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Market Operations in Fiscal 2016

Financial Markets Department

Bank of Japan

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I. Introduction

During fiscal 2016 (April 1, 2016 to March 31, 2017), the Bank of Japan pursued powerful monetary easing under Quantitative and Qualitative Monetary Easing (QQE) with a Negative Interest Rate,[1] which the Bank decided to introduce in January 2016, until September 2016. Thereafter, in September 2016, the Bank decided to introduce QQE with Yield Curve Control, and further enhanced monetary easing.

Under QQE with a Negative Interest Rate, the Bank, with the aim of lowering the short end of the yield curve, divided the outstanding balance of a financial institution's current account at the Bank into three tiers, a part of which, known as the policy-rate balance, was newly applied a negative interest rate of minus 0.1 percent. In addition, the Bank conducted money market operations so that the monetary base would increase at an annual pace of about 80 trillion yen, and purchased a wide range of assets, including Japanese government bonds (JGBs), exchange-traded funds (ETFs), Japan real estate investment trusts (J-REITs), CP, and corporate bonds.

Furthermore, with a view to achieving the price stability target of 2 percent at the earliest possible time, the Bank at the Monetary Policy Meeting (MPM) held on September 20 and 21, 2016 introduced QQE with Yield Curve Control. The new policy framework consists of two major components: the first is yield curve control in which the Bank controls short-term and long-term interest rates; and the second is an inflation-overshooting commitment in which the Bank commits itself to expanding the monetary base until the year-on-year rate of increase in the observed consumer price index (CPI) exceeds 2 percent and stays above that level in a stable manner.

Under yield curve control, the Bank decided to continue to apply a negative interest rate of minus 0.1 percent to the policy-rate balance as the short-term policy interest rate. Regarding the long-term interest rate, the Bank decided to purchase JGBs so that 10-year JGB yields would remain more or less at around 0 percent. In fact, through market operations utilizing various operational measures including the newly introduced fixed-rate purchase operations, 10-year JGB

[1] A negative interest rate became effective from the February 2016 reserve maintenance period (February 16 to March 15).

yields have been consistent with the guideline for market operations since September 2016.

This paper explains market operations conducted under these policies. First, it outlines the guideline for market operations and the conduct of market operations by the Bank, followed by an overview of developments in domestic money and bond markets under the conduct of these market operations. Second, it describes the conduct of the measures in market operations, followed by a discussion of changes in the frameworks related to market operations. Finally, the paper presents the Bank's actions to enhance dialogue with market participants.

II. Outline of the Conduct of Market Operations by the Bank during Fiscal 2016

A. Conduct of Market Operations

1. Monetary Policy Decisions and Guideline for Market Operations

During fiscal 2016, the Bank pursued powerful monetary easing under QQE with a Negative Interest Rate, which the Bank decided to introduce at the MPM held on January 28 and 29, 2016, until September 2016. This was a policy framework that consisted of: (1) guideline for money market operations that stipulated that "the Bank will conduct money market operations so that the monetary base will increase at an annual pace of about 80 trillion yen"; (2) guidelines for asset purchases that stipulated that, "the Bank will achieve each of the specifically determined targets regarding the purchases of JGBs, ETFs, J-REITs, CP, and corporate bonds"; and (3) a policy interest rate under which it was decided that "the Bank will apply a negative interest rate of minus 0.1 percent to the policy-rate balances in current accounts held by financial institutions at the Bank."

Looking at the guidelines for asset purchases in more detail, it was decided that the Bank would purchase JGBs so that the amount outstanding of its holdings would increase at an annual pace of about 80 trillion yen, and that the average remaining maturity of its JGB purchases would be about 7-12 years. Moreover, while it was to purchase ETFs so that the annual pace of increase in the amount outstanding of the Bank's holdings would be about 3 trillion yen toward the end of March 2016 and about 3.3 trillion yen from April, it decided to almost double this amount to about 6 trillion yen at the MPM held on July 28 and 29, 2016. It remained unchanged during this period that the Bank would purchase J-REITs so that the annual pace of increase in the amount outstanding of its holdings would be about 90 billion yen, and that it would maintain the amounts outstanding of its holdings of CP and corporate bonds at about 2.2 trillion yen and about 3.2 trillion yen, respectively.

At the MPM held on September 20 and 21, 2016, the Bank conducted a "Comprehensive Assessment" of the developments in economic activity and prices under QQE and QQE with a Negative Interest Rate as well as their policy effects. Based on this, with a view to achieving the price stability target of 2 percent at the earliest possible time, the Bank decided to introduce QQE with Yield Curve Control by strengthening the two policy frameworks just mentioned. The new

policy framework consists of two major components: the first is yield curve control in which the Bank controls short-term and long-term interest rates; and the second is an inflation-overshooting commitment in which the Bank commits itself to expanding the monetary base until the year-on-year rate of increase in the observed CPI exceeds the price stability target of 2 percent and stays above the target in a stable manner.

Of these, as for yield curve control, the guideline for market operations specified that as the short-term policy interest rate, "the Bank will apply a negative interest rate of minus 0.1 percent to the policy-rate balances in current accounts held by financial institutions at the Bank." On the other hand, regarding the long-term interest rate, the guideline specified that "the Bank will purchase JGBs so that 10-year JGB yields will remain more or less at the current level (around 0 percent)." With regard to the amount of JGBs to be purchased, it specified that "the Bank will conduct purchases more or less in line with the current pace -- an annual pace of increase in the amount outstanding of its JGB holdings of about 80 trillion yen -- aiming to achieve the target level of a long-term interest rate specified by the guideline." The guideline for the average remaining maturity of the Bank's JGB purchases was abolished.

At the MPM held on September 20 and 21, 2016, the Bank also decided to introduce new tools of market operations for facilitating yield curve control. Specifically, in addition to introducing outright purchases of JGBs with yields designated by the Bank (fixed-rate purchase operations), the Bank decided to extend the longest maturity of the Fixed-Rate Funds-Supplying Operations it could offer from one year to ten years. Following this series of decisions, the Bank released the "Outline of Outright Purchases of Japanese Government Bonds during September" on September 21. In addition to explaining the outline of the newly introduced fixed-rate purchase operations, it clearly indicated that for outright purchases of JGBs through a competitive auction method, the Bank may set a lower bound to purchasing yields, aiming to achieve the target level of a long-term interest rate specified by the guideline for market operations.

The Bank maintained the above guideline for market operations decided in September through fiscal 2016. It also maintained the guidelines for asset purchases from September through fiscal 2016, under which it purchased ETFs and J-REITs so that the annual paces of increase in the amounts outstanding of the Bank's holdings would be about 6 trillion yen and about 90 billion yen,

respectively, and the amounts outstanding of the Bank's holdings of CP and corporate bonds were to be at about 2.2 trillion yen and about 3.2 trillion yen, respectively. Of these, regarding ETFs, in accordance with the decision made at the MPM held on September 20 and 21, 2016, the Bank decided to make changes to the maximum amount of each ETF to be purchased and to increase the weight of purchases of ETFs that track the Tokyo Stock Price Index (TOPIX).

In addition to the above, at the MPM held on April 27 and 28, 2016, the Bank introduced the Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake. As measures to ensure smooth funding in foreign currencies by Japanese firms and financial institutions, the Bank doubled at the MPM on July 28 and 29, the size of its U.S. dollar lending program to support growth (the Special Rules for the U.S. Dollar Lending Arrangement to Enhance the Fund-Provisioning Measure to Support Strengthening the Foundations for Economic Growth [hereafter the "Growth-Supporting Funding Facility"]) to 24 billion U.S. dollars. The Bank also decided to establish a new facility for lending Japanese government securities (JGSs) to be pledged as collateral for the U.S. Dollar Funds-Supplying Operations (securities lending to provide JGSs as collateral for the U.S. Dollar Funds-Supplying Operations). At the MPM held on January 30 and 31, 2017, the Bank decided to extend by one year the deadlines for new applications for such measures as the Fund-Provisioning Measure to Stimulate Bank Lending (hereafter the "Stimulating Bank Lending Facility").

2. Release of the "Outline of Outright Purchases of Japanese Government Securities" (Monthly "Outline")

In order to ensure the transparency of its conduct of market operations, the Bank, in principle, has been releasing the "Outline of Outright Purchases of Japanese Government Securities" for the following month in advance on the last business day of each month. This monthly "Outline" lists various information on the Bank's outright purchases of JGSs, including purchase size and frequency of purchases during the following month. The Bank has been making the necessary revisions to its contents, taking into account developments in the JGS markets and the needs of market participants.

From the "Outline" released at the end of February 2017, for example, the Bank decided to make advance announcements of the specific dates of auctions during the following month for outright purchases of JGBs across the three main maturity zones (more than one year and up to five years, more than five years and up to ten years, and more than ten years). Based on its experience in conducting market operations for about half a year under yield curve control, the Bank aimed to avoid excessive changes in interest rates in the markets through enhancing transparency regarding the frequency and timing of purchases, thereby realizing the guideline for market operations more smoothly.

From the "Outline" released at the end of September 2016 after the introduction of QQE with Yield Curve Control, the Bank has provided projections for the amount outstanding of its treasury discount bill (T-Bill) holdings at the end of the following month to enhance the transparency of outright purchases of T-Bills conducted as part of market operations under the new policy framework.

3. Summary of Operations

Based on the above guideline for market operations and the monthly "Outline," the Bank conducted various operations as described below.

Outright purchases of JGBs were conducted about ten times every month in accordance with the monthly "Outline." While the purchase size per auction changed depending on market developments, the monthly amount of the purchases was about 8-10 trillion yen (on the offer date; face value basis) including the fixed-rate purchase operations.

As a result, before September 2016, both the guideline for money market operations, which stipulated that "the Bank will conduct money market operations so that the monetary base will increase at an annual pace of about 80 trillion yen," and the guidelines for asset purchases, which stipulated that "the Bank will purchase JGBs so that the amount outstanding of its holdings will increase at an annual pace of about 80 trillion yen," were realized. From September 2016, the Bank, under QQE with Yield Curve Control, facilitated the formation of a yield curve that is consistent with the guideline for market operations (in which it set the short-term policy interest

rate at minus 0.1 percent and the target level of 10-year JGB yields at around 0 percent) in the markets by flexibly adjusting the amount and other factors of JGB purchases (Charts 2-1 and 2-2).

Chart 2-1: Monetary Base and Amounts Outstanding of JGBs Held by the Bank

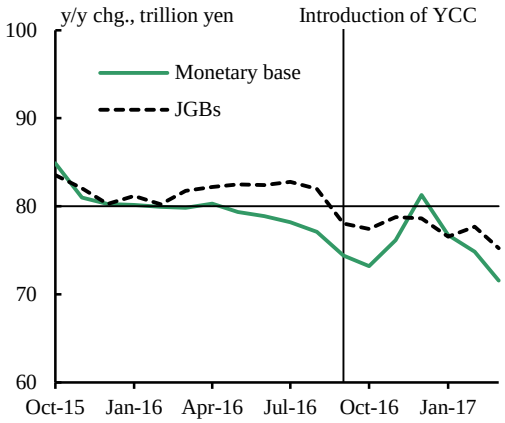
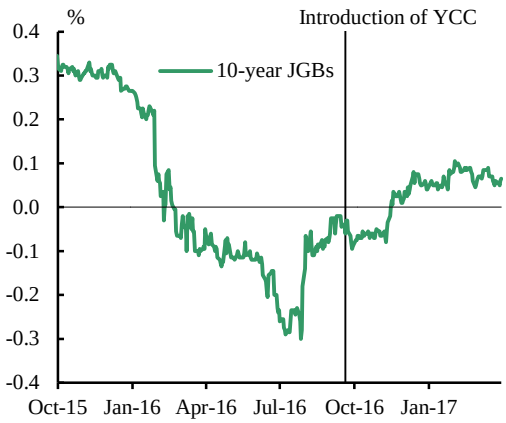


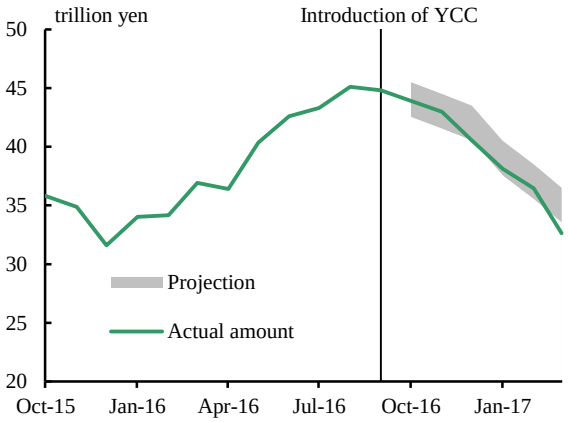
Chart 2-2: 10-Year JGB Yields



Note: Amounts outstanding of JGBs are based on dates of exercise and book value.

The Bank offered outright purchases of T-Bills once a week in principle and purchased roughly about 1-3 trillion yen of T-Bills per operation. The Bank conducted operations from October 2016, taking into account the projections for the amount outstanding of its T-Bill holdings as at the end of the month indicated in the "Outline" released at the end of the previous month. However, for March 2017, the amount outstanding of the Bank's T-bill holdings in the end fell somewhat below the lower limit indicated in advance, partly because the Bank suspended offers for outright purchases of T-Bills as part of "Measures to Cope with Tighter Supply and Demand Conditions of Japanese Government Securities in the Repo Market at the End of March" (explained hereafter) from March 23 when the content of the measures was released (Chart 2-3).

Chart 2-3: Amounts Outstanding of T-Bills Held by the Bank



Outright purchases of CP and corporate bonds, albeit with some monthly fluctuations, were carried out to achieve the targets of maintaining the amounts outstanding of the Bank's holdings at about 2.2 trillion yen and about 3.2 trillion yen, respectively. Outright purchases of ETFs and J-REITs were also carried out based on the guidelines described above.

Offers were made once every three months for each of the Growth-Supporting Funding Facility and Stimulating Bank Lending Facility. The Funds-Supplying Operation to Support Financial Institutions in Disaster Areas and the Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake were conducted once a month. Of these, the Stimulating Bank Lending Facility has been utilized particularly actively since the second half of 2016, partly because a measure was implemented where the increase in the amount outstanding of financial institutions' borrowing through this facility from March 2016 would be added to their macro add-on balances (twice as much as the amount of increase would be included in their macro add-on balances), and a framework in which the Bank would accept financial institutions' housing loans portfolio as collateral through a trust scheme became effective on June 30, 2016.

