper, this paper takes into account the experience of the recent global financial crisis and international discussions, and aims at encouraging further improvement in financial institutions' liquidity risk management. In the following, the methods the Bank uses in monitoring financial institutions' liquidity risk are first summarized. Then the paper reviews the responses by financial institutions located in Japan to liquidity risk during the recent financial crisis, and refers to the challenges that have been highlighted from such experiences. Finally, also reflecting such challenges, the paper shows the items that the Bank will focus in checking financial institutions' liquidity risk management from now on. Those items are derived from adding several new items to those illustrated in the June 2009 paper.

## **2. The Bank's Role in relation to Financial Institutions' Liquidity Risk Management**

The Bank, as the central bank of Japan, plays an important role in ensuring financial

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<sup>5</sup> See <http://www.boj.or.jp/en/type/release/adhoc09/data/fss0906a.pdf>.

system stability. Namely, as one of the purposes of the Bank, the Bank of Japan Act stipulates that "to ensure smooth settlement of funds among banks and other financial institutions, thereby contributing to the maintenance of stability of the financial system" (Article 1, paragraph 2). For that purpose, to prepare for the appropriate provision of the Bank's credit including the function of the lender of last resort, the Bank conducts "on-site examinations" and "off-site monitoring" with respect to financial institutions' business and financial conditions.<sup>6</sup> In doing so, the liquidity risk situation and its management system are important items for research and analysis. At present, the Bank has more than 500 counterparties including deposit-taking financial institutions, securities firms, securities finance firms, *tanshi* companies, and covers a wide range of financial institutions such as regional financial institutions and foreign financial institutions. In conducting on-site examinations and off-site monitoring, the Bank utilizes various kinds of information. For example, financial data of financial institutions, settlement developments through the Bank's current accounts, and various kinds of knowledge, information, and data about the economy and financial markets obtained through the conduct of monetary policy and central banking operations. As a result, the Bank can accurately gauge the liquidity risk situation of counterparty financial institutions, and promptly address the problems. Moreover, the Bank conducts liquidity monitoring from a perspective of analyzing and assessing the risk situation of the financial system as a whole, that is, from a macroprudential perspective, and publishes the results semiannually in its "Financial System Report."

Specific measures of the Bank's liquidity monitoring were described in detail in the June 2009 paper. Namely, liquidity monitoring can be summarized as a process of (a) taking into account the factors such as versatility of financial institution's businesses and changing market conditions, and (b) from a viewpoint of looking through each financial institution's fund availability in the future, (c) judge the liquidity risk situation in a comprehensive manner based on a broad range of information obtained through monitoring, and provide advice and guidance when necessary.<sup>7</sup> The major characteristics of such measure by the Bank lie in its flexible approach according to the characteristics of each individual financial institution and the financial environment, and

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<sup>6</sup> "On-site examinations" refer to conducting on-site investigation to financial institutions at certain intervals, while "off-site monitoring" refers to a constant survey through interviews with financial institutions and regular information gathering.

<sup>7</sup> In Box 2 of the June 2009 paper, the Bank's monitoring method and contents of advice and guidance were specifically explained by taking a hypothetical bank as an example.

fine-tuned advice or guidance through a daily dialogue with financial institutions.

In addition, based on the experience of the recent financial crisis, the Bank clarified in July 2009 that "appropriateness in liquidity risk management" is included as one of the eligibility requirements to become the Bank's counterparty for fund provisioning, namely, complementary lending and market operations.<sup>8</sup>

As explained so far, the Bank, while utilizing the central bank's capacity, has been playing a sort of supervisory role in financial institutions' liquidity risk management through providing daily advice and guidance. The Bank's flexible and close liquidity monitoring has been indispensable in ensuring the stability of Japan's financial system.

### **3. Financial Institutions' Responses to the Recent Financial Crisis**

After the outbreak of the recent financial crisis, the financial institutions located in Japan have, as a whole, avoided tumbling into a grave crisis on the liquidity front. On the back of that, ample yen deposits existed as a stable funding source of liquidity. Moreover, various measures by the Bank, such as ample liquidity provision to financial markets, provision of complementary lending through a standing facility, and U.S. dollar funds-supplying operations, have contributed to containing the rise of liquidity risk in financial institutions.<sup>9</sup>

However, following the outbreak of the financial crisis, funding conditions became tight in foreign currency liquidity for Japanese financial institutions and yen currency liquidity for foreign financial institutions' Japanese bases. In response, financial institutions became more conservative in their daily management of funding positions by, for example, reducing the next day's funding requirement, diversifying funding

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<sup>8</sup> In approving counterparties for complementary lending and selecting counterparties for market operations, it has been stipulated as a condition that "there is no special reason to believe the lack of credibility," and the appropriateness of liquidity risk management was stipulated along with the capital adequacy ratio of a certain level or more as specific judgmental factors.

