Market Review

2002-E-3

# Money Market Operations in FY2001

Open Market Operations Division
Financial Markets Department
Bank of Japan

July 2002

*In its guidelines for money market operations, in fiscal 2001, the Policy Board of the Bank of Japan raised the target level of the aggregate balance of current account deposits held at the Bank in several steps. Accordingly, more ample funds were provided to the market, and, as a result, short-term interest rates fell to near-zero levels and under-subscription for fund providing operations was not uncommon. Against this background, the Bank sought to effectively implement guidelines for money market operations through the enhancement of operational tools and more attentive market monitoring.*

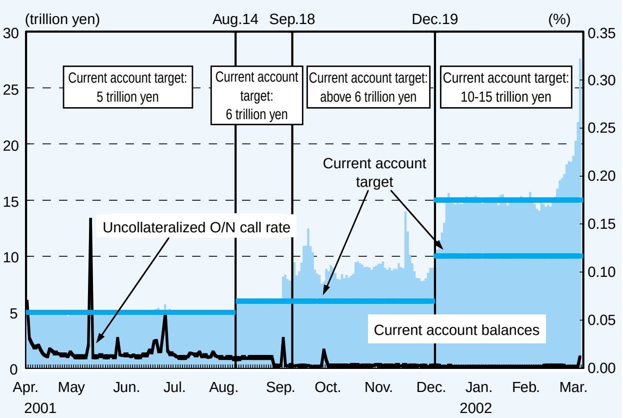
## Money market operations and 'current account targeting'

The Bank of Japan conducts money market operations in order to implement guidelines for money market operations as determined by the Monetary Policy Meeting (MPM) of the Policy Board.[1] In FY2001, the aggregate balance of current account deposits with the Bank (current account balances) was used as the main target for money market operations ('current account targeting'). As explained in the following sections, the target level was raised several times during the fiscal year (see Chart 1).

### Current account target set at ¥5 trillion (Mar. 19 - Aug. 13)

At the March 19, 2001 MPM, the main operating target was changed from the uncollateralized overnight call rate to the current account balances at ¥5 trillion, surpassing the aggregate balance of reserve requirement for financial institutions to maintain at the Bank of Japan at approximately ¥4 trillion. Market rates fell significantly, with TB/FB rates falling below 0.01% in early May. Since the lowest bid was 0.01% in money market operations at that time (with the exception of outright purchases of JGBs and TBs/FBs; see Chart 6 for types of money market operation tools), funding through market operations became more expensive than that in the market. As a result, under-subscription, where aggregate bids from operation counterparties did not reach the amount offered by the Bank, was commonplace in fund providing operations. Against this background, the Bank increased offers for outright purchases of TBs/FBs in its money market operations, and changed the smallest unit for bids in other types of market operations from 0.01% to 0.001%. Under-subscription temporarily disappeared from the end of May 2001.

**[Chart 1] Current account balances and uncollateralized O/N call rate**




### Current account target set at ¥6 trillion (Aug. 14 - Sep. 17)

On August 14, 2001, the target for the current account balances was raised to around ¥6 trillion. This induced a further decline in market rates, and bidding rates in fund providing operations fell to 0.001%, the minimum rate, in early September.[2]

These conditions changed after the terrorist attacks in the US on September 11, and participants in Japanese markets became more concerned over the settlement of foreign exchange transactions and cross-border transactions involving yen. This led to an increase in precautionary demand for liquidity and financial institutions increased their cash balances. The approach of the end of the first half of the fiscal year exacerbated the situation. Taking this sudden change in market conditions into account, in order to ensure smooth fund settlement and financial market stability, the Bank decided to provide ample liquidity to the money market exceeding ¥6 trillion in a timely manner. In the morning of September 12, the day after the terrorist attacks in the US, the Bank pumped ¥2 trillion into the market to increase the current account balances to above ¥8 trillion,[3] and thereafter continued to maintain a high balance. Bidding in market operations recovered with the pickup in precautionary demand for funds.

### Current account target set at above ¥6 trillion (Sep. 18 - Dec. 18)

At the MPM held on September 18, in view of the terrorist attacks in the US and subsequent uncertainties in the market, it was decided to "provide ample liquidity to the money market by aiming to maintain the outstanding balance of current accounts held at the Bank at above ¥6 trillion", instead of setting a specific target. In fact, precautionary demand for funds increased further as market participants became more cautious in the aftermath of the terrorist attacks in the US and against the nearing of the end of the first half of the fiscal year, and yields of instruments maturing beyond the end of September firmed. Market operations were conducted to meet such increased demand, and the current account balances stood at ¥12.5 trillion at the end of September. In September, yen selling intervention in the foreign exchange markets by the Ministry of Finance was also a contributing factor to the rise in current account balances (by ¥2.4 trillion).[4]

Entering October, precautionary demand for funds was dampened as pressure from the approach of the end of the first half of the fiscal year subsided. However, foreign banks operating in Japan continued to maintain a high level of excess reserves. This can be partly explained by the fact that foreign banks in Japan with high credit ratings were able to obtain yen funding at effectively sub-zero rates through the foreign exchange swap market. These banks then left funds in current accounts at the Bank of Japan, which are non-interest bearing but risk-free (see Box). Reflecting such demand for excess reserves, demand for funds remained at an elevated level, which, in turn, resulted in more active bidding in the Bank of Japan's fund providing operations. Against the background of these developments, the current account balances at the Bank stayed at around ¥8-9 trillion.