The Bank offered the Fixed-Rate Funds-Supplying Operations against Pooled Collateral with a two-week term once a week, and those with about a 100-day term once every seven weeks in an integrated manner since the middle of 2016, partly in view of the needs of market participants (as a result, a total of four series of operations, that is, two of those with a 2-week term and two of

those with a 100-day term, were rolled over). Nonetheless, the demand for these operations remained sluggish, mainly because perceptions of abundant liquidity remained extremely strong in the money markets.

Based on the U.S. dollar liquidity swap arrangements with the Federal Reserve System (Fed), in principle, the Bank offered 1-week U.S. Dollar Funds-Supplying Operations once a week. Although many bidders used these operations to confirm and maintain their operational arrangements, the bidding amounts increased for offers across quarter-ends against the background of a rise in U.S. dollar funding costs in the markets. Securities lending to provide JGSs as collateral for the U.S. Dollar Funds-Supplying Operations, which was decided to be introduced in July 2016, became available in September, but use of the facility during fiscal 2016 were all for training purposes.

Meanwhile, since the introduction of a negative interest rate, the supply-demand balance of JGSs has continued to be tight in the JGS repo and other markets. As a result, requests for offers of the Securities Lending Facility were submitted on all business days except one, that is, June 6, in fiscal 2016. The amount of successful bids also increased further. Because a further tightening of the supply-demand balance of JGSs was expected in the repo market at the end of fiscal 2016, the Bank implemented the following temporary measures in order to ease the balance: (1) offers for sales of JGSs with repurchase agreements intended to provide the markets with JGSs; (2) relaxation of the upper limit on the number of issues of JGSs to be requested through the Securities Lending Facility; and (3) suspension of offers for outright purchases of T-Bills during March (see "Measures to Cope with Tighter Supply and Demand Conditions of Japanese Government Securities in the Repo Market at the End of March" [released on March 23, 2017] for details).

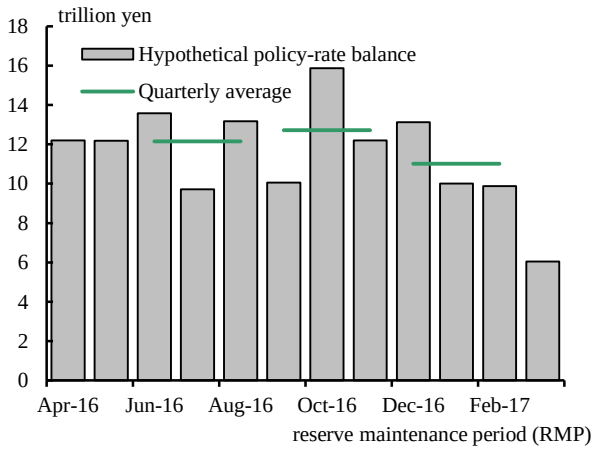
4. Benchmark Ratio Used to Calculate the Macro Add-on Balance

Under the current monetary policy framework, the Bank, in addition to conducting the various operations mentioned above, is required to make adjustments to the amount of the policy-rate balance, to which a negative interest rate of minus 0.1 percent is applied, so that it remains at an adequate level.

Therefore, the Bank, in principle, has reviewed once every three months, the "Benchmark Ratio Used to Calculate the Macro Add-on Balance." This "Benchmark Ratio" is the parameter established to adjust the macro add-on balance (and through it, the policy-rate balance), to which a zero interest rate is applied, depending on changes in the current account balance at the Bank as a whole (see Chapter IV.A.1 for details).

During fiscal 2016, the Bank gradually raised the Benchmark Ratio to 2.5 percent in April 2016, 7.5 percent in June, 10.0 percent in September, 13.0 percent in December, and 17.0 percent in March 2017, taking into account the pace of increase in the total amount of the current account balances at the Bank. As a result, the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" has been stable at about 10-15 trillion yen on a quarterly average, albeit with some monthly fluctuations (Chart 2-4).

Chart 2-4: Hypothetical Policy-Rate Balance after Arbitrage Transactions Have Taken Place in Full



B. The Bank's Balance Sheet

Under the conduct of the aforementioned market operations, the Bank's balance sheet and the monetary base expanded significantly (Chart 2-5).

Specifically, the Bank's balance sheet stood at 476.5 trillion yen at the end of 2016 and at 490.1

trillion yen at the end of March 2017. These figures indicate increases of 93.4 trillion yen and 84.4 trillion yen, respectively, from a year earlier. Meanwhile, the monetary base continued to expand, reaching 437.4 trillion yen at the end of 2016 and 447.3 trillion yen at the end of March 2017. These figures indicate increases of 81.3 trillion yen and 71.6 trillion yen, respectively, from a year earlier.

On the asset side of the balance sheet, 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 2017 indicated that they had all increased from their year-earlier levels in line with the guidelines for asset purchases, with JGBs amounting to 377.1 trillion yen (an increase of 75.2 trillion yen year-on-year), ETFs amounting to 12.9 trillion yen (an increase of 5.4 trillion yen year-on-year), and J-REITs amounting to 382.2 billion yen (an increase of 88.6 billion yen year-on-year). In addition, the Loan Support Program (excluding the Special Rules for the U.S. Dollar Lending Arrangement to Enhance the Growth-Supporting Funding Facility) increased by 13.3 trillion yen from a year-earlier level to 43.4 trillion yen.

The amount outstanding of T-Bills purchased followed an increasing trend until September 2016 as the Bank increased its purchases in line with the monetary base target. The Bank gradually reduced its purchases after the introduction of QQE with Yield Curve Control, and the amount outstanding of T-Bills purchased at the end of March 2017 was 32.6 trillion yen, a decrease of 4.3 trillion yen from a year earlier. Moreover, the amount outstanding of the Funds-Supplying Operations against Pooled Collateral decreased by 2.9 trillion yen from a year-earlier level to 0.7 trillion yen at the end of March 2017. This reflects extremely strong perceptions of abundant liquidity in the money markets.

On the liability side of the balance sheet, current account balances at the Bank increased by 67.3 trillion yen from a year-earlier level to 342.8 trillion yen at the end of March 2017, reflecting the Bank's provision of funds, mainly through large-scale asset purchases.

Chart 2-5: The Bank's Balance Sheet

trillion yen

	End-Mar. 2013	End-Dec. 2013	End-Dec. 2014	End-Dec. 2015	End-Dec. 2016	End-Mar. 2017	Year-on-year
JGBs	91.3	141.6	201.8	282.0	360.7	377.1	＋ 75.2
CP	1.2	2.2	2.2	2.2	2.3	2.0	＋ 0.1
Corporate bonds	2.9	3.2	3.2	3.2	3.2	3.2	＋ 0.0
ETFs	1.5	2.5	3.8	6.9	11.1	12.9	＋ 5.4
J-REITs	0.12	0.14	0.18	0.27	0.36	0.38	＋ 0.09
Loan Support Program	3.4	8.4	23.4	29.8	38.8	43.4	＋ 13.3
Outright purchases of T-Bills	16.4	24.2	38.4	31.6	40.5	32.6	▲ 4.3
Funds Supplying Operations against Pooled collateral	21.7	18.1	8.0	6.4	0.5	0.7	▲ 2.9
Total assets (including others)	164.8	224.2	300.2	383.1	476.5	490.1	＋ 84.4
Banknotes	83.4	90.1	93.1	98.4	102.5	99.8	＋ 4.2
Current account balances	58.1	107.1	178.1	253.0	330.2	342.8	＋ 67.3
Total liabilities and net assets (including others)	164.8	224.2	300.2	383.1	476.5	490.1	＋ 84.4

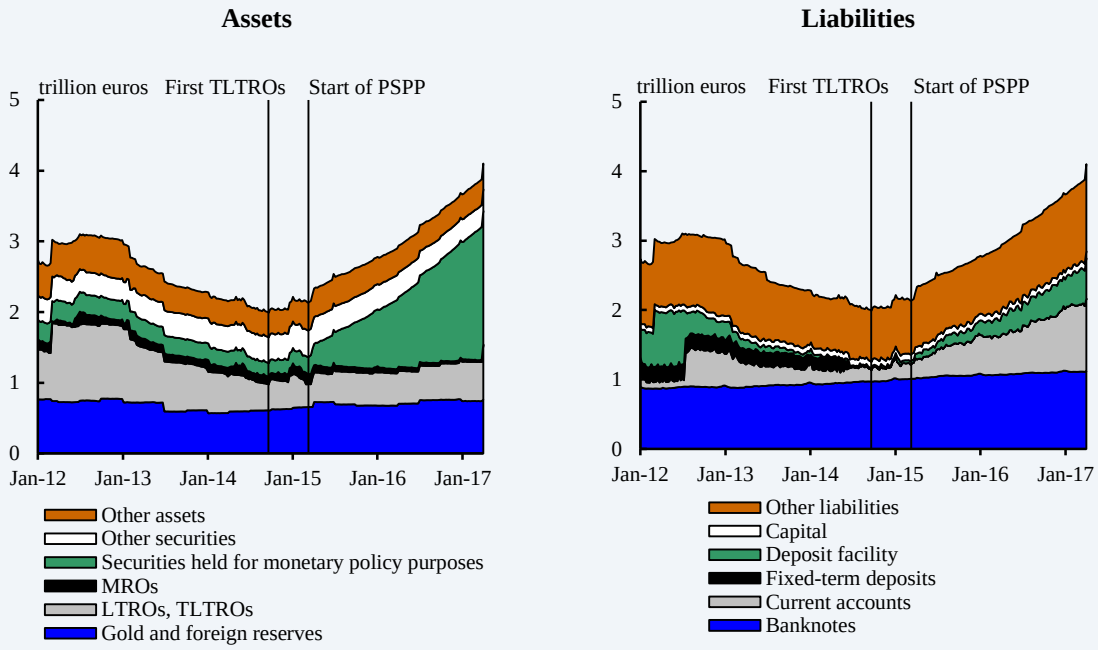
Monetary base	146.0	201.8	275.9	356.1	437.4	447.3	＋ 71.6

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

During fiscal 2016, the European Central Bank (ECB) 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 June 2016, the ECB started a corporate sector purchase programme (CSPP). In December 2016, while the ECB decided to reduce the monthly pace of its purchases under asset purchase programmes centered on PSPP from 80 billion euros to 60 billion euros from April 2017 onwards, it decided to extend the duration of its asset purchases by nine months from March 2017 to December 2017. In January 2017, the minimum remaining maturity of eligible securities for the PSPP was broadened from "two years" to "one year," and, regarding yields of assets to be purchased by the ECB, purchases of securities with yields below the interest rate on the deposit facility, which formerly was the floor, were permitted to the extent necessary.

Under this situation, the ECB's balance sheet has continued to expand since March 2015 when the PSPP commenced. On the asset side, as the ECB purchased assets at a pace of 80 billion euros a month for the PSPP, CSPP, 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 particularly increased. On the liabilities side, amount outstanding in current accounts increased due to various asset purchase programmes (Box Chart 1-1).

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



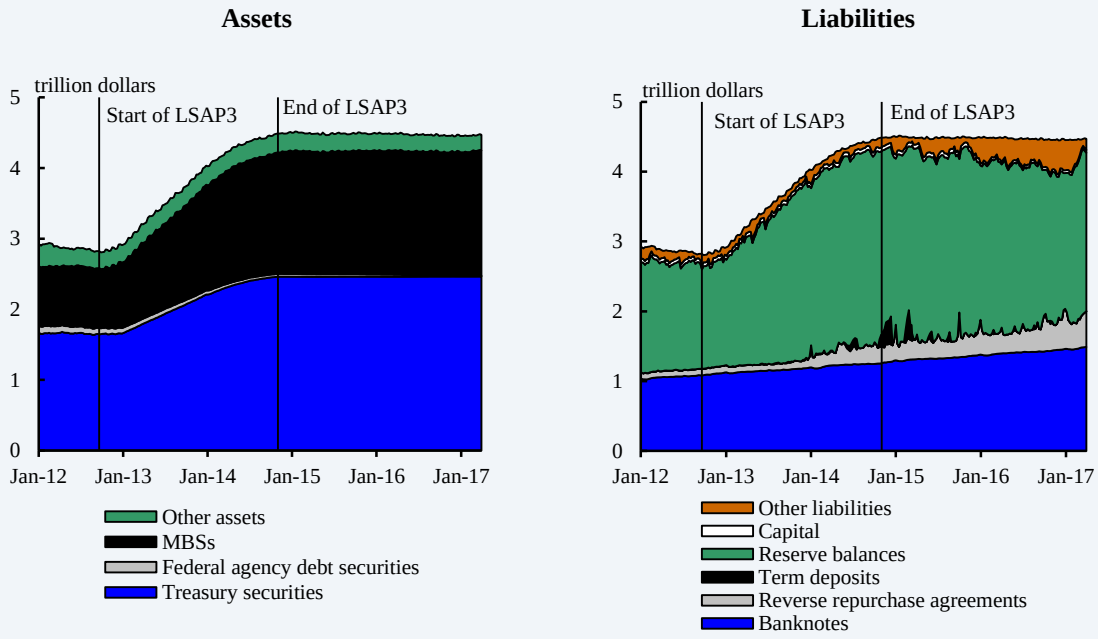
Notes: 1. The consolidated assets and liabilities of the ECB and the national central banks in the euro area. Based on weekly data.
2. MROs, LTROs, and TLTROs denote the main refinancing operations, longer-term refinancing operations, and targeted longer-term refinancing operations, respectively.

On the other hand, in December 2016, the Fed raised its target range for the federal funds (FF) rate for the first time in about a year, and raised it again in March 2017. Specifically, it raised the target FF rate by 25 basis points each time from 0.25-0.50 percent to 0.50-0.75 percent in December 2016, and to 0.75-1.00 percent in March 2017, amounting to 50 basis points in total.