When financial institutions are judged not to meet the requirements, the Bank will take measures such as canceling the approval at the time of approval renewal, regular selection, or on an ad-hoc basis.

<sup>9</sup> See "The Bank of Japan's Policy Measures in the Current Financial Crisis" ([http://www.boj.or.jp/en/type/exp/seisaku\\_cfc/index.htm](http://www.boj.or.jp/en/type/exp/seisaku_cfc/index.htm)).



counterparties and funding instruments, and reducing asset-liability mismatches by lengthening the terms for funding. Moreover, some institutions reduced the size of the balance sheets by curtailing securities investments (see Box 1).

Against such a backdrop, the Bank also strengthened its approaches in terms of liquidity monitoring, advice, and guidance to preempt individual financial institutions from tumbling into a grave situation on the liquidity front. Namely, at the off-site monitoring section, monitoring was strengthened through expanding the contents and increasing the frequency of information collected from financial institutions, and by thoroughly encouraging stable daily funding. Moreover, the Bank carried out on-site examinations in a flexible manner to check the appropriateness of the liquidity risk management system including contingency plans and asked for improvement when necessary. Furthermore, the Bank strengthened coordination with the financial authorities overseas. Namely, the Bank engaged more actively in exchanging views and sharing information with the financial authorities overseas with respect to liquidity risk conditions of internationally active financial institutions. In such a way, the Bank's liquidity monitoring framework has functioned effectively by early identification of the problem concerning liquidity risk management in an emergency and resulting appropriate advice and guidance for financial institutions.

On the other hand, through the responses to a liquidity crunch associated with the recent financial crisis, some challenges for financial institutions' liquidity risk management have become clear. They are explained in detail in the next section.

#### **4. Challenges for Liquidity Risk Management**

Given the experience of the recent global financial crisis, financial institutions located in Japan need to further enrich their liquidity risk management in, for example, gauging their liquidity risk profile, strengthening resilience under stress, and establishing a global liquidity risk management system. The Bank believes that each financial institution's proactive efforts to address those challenges are indispensable in strengthening the resilience against liquidity risk.

Following the experience of the recent crisis, there have been active discussions on liquidity risk management at international organizations and between the financial

authorities at home and abroad. These discussions draw on various lessons learned through the crisis with respect to gauging, measuring, and managing liquidity risk. There are many perspectives in the international discussions that Japan could draw on.

The following summarizes the experience of the recent crisis and the Bank's view concerning the challenges for financial institutions located in Japan. The outline of international discussions for each specific point at issue is introduced in Box 2.

For financial institutions to address those challenges, it becomes necessary for the management to consider liquidity risk management as an important management element and make a due commitment for its improvement. Since liquidity risk has a lower probability of materializing at normal times, the rigidity of liquidity risk management tends to wane when the crisis is over and financial markets become stable, resulting in letting financial institutions take excessive liquidity risk. The Bank will continue to request the commitment by the management and improvement in the risk management systems.

*(1) Gauging liquidity risk profile and controlling liquidity risk*

The recent financial crisis highlighted that the liquidity risk profile of a financial institution differs, for example, according to business categories and business models. Namely, foreign currency funding has been affected significantly by declining market liquidity in the foreign exchange swap market. Securities firms have faced difficulties in collateralized funding like repo transactions, which used to be considered as a stable funding source. For example, due to the price decline in collateral assets and the rise in concern over counterparty risk, some institutions were forced to increase margin calls or to reduce credit lines. As shown here, the degree of liquidity risk a financial institution faces and how it manifests itself would depend substantially on the extent of international and securities-related businesses, the funding structure including the proportion of deposits and market funding, and the extent of matching between assets and liabilities. One of the challenges that became clear through the recent crisis was whether financial institutions are accurately gauging each liquidity risk profile and establishing a management system that is consistent with such risk profile. In particular, there seems to be generally ample room for improvement in liquidity risk management of financial institutions such as securities firms that do not have a stable funding source as deposits.