In late November, precautionary demand for funds strengthened again, when some money market funds experienced significant withdrawal of funds following the collapse of Enron. In response, the Bank of Japan fulfilled its commitment to provide ample funds to the market, and the current account balances temporarily increased to around ¥14 trillion at end-November.

### Current account target at ¥10-15 trillion (Dec. 19 onwards)

The current account target was raised to ¥10-15 trillion at the MPM on December 18 and 19, 2001, and the balances subsequently remained at around ¥15 trillion, the upper limit of the target. With the Bank of Japan continuing to pump money into the market, market participants increasingly felt that there was a glut of funds after January 2002. Frequent under-subscription was observed in all types of short-term fund providing operations after January 16.

In terms of day-to-day money market operations, such developments necessitated the Bank to step up its efforts to maintain the current account balances at a high level, through increased use of outright purchases of TBs/FBs and longer-dated bill purchases, as market participants tended to bid more actively in these types of market operations. Furthermore, at the February 28 MPM, it was decided that the Bank would provide more liquidity toward the end of March to secure financial market stability, in light of the possible surge in demand owing to the end of the fiscal year factor and lifting of the blanket guarantee of deposits. To implement this decision, the Bank increased current account balances gradually to reach above ¥15 trillion in mid-March. As a result, at the end of the fiscal year, the current account balances reached a historical high of ¥27.6 trillion.

## Increase in holding of excess reserves

Current account deposits at the Bank of Japan are held not only by depository institutions, which are subject to reserve requirements (hereafter 'reserve-holding institutions'), but also by securities firms and *Tanshi* (money market brokers), etc., which are not subject to reserve requirements (hereafter 'exempted institutions'; see Chart 2). When the Bank of Japan provides funds to these current accounts in excess of the required reserves, it results in excess reserves at reserve-holding institutions and increases in the (non-reserve) current account balances held by exempted institutions. In this regard, a large proportion of current account deposits exceeding the required reserves (approximately ¥4 trillion) was held by *Tanshi* and other exempted institutions under the zero-interest-rate-policy period from February 1999 to August 2000, when the aggregate balance was maintained at around ¥5 trillion on average.

Meanwhile, the large amount of funds the Bank provided under the current account targeting was held among financial institutions as follows. Looking at each reserve maintenance period during FY2001, balances held by exempted institutions were greater than excess reserves until the July 2001 maintenance period. The main reason behind this may be that reserve-holding institutions, especially major banks, avoided holding excess reserves as much as possible by limiting the amount of funding in the market and providing funds to *Tanshi* and other exempted institutions. This situation was similar to that during the zero-interest-rate-policy period.

Since the August reserve maintenance period, however, excess reserves at the Bank became larger than the current account balances of exempted institutions, as the current account target was raised successively from ¥6 trillion to above ¥6 trillion, and to ¥10-15 trillion. This means that, as a result of the increasingly vigorous provision of funds by the Bank of Japan, funds provided to the current accounts in excess of required reserves flowed to a wider range of market participants compared with the zero-interest-rate-policy period.

**[Chart 2] Current account balances and reserves**

(hundred million yen)

| Reserve maintenance period | Current account balances (a)=(b)+(C) | Reserves (b) | Excess reserves | Current account balances of exempted institutions (c) |
|---|---|---|---|---|
| 2001/Apr | 50,800 | 44,300 | 3,600 | 6,500 |
| May | 50,100 | 45,400 | 4,500 | 4,700 |
| Jun | 51,400 | 45,300 | 4,500 | 6,100 |
| Jul | 50,700 | 44,300 | 3,300 | 6,400 |
| Aug | 62,700 | 52,000 | 11,200 | 10,700 |
| Sep | 91,900 | 79,100 | 38,000 | 12,800 |
| Oct | 87,600 | 79,700 | 38,800 | 7,900 |
| Nov | 93,300 | 81,000 | 40,100 | 12,300 |
| Dec | 134,800 | 108,500 | 66,800 | 26,300 |
| 2002/Jan | 150,300 | 127,300 | 85,900 | 23,000 |
| Feb | 149,200 | 131,600 | 90,400 | 17,600 |
| Mar | 202,900 | 184,300 | 142,300 | 18,600 |

<Reference> Averages of the zero-interest-rate policy period from Feb. 1999 to Jul. 2000.*

| | Current account balances | Reserves | Excess reserves | Current account balances of exempted institutions |
|---|---|---|---|---|
| | 50,600 | 42,800 | 4,000 | 7,800 |

*Excludes December 1999 when a large amount of funds was provided to meet precautionary demand for current account deposits reflecting concerns over the Y2K issue.