With respect to asset purchases, the Fed in October 2014 terminated new purchases of agency mortgage-backed securities (MBSs; commenced purchases in September 2012 at 40 billion U.S. dollars per month) and government bonds (commenced purchases in January 2013 at 45 billion U.S. dollars per month) under the large-scale asset purchase (LSAP3) program. Currently, the Fed continues to reinvest funds redeemed from purchased assets.

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 reverse repurchase agreements and other facilities, which were introduced as funds-absorbing operations (Box Chart 1-2).

Box Chart 1-2: Assets and Liabilities of the Fed

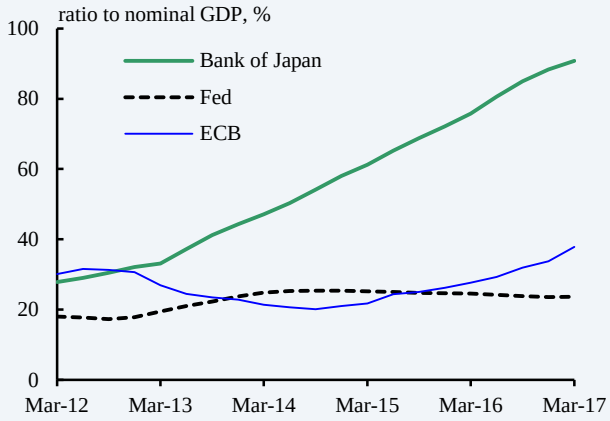


Note: Based on weekly data (as of Wednesday).

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 91 percent as of March 31, 2017. This ratio remained extremely large compared to those for the Fed and ECB -- which were around 24 percent and around 38 percent, respectively -- and the pace of expansion was also faster than those of the other two central banks (Box Chart 1-3).

The ECB announced that it would continue to purchase assets equivalent to 60 billion euros per month until at least December 2017. Assuming that asset purchases continue at this pace, the size of the ECB's assets is expected to expand to over 40 percent of nominal GDP in December.

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 the first quarter of 2017 are calculated by the nominal GDP of the last quarter of 2016.

C. Developments in Excess and Shortage of Funds

Financial institutions' current account balances at the Bank change along with 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 balances resulting from factors other than market operations are called "excess and shortage of funds." Such excesses and shortages are caused by "changes in banknotes," resulting from exchanges of banknotes for 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.

Developments in excess and shortage of funds in fiscal 2016 indicated that the shortage of funds amounted to 134.8 trillion yen, mainly due to treasury funds and other factors, increasing from 113.3 trillion yen in fiscal 2015.

1. Changes in Banknotes

During fiscal 2016, the outstanding balance of banknotes remained on an uptrend, reaching 100 trillion yen for the first time on December 20, 2016, 102.5 trillion yen (an increase of 4.1 percent year-on-year) at the end of 2016 and 99.8 trillion yen (an increase of 4.4 percent year-on-year) at the end of March 2017 (Chart 2-6). Reflecting this increase in banknote issuance, changes in banknotes in terms of the supply and demand of funds continued to be a source of decrease in the current account balances at the Bank, or shortage of funds, although the amount of net issuance in fiscal 2016 decreased to 4.2 trillion yen from 5.9 trillion yen in fiscal 2015.

The cumulative changes in banknotes from the start of fiscal 2016 indicated that seasonal fluctuations in the amounts of issuance and redemption remained more or less unchanged from fiscal 2015. At the end of 2016, net issuance expanded to 6.9 trillion yen to meet the year-end demand for banknotes. After the turn of the year, net issuance declined to 4.2 trillion yen at the end of March 2017 as banknotes used in the markets at the year-end and the New Year holidays were withdrawn from circulation (Chart 2-7).

Chart 2-6: Outstanding Balance of Banknotes Issued

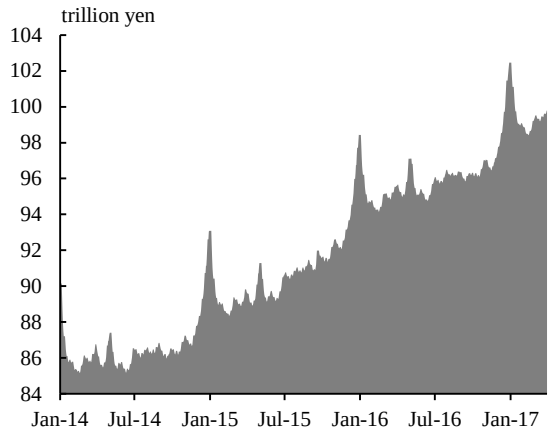
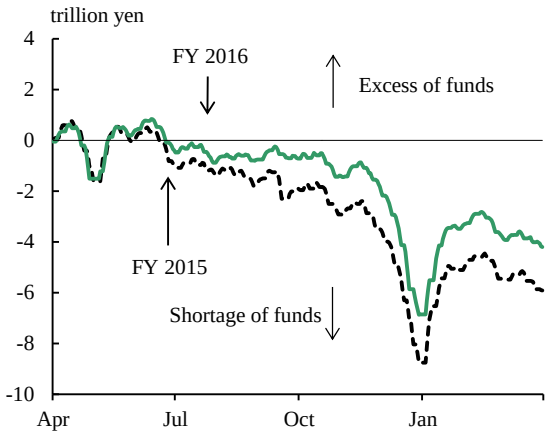


Chart 2-7: Cumulative Changes in Banknotes in Terms of Excess and Shortage of Funds



2. Changes in Treasury Funds and Others

In fiscal 2016, net receipts from JGB and T-Bill issuances (sources of decrease in the current account balances at the Bank or shortage of funds) exceeded net payments of fiscal payments and revenues (sources of increase in the current account balances at the Bank or excess of funds).[2] Changes in treasury funds and others registered net receipts of 130.6 trillion yen in fiscal 2016, an increase from net receipts of 107.4 trillion yen in fiscal 2015 (Chart 2-8).

The increase in net receipts during fiscal 2016 occurred mainly because redemptions of JGBs and T-Bills purchased by the Bank rose compared with those in fiscal 2015; in contrast, redemptions to private financial institutions (payments to current accounts at the Bank) declined. After adjusting for the impact of market operations conducted by the Bank,[3] net receipts of treasury funds and others in fiscal 2016 amounted to 13.7 trillion yen vis-à-vis net receipts of 2.8 trillion yen in fiscal 2015 (also after removing the impact of the Bank's market operations), having moved in the direction of a lack of funds by 10.9 trillion yen (Chart 2-9). Meanwhile, government deposits and others increased, suggesting that the issuance amount of JGBs had temporarily exceeded fiscal expenditures (Chart 2-10). Although the impact of these developments was partly mitigated in fiscal 2015 due to the cut in the issuance of T-Bills, it can be deemed that such effects dissipated in fiscal 2016. In addition, the deposits of overseas central banks and others were on an increasing trend due to the difficulty in investing in domestic securities after the introduction of a

[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 the current accounts of financial institutions involved had the securities been held by these institutions are not paid to them and thus treasury payments to the 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).

[3] Regarding JGBs and T-Bills redeemed from the government to the Bank, an adjustment was made as if the Bank sold them to financial institutions just before redemptions and financial institutions received the redemptions from the government. For example, movements in JGBs in fiscal 2016 before the adjustment show net receipts of treasury funds and others from JGBs (more than one year) of about 70 trillion yen, and an increase in purchases of JGBs as market operations of about 120 trillion yen; if the redemptions were to be made after JGBs worth 40 trillion yen were resold by the Bank to financial institutions, net receipts of treasury funds and others from JGBs (more than one year) would be about 30 trillion yen, and the increase in purchases of JGBs as market operations about 80 trillion yen (Chart 2-12).

negative interest rate. This also worked in the direction of increasing net receipts of treasury funds and others (Chart 2-11).

Chart 2-8: Cumulative Changes in Treasury Funds and Others in Terms of Excess and Shortage of Funds

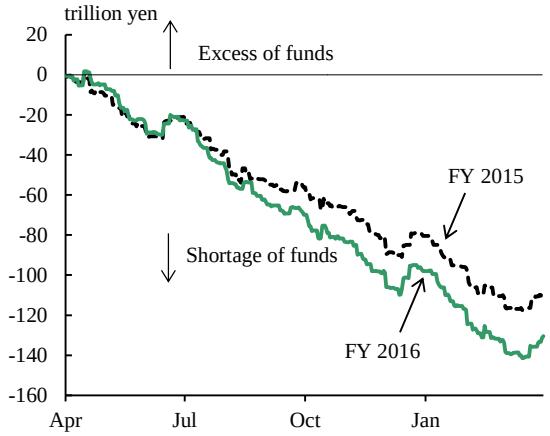


Chart 2-9: Cumulative Changes in Treasury Funds and Others in Terms of Excess and Shortage of Funds (Removing the Impact of the Bank's Market Operations)

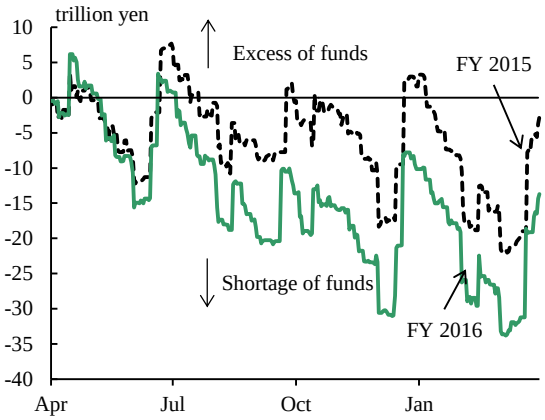
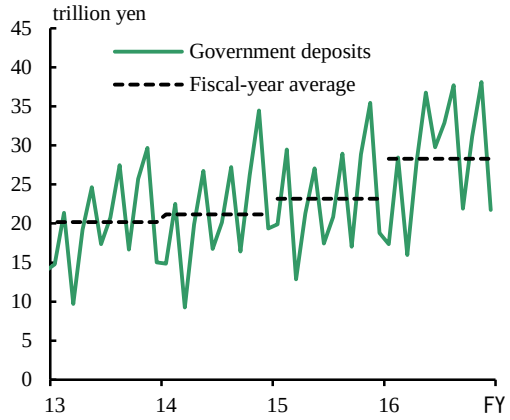
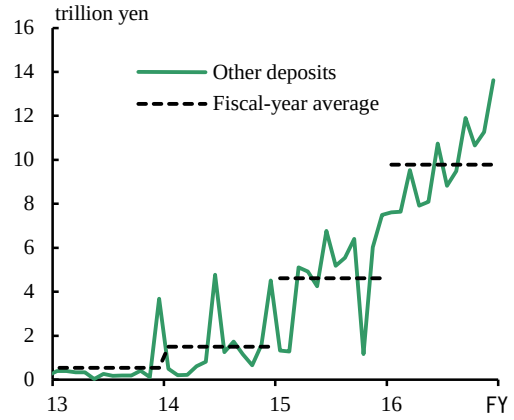


Chart 2-10: Government Deposits



Note: "Government deposits" include sales of JGBs to the Government Debt Consolidation Fund or the Fiscal Loan Fund under repurchase agreements.

Chart 2-11: Other Deposits



Note: "Other deposits" are deposits held by overseas central banks and others.

Chart 2-12: Sources of Changes in Current Account Balances at the Bank

trillion yen

	FY 2016 Before adjustment	Adjustment for redemptions to the Bank	FY 2016 After adjustment	FY 2015 After adjustment	Year-on-year 2016-2015	Corresponding accounts on the Bank's B/S
Banknotes	-4.2		-4.2	-5.9	1.7	Banknotes
Treasury funds and others						
Net fiscal payments	21.5		21.5	17.7	3.8	Deposits of the government
JGBs (over one year)	-72.1	39.3	-32.9	-34.2	1.3	
T-Bills	-75.6	77.6	2.0	15.3	-13.4	
Foreign exchange	0.4		0.4	-0.2	0.6	
Others	-4.7		-4.7	-1.4	-3.4	Other deposits
BOJ loans and market operations						
Outright purchases of JGBs	115.8	-39.3	76.5	82.8	-6.2	Assets
Outright purchases of T-Bills	73.4	-77.6	-4.2	-3.1	-1.1	
Loan Support Program	13.3		13.3	3.0	10.3	
Other loans and market operations	-0.4		-0.4	-0.1	-0.3	
Net change in current account balances	67.3		67.3	73.9	-6.6	Current deposits

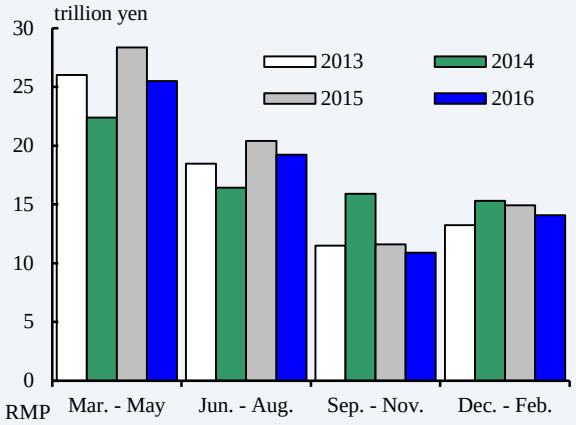
Notes: 1. Negative figures represent a net increase in banknotes in circulation, net receipt of treasury funds and others, or absorption of funds through market operations.
2. Figures after adjustment for changes in outright purchases of JGBs and T-Bills do not take into account amotization, accumulation, and other factors; therefore, they diverge from the year-on-year figures on the balance sheet.

Box 2: Seasonal Increases in Current Account Balances at the Bank

Following the expansion of QQE in October 2014, the Bank conducted money market operations until September 2016 so that the monetary base would increase at an annual pace of about 80 trillion yen. Consequently, the current account balances at the Bank continued to grow at an annual pace of nearly 80 trillion yen as well.[4]

The pace of increase in the current account balances at the Bank would be about 20 trillion yen on a quarterly basis (every three reserve maintenance periods[5]), should they increase at a roughly constant pace through the year. However, in reality, the quarterly pace of increase varies, reflecting seasonal changes in treasury funds and others (Box Chart 2-1).

Box Chart 2-1: Increase in Current Account Balances Every Three Reserve Maintenance Periods



[4] The monetary base comprises current account deposits and banknotes. For this reason, if banknotes in circulation increase on a year-on-year basis, the current account balances at the Bank would increase at an annual pace that is slower than that for the monetary base by that amount of increase.