The Bank has been striving to gauge the liquidity risk situation of each individual financial institution through monitoring various aspects of quantitative and qualitative information concerning deposits and loans, securities investments, market transactions, and derivatives transactions. For financial institutions, the Bank has been asking to accurately gauge their own liquidity risk profiles and establish a liquidity risk management system that is consistent with the risk profile. On top of that, financial institutions need to ensure stability in daily funding. The Bank will check by focusing on whether financial institutions are, on the funding front, diversifying their funding tools or funding counterparties while taking into account business contents and characteristics of funding instruments, and appropriately managing intra-day liquidity.

*(2) Strengthening resilience in a stress phase*

In the process leading to the financial crisis, turmoil in overseas markets triggered by news about business conditions of overseas financial institutions spread over to domestic financial markets and strains on liquidity heightened rapidly. How promptly financial institutions could respond to such a market stress event, or how to ensure resilience in a stress phase at normal times is one of the important challenges in liquidity risk management.

Specifically, when deposits rapidly outflow or funding conditions deteriorate rapidly, financial institutions need to take drastic measures such as additional funding or sale of holding assets according to changing conditions. In addition, to rapidly carry out such measures, a flexible review of the governance aspect of liquidity risk management such as strengthening of the internal reporting system or expansion in the areas of management involvement becomes necessary. Financial institutions are required to prepare those as contingency plans at normal times. At the same time, preemptively holding liquid assets that can be converted into cash could also be useful in enhancing the resilience against liquidity stress. What type and how much liquid assets a financial institution should hold will depend on the institution's liquidity risk profile. Moreover, it will be subject to the then prevailing financial market conditions. Therefore, stress testing, which assumes the outflow of funds under various scenarios and gauges the corresponding amount of liquid assets, would be a useful measure.

Looking at the current situation of Japanese financial institutions with respect to the

resilience in a stress phase, many financial institutions have formulated contingency plans and have been refining the flows of business and training based on such plans. Moreover, as for liquidity stress testing, there has been some progress made mainly at the major banks. However, given the experience of the recent financial crisis, challenges remain in terms of, for example, the contents of stress testing, the frequency of the testing, and the utilization of the test results.

The Bank checks the contents of contingency plans and implementation of stress testing through on-site examinations and off-site monitoring. Moreover, the Bank monitors on a regular basis the state of cash preparation for emergency and the amount of liquidity available on the same day or within a short period. Based on the experience of the recent financial crisis, the Bank will put more emphasis than before on the perspective of resilience in a stress phase. Namely, the Bank will deepen discussion with financial institutions on issues such as to what extent they have to hold liquid assets against liability maturities and other expected fund outflows. In doing so, the Bank will provide tailor-made advice and guidance by taking due account of financial institutions' business characteristics and the liquidity risk profile that reflects such characteristics.

### *(3) Establishing a global liquidity risk management system*

At internationally active financial institutions, a challenge of strengthening a global liquidity risk management system has been strongly recognized through the recent financial crisis. For example, amid market liquidity in the foreign exchange swap market declining significantly worldwide, financial institutions faced difficulties with foreign currency funding. Based on such an experience, some foreign financial institutions have tried to strengthen their local funding capability in overseas bases and thereby to establish a liquidity risk management system that does not rely excessively on intra-group cross-border funds.

When looking at the global liquidity risk management system in Japanese financial institutions, many are carrying out intra-group funding with a view to effectively utilize ample domestic yen funds. Moreover, foreign financial institutions located in Japan transmitted foreign currency funded in overseas bases to Japan or yen currency funded in Japan to overseas bases. Such intra-group fund accommodation enables financial institutions to flexibly cope with local funding needs and played a certain role in

avoiding a liquidity crunch in local bases during the recent financial crisis.<sup>10</sup>

However, when liquidity concern intensifies globally as was the case in the recent crisis, transactions became scarce not only in each country's money market but also in the foreign exchange swap market. Therefore, financial institutions in Japan should bear in mind that, in global liquidity risk management, there might be difficulties funding both in local markets and intra-group fund accommodation. On this basis, a challenge for those financial institutions will be to prepare contingency plans in a liquidity crisis in a manner consistent with a group as a whole.

