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Money Market Operations in Fiscal 2015

Financial Markets Department

Bank of Japan

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I. Introduction

During fiscal 2015 (April 1, 2015 to March 31, 2016), the Bank of Japan pursued extremely powerful monetary easing under quantitative and qualitative monetary easing (QQE) and significantly increased the amount outstanding of the monetary base through purchases of a wide range of assets, including large-scale purchases of Japanese government bonds (JGBs). Furthermore, in January 2016, the Bank decided to introduce QQE with a Negative Interest Rate, and pursue further monetary easing by making full use of possible measures in terms of three dimensions: quantity, quality, and interest rate.

The Bank conducted its money market operations so that the monetary base would increase at an annual pace of about 80 trillion yen through purchases of a wide range of assets, including purchases of JGBs, treasury discount bills (T-Bills), CP, corporate bonds, exchange-traded funds (ETFs), and Japan real estate investment trusts (J-REITs). This was in accordance with the guideline for money market operations under QQE, which was introduced in April 2013 and which expanded in October 2014. Furthermore, at the Monetary Policy Meeting (MPM) held on January 28 and 29, 2016, the Bank decided to introduce QQE with a Negative Interest Rate. Specifically, the Bank decided to divide the outstanding balance of a financial institution's current account at the Bank into three tiers; of this, a part of the balance would be subject to a negative interest rate. This was decided to lower the short end of the yield curve and exert further downward pressure on interest rates across the entire yield curve in combination with large-scale purchases of JGBs as conducted earlier.

As a result of these money market operations, the monetary base at the end of 2015 stood at 356.1 trillion yen, an increase of 80.3 trillion yen from the same time a year earlier. Furthermore, the Bank continued to steadily increase the monetary base after the introduction of a negative rate which reached 375.7 trillion yen at the end of March 2016, an increase of 79.8 trillion yen from the same time a year earlier. The amount outstanding of JGBs held by the Bank reached 282.0 trillion yen at the end of 2015, an increase of 80.3 trillion yen from the same time a year earlier, and 301.9 trillion yen at the end of March 2016, an increase of 81.8 trillion yen from the same time a year earlier.

At the MPM held on December 17 and 18, 2015, the Bank decided to introduce supplementary measures for QQE. Specifically, it decided to extend the average remaining maturity of its JGB purchases from about 7-10 years to about 7-12 years. Furthermore, it decided to establish a new program for purchasing ETFs composed of stocks issued by firms that are proactively making investment in physical and human capital. The Bank also decided to increase the maximum amount of each issue of J-REIT to be purchased.

This paper is organized as follows. First, it outlines the conduct of money market operations by the Bank during fiscal 2015, followed by an overview of developments in domestic money and bond markets under the conduct of these money market operations. Second, it describes the conduct of the measures in money market operations, followed by a discussion of systemic changes related to money market operations. Finally, the paper presents the Bank's actions to enhance dialogue with market participants. In addition, there is a somewhat detailed description of the three-tier system of the current account balances under QQE with a Negative Interest Rate.

II. Outline of the Conduct of Money Market Operations by the Bank during Fiscal 2015

A. Conduct of Money Market Operations

1. Monetary Policy Decisions and Guideline for Money Market Operations

From the start of fiscal 2015 until January 2016, the Bank continued with the guideline for money market operations decided when it expanded QQE on October 31, 2014. This guideline stipulated that the Bank would (1) conduct money market operations so that the monetary base increased at an annual pace of about 80 trillion yen, (2) purchase JGBs so that their amounts outstanding increased at an annual pace of about 80 trillion yen, and (3) purchase ETFs and J-REITs so that theirs amount outstanding increased at an annual pace of about 3 trillion yen and 90 billion yen, respectively.

Meanwhile, at the MPM held on December 17 and 18, 2015, the Bank considered the fact that the gross amount of the Bank's JGB purchases was expected to increase to about 120 trillion yen by the end of 2016. Considering this fact, the Bank decided to extend the average remaining maturity of its JGB purchases from about 7-10 years to about 7-12 years starting in January 2016 to facilitate flexible and smooth conduct of QQE.*

* At the December 2015 MPM, other measures were also decided, including (1) establishing a new program for purchases of ETFs at an annual pace of about 300 billion yen, (2) enhancing the Fund-Provisioning Measure to Support Strengthening the Foundations for Economic Growth, (3) extending the application periods for the Loan Support Program and other measures, (4) expanding eligible collateral for the Bank's provision of credit, and (5) increasing the maximum amount of each issue of J-REIT.

Furthermore, at the MPM held on January 28 and 29, 2016, the Bank decided to introduce QQE with a Negative Interest Rate as follows. Later, at the MPM held on March 14 and 15, it decided to continue to pursue these guidelines as shown in the box below.

(1) Interest-Rate Dimension: The introduction of a negative interest rate

The Bank will apply a negative interest rate of minus 0.1 percent to current accounts that financial institutions hold at the Bank. It will cut the interest rate further into negative territory if judged as necessary.

Specifically, the Bank will adopt a three-tier system in which the outstanding balance of each financial institution's current account at the Bank will be divided into three tiers, to each of which a positive interest rate, a zero interest rate, or a negative interest rate will be applied, respectively.

The Bank will carry out the Loan Support Program, the Funds-Supplying Operation to Support Financial Institutions in Disaster Areas affected by the Great East Japan Earthquake, and the Funds-Supplying Operations against Pooled Collateral at zero interest rates.

(2) Quantity Dimension: The guideline for money market operations

The Bank of Japan will conduct money market operations so that the monetary base will increase at an annual pace of about 80 trillion yen.

(3) Quality Dimension: The guidelines for asset purchases

(a) The Bank will purchase JGBs so that their amounts outstanding will increase at an annual pace of about 80 trillion yen. With a view to encouraging a decline in interest rates across the entire yield curve, the Bank will conduct purchases in a flexible manner in accordance with financial market conditions. The average remaining maturity of the Bank's JGB purchases will be about 7-12 years.

(b) The Bank will purchase ETFs and J-REITs so that their amounts outstanding will increase at annual paces of about 3 trillion yen and about 90 billion yen, respectively.

(c) As for CP and corporate bonds, the Bank will maintain their amounts outstanding at about 2.2 trillion yen and about 3.2 trillion yen, respectively.

2. Conduct of Money Market Operations

Based on the above decisions, the Bank conducted money market operations as described below during fiscal 2015.

First, outright purchases of JGBs were, in principle, conducted at a pace of approximately 8-10 times per month, with purchases made at a pace of around 8-12 trillion yen per month.

In addition, during fiscal 2015 the Bank offered outright purchases of T-Bills once a week in principle and purchased roughly around 1-3 trillion yen of T-Bills per operation. Outright purchases of CP, corporate bonds, ETFs, J-REITs, and other financial assets were also carried out based on the guidelines described above.

In principle, the Bank continued to offer the fixed-rate funds-supplying operations against pooled collateral with a 3-month term, while considering market participants' incentive to bid. In March 2016, the Bank also started to offer these operations with a 2-week term, as the introduction of QQE with a Negative Interest Rate increased financial institutions' need to fine-tune their current account balances with a greater precision. Nonetheless, reflecting the Bank's provision of ample funds to financial markets through the large-scale purchases of a wide range of assets conducted concurrently, perceptions of abundant liquidity remained extremely strong in the money markets and the demand for these operations was generally sluggish.

Regarding the Growth-Supporting Funding Facility and Stimulating Bank Lending Facility, offers were made once every three months for each. The funds-supplying operation to support financial institutions in disaster areas was conducted once a month.

Based on the U.S. dollar liquidity swap arrangements with the Federal Reserve (Fed), in principle, the Bank offered 1-week U.S. dollar funds-supplying operations once a week. However, much of these operations were used for confirming and maintaining administrative arrangements.

Against the background of factors such as the tightening of the supply-demand balance of JGBs in the market, the number of offers for the Securities Lending Facility almost doubled from 102 in fiscal 2014 to 192 in fiscal 2015. The demand for the use of this facility increased significantly, particularly after the Bank's decision to introduce a negative interest rate. In addition to making T-Bills eligible for this facility, the Bank took various measures to relax the conditions for this facility, such as extending the number of business days permitted for consecutive sales transactions per issue and raising the upper limit on the amount of sales per issue.

B. Monetary Base and the Bank's Balance Sheet

Under the conduct of the aforementioned money market operations, the monetary base and the Bank's balance sheet expanded significantly.

Specifically, the monetary base at the end of 2015 and at the end of March 2016 stood at 356.1 trillion yen and 375.7 trillion yen, an increase of 80.3 trillion yen and 79.8 trillion yen, respectively, from the same time a year earlier. Both figures indicate that the targets for the annual increases in the monetary base adopted in the guidelines for money market operations were attained.

In the meantime, the size of the Bank's balance sheet continued to expand, reaching 383.1 trillion yen at the end of 2015 and 405.6 trillion yen at the end of March 2016. These figures indicate increases of 82.9 trillion yen and 82.1 trillion yen, respectively, from the same time a year earlier.

On the asset side, as a result of the Bank's purchases of JGBs, ETFs, and J-REITs under QQE, the amounts outstanding of these assets increased steadily.

The amounts outstanding of major assets at the end of March 2016 indicated that they had all increased from their year-earlier levels in line with the guidelines for money market operations, with JGBs amounting to 301.9 trillion yen (an increase of 81.8 trillion yen year-on-year), ETFs amounting to 7.6 trillion yen (an increase of 3.1 trillion yen

year-on-year), and J-REITs amounting to 0.29 trillion yen (an increase of 0.09 trillion yen year-on-year). In addition, the loan support program (excluding the special rules for the U.S. dollar lending arrangement for the growth-supporting funding facility) increased by 3.0 trillion yen from a year-earlier level to 30.1 trillion yen.

In contrast, the amount outstanding of the fixed-rate funds-supplying operations against pooled collateral decreased by 3.1 trillion yen from the end of March 2015 to 3.7 trillion yen at the end of March 2016. This reflects extremely strong perceptions of abundant liquidity in the money markets as well as financial institutions' intentions to hold down the current account balances following the Bank's decision to introduce a negative interest rate. Regarding the T-Bills purchased, the amount of T-Bills needed to attain the monetary base target decreased due to increases in the amount outstanding of the loan support program and ETFs. Thus, the amount outstanding of T-Bills purchased at the end of March 2016 was 36.9 trillion yen, a decrease of 1.0 trillion yen from the same time a year earlier (Chart 2-1).

Chart 2-1: The Bank's Balance Sheet

trillion yen

	End-Mar. 2013 (actual)	End-Dec. 2013 (actual)	End-Dec. 2014 (actual)	End-Dec. 2015 (actual)	End-Mar. 2016 (actual)	Year-on-year	The pace of annual increase (released on Mar. 15, 2016)
Monetary base	146.0	201.8	275.9	356.1	375.7	79.8	About 80 trillion

Breakdown of the Bank's balance sheet

JGBs	91.3	141.6	201.8	282.0	301.9	81.8	About 80 trillion
CP	1.2	2.2	2.2	2.2	2.0	-0.0	Maintain the outstanding balance
Corporate bonds	2.9	3.2	3.2	3.2	3.2	-0.1	Maintain the outstanding balance
ETFs	1.5	2.5	3.8	6.9	7.6	3.1	About 3.3 trillion
J-REITs	0.1	0.1	0.2	0.3	0.3	0.1	About 90 billion
Loan Support Program	3.4	8.4	23.4	29.8	30.1	3.0	--
Outright purchases of T-Bills	16.4	24.2	38.4	31.6	36.9	-1.0	--
Funds-supplying operations against pooled collateral	21.7	18.1	8.0	6.4	3.7	-3.1	--
Total assets (including others)	164.8	224.2	300.2	383.1	405.6	82.1	--
Banknotes	83.4	90.1	93.1	98.4	95.6	5.9	--
Current account balances	58.1	107.1	178.1	253.0	275.4	73.9	--
Total liabilities and net assets (including others)	164.8	224.2	300.2	383.1	405.6	82.1	--

Box 1: Comparison of Monetary Policies and Balance Sheets of Major Central Banks

In fiscal 2015, the Bank pursued powerful monetary easing under QQE through efforts such as the purchase of JGBs. Furthermore, in January 2016, the Bank decided to introduce QQE with a Negative Interest Rate and pursue powerful monetary easing from three dimensions: quantity, quality, and interest rate. The European Central Bank (ECB) also implemented monetary easing measures such as the public sector purchase programme (PSPP) for purchasing bonds and agency securities including those issued by euro area central governments. In addition, it cut interest rates applied to excess reserves, which includes the deposit facility, twice. On the other hand, in December 2015, the Fed raised the target range for the federal funds (FF) rate for the first time in approximately ten years.

*The ECB equally applies a negative interest rate on all excess reserves, whereas the Bank of Japan applies a negative interest rate on part of the excess reserves. In this sense, the two have different frameworks.

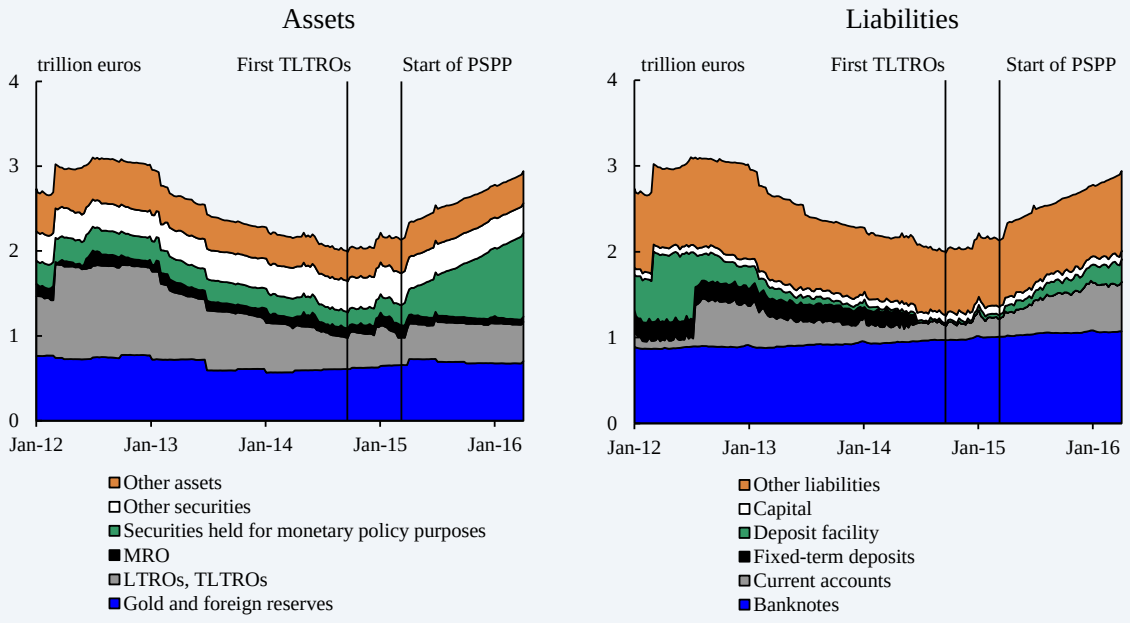
In December 2015, the ECB lowered the interest rate on the deposit facility from minus 0.2 percent to minus 0.3 percent. Moreover, it extended the period of the PSPP by six months from September 2016 to March 2017. Furthermore, it added euro-denominated marketable assets issued by local governments and municipalities domiciled in the euro area as eligible for regular PSPP purchases.

Subsequently, the ECB further lowered the interest rate applied to the deposit facility to minus 0.4 percent in March 2016. In addition, it enhanced the PSPP and other asset purchase programs by expanding the monthly purchases from 60 billion euro to 80 billion euro from April 2016. Further, the ECB introduced a corporate sector purchase programme (CSPP), starting in June 2016; under this program, investment-grade euro-denominated bonds issued by non-bank corporations established in the euro area was included in the list of assets eligible for regular purchases. It also decided to launch a new series of four targeted longer-term refinancing operations (TLTROs) after June 2016, which supplies funds at a fixed rate for up to four years to promote lending by financial institutions. The interest rate applied to the TLTRO will basically be fixed for each operation at the rate applied in the main refinancing operations

(MROs) prevailing at the time of allotment (0.0 percent as of May 2016); however, a negative rate may be applied according to the lending growth rate of counterparties, with the floor rate set to the interest rate on the deposit facility prevailing at the time of the allotment of each operation.

Under this situation, the ECB's balance sheet has expanded since March 2015 when the PSPP commenced. On the asset side, as the ECB purchased assets at a pace of 60 billion euros a month for the PSPP, asset-backed securities purchase programme (ABSPP; commenced in November 2014) and covered bond purchase programme (CBPP3; commenced in October 2014) combined, the amount outstanding of these assets increased. The pace of increase is expected to accelerate further, as the monthly purchases were increased to 80 billion euro from April 2016. On the liabilities side, amounts outstanding in current accounts increased due to various purchase programs (Box Chart 1-1).

Box Chart 1-1: Assets and Liabilities of the ECB



Notes: 1. The consolidated assets and liabilities of the ECB and the national central banks in the euro area. Based on weekly data.
2. MROs, LTROs, and TLTROs denote the main refinancing operations, longer-term refinancing operations, and targeted longer term refinancing operations, respectively.