[5] The reserve maintenance period refers to a period of one month from the 16th of each month to the 15th of the following month. Under the reserve requirement system, relevant financial institutions are required to deposit in their current accounts at the Bank funds equal to or exceeding an amount (required reserve) calculated by multiplying their liabilities subject to the system, including deposits, by a certain ratio (reserve requirement ratio). Since the introduction of a negative interest rate, a different interest rate has been applied to the average outstanding balance of current accounts at the Bank during the same period, according to three tiers, which will be described hereafter.

For example, a large amount of payments of treasury funds and others, including payments at the fiscal year-end for public construction and social security, is usually expected in the reserve maintenance periods from March to May,[6] and this tends to boost the increase in the current account balances at the Bank. A larger increase is seen in the reserve maintenance periods from June to August, as pensions are paid twice, and the allotments of local allocation taxes are scheduled during the same period (Box Chart 2-2).

The Bank continues with its efforts to estimate the future excess and shortage of funds as accurately as possible in related departments, taking these seasonal changes in treasury funds and others into account. Information gained during this process is greatly utilized not only in conducting daily operations, but also to appropriately set the "Benchmark Ratio Used to Calculate the Macro Add-on Balance" every three months.

Box Chart 2-2: Main Receipts and Payments of Treasury Funds

RMP	Main receipts (of treasury funds)	Main payments (of treasury funds)		
	Corporate tax revenues	Payments for public construction	Allotments of local allocation taxes	Pension payments
Mar.-May		Concentrates around Mar. and Apr.	Beginning of Apr.	Mid-Apr.
Jun.-Aug.	Beginning of Jun. (large)		Beginning of Jun.	Mid-Jun. and Mid-Aug.
Sep.-Nov.			Beginning of Sep. and Nov.	Mid-Oct.
Dec.-Feb.	Beginning of Dec. (large)			Mid-Dec. and Mid-Feb.

[6] Payments at the end of the fiscal year are also made in April and May, which are known as the accounting adjustment period.

III. Developments in the Domestic Money Markets and Bond Markets

A. Uncollateralized Call Market

The uncollateralized overnight call rate remained more or less in the range of minus 0.06 to minus 0.02 percent since the introduction of a negative interest rate (Chart 3-1).

Looking at this in more detail, the uncollateralized call rate stayed in slightly negative territory from the beginning of fiscal 2016, but plunged nearly to minus 0.08 percent after investment trusts started lending cash at negative rates on April 18, 2016.[7] The rate stayed more or less in the range of minus 0.05 to minus 0.04 percent thereafter, with small fluctuations in each reserve maintenance period.

The amount outstanding of the uncollateralized call market showed a significant decline immediately after the introduction of a negative rate into April 2016 because IT systems at many financial institutions were not prepared to trade at negative rates, and investment trusts temporarily refrained from lending cash in the market. However, the amount outstanding of the market steadily recovered, with arbitrage trading that took advantage of the three-tier system of financial institutions' current accounts at the Bank (see Chapter IV.A.1. for details) becoming active, reaching 7.7 trillion yen in March 2017, nearing the level in January 2016 (8.3 trillion yen) before a negative interest rate was introduced (Chart 3-2). In particular, the amount outstanding of overnight instruments exceeded 6 trillion yen on some days, a level not seen since the first half of 2008 before the collapse of Lehman Brothers.

[7] As investment trusts refrained from lending cash in the call market initially after the introduction of a negative rate, idle money piled up in the current accounts held by trust banks at the Bank through "lending to banking accounts." Trust banks thus decided to charge investment trusts a fee of minus 0.1 percent for the idle money (money trusts) from the April 2016 reserve maintenance period. As a result, investment trusts began to lend cash in the call market at negative interest rates above minus 0.1 percent to avoid bearing these costs.

Chart 3-1: Uncollateralized Overnight Call Rate

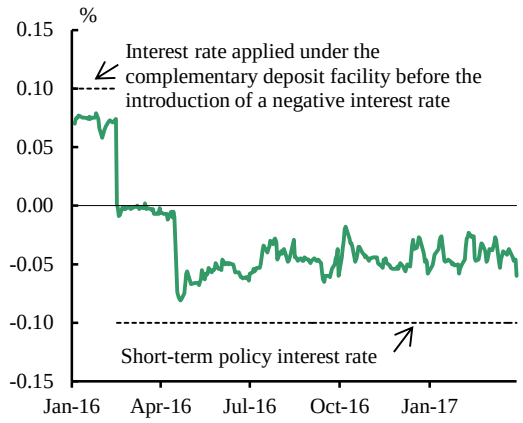
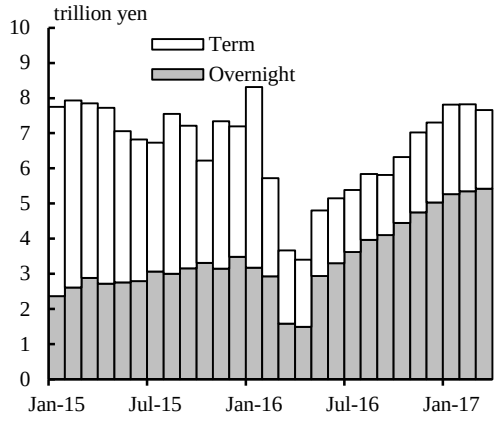


Chart 3-2: Amounts Outstanding in the Uncollateralized Call Market



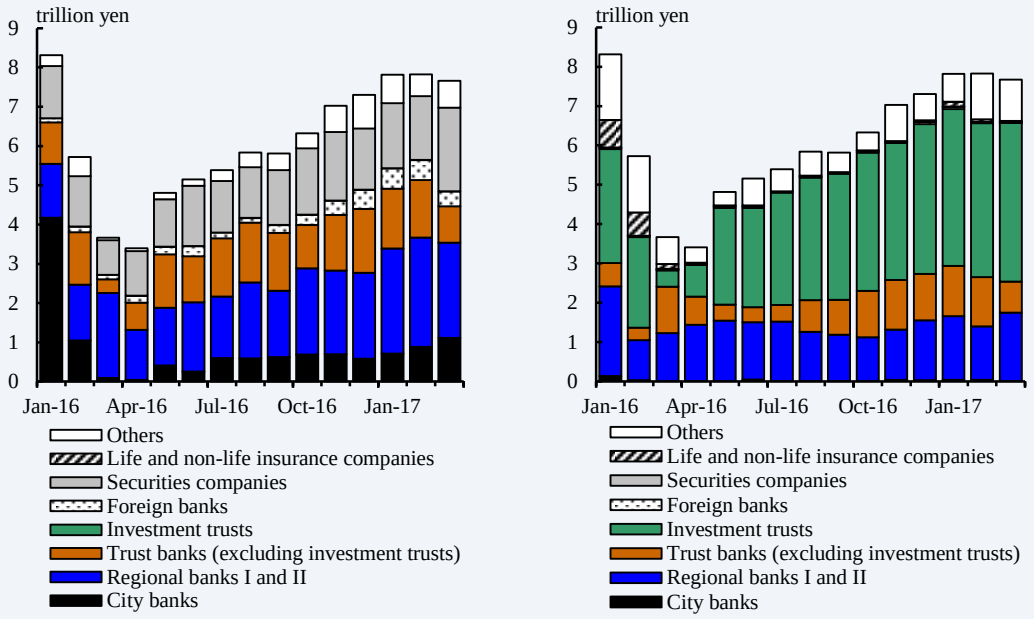
Note: Monthly averages.

Box 3: IT System to Trade at Negative Interest Rates

Looking at the amount outstanding of uncollateralized call transactions by sector, the amount outstanding of borrowing of regional banks I and II on the cash borrowing side has been growing steadily since the introduction of a negative interest rate (Box Chart 3-1). The fact that each financial institution has adjusted its IT system to enable trading at negative interest rates, in a situation where there is an incentive to conduct arbitrage trading that takes advantage of the three-tier system of its current account at the Bank has been a considerable contributing factor to this.

Box Chart 3-1: Amounts Outstanding in the Uncollateralized Call Market by Sector

Cash Borrowing Side **Cash Lending Side**



Note: Monthly averages.

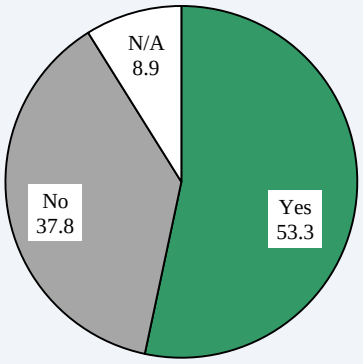
In this regard, according to a survey (survey on the internal system environment of companies for trading at negative interest rates) conducted by the Study Group for Activation of Short-Term Money Markets in April, July, and October 2016 and January 2017, while a majority of respondents had some constraints in their systems immediately after the introduction of a negative interest rate, about half of those respondents had taken the necessary measures by July 2016, and about three quarters had done so by January 2017 (Box Chart 3-2). The results show that the constraints in the

IT area were resolved steadily to enable trade at negative interest rates in the call market. If financial institutions that completed system adjustments started actively trading at negative interest rates, the amount outstanding of transactions in the call market could grow further, and arbitrage trading under the three-tier system could be carried out more smoothly.

Box Chart 3-2: Survey on the Internal System Environment of Companies for Trading at Negative Interest Rates

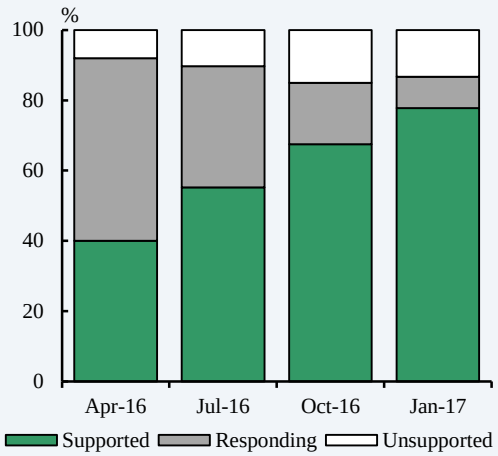
(Question 1)

Whether there were system constraints on trading in the uncollateralized call market immediately after the introduction of a negative interest rate.



(Question 2)

For those that answered "Yes" in Question 1, status of the system environment for trading at negative interest rates.

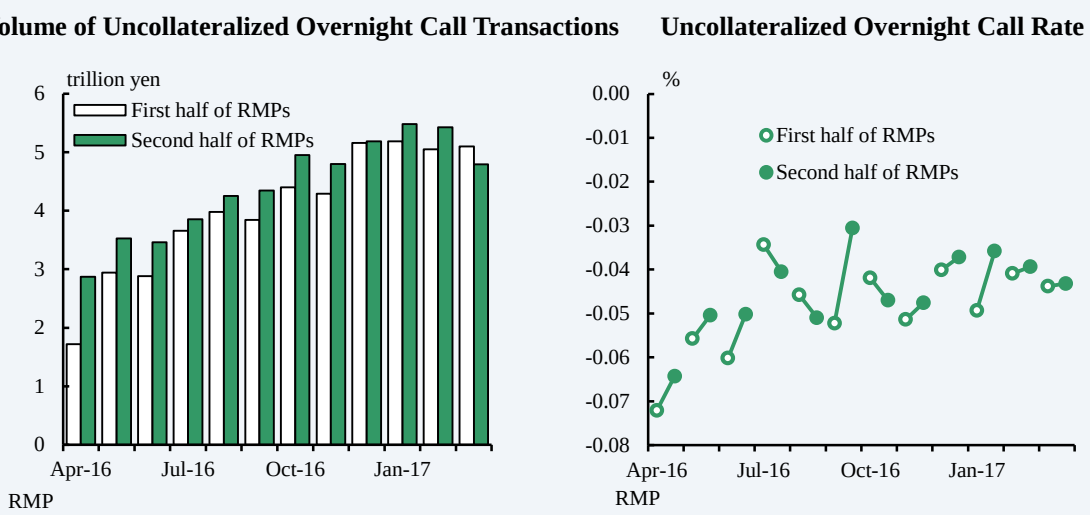


Note: The survey was conducted by the Study Group for Activation of Short-Term Money Markets. The number of respondents is different for each survey point.

Box 4: Call Rate and Supply and Demand of Funds

A pattern has started to evolve in the uncollateralized call market since the introduction of a negative interest rate, where the volume of transactions increase more in the second half of each reserve maintenance period than in the first half, and the call rate also rise (Box Chart 4-1). This is attributable to the behaviors of many financial institutions that have "unused allowances" in their macro add-on balances; that is, such financial institutions maintain a cautious stance toward borrowing in the first half of the reserve maintenance period to avoid generating policy-rate balances, while they become more active in the second half of the period once they foresee to a certain extent the amount of the average outstanding balances of their current accounts at the Bank.

Box Chart 4-1: Volume of Uncollateralized Call Transactions and the Call Rate in the First and Second Half of Reserve Maintenance Periods



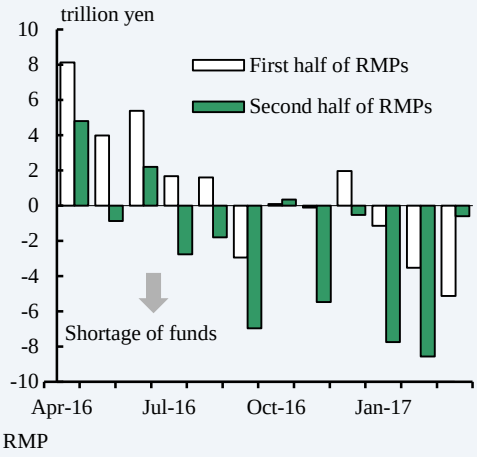
The excess and shortage of funds is another factor that contributes to the increase in borrowing in the second half of the reserve maintenance period. Specifically, shortage of funds due to changes in treasury funds and others (excluding issuances and redemptions of JGBs) tend to grow in the second half of the reserve maintenance period, mainly because tax payments to the government through financial institutions are made at the beginning of each month (halfway into each reserve maintenance period). Therefore, even if each financial institution operates to keep the outstanding balance of its current account at the Bank at a certain level during the reserve maintenance period, the amount of funds it needs to borrow increases in the second half of the period, exerting upward pressure on the call rate (Box Chart 4-2). Moreover, recently cases have been observed where daily

excess and shortage of funds affect the behaviors of financial institutions, such as where the call rate rise from the previous day on the day tax payments are made (Box Chart 4-3).