The Bank believes it important to implement appropriate liquidity management within a group upon fully recognizing the risks concerning funding in local markets and funding through intra-group accommodation. Therefore, for internationally active financial institutions, the Bank will first ask for gauging liquidity risk profiles by currency necessary for their businesses and by overseas bases. On that basis, the Bank will check at normal times several points, such as what extent would be appropriate to rely on cross-border fund accommodation, what would be the effects of changes in global financial market conditions on intra-group funds utilization, and whether there are sufficient alternative funding sources available in major overseas bases. In the process, the Bank will exchange views with overseas bases of Japanese financial institutions, headquarters of foreign financial institutions, and the financial authorities overseas whenever necessary.

#### *(4) Appropriate use of central bank liquidity support*

One challenge that was highlighted in the recent crisis was to what extent financial institutions should rely on central banks' liquidity support measures.

Since the outbreak of the recent global financial crisis, central banks around the world have implemented various liquidity support measures such as ample fund provision to financial markets and U.S. dollar funds-supplying operations under international coordination. Those measures have nurtured a sense of security for future funding and

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<sup>10</sup> There is a wide range of variations in liquidity management frameworks of internationally active banks. For more detailed discussions, see a report by the Committee on the Global Financial System, "Funding patterns and liquidity management of internationally active banks," May 2010 (<http://www.bis.org/publ/cgfs39.pdf?noframes=1>).

could be assessed as having contributed significantly to mitigating market strains. Since each measure had a characteristic of a rescue measure in an emergency, the so-called stigma problem -- namely, financial institutions having a feeling of resistance to using the measure for fear of damaging their reputations by the actual use becoming clear -- was also recognized. To facilitate the use of each measure while avoiding the stigma, central banks have been extremely careful in that, for example, not disclosing the name of financial institutions that used the measures.

The Bank also provides a standing liquidity facility -- a complementary lending facility -- that financial institutions can request to use whenever necessary within the amount of collateral that has been submitted. The complementary lending facility has been widely used<sup>11</sup> without any stigma in the recent crisis when strains heightened in the domestic money market, and has played a significant role in ensuring financial market stability.

On the other hand, in terms of the relationship with liquidity risk management, it is necessary to establish a system in which individual financial institutions could manage liquidity risk in an autonomous manner without excessively relying on public support. In the discussions at international organizations and among the national financial authorities, it has been thoroughly recognized that central banks' liquidity support measures should not induce moral hazard in liquidity risk management on the side of financial institutions.

Based also on the experience of the recent financial crisis, the Bank clarified in July 2009 that it included "appropriateness of liquidity risk management" as an eligibility requirement for becoming a counterparty of the Bank's complementary lending and market operations. The complementary lending facility is a standing facility that complements a framework for monetary control through market operations as well as equipped with a function to prepare for an unexpected fund shortage, thereby contribute to ensuring the stability and maintenance of smooth functioning of financial markets.

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<sup>11</sup> In March 2003, it was decided that, for the time being, the basic loan rate would be applied regardless of the number of days on which counterparties used the facility, and it continues to be the case as of now. The principal terms and conditions of the complementary lending facility stipulate the basic rule that the maximum number of days on which counterparties can use the facility at the basic loan rate is five business days per reserve maintenance period. In principle, counterparties that wish to use the facility beyond this maximum number of days must pay a higher rate of 2 percent plus the basic loan rate.

On the other hand, as one can see from the above international discussions, from a perspective of individual financial institution's liquidity risk management, financial institutions becoming constantly and excessively dependent on borrowing from a central bank could induce moral hazard and poor autonomous liquidity risk management. When there are financial institutions that constantly use the complementary lending facility, the Bank intends to check whether the institutions are equipped with an autonomous liquidity risk management system such as securing alternative funding sources.

## **5. Checklist for Liquidity Risk Management**

As described in detail in the June 2009 paper, the Bank has been verifying the financial institution's liquidity risk situation and its management system through on-site examinations and off-site monitoring, and encouraged improvement when necessary. Such efforts by the Bank have proved effective in the recent financial crisis.