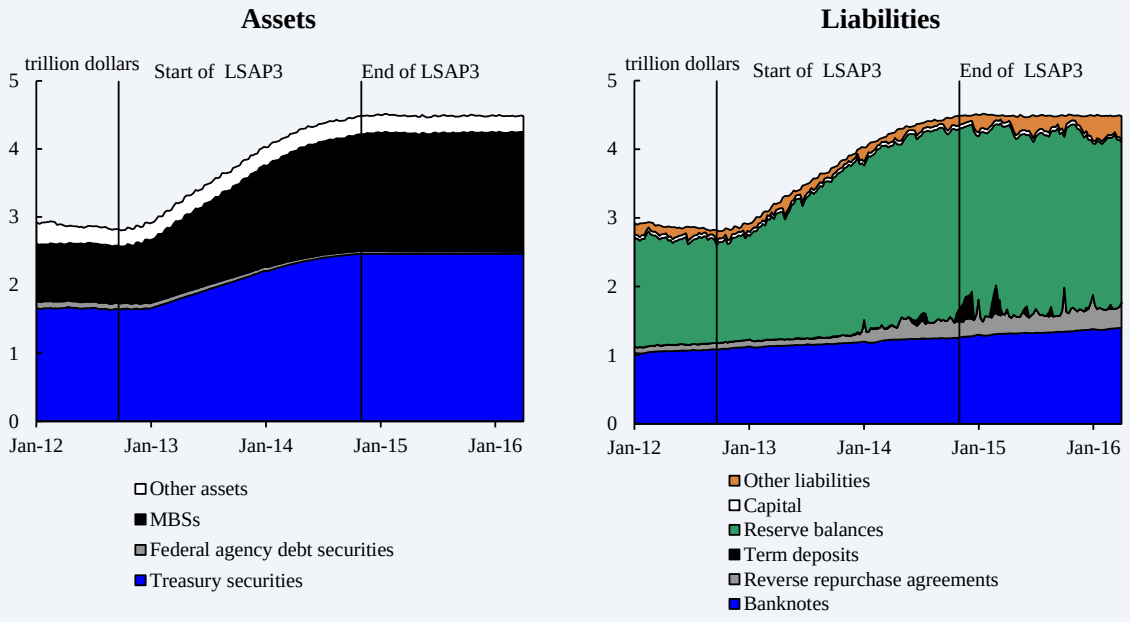
Meanwhile, the Fed raised interest rates in December 2015 for the first time since June 2006. Specifically, it raised the target range for the FF rate by 25 basis points from 0.00-0.25 percent

to 0.25-0.50 percent. During the previous period of interest rate increases between 2004 and 2006, the Fed raised interest rates at every Federal Open Market Committee (FOMC) meeting following its guideline of increasing them at a "measured" pace. In contrast, the Fed's policy in the current process of normalizing interest rates is to implement them at a "gradual" pace.

With respect to asset purchases, the Fed in October 2014 terminated new purchases of agency mortgaged-backed securities (MBSs; commenced in September 2012 at 40 billion U.S. dollars per month) and government bonds (commenced in January 2013 at 45 billion U.S. dollars per month) under the large-scale asset purchase (LSAP3) program. Nevertheless, the Fed states that it would continue to reinvest the funds redeemed from the purchased assets and maintain an accommodative monetary environment until the normalization of FF rates progressed significantly.

Under these circumstances, the size of the Fed's assets has generally remained unchanged since October 2014. Looking at the liabilities side, funds have gradually shifted from current accounts to the term deposit facility and reverse repurchase agreements, which were introduced as funds-absorbing operations (Box Chart 1-2).

Box Chart 1-2: Assets and Liabilities of the Federal Reserve

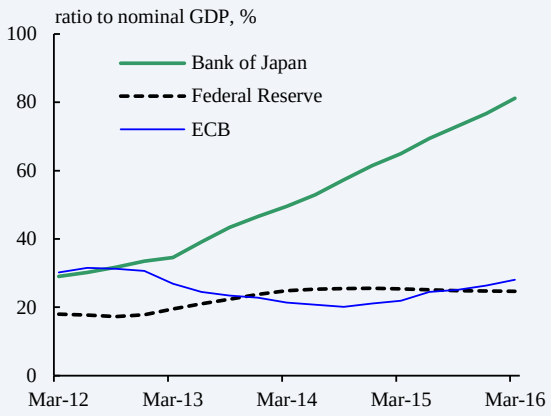


Note: Based on weekly data (as of Wednesday).

Looking at the ratio of the balance sheet total to nominal GDP for each of the central banks, that for the Bank of Japan stood at some 81 percent as of March 31, 2016. This ratio remained extremely large compared with that for the Fed and ECB -- which was around 25 percent and around 28 percent, respectively -- and the pace of its expansion was also faster than that of the other two central banks (Box Chart 1-3).

The ECB announced that it would continue to purchase assets equivalent to 80 billion euros per month until at least March 2017. Assuming that the purchasing of assets continues at this pace, the size of the ECB's assets is expected to expand to approximately 40 percent of the nominal GDP in March 2017.

Box Chart 1-3: Asset Sizes of Major Central Banks

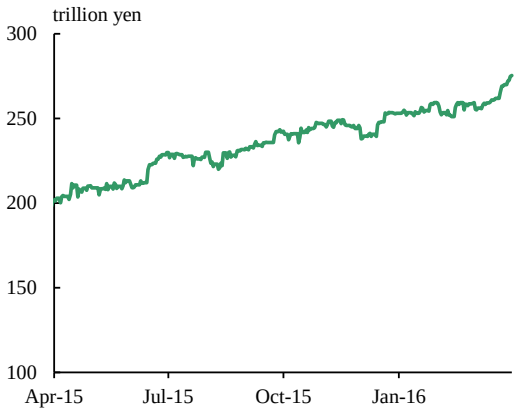


Notes: 1. Each asset size at the quarter-end is divided by the nominal GDP of the corresponding quarter.
2. Figures for end-March 2016 is calculated by the nominal GDP of the last quarter of 2015.

C. Current Account Balances at the Bank

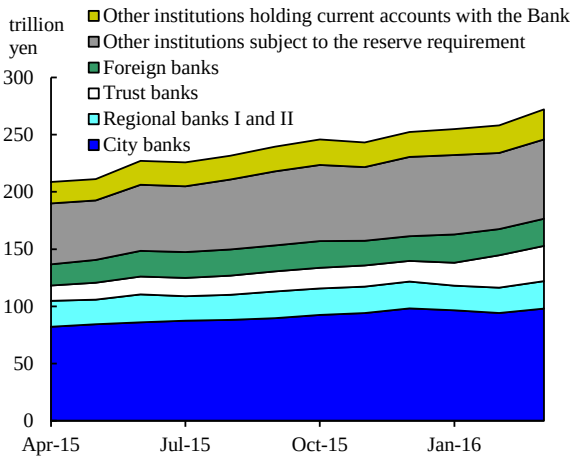
Current account balances at the Bank increased to 253.0 trillion yen at the end of 2015, reflecting the increase in the Bank's provision of funds through, for example, purchases of various assets under QQE. The Bank continued to purchase assets at the same pace after introducing QQE with a Negative Interest Rate; the balances reached 275.4 trillion yen at the end of March 2016, an increase of 73.9 trillion yen year-on-year (Chart 2-2). Looking at the current account balances at the Bank by sector, increases were seen in all sectors, but the increase was especially large for city banks, trust banks, and other institutions subject to the reserve requirement (Chart 2-3; Please refer to Box 3 for developments after the decision to introduce a negative interest rate).

Chart 2-2: Current Account Balances at the Bank



Note: Based on daily data.

Chart 2-3: Current Account Balances at the Bank by Sector



Notes: 1. Average amount outstanding for each reserve maintenance period.
2. "Other institutions holding current accounts with the Bank" indicates those that are not subject to the reserve requirement but hold current accounts at the Bank.

D. Developments in Excess and Shortage of Funds

Financial institutions' current account balance at the Bank changes along with money market operations, as well as receipts and payments of banknotes and treasury funds between financial institutions and the Bank or the government. Changes in the current account balance resulting from factors other than money market operations are called "excess and shortage of funds." Such excesses and shortages are caused by "changes in banknotes," resulting from exchanges of banknotes with deposits in the current accounts or from "changes in treasury funds and others" resulting from exchanges of funds between the current accounts and government deposits.[1]

Developments in excess and shortage of funds in fiscal 2015 indicated that the shortage of funds amounted to 113.3 trillion yen, mainly due to treasury funds and other factors, declining from 135.2 trillion yen in fiscal 2014.

1. Changes in Banknotes

During fiscal 2015, the outstanding balance of banknotes remained on an uptrend, reaching 98.4 trillion yen (an increase of 5.7 percent year-on-year) at the end of 2015 and 95.6 trillion yen (an increase of 6.6 percent year-on-year) at the end of March 2016 (Chart 2-4). Reflecting this increase in banknote issuance, changes in banknotes in terms of the supply and demand of funds continued to be sources of a decrease in the current account balances at the Bank, or shortage of funds, as the amount of net issuance in fiscal 2015 increased to 5.9 trillion yen from 3.0 trillion yen in fiscal 2014.

The cumulative changes in banknotes from the start of fiscal 2015 indicated that seasonal fluctuations in the amounts of issuance and redemption remained more or less unchanged from fiscal 2014. At the end of 2015, net issuance expanded to 8.8 trillion yen to meet the

[1] Because the current account balances at the Bank fluctuate widely due to changes in excess and shortage of funds, including seasonal changes, the pace of increase for current account balances does not necessarily increase at a certain pace even if the Bank supplies funds at a certain pace through its money market operations. The monetary base includes both the current account deposits and banknotes. Therefore, changes in banknotes affect those in current account deposits but not the changes in the monetary base.

year-end demand for banknotes. After the turn of the year, net issuance declined to 5.9 trillion yen at the end of March 2016 as banknotes used in the market at the year-end and the New Year holidays were withdrawn from circulation (Chart 2-5).

Chart 2-4: Outstanding Balance of Banknotes

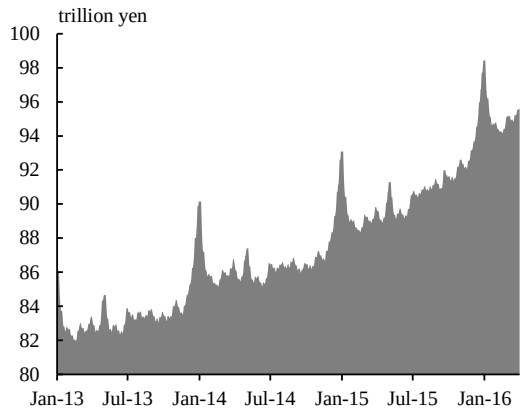
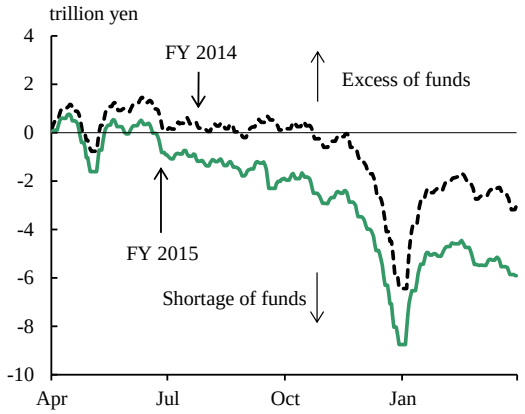


Chart 2-5: Cumulative Changes in Banknotes in terms of Excess and Shortage of Funds



2. Changes in Treasury Funds and Others

In fiscal 2015, net receipts from JGBs and T-Bills (sources of a decrease in current account balances at the Bank or shortage of funds) exceeded net payments of fiscal payments and revenues (sources of an increase in current account balances at the Bank or excess of funds).[2] However, changes in treasury funds and others registered net receipts of 107.4 trillion yen in fiscal 2015, a decrease from net receipts of 132.1 trillion yen in fiscal 2014 (Chart 2-6).

The decrease in net receipts during fiscal 2015 occurred mainly because the redemption of T-Bills purchased by the Bank under QQE declined compared with that in fiscal 2014; in contrast, the redemption to private financial institutions (payments to current accounts at the

[2] When the Bank purchases JGBs and T-Bills from financial institutions and holds them to maturity, redemption proceeds that would have been deposited in current accounts of financial institutions involved are not paid to financial institutions and treasury payments to current accounts at the Bank decrease. Although receipts and payments of treasury funds and others during a fiscal year as a whole are supposed to be more or less equal, such treatment leads to large net receipts (shortage of funds).

Bank) increased. After the impact of money market operations conducted by the Bank was eliminated, net receipts of treasury funds and others in fiscal 2015 amounted to 2.8 trillion yen vis-à-vis net receipts of 9.0 trillion yen in fiscal 2014 (also after removing the impact of the Bank's money market operations), having moved in the direction of excess of funds by 6.2 trillion yen (Chart 2-7). One of the factors that led to this was a cut in the issuance of T-Bills throughout the fiscal year from 374.9 trillion yen in fiscal 2014 to 326.5 trillion yen in fiscal 2015, which reduced the net issuance amount of T-Bills.

Chart 2-6: Cumulative Changes in Treasury Funds and Others in terms of Excess and Shortage of Funds

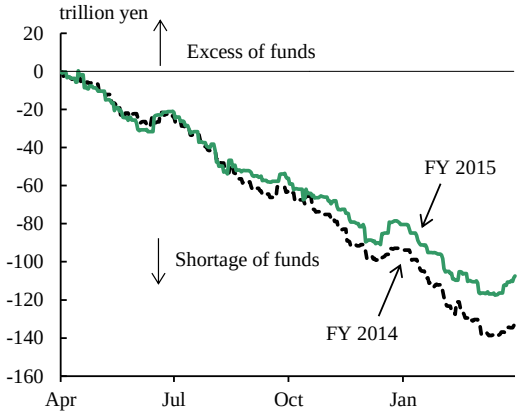
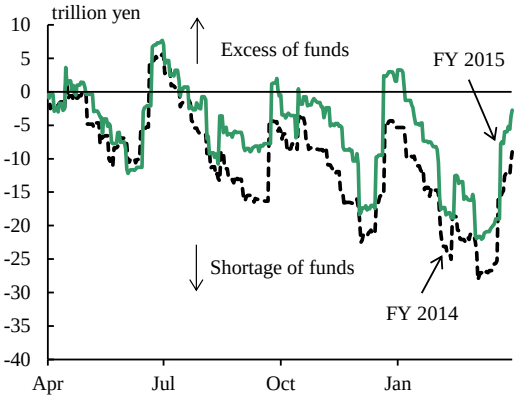


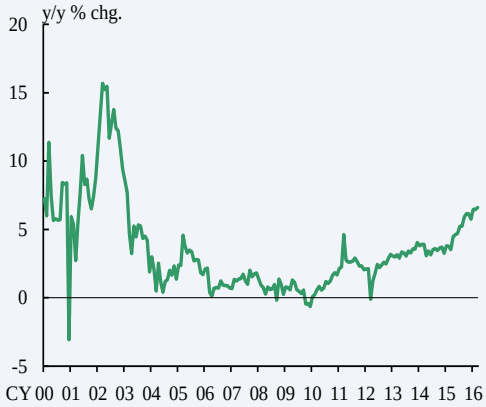
Chart 2-7: Cumulative Changes in Treasury Funds and Others in terms of Excess and Shortage of Funds (Removing the Impact of the Bank's Money Market Operations)



BOX 2: Rise in the Growth Rate of Banknotes in Circulation

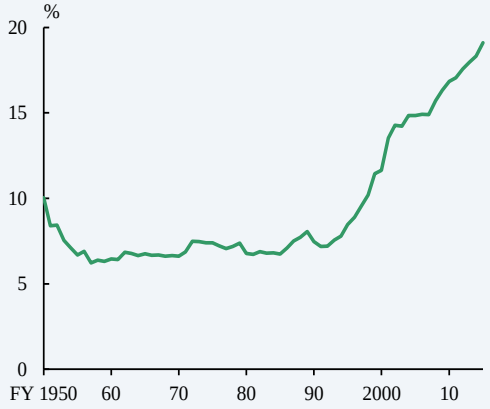
The amount of banknotes in circulation, following an increasing trend over the long run, accelerated its pace in fiscal 2015. The year-on-year growth rate at the end of March 2016 was 6.6 percent, which is more than the response to one-off events such as the Great East Japan Earthquake in March 2011 and the consumption tax hike in April 2014, and the highest since the partial removal of blanket deposit insurance in 2002 (Box Charts 2-1 and 2-2).

Box Chart 2-1: The Growth Rate of Banknotes in Circulation



Note: Figures are as of the month-end.

Box Chart 2-2: The Ratio of Banknotes in Circulation to Nominal GDP



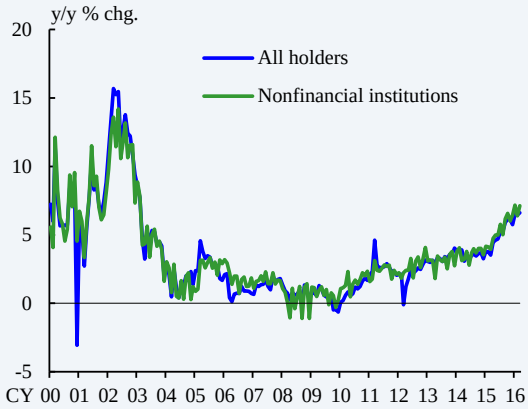
Note: Banknotes in circulation at fiscal year-end.