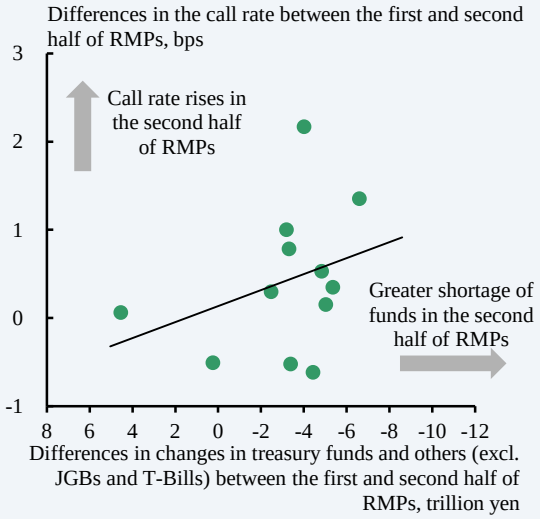
If each financial institution could actively use the information on the supply and demand of funds the Bank provides (daily and monthly projections, along with other information) to grasp the situation in greater detail, this could enable them to optimize the timing for borrowing and lending cash, and conduct arbitrage trading more effectively.

Box Chart 4-2: Relationship between Changes in Treasury Funds and Others and the Call Rate in the First and Second Half of Reserve Maintenance Periods

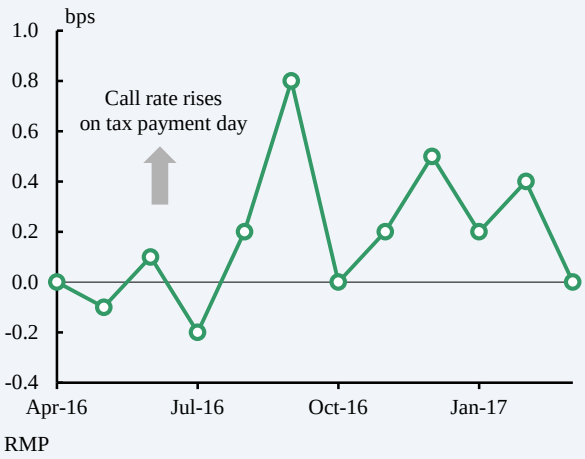
(Changes in Treasury Funds and Others <excl. JGBs and T-Bills>)



(Relationship between Changes in Treasury Funds and Others <excl. JGBs and T-Bills> and the Call Rate)



Box Chart 4-3: Changes in the Call Rate on Tax Payment Day (From the Previous Business Day)



B. Repo Market

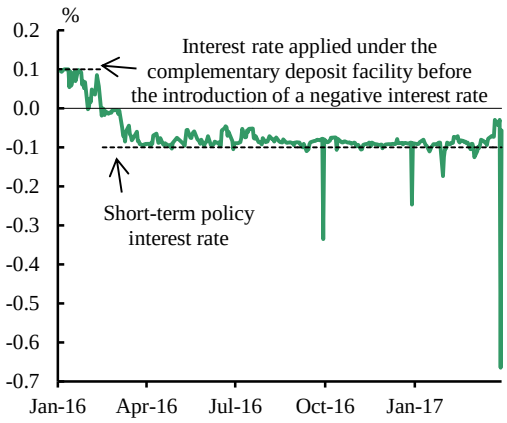
The general collateral (GC) repo rate (T/N) remained more or less in the range of minus 0.11 to minus 0.07 percent. Nonetheless, the GC repo rate temporarily declined significantly at month-ends (especially the quarter-ends) as some financial institutions became less active in borrowing cash (lending securities) from the repo market to prevent their current account balances at the Bank from increasing.

These developments were especially evident toward the end of March 2017. The GC repo rate (term instruments) declined significantly at the timing when the market factored in term instruments that matured over end-March, and the overnight rate over end-March that is calculated from interest rates on term instruments temporarily fell significantly to a level below minus 2 percent. The Bank, in light of this situation, released "Measures to Cope with Tighter Supply and Demand Conditions of Japanese Government Securities in the Repo Market at the End of March" on March 23, and conducted sales of JGSs with repurchase agreements (with the exercise date as March 27 and the repurchase date as April 3) for the first time in about eight years on March 24 (see Chapter IV.D.6. for details). With these measures, the repo rate on term instruments rapidly reduced its negative size. The GC repo rate (T/N) over end-March was minus 0.665 percent, falling below the record low of minus 0.336 percent (contract executed on September 29, 2016), but was much greater compared with the level priced into the market ex ante (Charts 3-3 and 3-4).

In the special collateral (SC) repo market, amid large-scale JGB purchases by the Bank, the supply and demand balance of certain issues tightened and a large drop in the SC repo rate was observed immediately before JGB auctions when the need to borrow securities heightened among securities companies, and at quarter-ends when some financial institutions refrained from lending their JGBs.

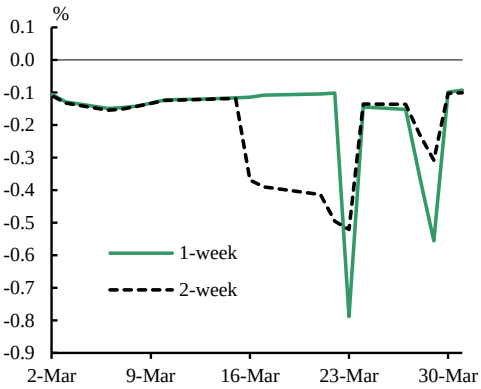
Meanwhile, the amount outstanding of transactions in the repo market has continued on an upward trend since the introduction of a negative interest rate, reflecting the fact that arbitrage trading among financial institutions are becoming active (Chart 3-5).

Chart 3-3: GC Repo Rate (T/N)



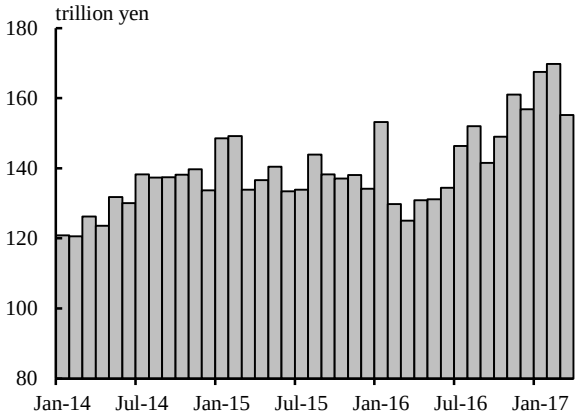
Note: Based on trade date.

Chart 3-4: GC Repo Rate (Term Instruments)



Note: Based on trade date. Term instruments that matured over end-March were factored in the repo market on March 16 for those with a 2-week term and on March 23 for those with a 1-week term.

Chart 3-5: Amounts Outstanding in the Repo Market

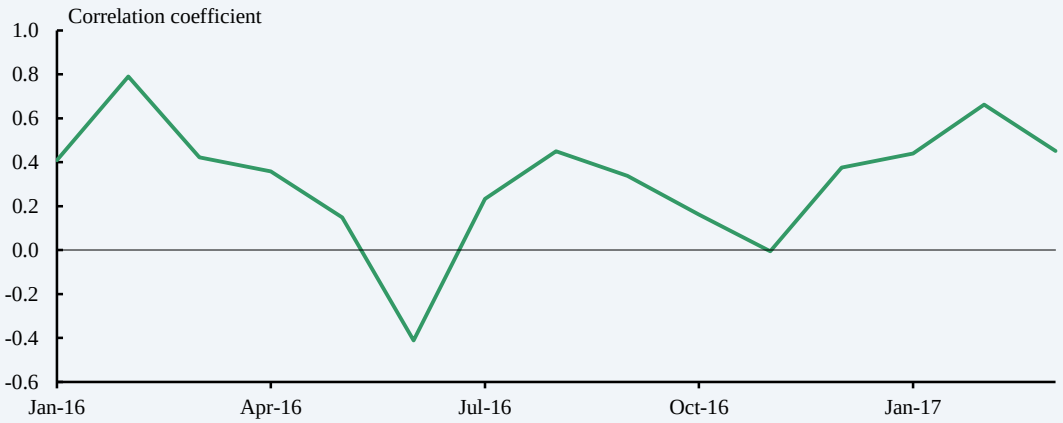


Note: Figures are the sum of securities lending with cash collateral and securities sales with repurchase agreements.

Box 5: Relationship between the Repo Rate and the Uncollateralized Call Rate

Although the repo market and the call market differ in their main market participants and whether collateral is required, they are both major money markets and there has been a correlation between the GC repo rate and the uncollateralized call rate for some time. That relationship temporarily fell apart initially after the introduction of a negative interest rate, but became stronger again from the middle of 2016 (Box Chart 5-1). This can be attributed to active arbitrage trading among financial institutions in both the repo and call markets under the three-tier system of their current accounts at the Bank.

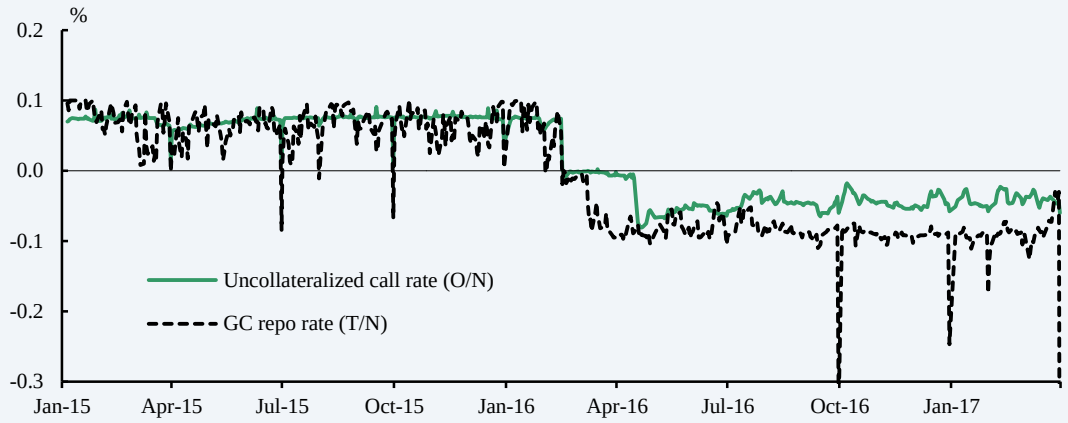
Chart 5-1: Correlation between the GC Repo Rate and the Uncollateralized Call Rate



Note: Correlation coefficients between daily GC repo rates and uncollateralized call rates during each month.

That said, looking at the levels of the rates, the repo rate and the call rate have continued to be on a diverging trend since the introduction of a negative interest rate (Box Chart 5-2). This divergence is due to collateral premiums and credit premiums. Regarding collateral premiums, with the Bank continuing with its large-scale JGB purchases, foreign investors have become more active in purchasing T-Bills and short- and medium-term JGBs via FX swap transactions, pushing up the borrowing costs of collateral securities on the whole. In this environment, some cash borrowers started to show a preference for the call market with no requirement for collateral, and the call rate tended to be sustained at a high level compared with the repo rate. As for credit premiums, the range of borrowers in the call market extended widely beyond large-scale financial institutions with relatively high ratings since the introduction of a negative rate, and this is pointed out to have led to the relative rise in the call rate.

Box Chart 5-2: GC Repo Rate and Uncollateralized Call Rate



Note: Figures for the GC repo rate are based on dates of exercise.

C. T-Bill Market

Yields on T-Bills (3-month) remained in relatively deep negative territory, more or less in the range of minus 0.4 to minus 0.2 percent, supported by continuing robust demand from foreign investors as the Bank conducted large-scale purchases. Specifically, in December 2016, the yields fell temporarily to minus 0.45 percent when the FX swap-implied yen rate from the U.S. dollar declined significantly in the FX swap market and foreign investors' needs for yen funding heightened further (Chart 3-6).

Looking at T-Bill holdings by entity, those of the Bank have started to decline recently, while those of foreign investors continued to be at high levels (Chart 3-7). T-Bill holdings by foreign investors seem to mostly comprise foreign reserve management by institutions such as other central banks and, in such cases, there seems to be a certain level of demand for T-Bills among foreign investors to disperse the currency composition of their foreign reserve portfolios regardless of yield levels. In addition, with the FX swap-implied yen rate from the U.S. dollar on a downtrend, foreign investors with ample dollars were able to secure higher profits by investing in Japanese T-Bills after exchanging their dollars for yen in the FX swap market, than by investing in, for example, U.S. T-Bills. This is also thought to have encouraged T-Bill holdings by foreign investors (Chart 3-8).

On the other hand, despite needs among Japanese 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 were at low levels as the yields remained in relatively deep negative territory.