On the other hand, as described earlier, there are not a few challenges that have become clear through the recent financial crisis. Given those challenges and recent international discussions, the Bank believes that to encourage further improvement in financial institutions' liquidity risk management would lead to strengthening the stability of Japan's financial system. Therefore, in future on-site examinations<sup>12</sup> and off-site monitoring, the Bank will check financial institutions' liquidity risk management system by focusing on the following checklist. These points are derived from adding points related to the above Section 4 to the points illustrated in the June 2009 paper. Moreover, the Bank intends to use the following points to check the "appropriateness of liquidity risk management," which is one of the requirements for an eligible counterparty for the Bank's complementary lending facility and market operations.<sup>13</sup>

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<sup>12</sup> Key issues in the conduct of on-site examinations have been compiled and published every fiscal year as the on-site examination policy. For fiscal 2010, see "On-Site Examination Policy for Fiscal 2010" (<http://www.boj.or.jp/en/type/release/teiki/kousa/kpolicy10.pdf>).

<sup>13</sup> The points are to be posted in future annual announcements of, for example, renewal procedure of eligible counterparties for complementary lending facility, and public offering of eligible counterparties for funds-supplying operations against pooled collateral.

## Checklist for Liquidity Risk Management<sup>14</sup>

-- The underlined parts have been newly added to the points discussed in detail in the June 2009 paper.

### *(1) Developing a Governance Structure in Risk Management*

- Whether or not the management considers liquidity risk management as an important element in business and thoroughly commits to improving its management system.
- Whether or not a risk management system has appropriately been put in place, such as establishment of risk management policy, assignment of a person in charge for risk management with adequate authority, and establishment of a reporting line to the management.
- Whether or not the setting of risk tolerance and compilation of a contingency plan for crisis situations are consistent with the basic liquidity risk management policy.

### *(2) Gauging the Liquidity Risk Profile and Balance Sheet Management*

- Whether or not the liquidity risk profile is gauged appropriately according to financial institutions' own businesses lines and business models.
- Whether or not financial institutions that do not have deposits as a stable funding source have established a robust risk management system that is consistent with their liquidity risk profile.
- Whether or not due attention is given to the potential factors that could influence liquidity in terms of risk management.
- Whether or not the institution's asset and liability structure itself -- namely, the balance between funding and investment, a mismatch between the maturity of assets and liabilities, and the dependence on funding from the market -- is adequate for the institution's funding capability.
- Whether or not the size of contingent liabilities is excessively large relative to the funding capability.

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<sup>14</sup> The checklist in this paper has been formulated by reconstructing the points discussed in detail under "4. (2) The Bank of Japan's Liquidity Monitoring Operations toward Financial Institutions" in the June 2009 paper, and by adding new points.



- Whether or not there is tolerance in future investment/funding policy to build up assets with low market liquidity which often become difficult to unwind without due consideration to its funding ability.

### *(3) Ensuring Stability in Daily Cash Management*

- Whether or not the financial institution makes necessary funding stably and settlement smoothly.
- Whether or not there are irregular movements in trading rates, including a surge in funding rates.
- Whether or not the daily funding requirements exceed the funding capacity.
- Whether or not there are problems in managing collateral, including the Bank's eligible collateral.
- Whether or not the institution is trying to avoid concentration in funding sources and to diversify and decentralize funding instruments, while taking into account business contents and characteristics of the primary source of funding.
- Whether or not appropriately managing intra-day liquidity.
- Whether or not autonomous liquidity risk management has been downplayed, for example, by constantly relying on complementary lending and failing to make efforts to secure alternative funding sources.

### *(4) Strengthening Resilience in Stress Phase*

- Whether or not stress testing has been conducted under various scenarios.
- Whether or not securing a sufficient level of liquid assets that can be converted into cash corresponding to the fund outflows projected in, for example, stress testing.
- Whether or not funding availability -- that is, "whether a financial institution can raise funds when necessary" -- including quantitative information, such as the lenders' assessment of the institution's risk, is being confirmed.

### *(5) Action Plan in Case of Emergency*

- Whether or not there are appropriate contingency plans that include a transit to a control system according to the tightness of funding and a mechanism that incorporates the impact on liquidity in case of emergency.

- Whether or not the institution properly recognizes changes in the funding environment and moves to a control system that matches the tightness of the market.
- Whether or not the mechanism for incorporating intensified liquidity constraints into business operations is effectively functioning.
- In operational areas, whether or not adequate liquidity management is in place to control positions according to the tightness of funding and also whether or not there are measures to secure additional funds by diversifying funding sources and methods and through the sale of assets.