## Frequent under-subscription and provision of current account balances

In this section, we will consider how it was possible to provide large amounts of current account balances accompanied by increases in excess reserves. Generally, aggregate demand for required reserves is about ¥4 trillion. The ¥4 trillion level most likely exceeds the level of funds necessary for settlements among institutions under normal market conditions. This is substantiated by the fact that uncollateralized overnight call rates were stable with current account balances standing at around ¥4 trillion before the introduction of current account targeting in March 2001. Since financial institutions will likely be reluctant to maintain excess reserves, they might refrain from participating in the Bank's fund providing operations, and hence under-subscription is likely to increase when funds are provided to current accounts in levels exceeding the demand for reserves for a prolonged period. However, the Bank of Japan has so far been successful in meeting current account targets which significantly surpass the estimated demand for reserve funds, even though fund providing operations were frequently under-subscribed. This is a question that needs to be explored.

One possibility is that market participants now consider irrelevant any opportunity cost involved in holding excess reserves, since it has become negligible under the historically low short-term interest rate environment. For example, the weighted average overnight call rate was 0.02% at its lowest during the zero-interest-rate-policy period, but fell to as low as 0.001% under the current account targeting policy. Against the background of this ultra-low interest rate environment, financial institutions might have decided to refrain from investing funds in the market and to keep them in current accounts at the Bank of Japan, which could be regarded as an increase in the demand for current account deposits. In addition, as mentioned earlier, foreign banks with high credit ratings could raise yen funds at effectively sub-zero rates in this low interest rate environment (see BOX). These foreign banks were able to earn spreads even if they kept their money in non-interest bearing but risk-free current account deposits at the Bank of Japan. This, in turn, has led to an increase in the demand for current account deposits.

Another factor that might explain increases in current account balances is uncertainty over the availability of funds in the future. Market operations by the Bank of Japan often provide large-lot funds at longer terms, which are not so readily available in the market. For this reason, banks in need of funding — major banks in particular — would often find it attractive to arrange funding utilizing Bank of Japan's market operations. In particular, when the current account target is so high that there is a high incidence of under-subscription for money market operations, chances are that funds can be obtained at the minimum bid rate (0.001%) even for large bids. Of course, this could lead to an excessive buildup of current account balances, but as the opportunity cost involved is negligible, market participants could decide that there is more to gain from reducing uncertainty with respect to their treasury operations. In addition, demand to obtain funds through market operations is likely to increase in times of heightened uncertainty such as at the end of the fiscal year or when there is concern over financial system stability. As mentioned later, the fact that bids were more likely to have been received for longer-dated bill purchase operations could be a reflection of such incentives.

An additional factor is the heightened incentive to bid in market operations when there are definite profit-taking opportunities. For example, it is said that market participants were able to capture capital gains by selling TBs/FBs (obtained through primary auctions) to the Bank of Japan in the TB/FB outright purchase operations. Such gains are not always guaranteed, but when the current account target is high and large amounts of market operations are continuously offered to meet it, it is likely that bids at the lowest level of 0.001% will most certainly be accepted, and the TBs/FBs can be sold at higher prices. Under such conditions, financial institutions were active also in the primary auction market.

As seen above, various factors and market conditions stimulated additional demand for current account deposits. Such demand has so far supported the maintenance of high current account balance levels far exceeding the required reserves. However, of the above factors, uncertainty over the future availability of funds may increase or decrease according to financial conditions. Precautionary demand for funds is likely to decrease after the uneventful passing of the end of the fiscal year.

## Bank of Japan's balance sheet and its expansion

The ample provision of funds to current account deposits at the Bank through market operations expanded the balance sheet of the Bank of Japan.[5] More specifically, over the fiscal year, the current account deposits on the Bank's balance sheet increased by ¥21.8 trillion to reach ¥27.6 trillion at end-March 2002. Such an increase in liabilities in the form of current account deposits led to a substantial expansion of the Bank's balance sheet as a whole (see Chart 3).

It should be noted, however, that the Bank of Japan's balance sheet is also influenced by liability items other than current account deposits, such as issuance of banknotes ('banknotes' factor) and tax payment, fiscal outlays, etc. ('treasury funds and others' factor). An overview of developments regarding these automous factors in FY2001 is presented below in Chart 4.