Chart 3-6: Yields on T-Bills

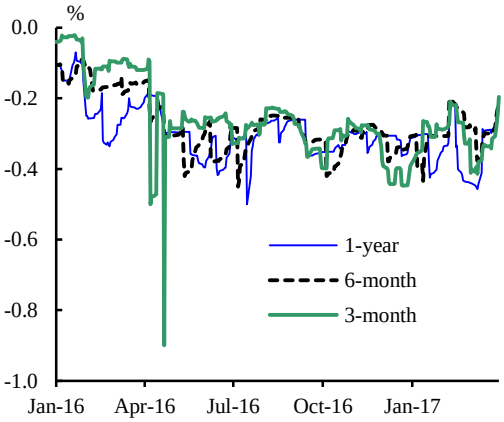
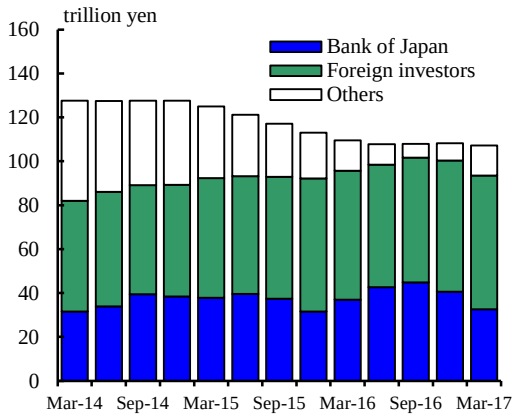
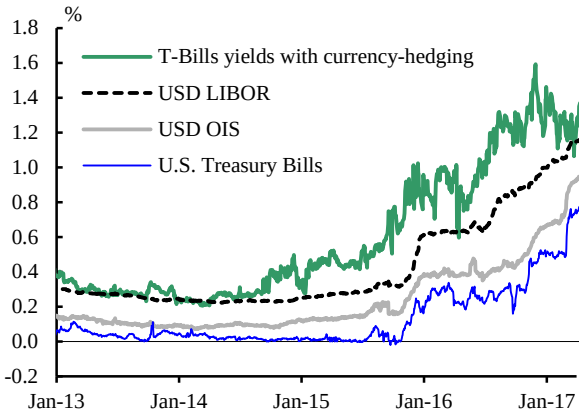


Chart 3-7: Amounts Outstanding of T-Bill Holdings by Entity



Notes: 1. T-Bills held by the central government and the Fiscal Loan Fund, and those underwritten by the Bank are excluded.
2. Up to December 2016, figures for the amounts outstanding of T-Bill holdings by foreign investors are based on the Flow of Funds Statistics. Figures for March 2017 are estimated by extending the amounts outstanding in terms of monthly net investment flows (redemptions are not considered).

Chart 3-8: Short-Term Yields Denominated in U.S. Dollars



Notes: 1. 3-month yields.
2. T-Bill yields with currency-hedging are returns on investments in T-Bills with yen raised through FX swap transactions (proving U.S. dollars).

D. JGB Market

Japanese long-term interest rate (yields on newly issued 10-year JGBs) remained in relatively deep negative territory, more or less in the range of minus 0.3 to minus 0.1 percent toward the middle of 2016, under QQE with a Negative Interest Rate. It started to rise when the Bank decided and announced at the July MPM its intention to conduct a "Comprehensive Assessment," and subsequently remained stable more or less in the range of minus 0.1 to 0.0 percent for some time following the introduction of QQE with Yield Curve Control at the September MPM, under the newly set target for the long-term interest rate of around 0 percent. However, the Japanese long-term interest rate followed a rising trend as the U.S. long-term interest rate started on an uptrend after the U.S. presidential election on November 8, entering positive territory on November 15 for the first time since February 19. Thereafter, it remained more or less in the range of 0.0-0.1 percent toward the end of fiscal 2016 (Charts 3-9 and 3-10).

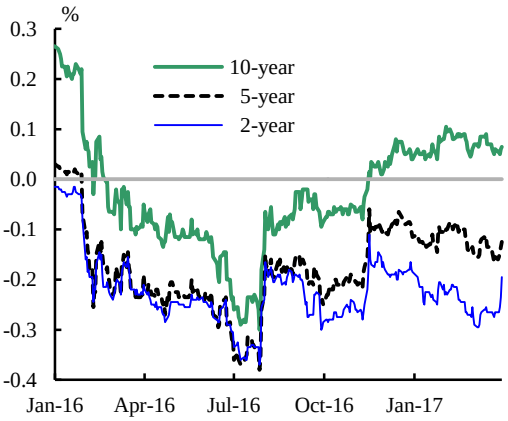
Yields on short- and medium-term JGBs such as those for 2-year and 5-year JGBs stayed in relatively deep negative territory, more or less in the range of minus 0.4 to minus 0.2 percent toward the middle of 2016, partly due to speculation about potential further cuts in the policy interest rate from minus 0.1 percent. They then started to rise when the Bank decided and announced in July its intention to conduct the "Comprehensive Assessment," partly reflecting the dissipation of such speculation of rate cuts, and temporarily rose further after the U.S. presidential election on November 8. However, the yields on short- and medium-term JGBs thereafter stayed at relatively low levels, more or less in the range of minus 0.3 to minus 0.1 percent toward the end of fiscal 2016, supported by continuing concerns over the tightening supply and demand balance for short- and medium-term JGBs, mainly due to strong demand from foreign investors.

Yields on super-long-term JGBs followed a downtrend toward the middle of 2016, partly because the search for yield by investors spread to super-long-term JGBs, while the long-term interest rate remained in negative territory. As a result, yields on 20-year JGBs temporarily fell in negative territory during the trading session on July 6. Yields on super-long-term JGBs then started to rise when the Bank decided and announced in July its intention to conduct the "Comprehensive Assessment," and after the U.S. presidential election on November 8, interest rate levels on super-long-term JGBs have also risen further in an environment where the long-term interest rate

has entered positive territory.

Meanwhile, although the implied volatility of JGB futures prices rose, partly because of speculation regarding what might be decided at the September MPM after the Bank decided and announced at the July MPM its intention to conduct the "Comprehensive Assessment," it declined significantly when QQE with Yield Curve Control was introduced at the September MPM. Thereafter, the implied volatility temporarily rose somewhat in line with rising overseas interest rates, but it remained at a relatively low level on the whole (Chart 3-11).

Chart 3-9: Yields on JGBs



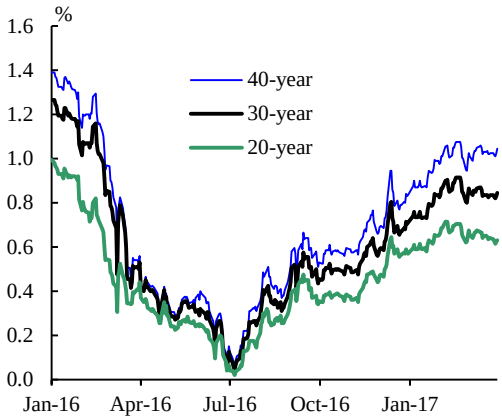


Chart 3-10: Long-Term Yields

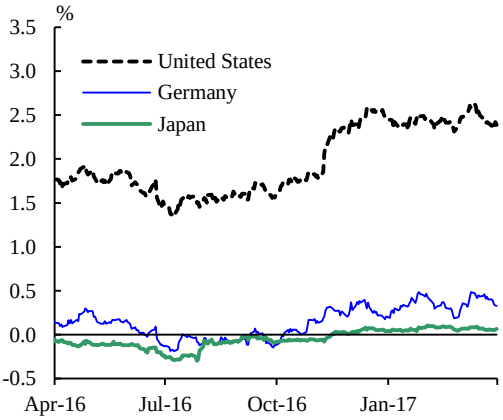
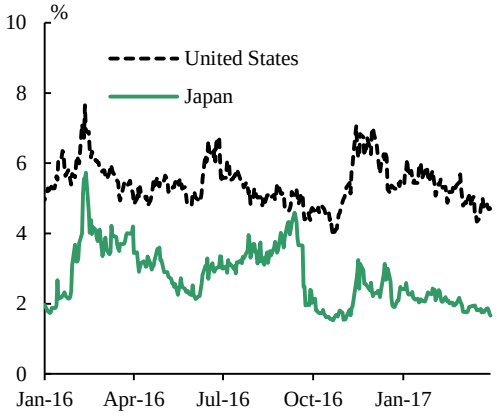


Chart 3-11: Implied Volatilities of Government Bond Futures Prices



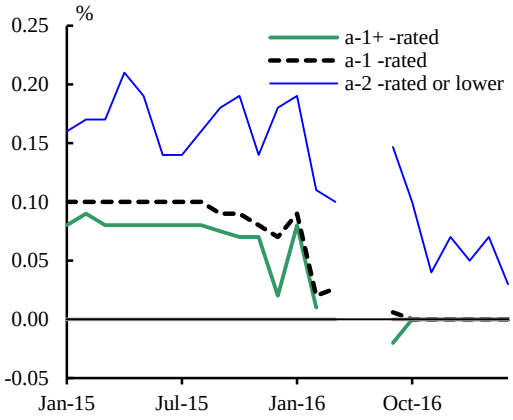
Note: S&P/JPX JGB VIX Index for Japan; CBOE/CBOT 10-year U.S. Treasury Note Volatility Index for the United States.

E. CP Market

CP issuance rates declined substantially after the introduction of a negative interest rate. CP issuance rates, especially among issues with high ratings, remained at around 0 percent, partly due to investors' activities to secure positive yields, but individually, issues eligible for purchase through the Bank's operations in particular were issued at small negative rates, as successful bid rates for the Bank's outright purchases of CP turned negative (Chart 3-12).

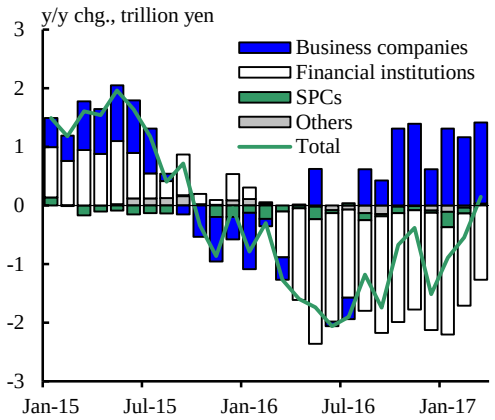
The amount outstanding of CP was generally lower than in the previous fiscal year, mainly because of the decrease in its issuance by financial institutions. However, the amount of CP issuance by business companies was higher than in fiscal 2015, supported by heightened demand for cash against the background of rising commodity prices, in an environment where it was possible to borrow cash at historically low rates. Meanwhile, the maturity of CP has lengthened (Charts 3-13 and 3-14).

Chart 3-12: CP Issuance Rates



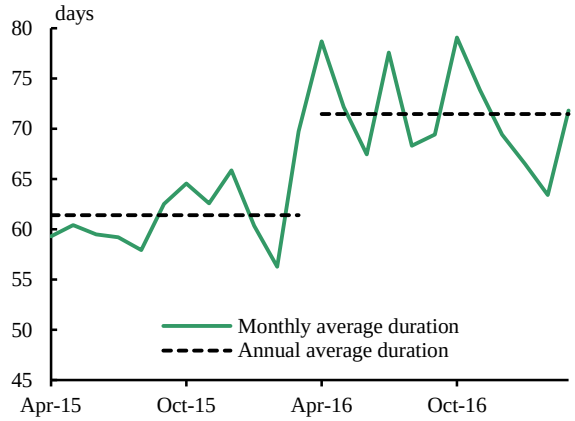
Notes: 1. 1-month rates.
2. Those of business companies on a monthly basis. March and September 2016 are the simple averages of the daily data, from March 1 to 24, and from September 12 to 30, respectively.

Chart 3-13: Amounts Outstanding of CP by Sector



Note: Figures are as of the month-end.

Chart 3-14 Estimated Average Durations of Newly Issued CP



F. Corporate Bond Market

Corporate bond yields declined substantially in line with JGB yields toward the middle of 2016 after the introduction of a negative interest rate. In particular, for corporate bonds eligible for the Bank's outright purchases of corporate bonds with residual maturities of more than one year and up to three years, yields on those with high ratings temporarily fell into negative territory (Chart 3-15). They then started to rise as expectations for additional cuts in the policy interest rate from minus 0.1 percent abated and overseas interest rates rose after the U.S. presidential election. Meanwhile, yield spreads between corporate bonds and JGBs were stable at low levels, as the market's view of the creditworthiness of Japanese firms continued to be firm (Chart 3-16).

The amount outstanding of corporate bonds increased significantly from the middle of 2016, as large-scale M&As taking advantage of the low interest rate environment were observed, against the background of abating expectations for policy rate cuts (Chart 3-17).

Chart 3-15: Corporate Bond Yields

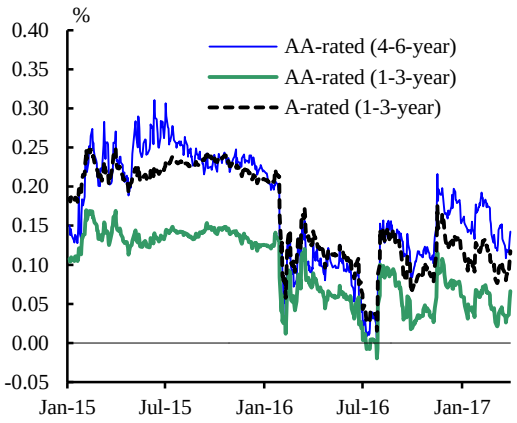


Chart 3-16: Yield Spreads between Corporate Bonds and JGBs

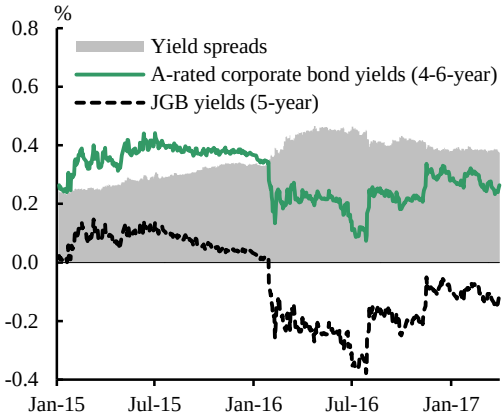
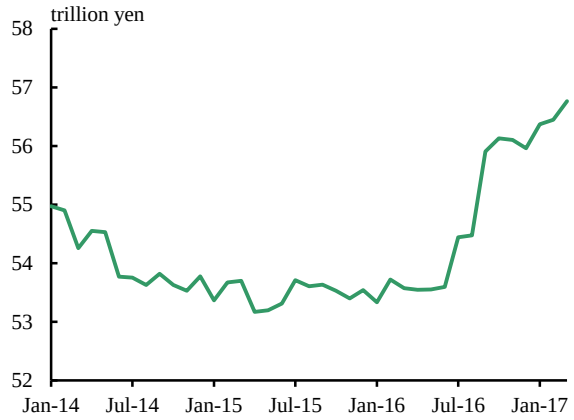


Chart 3-17: Amounts Outstanding of Corporate Bonds



Notes: 1. Figures are as of the month-end.
2. On a nominal basis. General mortgage bonds are excluded.

G. FX Swap Market

In the FX swap market, U.S. dollar funding costs (short-term FX swap-implied U.S. dollar rate from the yen) followed an upward trend in 2016, supported by the continuing robust appetite for overseas securities investment among Japanese banks and investors, against the background of widening interest rate differentials between the United States and Japan (Charts 3-18 and 3-19).