(6) Establishing a Global Liquidity Risk Management System (for Internationally Active Financial Institutions)

- Whether or not accurately gauging the liquidity risk profile by currency and by overseas bases.
- Whether or not gauging the amount and term structure of the cross-border flow of funds in a group at normal times.
- Whether or not gauging how fund utilization in a group will be affected by developments in global financial markets.
- Whether or not a contingency plan for fund accommodation between activity bases in an emergency is laid out in a manner consistent with an overall contingency plan for a group.
- Whether or not alternative funding sources are sufficiently secured at overseas bases.

## 6. Concluding Remarks

As described, the Bank has been carrying out liquidity monitoring according to functions and operations as a central bank and through a dialogue with financial institutions.

The financial and economic environment, financial transaction methods, and market practices will evolve as time passes. The Bank will check on a regular basis whether

the checklist in liquidity risk management shown in Section 5 is appropriate in light of the then prevailing financial and economic environment, financial transaction methods, and market practices. Together with that, to further improve the effectiveness of its monitoring, advice, and guidance, the Bank will continue to strive to improve information collection from and exchange of views with financial institutions as well as analytical methods of collected information, while paying due attention to the burden of financial institutions.

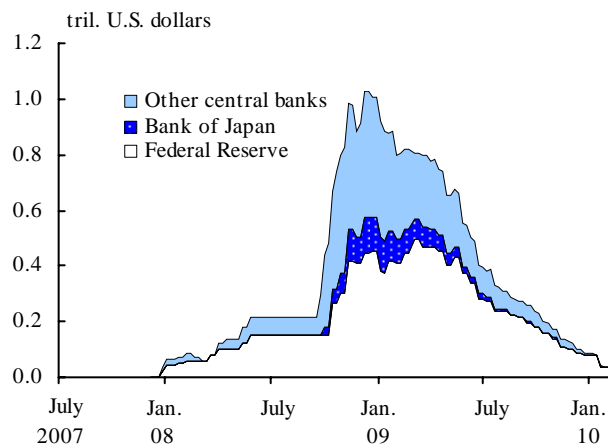
### **Box 1: Financial Institutions' Responses in the Recent Financial Crisis**

#### **Example 1: Foreign currency funding for Japanese financial institutions**

Since September 2008, on the back of a heightened sense of vigilance against counterparty risk, market liquidity in the foreign exchange market contracted on a global basis, and U.S. dollar funding became tight for Japanese financial institutions. In response to those developments, the Bank made U.S. dollar swap arrangements with the Federal Reserve and introduced U.S. dollar funds-supplying operations. The outstanding amount of the operations reached 78.2 billion dollars at the end of December 2008, declined thereafter as the function of the dollar fund market improved, and the operations once ended after the final offer in January 2010. Subsequently, against a backdrop of a sense of vigilance against sovereign risk in some European countries, a strain rose again in the U.S. dollar market. Therefore, the operations were re-established in May 2010.

In response to the increased needs for foreign currency borrowing by client firms, Japanese financial institutions met such needs by transferring funds between groups and between head office and branches. On the risk management front, they heightened the alert level of foreign currency liquidity and implemented centralized control by increasing the control by the head office. In addition, as a stabilization policy for medium- to long-term foreign currency funding, they diversified funding partners and funding measures as well as made efforts to reduce term mismatches between assets and liabilities by extending the funding terms. Specifically, Japanese financial institutions established a system to pledge Japanese government securities as collateral so as to adequately use the Term Auction Facility (liquidity facility newly introduced during the recent crisis) that was provided by the Federal Reserve Bank of New York. In addition, they carried out measures such as direct funding of foreign currency by issuing foreign currency denominated bonds, maintaining the relationship with the funding partners newly explored at the time of the crisis, and making currency swap arrangements in a term beyond one year.

### ▼U.S. Dollar Funds-Supplying Operations



#### **Example 2: Yen currency funding for foreign financial institutions**

Since September 2008, foreign financial institutions located in Japan have been faced with difficulty in rolling over uncollateralized term funds such as call money or other borrowing. In addition, funding through repo also decreased significantly and yen funding as a whole became tight.