By entity, the growth rate of banknotes in circulation for all holders and nonfinancial institutions (individuals, corporations, etc.) generally followed the same trend. If these two show different moves, it can be deemed that the behavior of financial institutions had affected the growth of banknotes in circulation for all holders to some extent. In fact, when the amount of banknotes in circulation surged in the past, such as when blanket deposit insurance was partially removed and the Great East Japan Earthquake occurred, the growth rate of financial institutions exceeded that of all holders.[3] In the current phase, the growth rate of all holders and nonfinancial institutions is almost the same, indicating that the

[3] For example, a situation wherein financial institutions retain a large amount of banknotes at hand upon estimation that withdrawal of deposits would increase, but where the actual size of it is not as large as estimated, can be assumed.

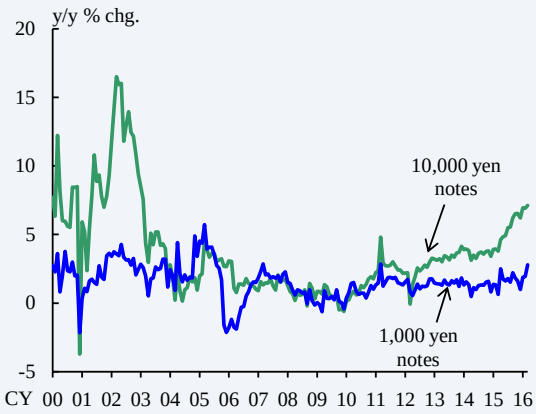
behavior of financial institutions is not affecting the growth rate of banknotes (Box Chart 2-3).

Box Chart 2-3: The Growth Rate of Banknotes in Circulation for All Holders and Nonfinancial Institutions



Next, looking at the growth rate of banknotes in circulation by denomination, 10,000 yen notes have largely exceeded the other notes. In general, incentives to hold banknotes can be roughly divided into transactions demand -- such as means of payment for daily settlements and purchases -- and storage demand, as represented by individuals' cash "under the mattress." Because the growth for 10,000 yen notes, which are the least bulky, is outstanding, storage demand can be assumed as the underlying factor for the increase (Box Chart 2-4).

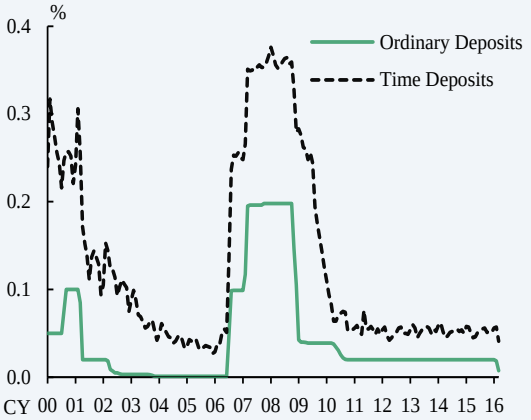
Box Chart 2-4: The Growth Rates of 10,000 yen Notes and 1,000 yen Notes



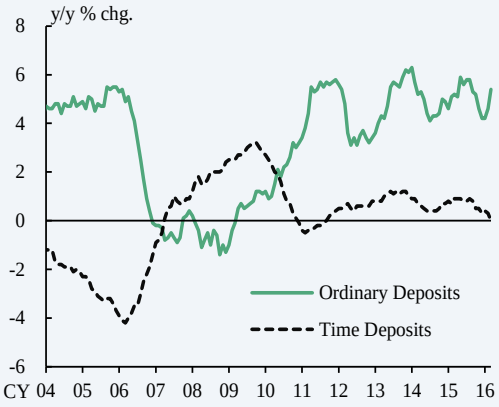
From a more long-term perspective, the ratio of amounts outstanding of banknotes in circulation to nominal GDP has been increasing since the latter half of the 1990s (Box Chart 2-2), which may have been affected by the low interest-rate environment during this time.[4] For individuals, cash held by individuals from storage demand is the most liquid asset with no risk of falling below its face value, of the choices of tangible assets including stocks, time deposits, and gold. However, at the same time, cash does not bear interest. Therefore, when interest rates are declining, cash becomes relatively attractive. In fact, amid the continued low interest-rate environment after the collapse of Lehman Brothers, growth rates of time deposits have been sluggish, whereas the growth rates of banknotes and transferable deposits with similar characteristics as banknotes have risen. In contrast, when deposit rates increased from 2007 to 2009 following the termination of the quantitative easing policy, the growth rate of time deposits recovered while that of transferable deposits and banknotes stalled (Box Charts 2-5 and 2-6).

As such, the continuation of the prolonged low interest-rate environment as well as the recent increase in storage demand, mainly among individuals, seem to contribute to the high growth in the amount of banknotes in circulation. Deposit rates have declined further since the introduction of a negative interest rate in January 2016. Carefully observing the manner in which these changes in the monetary environment impact the amount of banknotes in circulation would be necessary.

Box Chart 2-5: Deposit Rates



Box Chart 2-6: The Growth Rates of Transferable Deposits and Time Deposits



[4] To eliminate the effects of the growth in the nominal economic size on the amount of banknotes in circulation, figures are divided by the nominal GDP.

III. QQE with a Negative Interest Rate and the Three-tier System of the Current Accounts

A. The Three-tier System

Upon the introduction of QQE with a Negative Interest Rate which became effective from the February 2016 reserve maintenance period (February 16 to March 15), the Bank divided the outstanding balance of each financial institution's current account at the Bank into the following three tiers: (1) the basic balance, under which a positive interest rate of 0.1 percent is applied to the average outstanding balance of the current account during the reserve maintenance period of January-December 2015 after deducting the required reserve; (2) the macro add-on balance, under which a zero interest rate is applied to the sum of the required reserve, the Bank's provision of credit through the loan support program and the funds-supplying operation to support financial institutions in disaster areas affected by the Great East Japan Earthquake, and the macro add-on amount*, which is calculated by considering the fact that the outstanding balance of the current account will increase on an aggregate basis; and (3) the policy rate balance, under which a negative interest rate of minus 0.1 percent is applied to the outstanding balance of the current account in excess of the amount outstanding of (1) and (2) combined.

* Macro add-on amount is calculated by multiplying the average current account balance during the reserve maintenance period of January-December 2015 by a certain ratio (hereinafter "Benchmark Ratio") which is applied equally to all financial institutions.

The amount of basic balance and macro add-on balance act as an upper bound on individual financial institutions' current account balances to which a positive interest rate is applied and an upper bound on those to which a zero interest rate is applied, respectively. For example, on a given reserve maintenance period, if the current account balance of a financial institution (the average outstanding balance of current account during the January-December 2015 reserve maintenance period excluding the required reserve) is within the bounds of the basic balance, a positive interest rate will be applied to all the balance. If a financial institution's current account balance exceeds the amount for the basic balance, a positive rate will be applied up to the amount for the basic balance. With regard

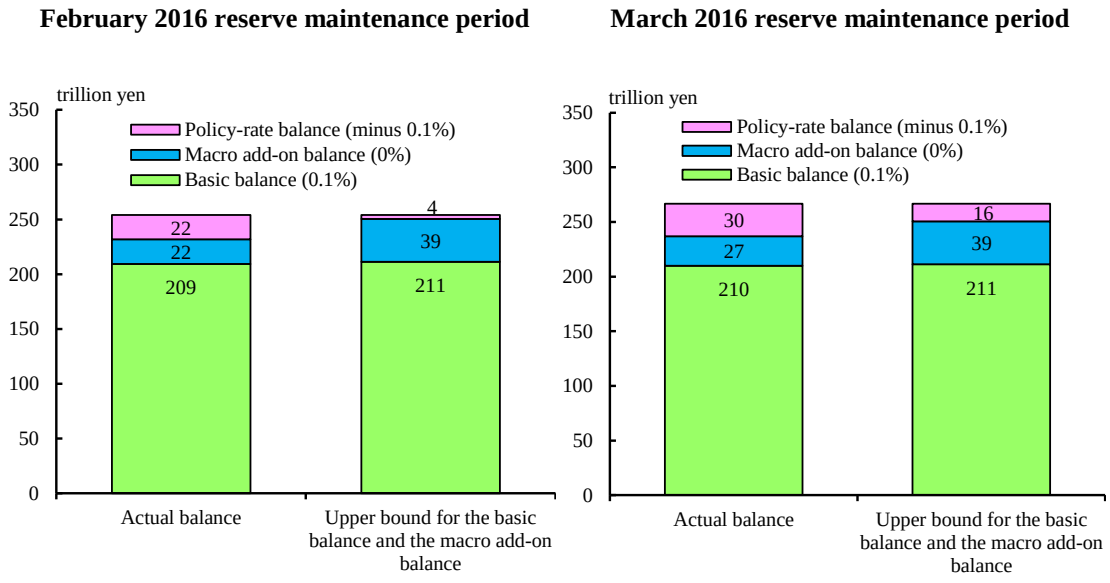
to the amount in excess of the basic balance, a zero interest rate will be applied to the amount within the macro add-on balance of the financial institution and a negative interest rate will be applied to the amount exceeding the amount for the macro add-on balance, namely the policy-rate balance. As such, since the negative interest rate was applied, financial institutions have been under the following three different situations depending on their current account balances and the use of lending programs by the Bank such as the loan support program: (1) those that fall under the application of a positive rate exclusively (excluding the required reserve); (2) those that fall under the application of both a positive and zero rate; (3) those that fall under the application of a positive rate, zero rate, and negative rate.

B. The Three-tier System and Arbitrage Trading

The results of the February 2016 reserve maintenance period* reveal that the actual amount for all financial institutions was 209.3 trillion for the basic balance (current account balances to which a positive rate will actually be applied), 22.4 trillion yen for the macro add-on balance, and 22.3 trillion yen for the policy-rate balance. In contrast, the upper bound of basic balance calculated from the average outstanding balance of current accounts during the reserve maintenance period of January-December 2015 and the upper bound of macro add-on balance calculated from the amounts outstanding of the Bank's facilities was 211.4 trillion yen and 39.0 trillion yen, respectively. This indicates that the situation of current accounts varies among financial institutions; while some had a current account balance below the upper bound of the basic balance (meaning that not all of their allowances for the basic balance were used), some had a current account balance exceeding the basic balance but remaining below the upper bound of the macro add-on balance (meaning that not all of their allowances for the macro add-on balance were used). The difference between the actual amount and the upper bound for the basic balance and the macro-add on balance, that is, the total unused allowances of each of the balances, was 18.6 trillion yen (211.4 - 209.3 + 39.0 - 22.4). On the other hand, some financial institutions have already used all of their allowances, with the current account balance exceeding the upper bound of the basic balance and macro add-on balance. The total policy-rate balance for such financial institutions is 22.3 trillion yen, as mentioned above (Chart 3-1).

* Please refer to the data sources of BOJ Current Account Balances by Sector for details.

Chart 3-1: Three-tier System of the Current Accounts



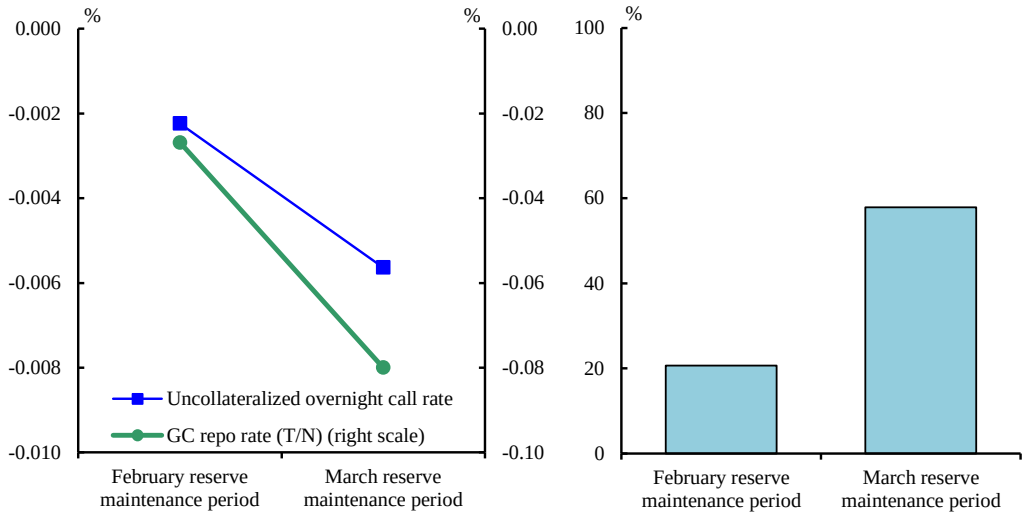
Note: In the "Upper bound for the macro add-on balance and the basic balance," figures for the "Policy-rate balance" are calculated by assuming that arbitrage transactions took place in full among financial institutions and that "unused allowances" of the basic balance and the macro add-on balance are fully used through cash lending.

If financial institutions with a policy-rate balance lend cash in the money market to those with unused allowances in their basic balance and macro add-on balance, market interest rates will be formed between minus 0.1 percent and 0.1 percent.* In other words, if the interest rate is above minus 0.1 percent, financial institutions with a policy-rate balance have the incentive to lend cash for reducing their current account balances to which a negative rate is applied. In contrast, financial institutions with unused allowances in their macro add-on balance can increase their current accounts at an interest rate of 0 percent up to the unused allowance, giving them an incentive to borrow cash in the money market if the rate is less than 0 percent. As such, the three-tier system applied to the Bank's current accounts and the fragmentation of balances among financial institutions (the coexistence of financial institutions with a policy-rate balance and those with unused allowances in their macro add-on balance) create demand for arbitrage trading in the money market. In fact, compared with the February reserve maintenance period, transactions at negative rates

increased both in the uncollateralized call market and the general collateral (GC) repo market and interest rates fell further into negative territory during the March 2016 reserve maintenance period (March 16 to April 15). This is attributable to increased demand by financial institutions with a policy-rate balance to lend cash, amid the increase in current account balance as a whole mainly due to the large redemption of JGBs at the end of March (Chart 3-2).

* Financial institutions with unused allowances in their basic balance can increase their current accounts with an interest rate of 0.1 percent up to the unused allowance, giving them an incentive to borrow cash -- needless to say, at a negative rate, but even at a positive rate -- if the interest rate is less than 0.1 percent.

Chart 3-2: Short-term Interest Rates and the Proportion of Transactions at Negative Rates in the Uncollateralized Call Market



As mentioned above, for the February 2016 reserve maintenance period, the difference between the actual amount and the upper bound for the basic balance and the macro-add on balance, that is, the total amount of the unused allowances, was 18.6 trillion yen. If all financial institutions that have not reached the upper bound on the basic balance and the macro add-on balance use all of their unused allowances to borrow cash from financial institutions with a policy-rate balance, the policy rate balance is assumed to decrease to 3.7 trillion yen (the policy rate balance of 22.3 trillion yen subtracted by the unused allowances

of 18.6 trillion yen). The Bank refers to this as a "policy-rate balance after arbitrage transactions have taken place in full among financial institutions."

Looking at the March reserve maintenance period similarly, the actual amount of the policy-rate balance was 29.7 trillion yen and the total amount of the unused allowances for the basic balance and the macro add-on balance was 13.6 trillion yen (211.3 - 210.0 + 39.2 - 26.9), leaving the "policy-rate balance after arbitrage transactions have taken place in full among financial institutions" (which is the difference between the two amounts) at 16.2 trillion yen.

C. Adjustment of the Macro Add-on Balance through Review of the Benchmark Ratio

In introducing QQE with a Negative Interest Rate, the Bank decided to adopt a three-tier system in which a negative interest rate will be applied to a certain tier of current accounts. This system was adopted based on the idea that the short end of the yield curve would be lowered if a negative interest rate is applied to the marginal increase in the current account balance, considering its influence on financial institutions' function as financial intermediaries through decreases in the financial institutions' earnings. However, because financial institutions' outstanding balances of current accounts increase on an aggregate basis almost at the same pace as the increase in the monetary base, the policy-rate balance to which a negative interest rate is applied will increase unless special measures are taken. Therefore, the Bank decided to periodically increase the macro-add on balance to which a zero interest rate will be applied in line with the current accounts' increase, on an aggregate basis, so that the policy-rate balance remains within a certain range.

The amount of increase in the macro-add on balance is calculated by multiplying the Benchmark Ratio*, which is applied equally to all financial institutions, to the average current account balances during the reserve maintenance period of January-December 2015. In reviewing the Benchmark Ratio, the Bank adjusts it so that the policy-rate balance after arbitrage transactions have taken place will remain at adequate levels, considering developments in trading activity in the money market and seasonal changes in the supply and demand for cash. Specifically, the Bank decides this by considering the balance

between the policy-rate balance and the unused allowances in the basic balance** and macro add-on balance held by financial institutions, taking into account that the opportunity for arbitrage trading will be maintained in the money market.

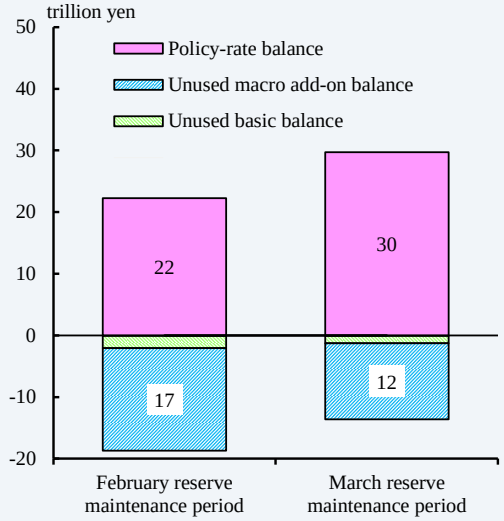
* Initially, the Benchmark Ratio for the February and March 2016 reserve maintenance periods was 0 percent, but after a review made in April, the ratio for the April and May 2016 reserve maintenance periods was set at 2.5 percent. When doing so, the Bank released that it expects the policy-rate balance in financial institutions' current account balances at the Bank to be in the range of about 10-30 trillion yen, if arbitrage transactions take place in full among financial institutions. From the June reserve maintenance period, the Benchmark Ratio shall be reviewed, in principle, every three reserve maintenance periods.