The outstanding amount of banknotes in circulation increased over the previous year, contributing to the outflow of funds from current accounts. Factors influencing this (including temporary factors) are as follows:

(1) The opportunity cost of holding banknotes declined because of the low-interest-rate environment.
(2) Cash withdrawals increased as a large amount of postal savings matured.
(3) Demand for cash increased at firms (including financial institutions) and households towards the end of the fiscal year as the blanket guarantee of deposits was to be lifted.

Looking at the 'treasury funds and others' factor in fiscal 2001, adjusting for the effects of TB/FB purchase operations, this contributed to an inflow of ¥3.7 trillion yen to current account balances.[6] The main driving factors were net fiscal payments and FBs. Net fiscal payments contributed to inflows to current account balances as a result of decreases in repurchase fund-raising transactions by the Fiscal Loan Fund and shifting of funds from matured postal savings term deposits to private financial institutions. As for FBs, redemptions exceeded issuances (i.e., a decrease in the amount outstanding in the market) as the government became more conscious of funding efficiency. This also contributed to inflows to current account balances. Reflecting these factors, liquidity held by the government (the sum of 'government deposits' and 'repo transactions between the Bank and the Government') decreased by ¥7.8 trillion in FY2001 (see Chart 3,5).

### [Chart 3] Bank of Japan's balance sheet (end-March 2002)

(trillion yen)

| | | | | | |
|---|---|---|---|---|---|
| Outright purchase ofJGBs | 49.0 | (+2.8) | Banknotes issued | 67.9 | (+9.2) |
| TBs/FBs underwritten by the Bank | 6.1 | (+1.5) | Government deposits, etc. | 35.1 | (– 7.8) |
| Short-term money market operations (net) | 72.7 | (+19.4) | Current account deposits | 27.6 | (+21.8) |
| Lending, etc. | 1.1 | (– 0.4) | | | |
| Total assets (including others) | 138.6 | (+24.7) | Total liabilities (including others) | 138.6 | (+24.7) |

Note 1: Figures in ( ) denote year-on-year change. To make it easier to understand balance sheet changes from FY2000 to FY2001, items for end-March 2001 were aggregated in a different manner from the disclosed balance sheet of the Bank of Japan. For this reason, year-on-year changes for items shown above differ somewhat from those obtained from the Bank's formal balance sheets for FY2000 and FY2001.
Note 2: 'Outright purchases of JGBs' excludes JGBs underwritten for capital disbursements.

### [Chart 4] Sources of changes in current account balances at Bank of Japan

(trillion yen)

| | FY2000 | FY2001 | | FY2001adjusted for outright | |
|---|---|---|---|---|---|
| | | | Year-on-year change | purchases of TBs/FBs | Year-on-year change |
| Banknotes | -1.6 | -9.2 | -7.6 | -9.2 | -7.6 |
| Treasury funds and others | -32.7 | -35.9 | -3.2 | +3.7 | +36.4 |
| Net fiscal payments | +16.2 | +55.5 | +39.3 | +55.5 | +39.3 |
| JGBs | -45.5 | -69.3 | -23.8 | -55.4 | -9.9 |
| FBs | -10.5 | -24.9 | -14.4 | +0.8 | +11.3 |
| Foreign exchange and others | +7.1 | +2.7 | -4.4 | +2.7 | -4.4 |
| Funds surplus/ shortfall | -34.3 | -45.1 | -10.8 | -5.5 | +28.8 |

### [Chart 5] Bank of Japan's transactions with the Government

(trillion yen, outstanding at end-month)

| | 2001/Mar | Jun | Sep | Dec | 2002/Mar |
|---|---|---|---|---|---|
| Government deposits | 22.1 | 12.4 | 15.5 | 6.0 | 12.9 |
| Repo transactions between the Bank and the Government | 20.8 | 24.5 | 20.4 | 19.5 | 22.2 |
| Total | 42.9 | 36.9 | 35.8 | 25.4 | 35.1 |

As seen in this section, liability items on the Bank of Japan's balance sheet increased overall by ¥24.7 trillion year on year in FY2001. While items such as government deposit, etc. declined, the increases in 'current account deposits' and 'banknotes issued' were the main driving factors behind the expansion. Meanwhile, on the asset side, increases in holdings of JGBs purchased through outright operations and 'short-term money market operations' supported expansion (see Chart 3).

## Money market operations in FY2001 by tool

Let us now look at fund providing operations during FY2001 in more detail by market operation tool (see Chart 6).