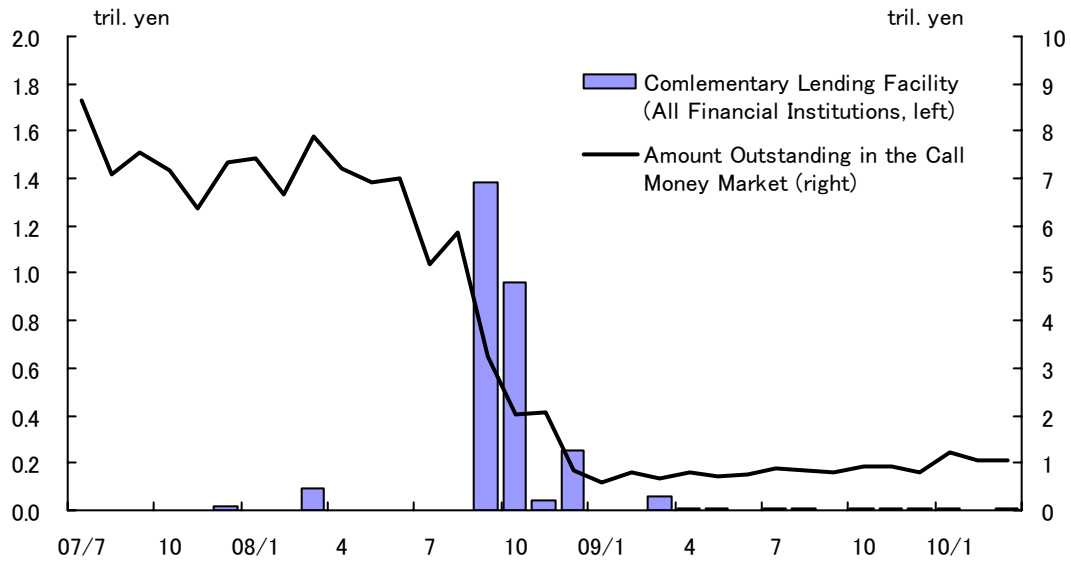
Given such deterioration in funding conditions, foreign financial institutions increased the portion of funding by fund transfers from overseas head office and branches and increased the yen funding through the Bank's complementary lending facility. On the investment side, they reduced the size of their balance sheets by, for example, reducing securities investments and reverse repos.

Subsequently, since 2009, on the back of stabilized markets, funding through call money and repos have somewhat recovered and the use of complementary lending facility also has declined. However, funding conditions for foreign financial institutions have not recovered to what were before the crisis, and they keep their conservative funding stance.

When funding conditions for foreign financial institutions became tight, the Bank's off-site monitoring section provided advice and guidance to them to pursue conservative funding such as reducing the amount of daily necessary funding through more preemptive and longer-term funding. Moreover, the Bank implemented on-site

examinations in a flexible manner and checked the appropriateness of liquidity risk management system including contingency plans.

▼ Complementary Lending and Foreign Financial Institutions' Call Market Funding<sup>1</sup>



1. Outstanding balance at the end of the month. Foreign financial institutions' call market funding is the sum of foreign banks' uncollateralized and collateralized call-funding.

## **Box 2: International Discussions on Liquidity Risk Management**

### **(1) Gauging and controlling the liquidity risk profile**

The Basel Committee on Banking Supervision, in its consultative document *International framework for liquidity risk measurement, standards and monitoring* released in December 2009, proposed a new liquidity requirement that employs the Net Stable Funding Ratio (NSFR). This metric focuses on the balance between asset and liability structures and medium- to long-term maturity mismatches between investment and funding, and is regarded as one of the metrics that serves to gauging the liquidity risk profile. Taking account of the fact that liquidity risk profiles may be affected by various factors, including financial institutions' business models, this document proposes that supervisors should also monitor other indicators together, such as funding concentrations.

### **(2) Strengthening resilience in a stress phase**

The Basel Committee released the *Principles for Sound Liquidity Risk Management and Supervision* in September 2008.<sup>15</sup> There, the Committee highlighted the conduct of stress tests as an important means of managing liquidity risk. In the Basel Committee's consultative document released in December 2009, the Liquidity Coverage Ratio (LCR) was also taken as an important metric to identify the capability of a financial institution to endure various stresses, such as a rapid deposit run-off.