** Although the review of the Benchmark Ratio increases the macro add-on balance and its unused allowances, it does not increase the unused allowances of the basic balance. Therefore, it is expected that in line with the increase in the monetary base, financial institutions with unused allowances of the basic balance will slowly decline and following this, opportunity for arbitrage trading at a positive rate will decrease.

BOX 3: Changes in the Three Tiers of the Current Account Balances by Sector

The three-tier system of the current account balances can be captured through the unused allowances in the basic balance and macro add-on balance. During the February and March 2016 reserve maintenance periods, while the policy-rate balance of the current accounts at the Bank increased mainly due to a large redemption of JGBs, the unused allowances in the basic balance and macro add-on balance -- calculated by subtracting each balance's actual amount from its upper bound -- decreased, as mentioned in the main text (Box Chart 3-1).

Box Chart 3-1: Unused Allowances in Tiers



Here, we examine such changes in the three tiers of the current account balances by sector (Box Chart 3-2). Specifically, we observe the changes before and after the negative interest rate became effective by hypothetically applying the three-tier system to the current account balances during the January 2016 reserve maintenance period (January 16 to February 15).

First, the policy-rate balance of trust banks increased significantly from the January reserve maintenance period to the February reserve maintenance period. This is because amid a large decrease in the number of financial institutions that borrow cash at a rate of 0 percent or above, investment trusts and pension funds -- which refrained from investing at negative rates -- transferred their idle money from investment in the money market to "lending to the banking accounts" of trust banks. On the other hand, in concern of an inflow of deposits in

the future, city banks actively purchased JGBs to avoid an increase in their current accounts and largely reduced their borrowings in the money market immediately after the Bank's decision to introduce a negative interest rate. This has caused the unused allowances of city banks' macro add-on balances to increase at an early stage. For regional banks I and II, while some lent cash to avoid generating the policy-rate balance, those with unused allowances in their basic balance and the macro add-on balance borrowed cash in the money market. For other institutions subject to the reserve requirement, the policy-rate balance declined marginally in February compared with the January reserve maintenance period as some entities began to lend cash at negative rates. However, as a whole, such movements were limited within the sector.

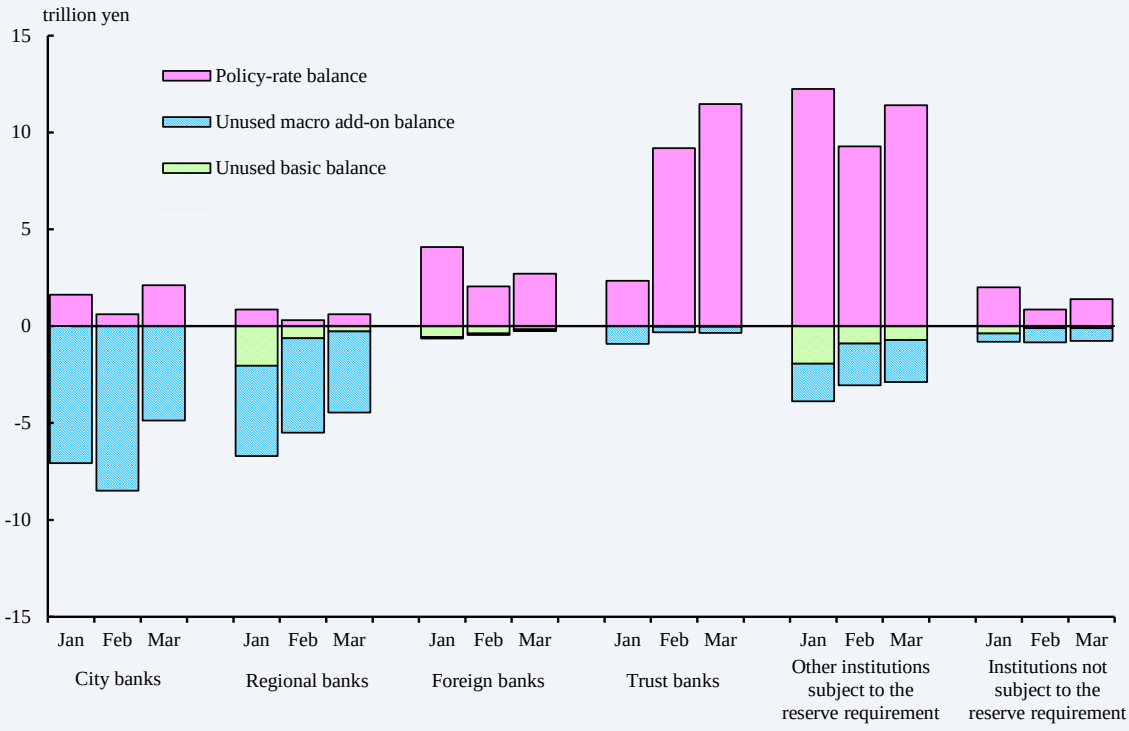
Next, when comparing the February and March 2016 reserve maintenance periods, the policy-rate balance increased partly due to large redemptions of JGBs and treasury fund payments at the fiscal year-end. These caused transactions at negative rates to increase in the money market. Specifically, regional banks I and II, trust banks, and central organizations engaged in arbitrage trading in the call market and in the GC repo market; those with a policy-rate balance reduced a part of their increased policy-rate balance, and those with unused allowances in their macro add-on balance had their unused allowances decrease. In this situation, city banks' unused allowances in their macro add-on balance decreased marginally due partly to inflow of deposits and sale of JGBs. Yet the fact that city banks still hold a considerable amount of unused allowances remains unchanged. With regard to other institutions subject to the reserve requirement, their policy-rate balance largely increased because while some deposited cash obtained from JGB redemptions in their current accounts, entities that lend cash at negative rates continued to be limited.

Meanwhile, foreign banks reduced their current accounts to levels that do not generate a policy-rate balance by limiting their yen funding in the foreign exchange (FX) swap market and by lending cash in the call market. However, some entities are not reluctant to hold a policy-rate balance because they can still earn profit if the yen funding cost in the FX swap market is lower than the cost to hold the policy-rate balance of minus 0.1 percent. Many institutions that are not subject to the reserve requirement, including securities firms and *tanshi* companies (money market brokers), adjusted their current account balances to a level

that does not generate a policy-rate balance.

As mentioned above, arbitrage trading at negative rates is growing steadily in the money market against the background of the three-tier system of the current account balances. Yet, at this point, practical issues such as improvement of the IT systems to trade at negative rates still exist. In addition, not a few financial institutions are standing on the sidelines to observe market change and see how the current accounts develop. The Bank is also focusing on the amount and pace of the increase of arbitrage trading in the money market.

Box Chart 3-2: Three-tier System of the Current Accounts by Sector



Notes : 1. "Other institutions subject to the reserve requirement" includes the following: Shinkin Banks (with deposits of more than 160 billion yen), Japan Net Bank, Seven Bank, Sony Bank, Rakuten Bank, SBI Sumishin Net Bank, Jibun Bank, AEON Bank, Daiwa Next Bank, ORIX Bank, ShinGinko Tokyo, Shinsei Bank, Aozora Bank, Citibank Japan, Shinhan Bank Japan, The Resolution and Collection Corporation, The Norinchukin Bank, and Japan Post Bank.

2. Institutions not subject to the reserve requirement (excluding institutions not subject to the reserve requirement) include the following: securities companies, *tanshi* companies (money market brokers), securities finance companies, Shinkin Central Bank, Shinkin Banks (with deposits of 160 billion yen or less), The Shoko Chukin Bank, The Shinkumi Federation Bank, and The Rokinren Bank.

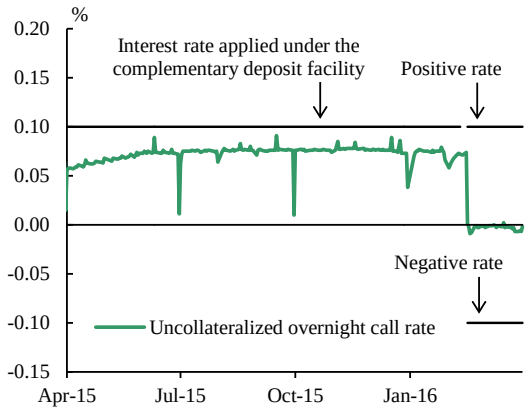
IV. Developments in the Domestic Money Markets and Bond Markets

A. Uncollateralized Call Market

Before the negative interest rate was applied to part of the outstanding balance of each financial institution's current account at the Bank on February 16, 2016, the uncollateralized overnight call rate remained more or less in the range of 0.06-0.07 percent, below the interest rate of 0.1 percent applied under the complementary deposit facility. However, when the GC repo rate turned negative at the quarter-ends (end of June, September, and December 2015), some entities that could not invest at negative rates transferred their investment from the repo market to the uncollateralized call market. Due to this movement, the uncollateralized call rate temporarily declined to near 0 percent.

The uncollateralized call rate declined after the effective date of the negative interest rate and generally remained in a slight negative territory during fiscal 2015 (Chart 4-1).

Chart 4-1: Uncollateralized Overnight Call Rate



BOX 4: QQE with a Negative Interest Rate and the Call Market

In the uncollateralized call market before the negative interest rate became effective, financial institutions eligible for remuneration under the complementary deposit facility (hereinafter "institutions eligible for remuneration"), such as city banks and regional banks, borrowed cash from institutions that were not eligible for remuneration under the complementary deposit facility (hereinafter "institutions not eligible for remuneration"), such as investment trusts, at a rate below the 0.1 percent interest rate on excess reserves. The institutions eligible for remuneration engaged in arbitrage trading by depositing the borrowed cash into their current accounts.

The amounts outstanding of uncollateralized call transactions declined significantly after the negative interest rate became effective. Of the institutions eligible for remuneration, city banks, in particular, reduced the amount of cash they borrowed (Box Chart 4-1). This was because in concern of an inflow of deposits in the future, they held down cash borrowing through the money market to avoid holding a policy-rate balance (applicable to a negative interest rate of minus 0.1 percent). On the other hand, cash borrowing by regional banks increased. This is because amid limited inflow of deposits compared to city banks, those with unused allowances increased cash borrowing from the money market.

On the cash-lending side, investment trusts that do not lend cash at negative rates reduced their cash lending in the call market by a large amount. Such idle money piled up in current accounts of trusts banks through "lending to banking accounts" of trust banks. Trust banks which consequently ended up holding a policy-rate balance invested at negative rates marginally higher than minus 0.1 percent to reduce this balance. In addition to trust banks, regional banks with a policy-rate balance also lent cash at negative rates.

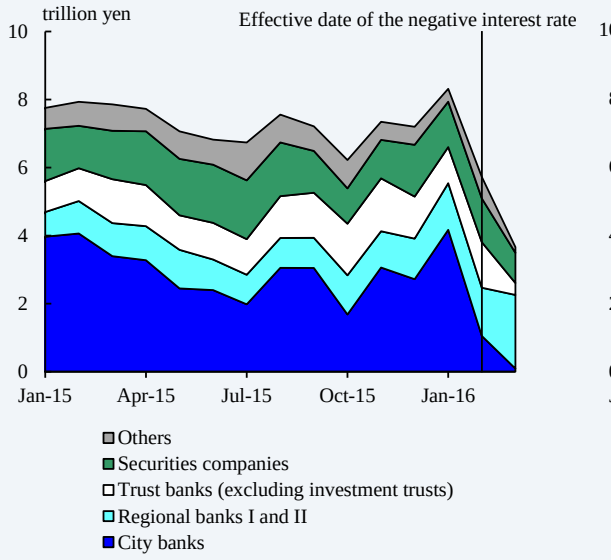
Due to such movements, the outstanding amount of transactions in the uncollateralized call market picked up slightly from the beginning of March 2016 (Box Chart 4-2). However, trade sizes did not recover smoothly as (1) some entities had constraints on trading at negative rates due to reasons such as unsupported IT systems and (2) the cash-lending side had maximum loan balances, also known as credit lines, set to each cash borrower. The

outstanding amount of transactions was 3.7 trillion yen as of March 2016 (monthly average balance), which is slightly less than half the amount of the same period in the previous year (7.9 trillion yen).

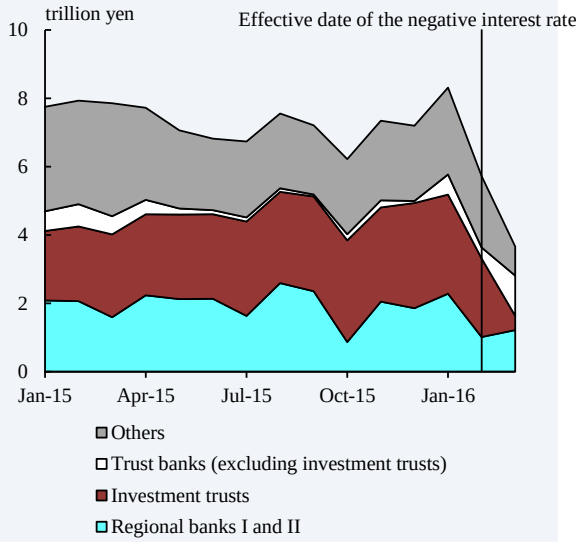
Transactions at negative rates in the uncollateralized call market were also observed from 2003 to 2006, when the Bank was conducting the quantitative easing policy. However, the current situation differed this time: while during that time, entities investing cash at negative rates mainly comprised foreign banks that had upper limits to their current accounts for internal management reasons, entities investing cash at negative rates mainly comprised Japanese financial institutions this time.

Box Chart 4-1: Amounts Outstanding in the Uncollateralized Call Market by Sector

Cash Borrowing Side

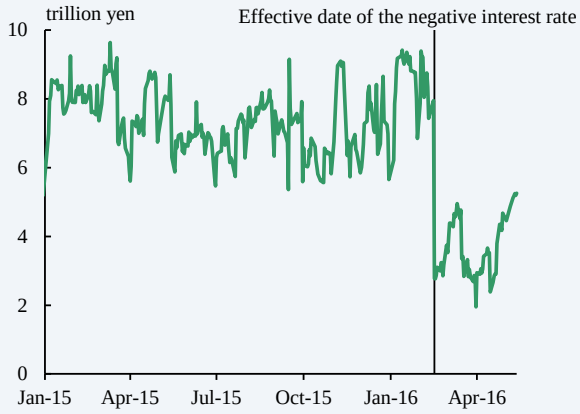


Cash Lending Side



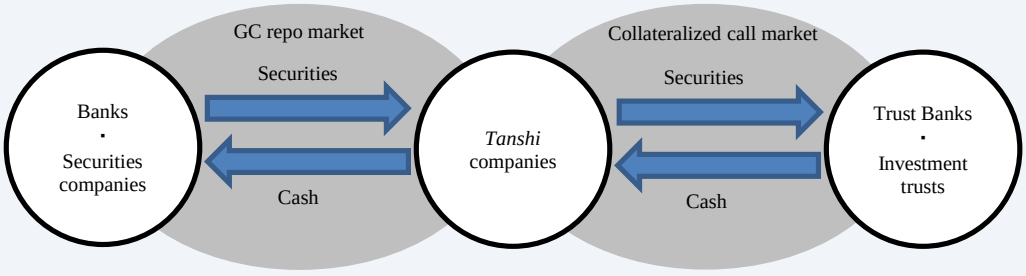
Notes : 1. Transactions intermediated by *tanshi* companies (monthly average balance).
2. "City banks" includes city banks, Shinsei Bank, and Aozora Bank. "Securities companies" refers to financial instruments firms that conduct type I financial instruments business (limited to those providing securities-related business) and securities finance companies as stipulated in the Financial Instruments and Exchange Act.