**[Chart 6] Amount outstanding of short-term operations**

(trillion yen, outstanding at end-month)

| | 2001/Mar | Jun | Sep | Dec | 2002/Mar |
|---|---|---|---|---|---|
| Provision of short-term funds | 57.7 | 59.2 | 56.4 | 57.1 | 72.7 |
| Borrowing of JGBs against cash collateral | 18.5 | 16.3 | 12.4 | 11.0 | 8.5 |
| Outright purchases of bills | 9.8 | 14.9 | 17.3 | 20.7 | 29.5 |
| At head office | 9.8 | 14.9 | 11.7 | 11.1 | 14.4 |
| At all offices | — | — | 5.6 | 9.6 | 15.1 |
| Purchases of CPs under repurchase agreements | 1.6 | 2.2 | 2.0 | 3.6 | 3.5 |
| Purchases of TBs/FBs under repurchase agreements | 26.9 | 7.0 | 1.5 | 0.5 | 0.0 |
| Outright purchases of TBs/FBs | 0.9 | 18.8 | 23.1 | 21.4 | 31.2 |
| Absorption of short-term funds | -4.4 | -6.5 | -0.5 | -0.3 | 0.0 |
| Outright sales of bills drawn by the Bank of Japan | -4.4 | -6.5 | -0.5 | -0.3 | 0.0 |
| Sales of TBs/FBs under repurchase agreements | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Net amount outstanding of short-term operations | 53.3 | 52.7 | 55.9 | 56.8 | 72.7 |

### Outright purchases of JGBs

The amount of JGB purchase operations is determined in line with the growth trend of the outstanding amount of banknotes issued, which is a liability item on the balance sheet of the Bank of Japan. Concerning specific purchase amounts, it was announced at the March 2001 MPM, when the main operating target was changed to current account balances, that a) the Bank will increase the amount of its outright purchases of JGBs if it considers an increase necessary for the smooth provision of liquidity, but b) subject to the limitation that the outstanding amount of JGBs held by the Bank be kept below the outstanding balance of banknotes issued. Under this policy, purchase amount of JGBs were increased from the initial ¥400 billion per month to ¥600 billion per month in August 2001. They were then increased to ¥800 billion in December and to ¥1 trilllion in February 2002. Such increases in the purchase amount for this type of market operation tool mean less pressure on other short term fund providing operations.

With increases in the purchase amount, the range of eligible securities has also been expanded. On May 18, 2001, 2-, 4-, 5-, and 6-year JGBs became eligible in addition to 10- and 20-year JGBs. In addition, on January 16, 2002, the 'one-year rule', where issues only became eligible for purchase one year after issuance, was abolished, and now only the two most recent issues remain ineligible.

### Borrowing of JGBs against cash collateral (JGB repos)

After increasing significantly to ¥18.5 trillion at end-FY2000 from ¥7.9 trillion at end-FY1999, the outstanding amount of JGB repos again declined to ¥8.5 trillion in FY2001. Counterparties to JGB repos include major banks and repo dealers (e.g., securities companies and *Tanshi*). Banks' funding needs tend to be longer, most often over one month, whereas dealers' funding needs are shorter, extending from a few days to a few weeks, reflecting their funding needs for JGB inventory holdings. In FY2001, part of the banks' funding activities shifted to outright purcahses of bills with enhancements in this operational tool (as explained in the following). As a result, it was not necessary to maintain a high outstanding level of JGB repos as in FY2000. In view of this development, the Bank of Japan offered repos with shorter maturity to flexibly fulfill dealers' funding needs. In particular, from January 2002 to mid-March, until most market participants completed funding for the fiscal year-end, the Bank offered shorter repos every day. As a result, the outstanding amount of JGB repos has generally been stable at around ¥8-9 trillion, even though banks have not been active bidders.

### TB/FB operations; under repurchase agreements and outright purchases

There are two types of money market operations directly involving TBs/FBs; namley, under repurchase agreements (repo) and outright transactions. In FY2001, the outstanding amount of TB/FB repos came down to zero while that of outright purchase increased significantly from ¥0.9 trillion at end-FY2000 to ¥31.2 trillion at end-FY2001.

Outright purchases of TBs/FBs were actively used to maintain the high level of current account balances far above the required reserves, because, from the standpoint of market operations, it can provide longer funds compared to other short-term market operation tools.[7] Market participants also saw merits in outright operations since the smallest bidding unit was 0.001% and outright sales to the Bank of Japan mean realized profits are not affected by subsequent developments. Because these advantages inherent to outright purchase of TBs/FBs could be enjoyed by both the Bank of Japan and counterparties, its outstanding amount increased significantly.

On the other hand, the outstanding amount of TB/FB repos declined to nearly zero throughout second half of FY2001, against the background of rapid growth in that of TB/FB outright operations.

### Outright purchases of bills ('at all offices' and 'at head office')

The outstanding amount of bill purchase operations (BPOs), total of 'at all offices' and 'at head office, increased significantly in FY2001. The figure was ¥29.5 trillion at end-March 2002, almost matching outright purchases of TBs/FBs, which had the highest balance outstanding of ¥31.2 trillion. Behind this were the positive effects of measures taken to facilitate the participation of operation counterparties, including a) introduction of 'pooled collateral' method,[8] b) introduction of BPOs at all offices (all office BPOs), and c) extension of the maximum maturity for BPOs from '3 months or less' to '6 months or less'.