Moreover, in December 2009, the Committee of European Banking Supervisors (CEBS) released the *Guideline on Liquidity Buffers & Survival Periods*, which requested financial institutions to hold liquid assets sufficient to continue business in a liquidity stress for a period of at least one month.<sup>16</sup> In the United States in March 2010, the six

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<sup>15</sup> Taking into account the turmoil in the global financial markets after the summer of 2007, the Basel Committee revised and released the *Principles for Sound Liquidity Risk Management and Supervision* (<http://www.bis.org/publ/bcbs144.pdf?noframes=1>).

<sup>16</sup> *Guidelines on Liquidity Buffers & Survival Periods* (<http://www.c-eps.org/documents/Publications/Standards---Guidelines/2009/Liquidity-Buffers/Guidelines-on-Liquidity-Buffers.aspx>).

supervisory agencies,<sup>17</sup> including the Office of the Comptroller of the Currency and the Board of Governors of the Federal Reserve System, issued the *Interagency Policy Statement on Funding and Liquidity Risk Management*, which emphasized the importance of, for example, stress testing, appropriate holdings of liquid assets, and formulation of contingency funding plans.<sup>18</sup>

### **(3) Establishment of a global system for liquidity risk management**

Some financial authorities overseas attach particular importance to financial institutions' vulnerability associated with cross-border financing and try to introduce a regulation that requires financial institutions to complete funding locally, that is to say, to be "self sufficient" for liquidity purposes.

For example, the Financial Services Authority (FSA) in the United Kingdom published a liquidity requirement, the *Strengthening liquidity standards*, in October 2009.<sup>19</sup> This requirement, in principle, demands that financial institutions should adopt a self-sufficient approach. That is to say, every financial institution located in the United Kingdom, including subsidiaries and branches of foreign institutions, should locally hold sufficient liquid assets both in terms of size and quality at all times to be able to cope with a certain amount of stress. Furthermore, the requirement demands that financial institutions should assume severe stress scenarios that cover a period of three months and include closure of foreign exchange markets for two weeks and to maintain a buffer of high-quality liquid assets in the form of high-quality government bonds and central bank reserves. The FSA in the United Kingdom announced in March 2010 that it would not tighten quantitative standards before the economic recovery is assured, and that this position will be reviewed later on in the year with a further announcement in the fourth quarter of 2010.

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<sup>17</sup> The Office of the Comptroller of the Currency, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Office of Thrift Supervision, the National Credit Union Administration, and the Conference of State Bank Supervisors.

<sup>18</sup> *Interagency Policy Statement on Funding and Liquidity Risk Management* (<http://www.federalreserve.gov/newsevents/press/bcreg/bcreg20100317.pdf>).

<sup>19</sup> *Strengthening liquidity standards including feedback on CP08/22, CP09/13, CP09/14* ([http://www.fsa.gov.uk/pubs/policy/ps09\\_16.pdf](http://www.fsa.gov.uk/pubs/policy/ps09_16.pdf)).



#### **(4) Appropriate use of central bank liquidity facility**

The Bank of England (BOE) in its *Financial Stability Report* released in June 2009 discussed that there is no automatic link drawn between eligibility in central bank operations and definition of the regulatory liquidity buffer.<sup>20</sup> It argues that if a regulatory regime defines liquid assets as those that are eligible in central bank operations, but are not reliably liquid in private markets, the incentives of firms to manage their liquidity risk prudently would be reduced. In such a case, it would imply central bank liquidity, which is supposed to be the last resort, would become the first resort by getting priority over market funding, and therefore such a regulatory regime would be inappropriate.

Moreover, in terms of the aforementioned liquidity requirement, the FSA in the United Kingdom shares such views of the BOE. The FSA argues that the definition of liquid assets based on all central bank securities assumes that central banks will, without condition, discount any eligible asset on demand and that such an assumption is incorrect. The FSA cites the following two reasons.

First, money allocated through open market operations is rationed; firms cannot properly rely on its availability. And second, all central banks reserve the right to refuse to transact with a commercial bank.

Furthermore, in the aforementioned guideline, the CEBS requires banks to guarantee supervisors that "they are not relying too heavily on access to central bank facilities as their main source of liquidity." Meanwhile, the CEBS also adds that regular participation in open market operations should not, per se, be interpreted as close dependence on central banks.

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<sup>20</sup> *Financial Stability Report, June 2009, Issue No.25*  
(<http://www.bankofengland.co.uk/publications/fsr/2009/fsrfull0906.pdf>).