Box Chart 4-2: Amounts Outstanding in the Uncollateralized Call Market

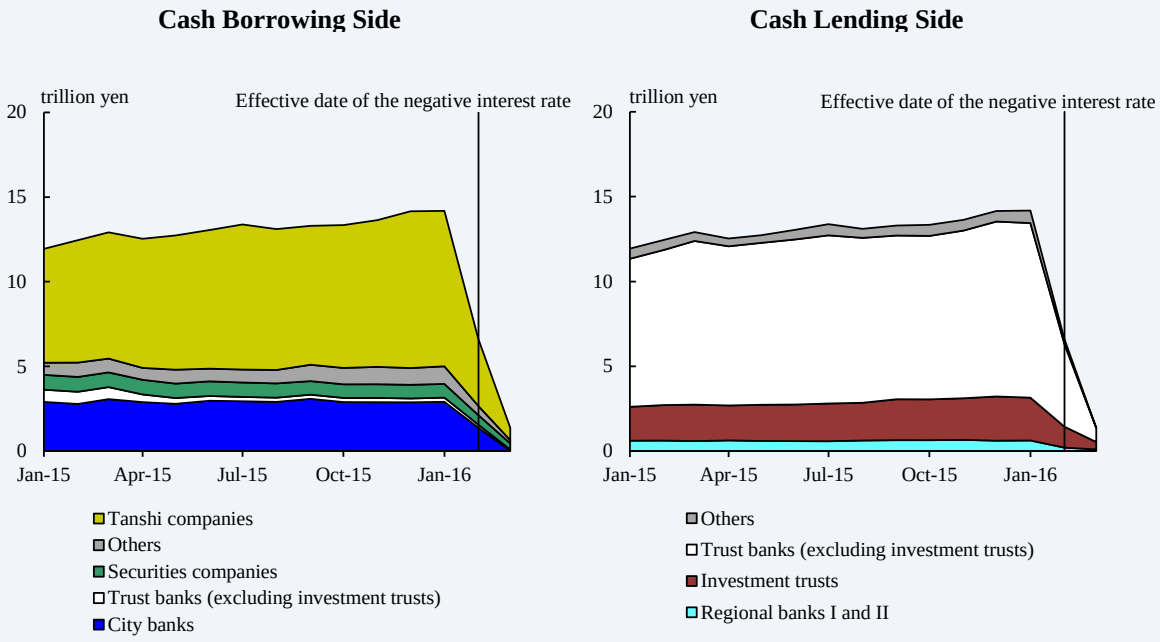


In the collateralized call market, city banks reduced the amount of cash they borrowed as observed in the uncollateralized call market, and *tanshi* companies largely reduced their cash borrowing. Before the negative interest rate became effective, *tanshi* companies acted as intermediaries between the GC repo market and collateralized call market using securities such as JGBs -- which they had borrowed by lending cash in the GC repo market -- as collateral when borrowing cash in the collateralized call market (Box Chart 4-3). However, because the GC repo rate fell into negative territory after the negative interest rate became effective, it became difficult for *tanshi* companies to borrow securities to be used as collateral from the GC repo market at a rate that corresponds to the required positive returns of the cash-lending side. Therefore, *tanshi* companies reduced their cash borrowing in the collateralized call market; consequently, investment trusts and trust banks also largely reduced their lending of cash in the collateralized call market (Box Chart 4-4).

Box Chart 4-3: GC Repo Market and the Collateralized Call Market



Box Chart 4-4: Amounts Outstanding in the Collateralized Call Market by Sector



Notes : 1. Transactions intermediated by *tanshi* companies (monthly average balance).
2. "City banks" includes city banks, Shinsei Bank, and Aozora Bank. "Securities companies" refers to financial instruments firms that conduct type I financial instruments business (limited to those providing securities-related business) and securities finance companies as stipulated in the Financial Instruments and Exchange Act.

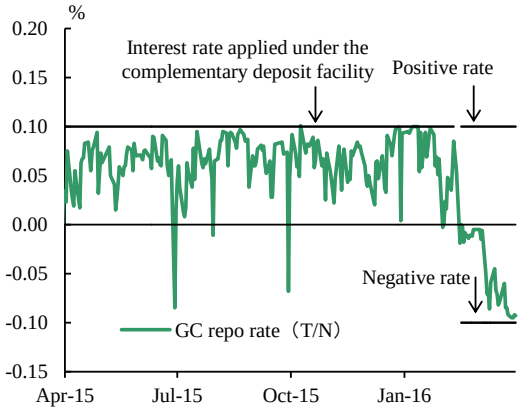
B. Repo Market

The GC repo rate (T/N) remained generally below the 0.1 percent interest rate on excess reserves, albeit with fluctuations, until the negative interest rate was applied to part of the outstanding balance of each financial institution's current account at the Bank on February 16, 2016. However, at the quarter-ends, the GC repo rate fell substantially and turned negative as some financial institutions became less active in borrowing cash from the repo market.

After the negative interest rate became effective, the GC repo rate fell substantially and hovered between minus 0.1 percent and 0.0 percent (Chart 4-2).

Meanwhile, in the special collateral (SC) repo market, supply and demand balance of certain issues tightened and a large drop in the SC repo rate was observed. This drop can be attributed to, in addition to the large-scale JGB purchases by the Bank, the fact that investors refrained from actively purchasing JGBs and from lending their JGBs after the negative interest rate became effective, to prevent an increase in their current account balances.

Chart 4-2: GC Repo Rate (T/N)



Note: Based on trade date.

BOX 5: Change in the Supply and Demand Balance and Rates in the Repo Market

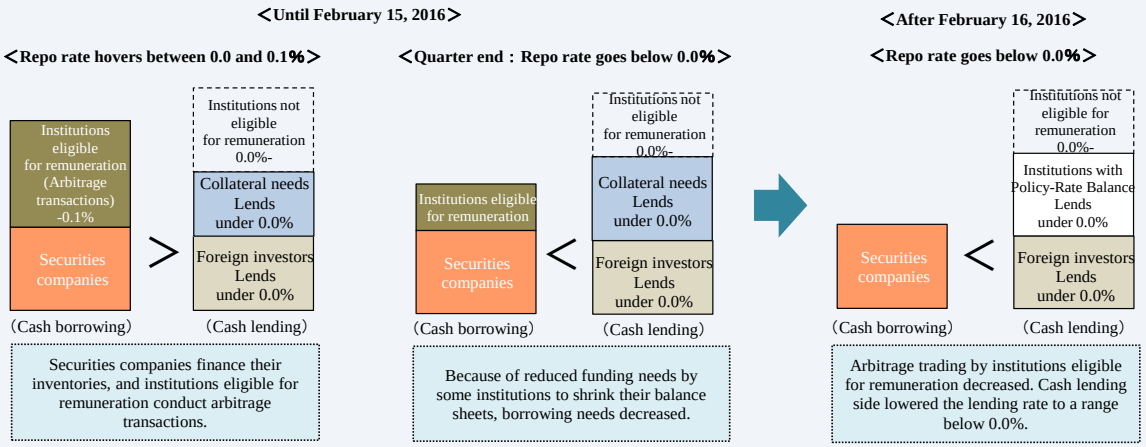
Before the negative interest rate became effective, the GC repo rate hovered around 0.0-0.1 percent, a level below the 0.1 percent interest rate on excess reserves. As mentioned in Box 4, this is because while institutions eligible for remuneration, such as banks, had a demand to borrow cash at a rate below the 0.1 percent and arbitrage between current accounts, institutions not eligible for remuneration, such as investment trusts, had a demand to lend in cash if the rate was above 0.0 percent.

However, at quarter-end, some institutions eligible for remuneration occasionally held back from borrowing cash to reduce their balance sheet and current account balance. Consequently, the borrowing of cash decreased and GC repo rate temporarily turned negative, declining below 0.0 percent, the expected level among institutions not eligible for remuneration. In this situation, investment in cash was mainly made by (1) nonresidents or

foreign banks, which were able to ensure a profit even when they borrowed yen at negative rates through FX swaps and lent it at negative rates in the GC repo market, and (2) *tanshi* companies, which occasionally lend cash (borrow securities) at negative rates to secure collateral to be used for collateralized call transactions over the quarter-end.

After the negative interest rate commenced in February 2016, the borrowing needs of institutions eligible for remuneration dropped substantially, reflecting the intention to control their current account balance, while the needs for securities companies to finance their inventories continued to exist. On the other hand, cash lending (securities borrowing) deriving from *tanshi* companies' demand for collateral decreased mainly due to the decrease in collateralized transactions. However, institutions holding a policy-rate balance began to lend cash in the money market at a negative rate of minus 0.1 percent and above. Consequently, transactions in negative territory took hold in the GC repo market, and transactions at a level below minus 0.05 percent increased after the beginning of March. Although end-March 2016 was the first quarter-end after the introduction of the negative rate policy, a large change was not observed in the supply and demand balance because entities, which usually refrain from borrowing at quarter-ends, had already declined their cash borrowing. Thus, a decrease in transaction amount and volume and a decline in the GC repo rate as observed in the previous year did not occur.

Box Chart 5: Change in Borrowing/Lending Needs in the GC Repo Market



C. T-Bill Market

Yields on T-Bills remained in negative territory due to the Bank's large-scale purchases and the decrease in the amount of issuance while the amount outstanding of T-Bills in the market followed a downtrend. After the introduction of a negative interest rate was decided, market participants became concerned over the interest rate decline in the money market and negative yields on T-Bills declined further (Chart 4-3).

In addition to the above factors, robust demand from foreign investors to invest their cash was one reason why the yields on T-Bills remained in negative territory. T-Bill holdings by foreign investors seem to mostly comprise foreign reserve management by institutions such as other central banks. In that case, we see a certain level of demand for T-Bills among foreign investors, inelastic to yield levels, to disperse the currency composition of their foreign reserve portfolios. In addition, amid the rise in premiums on U.S. dollar funding, foreign investors with ample dollars were often able to obtain yen at negative rates through FX swap transactions, which also caused the demand for T-Bills to increase. This was because they were able to gain profit even when they used the yen to invest in T-Bills with negative yields (Chart 4-4).

On the other hand, despite needs among domestic financial institutions and investment trusts to hold T-Bills as collateral and as a cash investment tool, their holdings of T-Bills for such purposes decreased as the yields remained in negative territory.

Chart 4-3: Yields on T-Bills

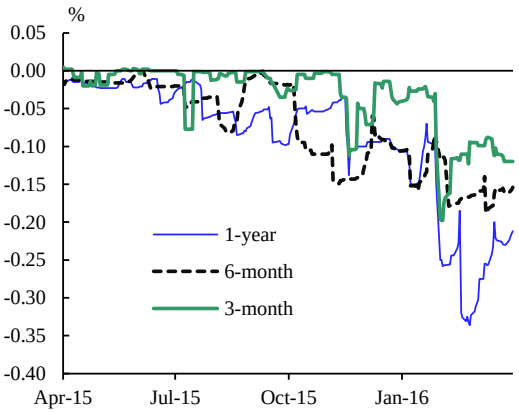
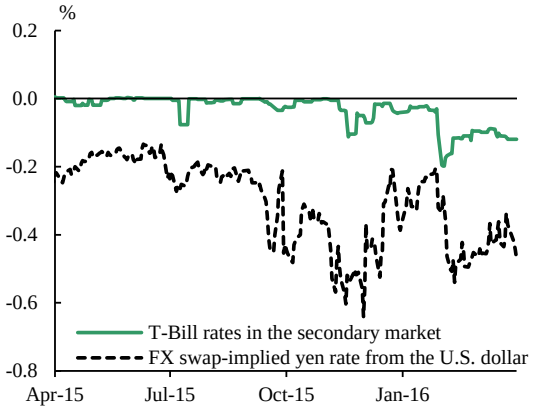


Chart 4-4: Yields on T-Bills and the FX Swap-Implied Yen Rate from U.S. Dollars (3-month rate)



Note: "FX swap-implied yen rate from the U.S. dollar" is the total funding cost of raising U.S. dollars at U.S. dollar LIBOR and converting the proceeds into yen through an FX swap.

D. JGB Market

Japanese long-term interest rate (yields on newly issued 10-year JGBs) rose to around 0.5 percent toward the middle of 2015, following the rise in U.S. and European long-term interest rates. However, it followed a downtrend thereafter as the Bank's JGB purchases continued to exert downward pressure on interest rates from the supply and demand perspective and partly due to the decline in U.S. and European long-term interest rates. After QQE with a Negative Interest Rate was introduced on January 29, 2016, the search for yield activity among investors strengthened. As the yield curve flattened from the short to medium-term to the longer-term, yields on long-term JGBs declined to negative on February 9, 2016. Thereafter, it remained generally within a range between minus 0.1 and 0.0 percent (Charts 4-5 and 4-6).

Yields on short- and medium-term JGBs such as those for 2-year and 5-year JGBs followed a declining trend as the yields on T-Bills remained in negative territory. This was partly due to (1) banks and other financial institutions' collateral needs spreading from T-Bills to short- and medium-term JGBs, and (2) foreign investors' active demand against the decline in

yen-funding costs. Yields on short- and medium-term JGBs declined further after the Bank's decision to introduce a negative interest rate and remained within the range of minus 0.2 and minus 0.1 percent, a level below the interest rate of minus 0.1 percent applied to a certain tier of current accounts.

Yields on super-long-term JGBs followed a moderate downtrend after the middle of 2015, but it declined somewhat largely from the latter half of December 2015 to January 2016. This is attributable to the fact that the average remaining maturity of the Bank's JGB purchases was extended from about 7-10 years to about 7-12 years at the December MPM and that the increase in the Bank's purchase amount of super-long-term JGBs from January 2016 was announced on the same day. After the Bank decided to introduce QQE with a Negative Interest Rate in January 2016, yields on super-long-term JGBs further declined as the search for yield activity by investors spread to longer-term yields amid a large decline in long-term interest rates.

Meanwhile, although the implied volatility of JGB futures prices remained at a low level from the beginning of fiscal 2015 to January 2016, it rose somewhat largely after February, reflecting movements such as a sharp fall in long-term interest rates seen after the decision to introduce a negative interest rate.

Chart 4-5: Yields on JGBs

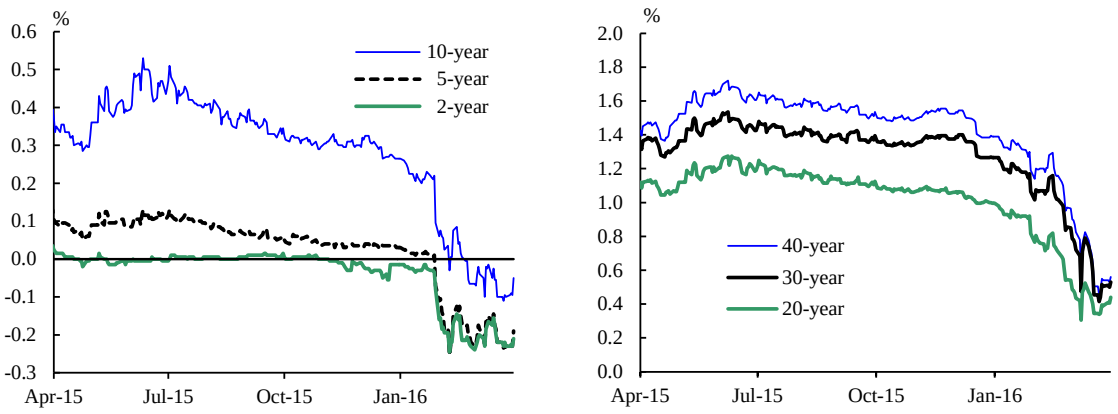


Chart 4-6: Long-Term Yields

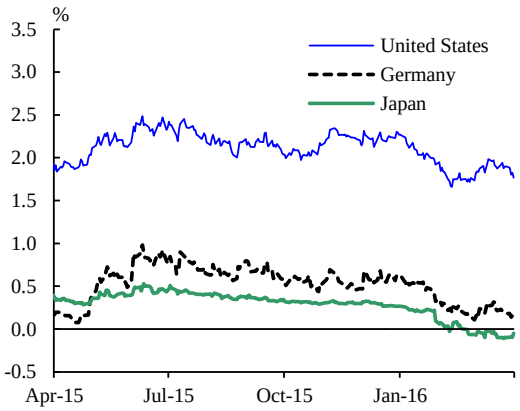
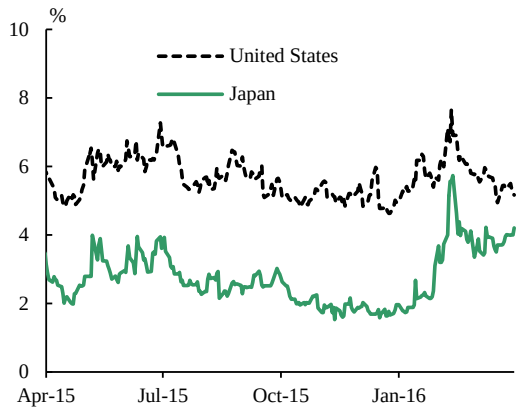


Chart 4-7: Implied Volatilities of Government Bond Futures Prices



Note: S&P/JPX JGB VIX Index for Japan; CBOE/CBOT 10-year U.S. Treasury Note Volatility Index for the United States.

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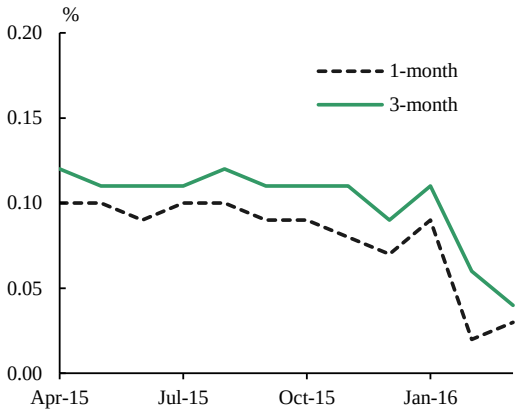
E. CP and Corporate Bond Markets

Yields on credit instruments, such as CP issuance rates and corporate bond yields, generally remained at low levels until January 2016 and declined after the introduction of a negative interest rate. This is attributable to improved credit risk perceptions among market participants and the Bank's continued purchases of CP and corporate bonds against the background of the sustained accommodative monetary environment (Charts 4-8 and 4-9).

After the Bank's decision to introduce a negative interest rate, CP issuance rates, which generally remained at around 0.1 percent, declined largely and transactions at very small negative rates were seen among issues with high ratings.