All office BPOs were introduced in July 2001. Prior to this, BPOs were conducted only with financial institutions which held accounts at the head office of the Bank of Japan (head office BPOs). However, in the interest of the more effective provision of funds to the market, all office BPOs, where a wider range of institutions such as regional insitutions are included, were added to head office BPOs. There are 40 BPO counterparties at head office, but 120 for all offices (at the time of introduction). These counterparties range from foreign banks to securities firms (both Japanese and foreign), as well as *Tanshi*. Upon introduction, all office BPOs were offered three times a month, but the frequency was increased after December 2001 reflecting active bidding. All office BPOs were extensively utilized to meet the high current account target of ¥10-15 trillion, and maturity of the operations was gradually extended. As a result, outstanding balance of all office BPOs surpassed that of head office BPOs.

Meanwhile, since head office BPOs employ smaller number of counterparties than all office BPOs, they have greater flexibility and are less burdensome in terms of back office processing. These days, all office BPOs are used in order to continuously maintain the high level of current account balances, while head office BPOs are used more as a fine-tuning tool to fill short-term fluctuations in current account balances and expeditious fund provision right from the day of the offer. An example of this is the operations in the morning of September 12, the day after the terrorist attacks in the US. At the time, two head office BPOs, each amounting to ¥1 trillion, were made successively almost within an hour (at around 9 and 10 o'clock) so as to contribute to maintaining financial market stability.

### Purchase of CPs under repurchase agreement (CP repos)

The outstanding amount of CPs purchased under repurchase agreement (CP repos) operations stayed at around ¥2 trillion in the first half of FY2001. After it was decided to make more active use of this operation tool in the December 18 and 19, 2001 MPM, the outstanding amount increased to around ¥3-4 trillion. The outstanding amount of CP repos is influenced not only by the Bank of Japan's market operations but also by the funding demand of CP issuers and operation counterparties. In FY2001, the incentive for participating in CP repos was not strong, as financial institutions, who were the main bidders, were not so concerned over funding given the easy funding conditions achieved by Bank of Japan's ample fund provision. As a result, although the Bank of Japan actively offered CP repos, under-subscription was not rare. Meanwhile, the use of ABCPs for CP repos was announced at the December 18 and 19, 2001 MPM and a formal review of eligibility started on February 4, 2002.

## Summary

The Bank of Japan provided ample funds to the market throughout FY2001. Notable was the period between September 2001 to end-March 2002, when the Bank succeeded in mantaining market stability through the provision of ample liquidity, in spite of various concerns, such as the approach of the end of the first and second half of the fiscal year, the terrorist attacks in the US, the collapse of Enron, and uncertainties raised by the lifting of the blanket guarantee on bank deposits.

However, the increasing comfort of market participants with respect to funding could potentially undermine their incentive to participate in fund providing operations. In this regard, it was a challenge for the Bank of Japan to maintain a high level of current account balances throughout FY2001. In terms of day-to-day market operations, the Bank selectively used the most effective tool to attract bids for each situation, carefully considering the characteristics of each operational tool and market participants' preferences.

Meanwhile, even with respect to market operation tools that often resulted in under-subscriptions, such as JGB repos and head office BPOs, offers were not cut back to prevent under-subscription. Instead, these operations were offered every day with the aim of providing as much funds to the market as possible, fulfilling the funding needs of different types of market participants (banks and securities firms) and different maturity preferences (short or long term).

In addition, the Bank of Japan has implemented the following measures to improve the operational process and computer systems involved in money market operations from a medium- to long-term perspective, so as to encourage active bidding (see table in Appendix for details):

(1) reducing the smallest unit for bidding in competitive auctions to 0.001% from the previous 0.01%;
(2) upgrading the BOJ-NET operation bidding system;[9]
(3) expansion of eligible counterparties to market operations, e.g., introduction of all office BPOs and abolishing the practice of changing participants in rotation within eligible counterparties;[10]
(4) extending the maturity of funds provided through operations;
(5) simplicication of the procedure for selecting operation counterparties, e.g., revision of the criteria for selecting counterparties to treat the amount of successful bids with more significance,[11] and change in the selection process of counterparties to all office BPOs from once a year to year-round;
(6) broadening of the range of eligible collateral, e.g., ABCPs, asset-backed securities backed by mortgage loans and cash flow generated from real estate investments, loans to the Government's special account for the allotment of local allocation tax and local transfer tax, and loans to the Deposit Insurance Corporation;
(7) expansion of eligible securities for outright purchases of JGBs to include 2-, 4-, 5- and 6-year JGBs, and abolishing the 'one-year rule'.