Developments in regulations for entities providing dollar funds were another factor behind rising U.S. dollar funding costs. Specifically, the amount outstanding of asset investment by U.S. prime money market funds (MMFs) started to clearly decline from around the middle of 2016 with the full implementation of MMF reforms scheduled on October 14 (Chart 3-20). It was pointed out that these developments heightened market participants' caution over the tightening of supply and demand of dollar funds, and that this contributed to higher U.S. dollar funding costs in the FX swap market. Moreover, U.S. dollar funding costs increased significantly at every quarter-end as foreign banks continued to constrain dollar provision, in consideration of financial regulations, such as the leverage ratio requirement. In particular, at the end of December when it was strongly perceived that the supply and demand of dollar funds would tighten, U.S. dollar funding costs reached their highest levels since March 2015 from when the leverage ratio requirement was gradually implemented.

However, U.S. dollar funding costs have regained stability since the beginning of 2017, partly reflecting the waning appetite for overseas securities investments among Japanese banks and investors. It was also pointed out that higher yields on T-Bills and projections of such yields in response to "Measures to Cope with Tighter Supply and Demand Conditions of Japanese Government Securities in the Repo Market at the End of March" released by the Bank encouraged a somewhat more active stance among U.S. dollar providers, and that this contributed to regained stability in dollar funding costs. Under these circumstances, the rise in U.S. dollar funding costs at the end of March 2017 was small relative to the rise at the end of December 2016, and no developments were observed that would hinder the availability of dollar funds.

Meanwhile, U.S. dollar funding costs via currency swaps (long-term FX swap-implied U.S. dollar rate from the yen) have declined since the beginning of 2017, despite having risen in line with

short-term dollar funding costs in 2016. This is considered to be attributable to recent changes in supply and demand conditions, such as the decline in additional dollar funding needs via currency swaps resulting from Japanese banks becoming more active in issuing U.S. dollar-denominated bonds including those to meet total loss-absorbing capacity requirements[8] (Charts 3-21 and 3-22).

Chart 3-18: Short-Term FX Swap-Implied U.S. Dollar Rate from the Yen

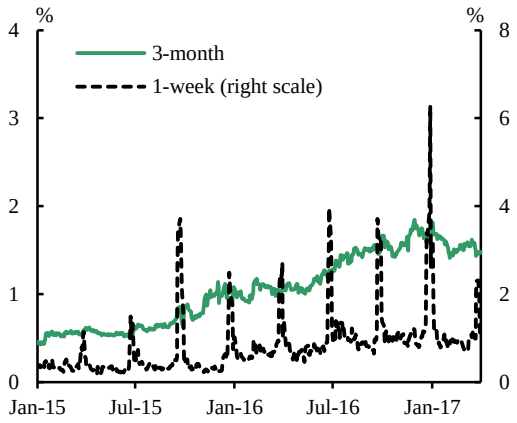
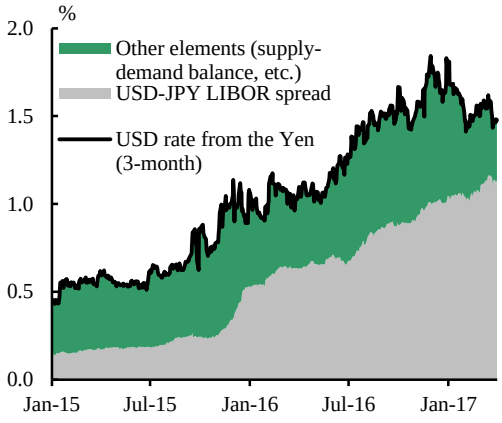


Chart 3-19: Breakdown of the Short-Term FX Swap-Implied U.S. Dollar Rate from the Yen



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 (the same applies for Chart 3-19).

[8] A new capital regulation (TLAC requirements) that is scheduled to be implemented by the Financial Stability Board (FSB) in January 2019. This is a framework in which holding companies of global systemically important banks (G-SIBs) issue corporate bonds (TLAC bonds) in a scale that is sufficient to absorb their losses should the G-SIB collapse, so as to avoid burden being imposed on taxpayers through injection of public funds.

Chart 3-20: Amounts Outstanding of Asset Investments by U.S. MMFs

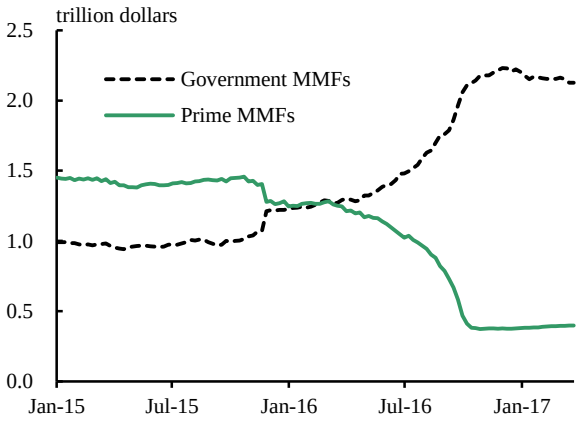


Chart 3-21: U.S. Dollar/Yen Cross-Currency Basis

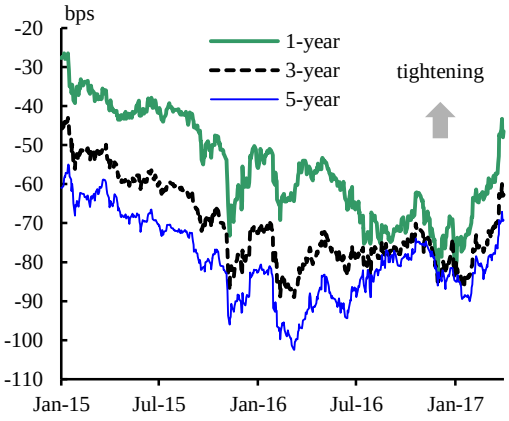
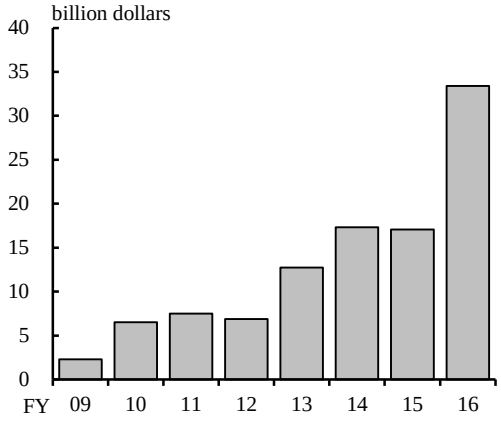


Chart 3-22: U.S. Dollar-Denominated Bonds Issued by Japanese Banks



Note: Based on the date when issuance conditions were decided.

IV. Conduct of Individual Measures in Market Operations

A. Three-Tier System of Current Accounts at the Bank and Short-Term Policy Interest Rate

1. Three-Tier System of Current Accounts and Review of the Benchmark Ratio

In January 2016, the Bank decided to introduce QQE with a Negative Interest Rate in order to achieve the price stability target of 2 percent at the earliest possible time and adopt a three-tier system in which the outstanding balance of each financial institution's current account at the Bank would be divided into three tiers, to which a positive interest rate, a zero interest rate, or a negative interest rate would be applied, respectively. Specifically, 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, to which a positive interest rate of 0.1 percent was applied, calculated as the average outstanding balance of the current account during the reserve maintenance periods from January to December 2015 after deducting the required reserve; (2) the macro add-on balance, to which a zero interest rate was applied, calculated as the sum of the required reserve, the average outstanding balance of the Loan Support Program and other measures, as well as the macro add-on amount, calculated by considering the pace of the increase in the outstanding balance of the current account on an aggregate basis, and other factors; and (3) the policy-rate balance, to which a negative interest rate of minus 0.1 percent was applied, calculated as the outstanding balance of the current account in excess of the amount outstanding of (1) and (2) combined (Chart 4-1).

Chart 4-1: Three-Tier System of the Current Accounts

Tiers	Subject to Calculation	Interest rate
(1) Basic balance	"Average outstanding balance of the current accounts during the reserve maintenance periods from January to December 2015 (Benchmark Balance)"- "Required reserve"	+0.1%
(2) Macro add-on balance	"Required reserve"	0.0%
	"Average outstanding balance of the Loan Support Program and other measures"[9]	
	"MRFs"[10]	
	"Macro add-on amount (Benchmark Balance × Benchmark Ratio[11])"	
(3) Policy-rate balance	Current account balance in excess of the amount outstanding of (1) and (2)	-0.1%

These interest rate levels have been maintained also after the introduction of QQE with Yield Curve Control in September 2016. It was decided that under the new policy framework, the

[9] "Loan Support Program and other measures" are the Stimulating Bank Lending Facility, Growth-Supporting Funding Facility, Funds-Supplying Operations to Support Financial Institutions in Disaster Areas, and Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake. At the MPM held in March and April 2016, the Bank decided that if financial institutions increase the amount outstanding of borrowing from the Bank through the Loan Support Program and other measures, the amount of increase would be added to each of their macro add-on balances (twice as much as the amount of increase would be included in their macro add-on balances).

[10] The smaller of the average amount outstanding of MRFs entrusted to an institution during the reserve maintenance periods from January to December 2015 (on a net asset basis; including the amount that was not deposited in the current accounts at the Bank as a result of investment) and that entrusted to an institution during the designated reserve maintenance period (on a net asset basis; excluding the amount that was not deposited in the current accounts as a result of investment).

[11] Ratio equally applied to all financial institutions. The Bank in principle has reviewed the Benchmark Ratio once every three months, regularly raising the macro add-on balance to which a zero interest rate is applied, according to the amount of increase in the current account balance at the Bank on an aggregate basis, so that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" stays within a certain range (explained hereafter).

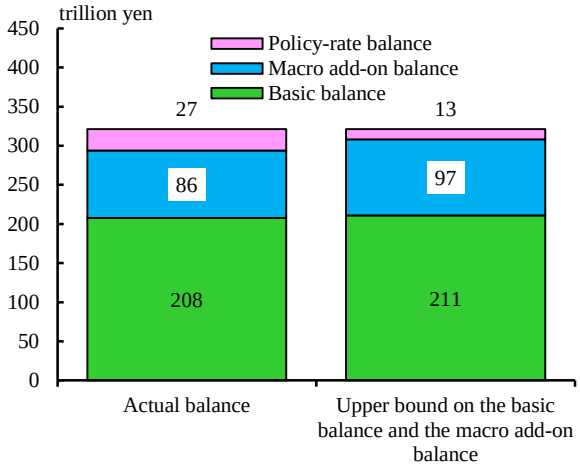
interest rate applied to the policy-rate balance would be regarded as the "short-term policy interest rate" and that its level would be determined in the guideline for market operations; the short-term policy interest rate has been set at minus 0.1 percent in every guideline since September.

For individual financial institutions, the amounts of their basic balances and macro add-on balances acts as an upper bound on their current account balances to which a positive or zero interest rate is applied. This means that some financial institutions may have "unused allowances" in their basic balances and/or macro add-on balances because the actual amount of their current account balances at the Bank falls below the upper bound on their basic balances and macro add-on balances, and others may have policy-rate balances generated because the actual amount of their current account balances exceeds the upper bound on their basic balances and macro add-on balances. This uneven distribution of funds under the three-tier system is the driving force creating demand for arbitrage trading at negative interest rates in the money market. For example, financial institutions with policy-rate balances have an incentive to lend cash even at negative interest rates as long as the rates exceed minus 0.1 percent, in order to reduce their current account balances to which a negative interest rate is applied. On the other hand, financial institutions with "unused allowances" in their macro add-on balances can accumulate additional funds in their current accounts at a zero interest rate within their "unused allowances," giving them an incentive to borrow cash from other market participants as long as they can do so at an interest rate below 0 percent. If the market functioning is perfect, financial institutions with "unused allowances" in their basic balances and/or macro add-on balances would utilize all of their "unused allowances" to borrow cash from financial institutions with policy-rate balances. The Bank refers to the policy-rate balance left even after such fund transfers as the "hypothetical policy-rate balance after arbitrage transactions have taken place in full," meaning that the excess and shortage of funds in the markets would have been completely smoothed out through arbitrage trading in this case.

Taking the current account balance (average balance) during the December 2016 reserve maintenance period as an example, the actual amount of the basic balance of all financial institutions (current account balance to which a positive interest rate is actually applied) stood at 207.8 trillion. The actual amount of the macro add-on balance for all financial institutions stood at 86.2 trillion, and that of the policy-rate balance at 27.3 trillion yen. In contrast, the upper bounds

on their basic balance and macro add-on balance were 210.8 trillion and 97.3 trillion yen, respectively, which implied there were "unused allowances" of 3.0 trillion (210.8-207.8) for the basic balance and 11.1 trillion yen (97.3-86.2) for the macro add-on balance. Assuming that the policy-rate balance was transferred to fill in all of these "unused allowances," the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" was 13.2 trillion yen {27.3-(3.0+11.1)} (Chart 4-2).

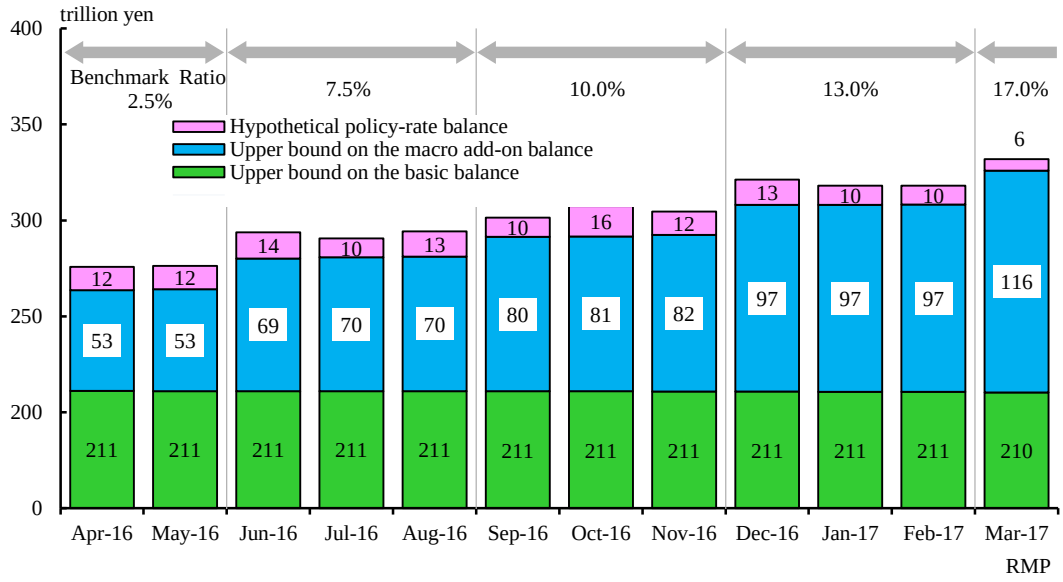
Chart 4-2: Current Account Balance during the December 2016 Reserve Maintenance Period



Note: In the "upper bound on the basic balance and the macro add-on balance," figures for the "policy-rate balance" are calculated by assuming that arbitrage transactions took place in full among financial institutions.