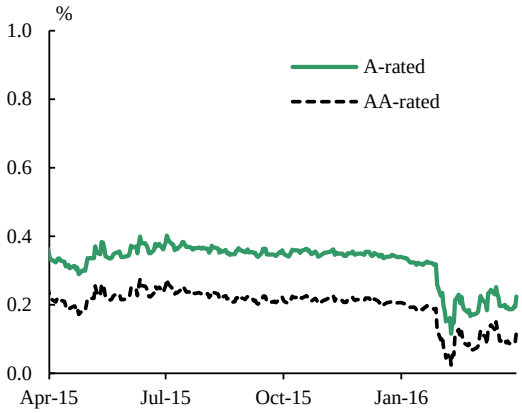
In the corporate bond market, corporate bond yields and yield spreads between corporate bonds and JGBs remained at low levels (Chart 4-10). Although corporate bond yields declined after the Bank's decision to introduce a negative interest rate, yield spreads between corporate bonds and JGBs widened somewhat as investors, under negative rates, purchased corporate bonds less actively than JGBs.

Chart 4-8: CP Issuance Rates



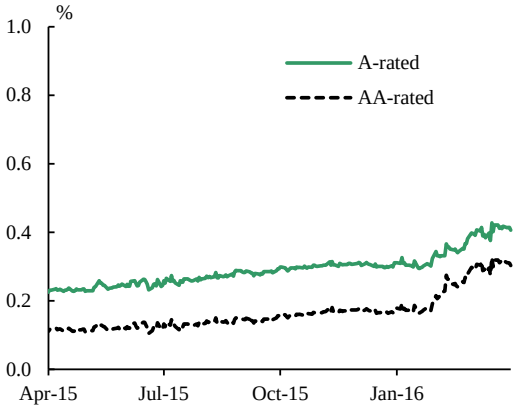
Notes: 1. Those of business companies on a monthly basis.
2. March 2016 is the simple average of the weekly data until March 18.

Chart 4-9: Corporate Bond Yields



Note: Residual maturity of more than three years and up to seven years.

Chart 4-10: Yield Spreads between Corporate Bonds and JGBs

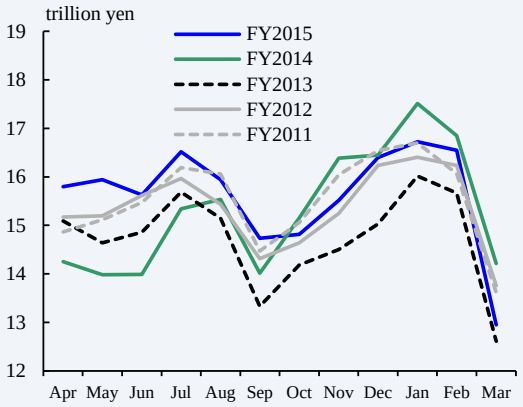


Note: Yields on JGBs with a residual maturity of five years. Yields on corporate bonds, with a residual maturity of more than three years and up to seven years.

BOX 6: Outstanding Amount of CP and Decline in Its Rates

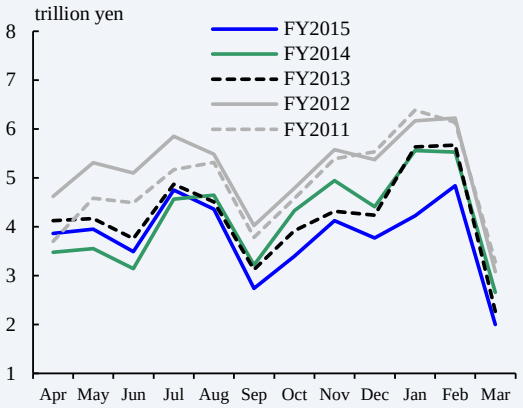
The outstanding amount of CP varies with seasons. In particular, business companies tend to limit issuance of CP that goes over the quarter-end date based on a plan to reduce liabilities at the end of the accounting term (Box Charts 6-1 and 6-2). In addition to these factors, the outstanding amount of issuance by business companies remained at a low level throughout fiscal 2015. This was due to issuers' large cash buffers that reflected steady corporate performance and decline in demand for working capital among firms affected by the decline in commodity prices.

Box Chart 6-1: Amounts Outstanding in the CP Market (Overall)



Note: Figures are as of the month-end.

Box Chart 6-2: Amounts Outstanding in the CP Market (Business Companies)

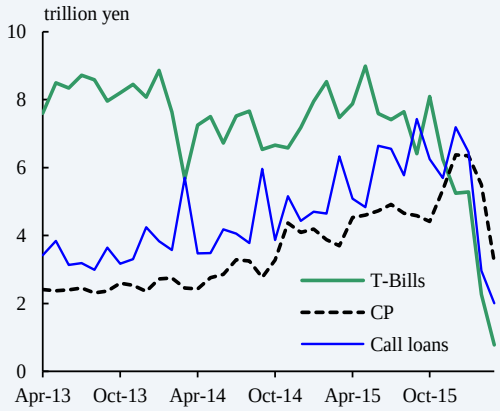


Note: Figures are calculated by subtracting the amount of issuance by other financial companies from that by business companies (as of the month-end).

CP is mainly purchased by investment trusts, such as money reserve funds (MRFs), in addition to financial institutions that are underwriters of CP, such as city banks and *tanshi* companies. For the past few years, investment trusts have been increasing their holdings of CP that ensures a positive yield against the background of factors such as the decline in T-Bill yields. This trend became more evident from 2015, when the yields on T-Bills began to hover within negative territory. In December 2015, the amount outstanding of CP held by investment trusts increased largely while that of T-Bills held by investment trusts decreased substantially (Box Chart 6-3).

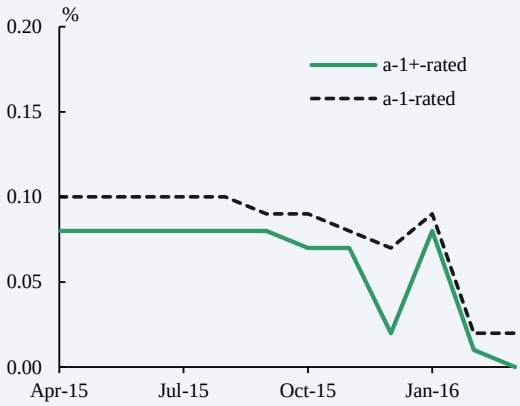
In this situation, the issuance rates in December 2015 notably declined for the highest rated issues in which MRFs mainly invest. This decline also spread to issuance rates of issues equivalent to highest rated issues, due partly to (1) the tightening of the supply and demand balance of the entire CP market due to purchases by the MRFs and (2) the Bank's continuous purchases of CP (Box Chart 6-4).

Box Chart 6-3: Amount Outstanding of CP Held by Investment Trusts



Note: Figures are amount outstanding of each asset held by publicly offered investment trusts of contractual type (as of the month-end).

Box Chart 6-4: CP Issuance Rates (1-month Rates)



Notes: 1. Those of business companies on a monthly basis.
2. March 2016 is the simple average of the weekly data until March 18.

After the Bank's decision to introduce a negative interest rate, CP issuance rates decreased to around zero due to the following: (1) investment trusts further strengthened their movement to secure investment opportunities; and (2) entities that wanted to sell CP through the Bank's operations became active in purchasing CP amid the sharp fall in the lowest accepted bid yield of the Bank's outright purchase of CP.

However, even amid such a situation, issuance of CP at a negative rate was limited. The following reasons can be attributed to this: (1) some financial institutions that underwrite CP still resist purchasing CP, a credit instrument, at a negative rate; (2) investment trusts -- the largest purchaser of CP among private entities in the secondary market -- were not purchasing at negative rates; (3) uncertainties regarding the sale of CP and corporate bonds to the Bank, such as the existence of the maximum outstanding amount of 100 billion yen per issuer for the Bank's outright purchases; and (4) the system of Japan Securities Depository Center, Inc. which is responsible for CP settlement in the book-entry transfer

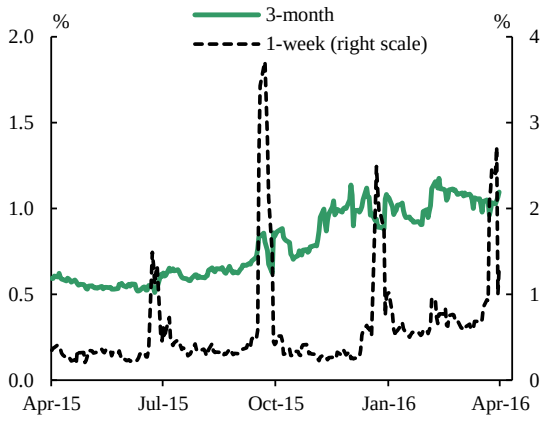
system, was initially not supported for trading at negative rates (issuance on a non-delivery versus payment [non-DVP] basis and a DVP basis were available from March 22, 2016 and April 4, 2016, respectively).

F. FX Swap Market

In the FX swap market, the dollar funding cost followed an upward trend from the beginning of autumn 2015, as the difference in the direction of monetary policy between Japan and the United States, including the possibility of a policy rate hike by the Fed, was strongly recognized.

Since the beginning of 2016, amid the plunge in stock and crude oil prices, the dollar funding cost temporarily regained stability. This reflected heightened expectations that the pace of U.S. interest rate hikes will slow down. However, after the Bank decided to introduce QQE with a Negative Interest Rate on January 29, an increase in the appetite for overseas asset investment among domestic banks and investors was concerned, and the dollar funding cost rebounded and rose again (Chart 4-11).

Chart 4-11: FX Swap-Implied U.S. Dollar Rate from the Yen



Note: The FX swap-implied U.S. dollar rate from the yen is the total funding cost of raising yen at yen LIBOR and converting the proceeds into dollars through an FX swap transaction.

Another reason for the rise in the dollar funding cost is that foreign banks, or entities providing dollar funds, limited their yen funding (dollar providing), giving consideration to financial regulations, such as the leverage ratio requirement. Dollar funding costs rose significantly especially at quarter-ends, due to market participants further refraining from yen funding (dollar providing) over the quarter-end to avoid balance sheet from expanding.

V. Conduct of Individual Measures in Money Market Operations

A. Asset Purchases

1. Outright Purchases of JGBs

Under QQE, which was introduced in April 2013 and which expanded in October 2014, the Bank decided to purchase JGBs so that their amount outstanding would increase at an annual pace of about 80 trillion yen. In October 2014, when QQE was expanded, the average remaining maturity of the Bank's purchases was extended to about 7-10 years. Thereafter, in December 2015, the Bank decided to extend it further to about 7-12 years starting in January 2016, to facilitate flexible and smooth purchase of JGBs, considering that the gross amount of the Bank's JGB purchases is expected to increase.

In conducting such large-scale JGB purchases, the Bank considered ensuring that there was room for flexibility in responding to market conditions while focusing on the predictability of operations. Specifically, it continued to release the Outline of Outright Purchases of Japanese Government Bonds for the following month on the last business day of every month, in principle, and purchased around 8-12 trillion yen of JGBs per month.

Specifically, the purchase amount of short- to medium-term JGBs (residual maturity of more than one year and up to five years) was changed accordingly, responding to market conditions, while the purchase amount of floating-rate bonds was reduced somewhat from October 2015 onward, in view of the decrease in the amount outstanding of floating-rate bonds in the market. In contrast, purchases of inflation-indexed bonds increased somewhat from January 2016 because of an increase in their amounts outstanding in the market. Following the expectation that the amount of JGB purchases on a gross basis would increase in 2016 from around 110 trillion yen in 2015 to around 120 trillion yen due to the increase in the redemption amount of JGBs held by the Bank, the Bank reviewed the monthly purchase amount (based on the date of offers) and raised it from 9+ trillion yen to around 10 trillion yen as of January 2016 (Chart 5-1). However, following the Bank's decision to introduce a negative interest rate, the number of transactions in which the yields on JGBs were below their coupon rates increased, resulting in an extremely strong tendency for actual purchase

amounts to exceed the amounts of offer at face values. Hence, the Bank slightly reduced the monthly offer amount from April 2016.

Under the aforementioned conduct of money market operations, the amount outstanding of JGBs held by the Bank on a start-day basis stood at 282.0 trillion yen at the end of 2015, an increase of 80.3 trillion yen from the same time a year earlier. The amount outstanding at the end of March 2016 reached 301.9 trillion yen, an increase of 81.8 trillion yen from the same time a year earlier (Chart 5-2). The average remaining maturity of the Bank's JGB purchases on a flow basis lengthened to 8.8 years in fiscal 2015 from 7.7 years in fiscal 2014 (Charts 5-3 and 5-4).

Meanwhile, immediately after the Bank's decision to introduce a negative interest rate, the bid-to-cover ratio declined somewhat. This may be attributed to (1) growing reluctance among banks to sell JGBs to prevent current account balances from increasing as well as (2) active JGB purchases by foreign investors and domestic life insurers. Nevertheless, after the beginning of April 2016, the overall bid-to-cover ratio increased gradually partly due to investors' selling aimed at profit-taking (Chart 5-5).

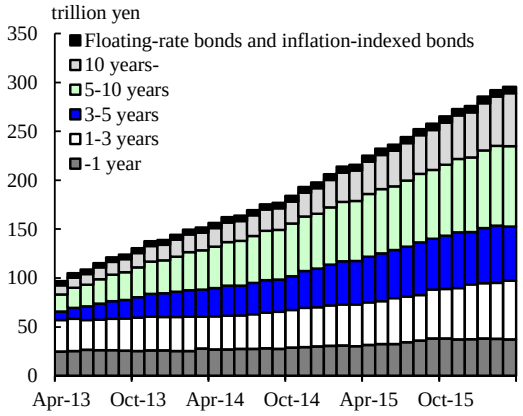
Chart 5-1: Amounts of Monthly Purchases of JGBs

trillion yen

	Based on dates of offers	Based on dates of exercise
Apr. 2015	9.1	9.5
May	9.0	7.8
June	9.2	9.9
July	9.3	8.6
Aug.	9.4	8.9
Sep.	9.3	9.8
Oct.	9.4	9.4
Nov.	9.1	9.2
Dec.	8.8	8.8
Jan. 2016	10.0	11.1
Feb.	10.1	8.8
Mar.	9.9	10.5

Note: Face value.

Chart 5-2: Amounts Outstanding of JGBs held by the Bank



Note: Face value. JGBs purchased through the Asset Purchase Program (APP) are included.
Maturity segments are as of the month-end.

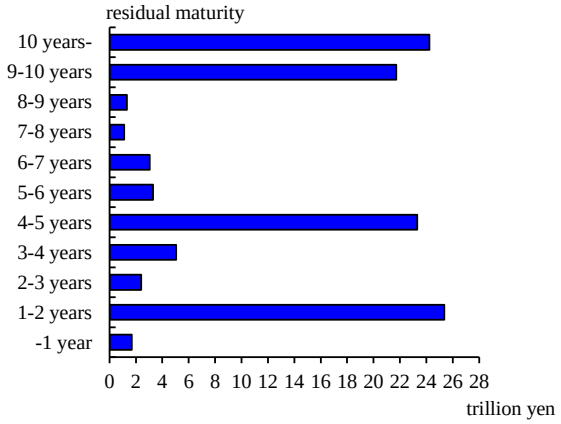
Chart 5-3: Average Residual Maturity of JGBs Purchased by the Bank

	Flows during the fiscal year	Stock at the end of the fiscal year
Fiscal 2012	3.0 years	3.9 years
Fiscal 2013	7.3 years	5.6 years
Fiscal 2014	7.7 years	6.5 years
Fiscal 2015	8.8 years	7.2 years

Note: JGBs purchased through the APP are included.

Chart 5-4: Maturity Composition of Amounts Outstanding of JGB Purchases

(1) Flows (during fiscal 2015)



(2) Stock (at the end of fiscal 2015)

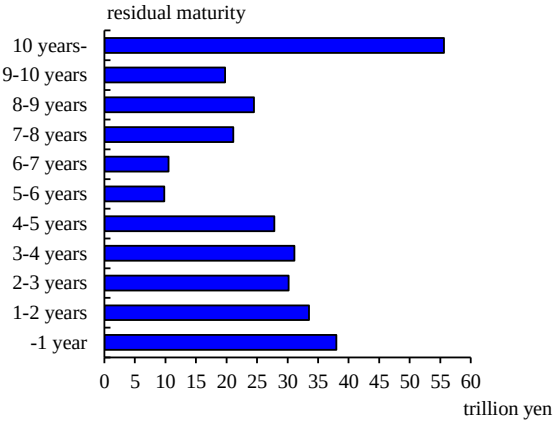
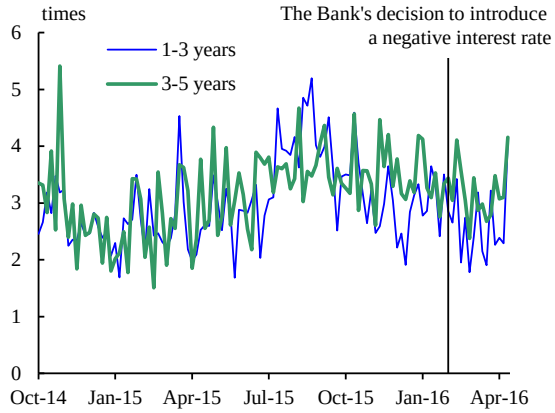
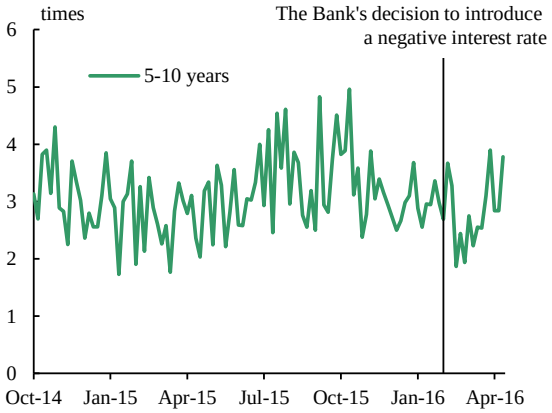


Chart 5-5: Bid-to-Cover Ratio of Outright Purchases of JGBs

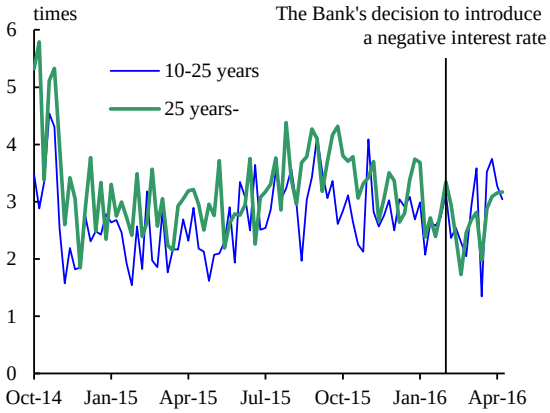
Short- to Medium-Term



Long-Term



Super-Long-Term



2. Outright Purchases of CP

Under QQE, the Bank purchased CP and maintained the amount outstanding at around 2.2 trillion yen.