Through these measures to enhance market operations, the Bank of Japan was able to provide funds to maintain the current account balances at substantially higher than required reseve levels in FY2001. Furthermore, the monetary base, which is the sum of the outstanding amount of current account deposits and banknotes and coins in circulation, recorded the highest level since the first Oil Shock in 1973. By maintaining close contact with market participants and enhancing the efficiency of market operations, the Bank of Japan will endeavor to smoothly implement the guidelines for money market operations as determined at Monetary Policy Meetings.

### [BOX] 'Zero rate' or 'sub-zero rate' observed in the financial market

Generally, market rates observed in collateralized and outright trades are not 'pure interest rates' (i.e., the nominal risk-free interest rate with no collateral involved) as such. Instead, they are 'yields' that reflect 'the value of holding collateral (and the settlement cost for collateral)' or 'the difference in the creditworthiness of the parties involved in trade'.

Collateralized funding rate = (Uncollateralized) risk-free rate – Value of holding collateral and settlement costs
– Difference in the creditworthiness of counterparties

Therefore, it is not surprising to find market participants being able to fund at zero or sub-zero rates, when 'pure interest rates' are near zero. Such episodes have been observed in a few markets. For example, let us consider a case where a foreign bank wishes to obtain funding in yen through a foreign exchange swap transaction with a Japanese bank as counterparty. When demand for foreign currency is strong, the value of foreign currency as collateral will increase. The difference in counterparty creditworthiness also pushes down the cost involved for a foreign bank providing foreign currency as collateral against its yen funding when trading with Japanese bank with lower credit rating. As a result, the combination of factors makes it possible for a foreign bank in this case to obtain yen funds at zero or sub-zero rates.

Another example concerns JGB repo rates. When issues become 'special' in the repo market, that is demand for the specific issue not readily available in the market is strong, the value of holding that issue (as collateral) becomes high and transactions at sub-zero rates are quite common. A similar situation is noted for TBs/FBs which are sometimes traded at zero rates when demand for such bills is very strong.

## Appendix Measures relating to money market operations in FY2001

| Date | Guideline for money market operations | Measures |
|---|---|---|
| Apr.2001 | Current account balances: ¥5 trillion | Apr.24 'Schedule for the Implementation of Additional RTGS Measures Regarding JGSs'; announcement of schedule for the completion of RTGS for JGB settlements |
| May 2001 | | May 18 'Measures for Facilitating Money Market Operations'<br>(1) Extension of the maximum maturity of BPOs from 3 months or less to 6 months or less.<br>(2) Increasing the number of counterparties to head office BPOs from 30 to 40 counterparties.<br>(3) Revision of the smallest bidding unit in competitive auctions to 0.001%, from the previous 0.01%, to be introduced in steps up to July 2001.<br>(4) Expansion of eligible JGBs for outright purchases of JGBs to include 2-, 4-, 5- and 6-year JGBs. |
| | | May 29 'Measures for Enhancing Liquidity in JGB Markets and Transparency in JGB-Related Money Market Operations'<br>(1) Announcement of the Bank's issue-by-issue holdings of JGBs.<br>(2) Release of procedures for delivery failure of JGBs in JGB-related operations. |
| Jul.2001 | | Jul.23 (1) Introduction of all office BPOs.<br>(2) Upgrades to the BOJ-NET market operation auction system. |
| Aug.2001 | Current account balances: ¥6 trillion | Aug.14 Increase in outright purchases of JGBs to ¥600 billion per month |
| Sep.2001 | Current account balances: Above ¥6 trillion | Sep.18 (1) A reduction in the official discount rate by 0.15% to 0.10%.<br>(2) An increase in the maximum number of days on which the official discount rate can be applied for use of the Lombard-type lending facility: from five business days to ten business days for the September 2001 reserve maintenance period. |
| Dec.2001 | | Dec.10 Introduction of electronically processed Lombard-type lending. |
| | Current account balances: ¥10-15 trillion | Dec.19 (1) Increase in outright purchase of JGBs to ¥800 billion per month.<br>(2) Measures to strengthen money market operations:<br>a) More active use of CP repos<br>b) Expansion of eligible collateral to include ABCPs, and expansion of eligible ABSs for market operations.<br>c) Increase in frequency of all office BPOs.<br>d) Abolition of the practice of changing participants in rotation within eligible counterparties. |
| | | Dec.21 Revision of the criteria for selecting counterparties to treat the amount of successful bids with more significance. |
| Jan.2002 | | Jan.16 (1) Introduction of eligibility criteria for ABCPs.<br>(2) Abolition of 'one-year rule (limiting eligible JGBs to those issued more than a year previous)' in outright purchase of JGBs; the new rule excludes the two most recent issues for each maturity.<br>(3) Revision of selection process for eligible counterparties to BPOs (increase in frequency of counterparty selection of all office BPOs <from once a year to year-round>, etc.).<br>Jan.31 Increase in the upper limit for bidding in short-term fund providing operations: for purchase of TBs/FBs (repo and outright), BPOs (all office and head office), and JGB repos , the limit was raised from half of the offered amount to all of the offered amount, and for CP repo operations from ¥100 billion to ¥200 billion. |
| Feb.2002 | | Feb.21 Reflecting the MPM decision on January 16, newly selected counterparties for all office BPOs (for February 2002) were announced, increasing the number of eligible counterparties from 120 to 125 institutions. |
| | Current account balances: ¥10-15 trillion, more ample fund provision | Feb.28 (1) Increase in outright purchase of JGBs to ¥1 trillion per month.<br>(2) Temporary lifting of limit on the number of days that the Lombard-type lending facility can be used at the official discount rate from the March 1 to end-March reserve maintenance period.<br>(3) Examining operational issues to include 'loans to the Government's special account for the allotment of local allocation tax and local transfer tax' and 'loans to the Deposit Insurance Corporation' as eligible collateral for money market operations. |
| Mar.2002 | | Mar.20 'Loans to the Government's special account for the allotment of local allocation tax and local transfer tax' and 'loans to the Deposit Insurance Corporation' added to eligible collateral.<br>Newly selected counterparties for all office BPOs (for March 2002) were announced, increasing the number of eligible counterparties from 125 to 131 institutions. |