Complying with this guideline, the Bank offered outright purchases of CP three times a month with 350-400 billion yen per operation in principle. However, CP redemption schedules tend to concentrate at quarter-ends, and those for issues that had been purchased by the Bank also tend to follow the same trend. Thus, there were times when the outstanding balance at the end of each quarter temporary decreased, even when the Bank

offered outright purchases that were larger than usual. In fact, after the introduction of the negative interest rate in March 2016, the Bank offered two outright purchases with 500 billion yen per operation and one outright purchase with 600 billion yen, which were larger than usual. However, the amount outstanding of purchases temporarily decreased to 2.0 trillion yen at the end of March 2016 while many firms refrained further from issuing CP over the accounting period in end-March to reduce interest-bearing debt (Chart 5-6).

Meanwhile, the lowest accepted bid yield remained in positive territory below the interest rate applied under the complementary deposit facility of 0.1 percent until the negative interest rate was introduced (Chart 5-7). At the Bank's first auction after the negative interest rate became effective, conducted on February 16, 2016, the lowest accepted bid yield was minus 0.019 percent, which was the first-ever CP to be purchased by the Bank at a negative rate. The lowest accepted bid yield continued to decline thereafter, and at the auction on March 28, the Bank rejected some bids which went deep into negative rates by deviating significantly from other bid rates and prevailing market rates.

Chart 5-6: Amount Outstanding and Amount of Monthly Purchases of CP

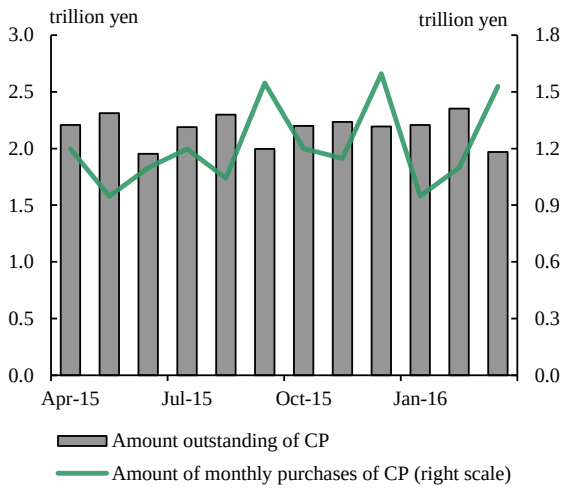
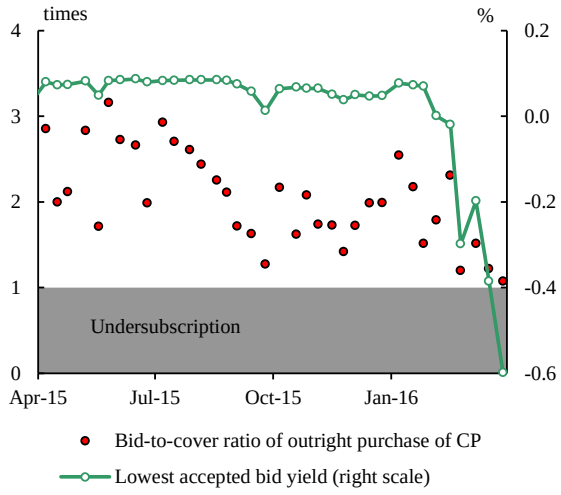


Chart 5-7: Bid-to-Cover Ratios and Lowest Accepted Bid Yield of Outright Purchase of CP



3. Outright Purchases of Corporate Bonds

Under QQE, the Bank purchased corporate bonds and maintained the amount outstanding at around 3.2 trillion yen.

Complying with this guideline, the Bank offered outright purchases once a month with 75-150 billion yen per operation, considering the redemption schedules of the issues that had been purchased (Chart 5-8).

Meanwhile, the lowest accepted bid yield for the outright purchases of corporate bonds remained at a low level amid the low corporate bond yield. At an auction conducted on January 13, 2016, the Bank purchased corporate bonds at a negative rate for the first time, with the lowest accepted bid yield at minus 0.030 percent. Moreover, at the first auction after the negative interest rate became effective, conducted on February 22, 2016, the lowest accepted bid yield was minus 0.130 percent, reflecting the further decline in corporate bond yield. The average accepted bid yield also declined to minus 0.031 percent (Chart 5-9).

Chart 5-8: Amount Outstanding and Amount of Monthly Purchases of Corporate Bonds

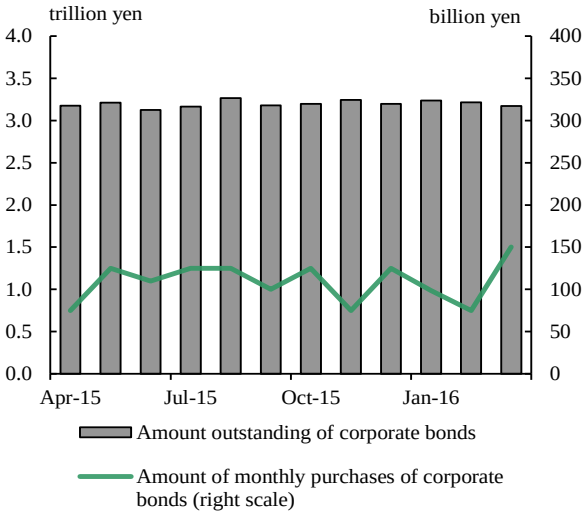
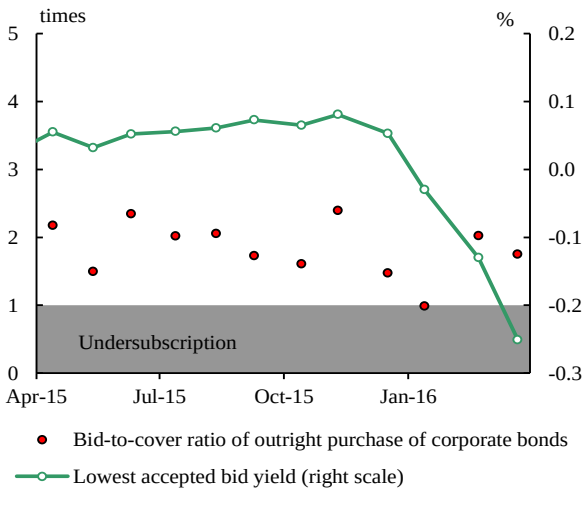


Chart 5-9: Bid-to-Cover Ratios and Lowest Accepted Bid Yield of Outright Purchase of Corporate Bonds



Note: Corporate bonds purchased through the APP are included.

4. Outright Purchases of ETFs

Under QQE, the Bank purchased ETFs so that its amount outstanding will increase at an annual pace of about 3 trillion yen, totaling 86 purchases during fiscal 2015. The amount outstanding of ETFs purchased by the Bank at the end of 2015 stood at 6.9 trillion yen (an increase of 3.1 trillion yen from the same time a year earlier). At the end of March 2016, the amount stood at 7.6 trillion yen (an increase of 3.1 trillion yen from the same time a year earlier).

5. Outright Purchases of J-REITs

Under QQE, the Bank purchased J-REITs so that its amount outstanding will increase at an annual pace of about 90 billion yen, totaling 67 purchases during fiscal 2015. The amount outstanding of J-REITs purchased by the Bank at the end of 2015 stood at 269.6 billion yen (an increase of 91.8 billion yen from the same time a year earlier); at the end of March 2016, the amount stood at 293.6 billion yen (an increase of 87.2 billion yen from the same time a year earlier).

B. Short-Term Operations

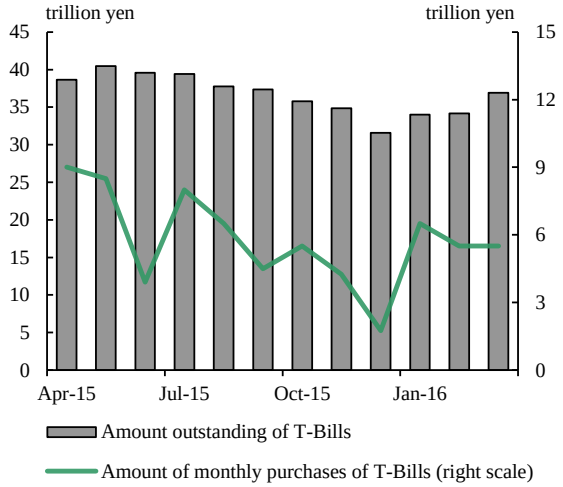
1. Outright Purchases of T-Bills

Under QQE, the Bank continually offered outright purchases of T-Bills once a week in principle. As the amounts outstanding of the stimulating bank lending facility, ETFs, and J-REITs increased while the issuance amount of T-Bills decreased, the purchase amount of T-Bills required to accumulate the amount outstanding of the monetary base in accordance with the guideline for money market operations was reduced. Thus, the amount outstanding of T-Bills trended downward.

Specifically, in fiscal 2015, the Bank offered 1-3 trillion yen per operation in principle and reduced the amount at quarter-ends, when supply and demand conditions for T-Bills tighten. As a result of such purchases, the amount outstanding of purchases of T-Bills stood at 31.6

trillion yen at the end of 2015, a decrease of 6.8 trillion yen from the same time a year earlier. Even after the beginning of 2016, the Bank continued offering 1-3 trillion yen per operation. Consequently, the amount outstanding of purchases of T-Bills remained more or less flat. The amount outstanding of purchases was 36.9 trillion yen at the end of March 2016, a decrease of 1.0 trillion yen from the same time a year earlier (Chart 5-10).

Chart 5-10: Amount Outstanding and Amount of Monthly Purchases of T-Bills



2. Fixed-Rate Funds-Supplying Operation against Pooled Collateral

The Bank continued to conduct the fixed-rate funds-supplying operations against pooled collateral with a 3-month term at a pace of 800 billion yen per operation, generally once a week. In addition, for loans that matured from the operations conducted immediately after the introduction of QQE between April and May 2013 -- which were offered with a 1-year term at a pace of 1.5-2 trillion yen per operation -- the Bank conducted operations with a 3-month term at a pace of 1.5 trillion yen per operation.

Reflecting the Bank's provision of ample funds to financial markets through large-scale purchases of a wide range of assets conducted under QQE, perceptions of abundant liquidity remained extremely strong in the money markets. Thus, demand for the funds-supplying operations against pooled collateral was sluggish, and the amount outstanding in fiscal 2015 remained low following the drop in fiscal 2014 (Charts 5-11 and 5-12).

Chart 5-11: Amount Outstanding and Amount of Monthly Operations of the Fixed-Rate Funds-Supplying Operations against Pooled Collateral

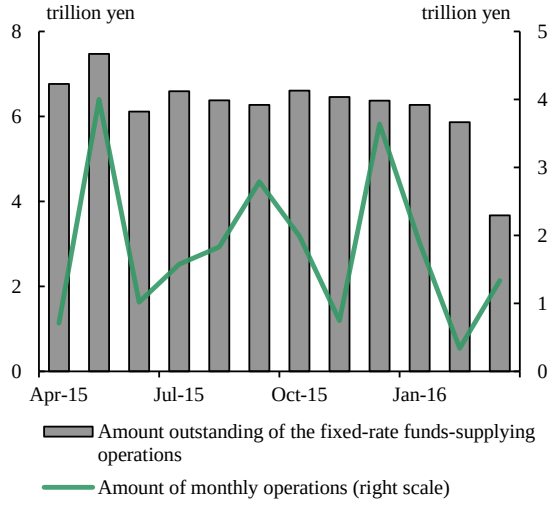
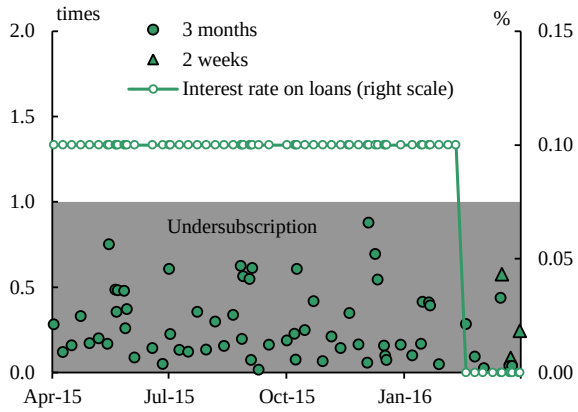


Chart 5-12: Bid-to-Cover Ratios of the Fixed-Rate Funds-Supplying Operations against Pooled Collateral



After the negative interest rate became effective in February 2016, the Bank offered loans with an interest rate reduced to 0 percent per annum, as decided at the January MPM. In addition, given the growing needs among financial institutions to fine-tune their current account balances, starting from the middle of March 2016, the Bank successively changed the operation from an offer of 800 billion yen with a 3-month term to that with a 2-week term. However, the amount outstanding of the operations stood at 3.7 trillion yen at the end of March 2016, a substantial decrease of 3.1 trillion yen from the same time a year earlier. This was partly due to a spread in movement among financial institutions to hold down their current account balance, reflecting the introduction of the negative interest rate, combined with the uncollateralized call rates hovering within slightly negative territory.

3. Purchase of Japanese Government Securities* with Repurchase Agreements

For the first time in about five years, the Bank offered Japanese government securities (JGSs) purchases with repurchase agreements (500 billion yen offered; starting on March 22, 2016; overnight). The operation was conducted to curb the rise in money market rates, particularly GC repo rates, as borrowing needs were expected to increase mainly among

securities companies, in view of the large amount of JGSs slated to be issued on March 22. The total bids exceeded 650 billion yen, but some were rejected because they largely deviated from other bid rates and prevailing market rates.

* JGBs with coupons and T-Bills

C. Loan Support Program

1. Growth-Supporting Funding Facility

During fiscal 2015, the Bank disbursed loans under the main rules for the Growth-Supporting Funding Facility introduced in June 2010 once a quarter, four times in total. In addition, the Bank disbursed new loans four times in total each under (1) a line of credit for equity investments and asset-based lending established in June 2011 (following special rules for equity investments and asset-based lending), (2) a line of credit for small-lot investments and loans (for 1 million yen or more but less than 10 million yen) introduced in March 2012 (with special rules for small-lot investments and loans), and (3) a line of credit for investments and loans denominated in foreign currencies introduced in April 2012 (under special rules for the U.S. dollar lending arrangement) (Chart 5-13).

Chart 5-13: Loan Disbursement under the Growth-Supporting Funding Facility

(Main rules)

100 million yen

20th (May 29, 2015)	21th (Aug. 31)	22th (Nov. 30)	23th (Feb. 29, 2016)	Outstanding balance of loans (as of end-Mar. 2016)
6,685	5,489	9,345	6,299	55,357 (2,163)

(Special rules for equity investments and asset-based lending)

100 million yen

16th (May 28, 2015)	17th (Aug. 28)	18th (Nov. 27)	19th (Feb. 26, 2016)	Outstanding balance of loans (as of end-Mar. 2016)
85	78	9	100	878.1

(Special rules for small-lot investments and loans)

100 million yen

13th (May 28, 2015)	14th (Aug. 28)	15th (Nov. 27)	16th (Feb. 26, 2016)	Outstanding balance of loans (as of end-Mar. 2016)
29.07	10.08	9.42	12.57	115.26 (30.27)

(Special rules for the U.S. dollar lending arrangement)

million U.S. dollars

12th (May 28, 2015)	13th (Aug. 28)	14th (Nov. 27)	15th (Feb. 26, 2016)	Outstanding balance of loans (as of end-Mar. 2016)
44	14	20	220	11,999.3

Notes: 1. The date in parentheses is offer-day, and the value denotes new loans. The same applies for Charts 5-14 and 5-16.
2. The value in parentheses below the outstanding balance of loans is the outstanding balance of financial institutions that are members of central organizations (financial institutions that do not hold current accounts at the Bank). The same applies for Chart 5-14.

At the end of March 2016, the outstanding balance of loans under the main rules reached 5.5 trillion yen, an increase of 1.0 trillion yen from the same time a year earlier, out of the ceiling for loans of 10 trillion yen to be disbursed at that time. The outstanding balance of loans under the special rules for equity investments and asset-based lending stood at 87.8 billion yen out of the ceiling of 500 billion yen; those under the special rules for small-lot investments and loans stood at 11.5 billion yen out of the ceiling of 500 billion yen; and those under the special rules for the U.S. dollar lending arrangement stood at 12 billion dollars out of the ceiling of 12 billion dollars.