1 For more on the Bank of Japan's money market operations, see Miyanoya, Atsushi, "A Guide to Bank of Japan's Market Operations", Financial Markets Department Working Paper E-series 00-E-3, August 2000.

2 For example, on September 6, 2001, the smallest unit for transactions through *Tanshi* in the call market was reduced from 0.01% to 0.001%. Since then, overnight transactions at 0.001-0.002% have prevailed.

3 On the morning of September 12, 2001, ¥1 trillion was provided to the market at 9:03, earlier than the regular time of 9:20. An additional ¥1 trillion was provided at 10:05.

4 Source: Ministry of Finance, "Foreign Exchange Intervention Operations", for those settled in September 2001.

5 For more on the Bank of Japan's balance sheet and market operations, see "Money Market Operations in FY2000", Market Review 2001-E-4.

6 When TBs/FBs that the Bank of Japan obtains through outright purchase operations are redeemed, redemptions against private financial institutions (i.e., transfer of cash from the Government to them) will be smaller than otherwise. This is aggregated under 'treasury funds and others' and works as a decrease in the inflow to current account balances held at Bank of Japan (or increase in the outflow). However, market operations other than outright purchase of TBs/FBs do not affect data in 'treasury funds and others'. For example, the TBs/FBs that the Bank of Japan obtains as a result of TB/FB repos are sold back to operation counterparties before redemption, and so the amount of redemptions to private financial institutions is unaffected. Therefore, when conducting time-series analysis of 'treasury funds and others', the amount of redemptions of TBs/FBs that the Bank obtains through outright purchase should be added back to published figures of 'treasury funds and others'.

7 By purchasing one-year TBs, the Bank of Japan can effectively provide funds for a year, whereas the longest maturity of other short-term fund providing operations is six months.

8 Until RTGS was introduced in January 2001, each bill, government bond, or corporate bond collateralizing the bill purchased by the Bank of Japan had to be specified at the start of each outright purchase of bills operation. Under the current scheme, only the aggregate amounts of eligible assets (net of haricut) pledged to the Bank of Japan as collateral and the aggregate amounts of claims to be collateralized are compared (the former had to be larger than the latter). The elimination of the requirement to specify assets as collateral for specific bills enabled substitutions of collateral assets after the start of operations.

9 Issue-by-issue specification of collateral securities via electronic transmission became possible with the introduction of the new operation bidding system, a change from facsimile transmission until then. Also, banks in regional locations were newly allowed to use this bidding system.

10 Until then, some of the eligible counterparties were allowed to participate in bidding for outright purchase of JGBs, JGB repos, CP repos, and bill selling operations only on a rotation basis (at the rate of once in two operations). This was changed on December 19, 2001, and all eligible counterparties can now participate in every market operation.

11 The Bank of Japan started to treat 'amount of successful bids' with more significance in the counterparty selection process of TB/FB operations (outright and repo) and CP repos in December 2001. Counterparties with higher rankings in this criterion are exempt from submitting some of the information, such as trading volume in the market, when applying to counterparty selection.

*Market Review* is edited and published by the Financial Markets Department of the Bank of Japan in order to stimulate comments and discussions from a wide audience. This report, 2002-E-3, is a translation of an original Japanese issue, 2002-J-5, published in May 2002.
Comments and questions as well as requests for hard copies should be addressed to Tokiko Shimizu, Manager, Financial Markets Department (tokiko.shimizu@boj.or.jp). *Market Review E-series and Financial Markets Department Working Paper E-series* can be obtained through the Bank of Japan's web site (http://www.boj.or.jp).