In accordance with the decision made at the January 2016 MPM, the Bank offered loans with the interest rate reduced to 0 percent per annum after the negative interest rate became effective.

2. Stimulating Bank Lending Facility

During fiscal 2015, the Bank disbursed loans under the stimulating bank lending facility introduced in December 2012 once a quarter, four times in total (Chart 5-14). At the end of March 2016, the outstanding balance of these loans reached 24.4 trillion yen, an increase of 2.1 trillion yen from the same time a year earlier.
In accordance with the decision made at the January 2016 MPM, the Bank offered loans with an interest rate reduced to 0 percent per annum after the negative interest rate came into effect.

Chart 5-14: Loan Disbursement under the Stimulating Bank Lending Facility

100 million yen

June 2015 (June 17)	Sep. 2015 (Sep. 15)	Dec. 2015 (Dec. 14)	Mar. 2016 (Mar. 16)	Outstanding balance of loans (as of end-Mar. 2016)
21,369	7,286	19,976	23,462	244,220 (3,943)

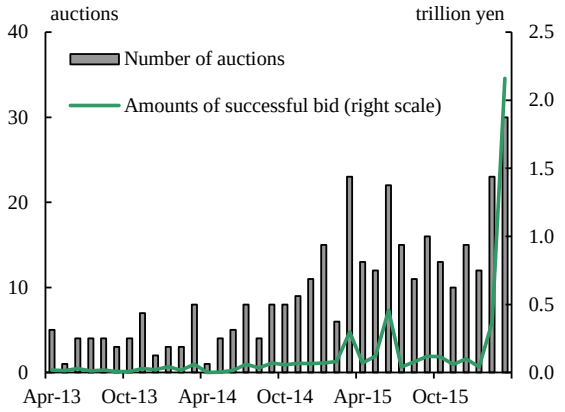
D. Other Operations

1. Securities Lending Facility

The number of securities lending facility auctions conducted in fiscal 2015 increased substantially to 192 from 102 in fiscal 2014 (Chart 5-15). The use of this facility increased markedly especially after the Bank decided to introduce QQE with a Negative Interest Rate on January 29, 2016, as financial institutions trying to avoid an increase in their current account balances refrained from providing JGSs in the repo market. As a result, in March, both the number of auctions and the amounts of successful bids reached historical highs on a single month basis.

Meanwhile, to ease stress in the JGS market with a view to further facilitating the Bank's money market operations as well as contributing to the smooth settlement of JGSs, the Bank implemented a series of operational changes to the securities lending facility. This included (1) adding T-Bills to the securities sold under the facility, (2) extending the number of business days of continuous use for the same issue to a maximum of 50 business days, and (3) raising the upper limit to the amount of sales per issue (please refer to Chapter VI.B.1 for details).

Chart 5-15: Number of the Securities Lending Facility Auctions



2. Funds-Supplying Operations to Support Financial Institutions in Disaster Areas

During fiscal 2015, the Bank disbursed loans once a month, 12 times in total (Chart 5-16). The outstanding balance at the end of March 2016 stood at 0.3 trillion yen out of the ceiling of 1 trillion yen.

In accordance with the decision made at the January 2016 MPM, the Bank offered loans with the interest rate reduced to 0 percent per annum after the negative interest rate came into effect.

Chart 5-16: Loan Disbursement under the Funds-Supplying Operations to Support Financial Institutions in Disaster Areas

100 million yen

48th (Apr. 20, 2015)	49th (May 15)	50th (June 22)	51st (July 17)	52nd (Aug. 24)	53rd (Sep. 16)
0	0	543	1,105	431	975

54th (Oct. 19)	55th (Nov. 20)	56th (Dec. 17)	57th (Jan. 18, 2016)	58th (Feb. 22)	59th (Mar. 18)	Outstanding balance of loans (as of end-Mar. 2016)
70	0	17	3	0	0	3,144

3. U.S. Dollar Funds-Supplying Operations

During fiscal 2015, the Bank conducted the 1-week U.S. dollar funds-supplying operations generally once a week. In these operations, an unlimited amount of funds was provided at a fixed rate against eligible collateral submitted to the Bank by individual financial institutions.

With respect to the use of these operations, bidding increased for offers that matured over quarter-ends (the end of June, September, December, and March), when the cost of U.S. dollar funding increased in the market. However, biddings for offers other than these were limited to those of small amounts for confirming and maintaining administrative procedures.

E. Complementary Lending Facility

During fiscal 2015, the use of the complementary lending facility was extremely limited, against the background of the supply of ample funds to financial markets by the Bank under QQE, which created extremely strong perceptions of abundant liquidity in the money market.

VI. Systemic Changes Related to Money Market Operations

A. Changes in the Complementary Deposit Facility Resulting from the Introduction of a Negative Interest Rate

At the MPM held on January 28 and 29, 2016, the Policy Board of the Bank of Japan decided to introduce QQE with a Negative Interest Rate. Accordingly, the Bank amended the principal terms and conditions of the complementary deposit facility and decided to apply the following interest rates to the financial institutions' current account balances at the Bank.

(1) Up to the amount of required reserve: 0 percent
(2) The amount exceeding the amount of (1) and up to the Benchmark Balance (average current account balance during 2015): 0.1 percent
(3) The amount exceeding the sum of (1) and (2) and up to the amount which is the sum of the following: 0 percent
    (i) The amount calculated by multiplying the Benchmark Balance by a certain ratio specified by the Bank (hereinafter referred to as "Benchmark Ratio").
    (ii) The amount outstanding of the Bank's provision of credit through the loan support program and the funds-supplying operation to support financial institutions in disaster areas affected by the Great East Japan Earthquake
(4) The amount exceeding the sum of (1), (2), and (3): minus 0.1 percent

Furthermore, at the MPM held on March 14 and 15, 2016, the Bank amended the principal terms and conditions of the complementary deposit facility and decided that the amount outstanding of MRFs entrusted to a trust bank (up to the amount outstanding of MRFs entrusted to this trust bank during the previous year) will be added to its outstanding amount under (3), starting from the April reserve maintenance period. It also decided that for financial institutions that had increased the amount outstanding of borrowing from the Bank through the loan support program and the funds-supplying operation to support financial institutions in disaster areas affected by the Great East Japan Earthquake, twice as much as the amount of increase will be added to this financial institution's outstanding amount under (3), starting from the May reserve maintenance period.

B. Other Systemic Changes

1. Operational Changes to the Securities Lending Facility

On August 31, 2015, the Bank announced that it would add T-Bills as instruments eligible for the securities lending facility, to ease stress on transactions and settlements in the JGS market with a view to further facilitating the Bank's money market operations as well as contributing to smooth settlement of JGSs. Furthermore, for the same purposes, the Bank extended the number of business days of continuous use of the securities lending facility for the same issue of JGBs with coupons on December 18, 2015, and raised the upper limit to the amount of sales per issue on February 10, 2016 (Chart 6). Furthermore, on February 10, 2016, the Bank released that, in principle, the upper limit on selling yields will be "(the rate considered in light of the uncollateralized overnight call rate)[5] minus (the minimum fee rate [0.5 percent])." This was done to clarify the operation regarding the upper limit on selling yields before the negative interest rate became effective on February 16, 2016.

Chart 6: Operational Changes to the Securities Lending Facility

	JGBs with coupons			T-Bills
	Previous policy	Policy from Jan. 4, 2016	New policy from Feb. 16, 2016	New policy from Sep. 1, 2015
Upper limit to the amount of sales per issue(Note 1)	The amount outstanding of the Bank's holdings or 400 billion yen, whichever is smaller	(Same as on the left.)	The amount outstanding of the Bank's holdings or 1 trillion yen, whichever is smaller	The amount outstanding of the Bank's holdings or 100 billion yen, whichever is smaller.
Continuous use of the facility for the same issue(Note 2)	In principle, a maximum of 15 business days	In principle, a maximum of 50 business days	(Same as on the left.)	In principle, a maximum of 5 business days

Notes: 1. The amount sold in the morning offer will be deducted from the afternoon offer.
2. The number of business days counterparties is permitted to consecutively purchase the same issue from the Bank. (This rule is not applicable to roll-over transactions subject to fails charge in accordance with market practice.) The Bank may extend the period for consecutive sales transactions per issue when deemed necessary in light of the conditions of financial markets.

[5] The weighted average of the uncollateralized overnight call rate on the previous business day (rounded off to the first decimal place) will be used.

2. Establishing a New Program for Purchases of ETFs

At the MPM held on December 17 and 18, 2015, the Bank decided to establish a new program for purchasing ETFs to support firms that are proactively making investment in physical and human capital, thereby supplementing QQE. Specifically, the Bank established a new program for purchasing ETFs at an annual pace of about 300 billion yen, in addition to the current program of ETF purchases under which their amount outstanding will increase at an annual pace of about 3 trillion yen. Under this new program, the Bank will purchase ETFs composed of stocks issued by firms that are proactively making investment in physical and human capital starting in April 2016. The new program started with purchases of ETFs that track the JPX-Nikkei Index 400. The Bank will start purchasing ETFs that are consistent with the objective of this measure when such ETFs are newly launched.

3. Enhancing the Fund-Provisioning Measure to Support Strengthening the Foundations for Economic Growth

At the MPM held on December 17 and 18, 2015, the Bank decided to enhance the fund-provisioning measure to support strengthening the foundations for economic growth to support firms that are proactively making investment in physical and human capital, thereby supplementing QQE. Specifically, the Bank added a new category ("firms that are proactively making investment in physical and human capital") to the existing list of 18 possible areas to which financial institutions' investment or lending are recognized as eligible for the Bank's fund-provisioning measure to support strengthening the foundations for economic growth. Simultaneously, the Bank simplified procedures for eligibility assessment of financial institutions' investment or lending to the firms relevant to this category. For example, investment or lending to firms receiving preferential treatments by the tax code can apply for the Bank's simplified procedures.

4. Extending the Application Periods for the Loan Support Program and Other Measures

At the MPM held on December 17 and 18, 2015, the Bank decided to extend the application periods for the loan support program and other measures, as a supplementary measure for QQE. Specifically, to continue to encourage action by financial institutions, firms and households, the Bank extended by one year the Fund-Provisioning Measure to Stimulate Bank Lending and the fund-provisioning measure to support strengthening the foundations for economic growth, which were due to expire at the end of June 2016. In addition, to continue supporting the efforts of financial institutions toward rebuilding the disaster areas affected by the Great East Japan Earthquake, the Bank decided to extend by one year the deadlines for (1) new applications for loans under the funds-supplying operation to support financial institutions in disaster areas that were due to expire at the end of April 2016 and (2) the application period for the relaxation of the collateral eligibility standards for the debt of companies in disaster areas, that were due to expire at the end of April 2016.

5. Expanding Eligible Collateral for the Bank's Provision of Credit

At the MPM held on December 17 and 18, 2015, the Bank decided on expanding eligible collateral for its provision of credit as a measure to facilitate smooth implementation of QQE. Specifically, financial institutions' holdings of eligible collateral decreased as JGB purchases by the Bank progressed under QQE. In light of this situation, the Bank decided to (1) accept foreign currency-denominated loans on deeds as eligible collateral and to (2) introduce a framework in which the Bank will accept financial institutions' housing loans portfolios as collateral through a trust scheme.

6. Increasing the Maximum Amount of Each Issue of J-REIT to be Purchased

At the MPM held on December 17 and 18, 2015, the Bank decided to increase the maximum amount of each issue of J-REIT to be purchased as a measure to facilitate smooth implementation of QQE. Specifically, since the amount outstanding of the Bank's holdings

had been increasing in comparison with the total market value, the maximum amount of each issue of J-REIT to be purchased shall be increased from the current 5 percent to 10 percent of the total amount of that J-REIT issued.

VII. Actions to Enhance Dialogue with Market Participants

Under QQE, the Bank's Financial Markets Department conducted daily market monitoring and various market surveys. This was done with a view to further deepening dialogues with market participants while carefully examining developments and functioning of financial markets as well as the impact on financial markets of the Bank's operations. Moreover, after the Bank's decision to introduce a negative interest rate, the department explained to market participants the details of the policy and its impact on financial markets. Furthermore, the department took various initiatives regarding its dialogue with market participants as follows:

A. Dialogue with Market Participants

1. Holding of the Meeting on Market Operations

The Meeting on Market Operations, held, in principle, twice a year with eligible counterparties for market operations, was held on October 21, 2015, and February 23, 2016. At these meetings, the Bank explained and exchanged opinions on (1) recent developments in the financial markets and market operations, (2) trends in the money market in Japan (including results of the Tokyo Money Market Survey [August 2015]), and (3) recent developments in market-level business continuity plans (BCPs).

2. Holding of the Bond Market Group Meeting

The Bond Market Group Meeting was established in January 2015 to further enhance dialogue with bond market participants by making best use of the Bond Market Survey. This meeting is in principle held twice a year; in fiscal 2015, the first meeting was held on June 11 and 12 while the second meeting was held on December 10 and 11. At these

meetings, the Bank explained and exchanged views with participants on (1) the results of the Bond Market Survey, (2) liquidity in the JGB market, and (3) recent developments in financial markets and market operations.

3. Holding of the Repo Market Forum

Amid international discussions on enhancing the transparency and strengthening the risk management of repo transactions and amid efforts toward shortening the JGB settlement cycle, the Bank's Financial Markets Department hosted the first Repo Market Forum on May 14, 2015, to enable wide-ranging players in the repo market to discuss their efforts toward further development of the repo market. On December 3, it held the second forum. In these forums, the Bank exchanged views with participants on (1) recent developments in the repo market, (2) discussions on the repo market at international forums, (3) impact of the shortening of the JGB settlement cycle on the repo market.

4. Holding of the Working Level Meeting with the Study Group for Activation of Short-Term Money Markets

As part of efforts to utilize the Tokyo Money Market Survey and deepen discussions with market participants, in January 2015, the Bank's Financial Markets Department established a working-level meeting with the Study Group for Activation of Short-Term Money Markets, comprising representatives of businesses that conduct short-term money market transactions, and held the first meeting. On November 24, 2015, the department held the second meeting, where opinions were exchanged on (1) recent developments in the short-term money market, (2) efforts on market-level BCPs, and (3) recent developments in the repo market.

B. Response to Requests from Market Participants Regarding Market Operations

The Bank's Financial Markets Department has been taking steps to improve and enhance market operations based on requests from market participants. In fiscal 2015, the

department decided to respond to the requests listed below (Chart 7).

Chart 7: Responses to Requests from Market Participants in Fiscal 2015

Enhancing the current account balance statistics by sector	Based on requests from market participants after the Bank's decision to introduce a negative interest rate, the Bank began to release current account balances for tiers per applied interest rate (negative, zero, and positive) by sector, as a reference table within the "BOJ Current Account Balances by Sector."
Clarifying the upper limit on selling yields for the securities lending facility	Based on requests from market participants after the Bank's decision to introduce a negative interest rate, the Bank clarified the calculating method of the upper limit on selling yields.
Adding T-Bills to the securities sold under the securities lending facility	Based on requests from market participants and the Study Group for Activation of Short-Term Money Markets, on September 1, 2015, the Bank added T-Bills to the securities sold under the securities lending facility.
Raising the upper limit on the amount of sales per issue of the securities lending facility	Based on requests from market participants and the Study Group for Activation of Short-Term Money Markets, as of the auction for the securities lending facility on February 16, 2016, the Bank raised the upper limit on the amount of sales per issue for JGBs with coupons to 1 trillion yen.
Conducting funds supplying operation for BCP training purposes	Based on requests from the Study Group for Activation of Short-Term Money Markets, the Bank conducted the fixed-rate funds-supplying operation as part of the BCP training for three financial markets combined on November 18, 2015.
Enhancing the statistics for call transactions within the BOJ Time-Series Data Search	Based on requests from the Study Group for Activation of Short-Term Money Markets, of the statistics for call transaction released on the Bank's website, the Bank decided to consider releasing those not released in the "BOJ Time-Series Data Search" within that website to improve the convenience of market participants.

Reference: Number of Auctions and Eligible Counterparties for Market Operations

numbers

	Fiscal 2012	Fiscal 2013	Fiscal 2014	Fiscal 2015	Number of eligible counterparties
Outright purchases of JGBs	144	295	359	372	47
Outright purchases of T-Bills	42	53	50	50	44
Outright purchases of CP	33	36	36	36	36
Outright purchases of corporate bonds	12	12	12	12	36
Outright purchases of ETFs	24	77	71	86	—
Outright purchases of J-REITs	24	77	66	67	—
Fixed-rate funds-supplying operation against pooled collateral	144	111	77	74	267
Growth-supporting funding facility	22	37	47	59	161
Stimulating bank lending facility	—	10	15	17	211
Funds-supplying operations to support financial institutions in disaster areas	12	12	12	12	36
Purchases of JGSs with repurchase agreements	0	0	0	1	44
U.S. dollar funds-supplying operations	62	64	53	49	65
Securities lending facility	13	48	102	192	36
Total	532	832	900	1,027	—

Notes: 1. The number of auctions (excluding outright purchases of ETFs and J-REITs) is the number of the Bank's notification of auction guidelines (offer) to eligible counterparties.

2. The number of eligible counterparties is as of end-March 2016. The number of eligible counterparties for the fixed-rate funds-supplying operation against pooled collateral is that for funds-supplying operations against pooled collateral at all offices (of which 39 counterparties are also eligible for funds-supplying operations against pooled collateral at the Head Office).

List of Data Sources and Referenced Materials

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Reference: Bank of Japan.