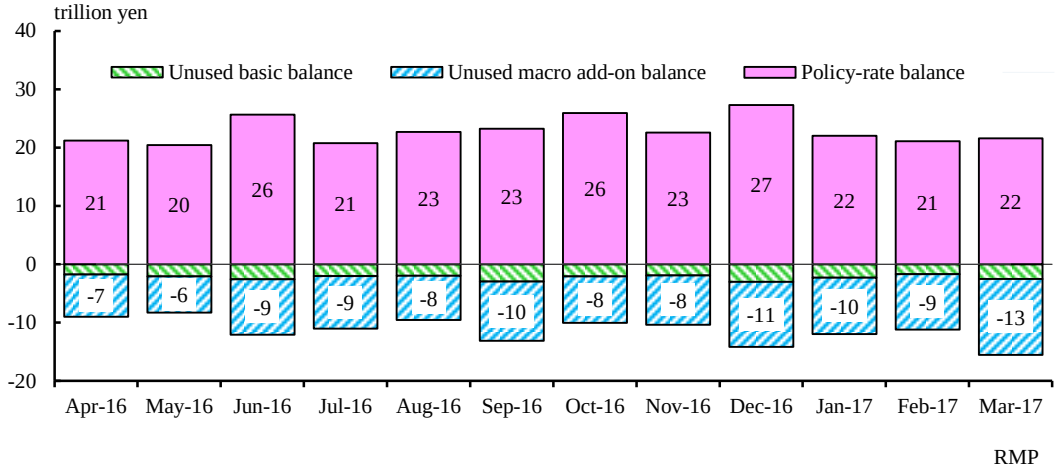
The "hypothetical policy-rate balance after arbitrage transactions have taken place in full" indicates the size of the potential excess of funds in the money market. Therefore, the bigger this balance is, the more likely it is to heighten incentives to lend cash, exerting downward pressure on money market rates. Conversely, the smaller it is, the more likely it is to heighten incentives to borrow cash, putting upward pressure on interest rates. Under this mechanism, the Bank, in principle, has reviewed the Benchmark Ratio every three months, so that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" generally stays in the range of 10-20 trillion yen on average (Chart 4-3).

Chart 4-3: Upper Bound on the Basic Balance and the Macro Add-on Balance and the Hypothetical Policy-Rate Balance



The three-tier system of the current accounts can also be captured through the "unused allowances" in the basic balances and/or macro add-on balances. This shows that, in reality, it is not necessarily the case that funds are smoothly transferred from financial institutions with policy-rate balances to those with "unused allowances" in their basic balances and/or macro add-on balances, unlike the situation described above where the market is functioning perfectly. Although one year has passed since the introduction of QQE with a Negative Interest Rate, there has not been a time -- at least not until now -- where "unused allowances" were completely utilized, instead constantly leaving a balance of about 10 trillion yen (Chart 4-4).

Chart 4-4: Unused Allowances in Tiers and the Policy-Rate Balance



2. Three-Tier System of the Current Accounts by Sector

Next, there are some characteristic developments in the three tiers of the current account balances in each sector (Chart 4-5).

Regarding city banks, "unused allowances" in their macro add-on balances temporarily increased as they actively purchased JGBs in anticipation of lower interest rates and largely reduced their borrowing in the money market immediately after the Bank's decision to introduce a negative interest rate. However, city banks have since then become active in borrowing cash for arbitrage trading, and have managed their current accounts in a way that they used up almost all the "unused allowances" in their macro add-on balances. "Unused allowances" in city banks' macro add-on balances have increased somewhat at quarter-ends as they suppressed their current account balances at quarter-ends, under a higher upper bound on their macro add-on balances, mainly reflecting upward revisions of the Benchmark Ratio and growth in the amount of usage of the Stimulating Bank Lending Facility.

Some regional banks I and II, depending on the size of their current accounts, are inclined to lend cash to avoid an accumulation of funds in their policy-rate balances, while others are inclined to borrow, reflecting allowances in their current accounts until policy-rate balances are generated. The former actively lent cash, mainly in the call market, as progress was made in adjusting their

IT systems to enable trade at negative interest rates. On the other hand, not a few of the latter have managed their current account balances in a suppressed manner, taking into account the upward pressure on borrowing rates in the call market and daily operational costs. As a result, there have continued to be considerable amounts of "unused allowances" in their macro add-on balances. Looking at developments in each reserve maintenance period in more detail, there is a tendency for "unused allowances" in the macro add-on balances of regional banks I and II to become slightly smaller in reserve maintenance periods during even-numbered months when there is an excess of funds due to effects from pension payments (usually on the 15th of even-numbered months).

Many foreign banks reduced their current accounts to levels that do not generate a policy-rate balance by limiting their yen funding in the FX swap market and by lending cash in the call market. This tendency grew stronger particularly at quarter-ends because some foreign banks further limited their yen funding in consideration of financial regulations, such as the leverage ratio requirement, resulting in the expansion of "unused allowances" in their basic balances and/or macro add-on balances. On the other hand, some are not reluctant to hold policy-rate balances considering that they can still secure profits as long as the yen funding cost in the FX swap market is lower than the cost to hold policy-rate balances (minus 0.1 percent). Consequently, a policy-rate balance, although small, has been generated in the sector as a whole.

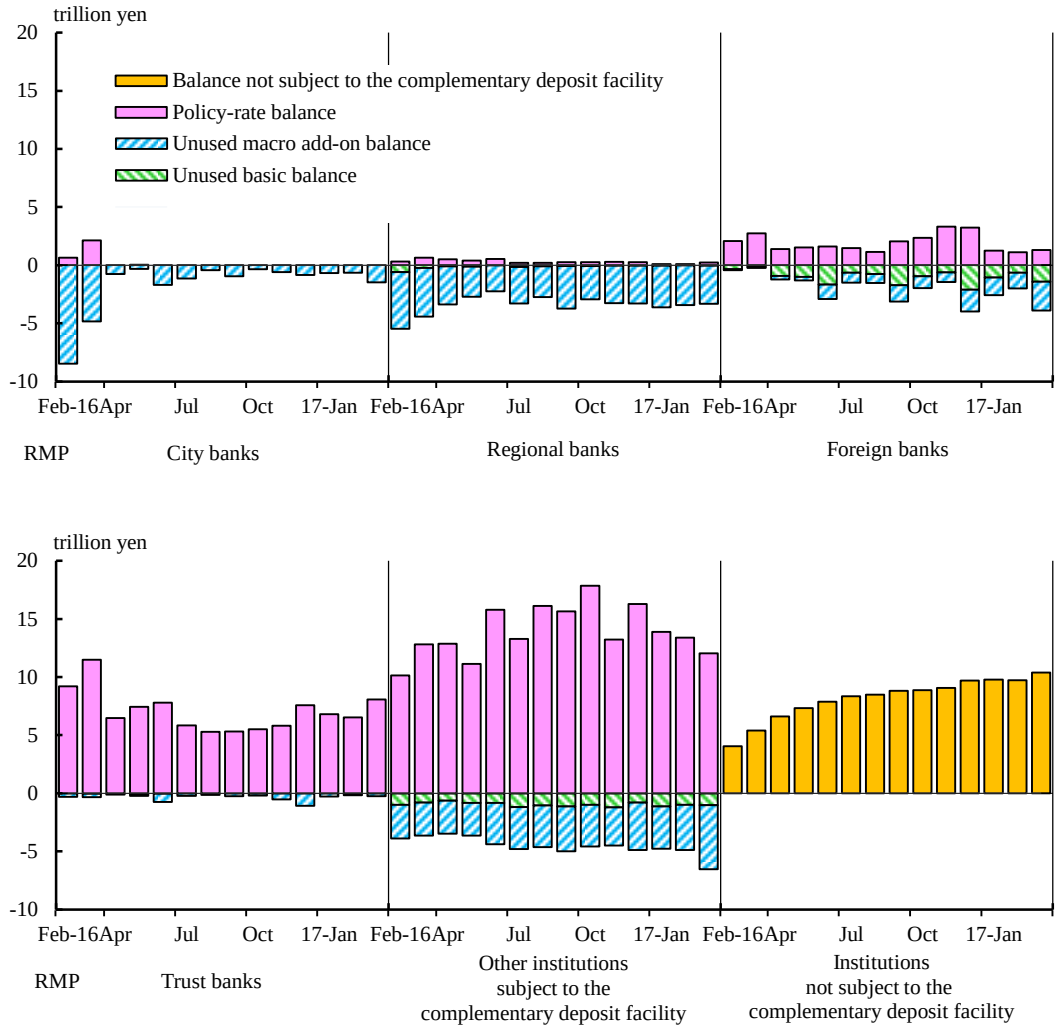
Trust banks maintained a policy-rate balance through fiscal 2016. Initially after the introduction of a negative interest rate, the policy-rate balances of trust banks increased significantly, as money reserve funds (MRFs) and other investment trusts transferred their funds, which they found difficult to lend at positive interest rates, to bank accounts of trust banks through "lending to banking accounts." However, the policy-rate balances of trust banks decreased significantly after the April 2016 reserve maintenance period, as (1) it was decided that current accounts equivalent to the amount outstanding of MRFs entrusted to trust banks (up to the amount outstanding during 2015) would be added to their macro add-on balances (see Footnote 10 for details), (2) inflow of funds to bank accounts of trust banks declined as trust banks started charging investment trusts a fee for idle money (money trusts), and (3) trust banks increased their investments in city banks and *tanshi* companies through their bank accounts from around this time. Thereafter, the policy-rate balances of trust banks remained on a somewhat increasing trend toward the latter half

of 2016, partly because investment trusts piled up idle money due to a rise in stock prices, amid continuous inflows of funds for redemptions of JGBs.

Among other institutions subject to the complementary deposit facility (other institutions subject to the reserve requirement, and institutions not subject to the reserve requirement), some have "unused allowances" in their basic balances and/or macro add-on balances, and others have policy-rate balances. Of the latter, financial institutions show different attitudes toward lending cash and some actively invest in overseas securities and lend cash in the repo market to reduce their policy-rate balances. Moreover, movements to resume investments in JGBs have been observed, and lending in the call market has increased gradually. However, despite this being the case, the policy-rate balance in the sector has remained at a high level, partly due to the accumulation of funds for redemptions of JGBs.

In addition, among institutions holding current accounts at the Bank, there are entities that are not subject to the complementary deposit facility (institutions not subject to the complementary deposit facility), including governmental financial institutions and central counterparties, and the current account balances of such entities at the Bank have increased moderately since the introduction of a negative interest rate. This is attributable to the fact that some entities piled up investment money in their current accounts in the first half of fiscal 2016, reflecting lower yields on bonds, and in the latter half of the fiscal year, a few central counterparties implemented measures with which they increased the amount of cash collateral they accepted from clearing participants, resulting in transfers of funds to their current accounts at the Bank. When there are transfers of funds from an institution subject to the complementary deposit facility to an institution not subject to the complementary deposit facility, as in the case described above, the current account balance of the former at the Bank, and in turn, the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" decline. The Bank, therefore, has reviewed the Benchmark Ratio Used to Calculate the Macro Add-on Balance and controls the level of the "hypothetical policy-rate balance after arbitrage transactions have taken place in full," while also taking into account these movements in funds.

Chart 4-5: Three-Tier System of the Current Accounts by Sector



Note: 1. "Other institutions subject to the complementary deposit facility" are other institutions subject to the reserve requirement and institutions not subject to the reserve requirement.

2. Other institutions subject to the reserve requirement include 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.

3. 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.

4. "Institutions not subject to the complementary deposit facility" include the following: Japanese Bankers Association; Japanese Banks' Payment Clearing Network; Tokyo Financial Exchange; Japan Securities Clearing Corporation; JASDEC DVP Clearing Corporation; CLS BANK International; Development Bank of Japan; Japan Finance Corporation; Japan Bank for International Cooperation; and Deposit Insurance Corporation of Japan.

Box 6: Relationship between the Policy-Rate Balance and the Uncollateralized Call Rate

As mentioned in the main text, the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" shows the size of a potential excess of funds in the money market. The Bank, in principle, has reviewed the Benchmark Ratio once every three months since the introduction of a negative interest rate, and the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" for every three reserve maintenance periods remained stable more or less in the range of 10-15 trillion yen on average.

However, with seasonal fluctuations in the current account balance at the Bank due to changes in treasury funds and others, the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" has not been flat through the three reserve maintenance periods (three months), but has fluctuated within a certain range during each period. Specifically, the size of the excess of funds on an aggregate basis in the money market changes every period, and exerts upward or downward pressure on money market rates.

To examine how changes in the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" impact the formation of the actual call rate, we look at the relationship between the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" and the uncollateralized call rate (O/N) from the May 2016 reserve maintenance period to the March 2017 reserve maintenance period during which trades at negative interest rates became widespread and the amount outstanding in the call market recovered. The correlation coefficient was minus 0.39, which suggests only a weak correlation between the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" and the uncollateralized overnight call rate. A simple negative correlation is not observed between the two figures, because there is an uneven distribution of funds among sectors and a difference in the participants in each market. Specifically, while sectors such as regional banks and trust banks actively conduct arbitrage

trading in the call market, the presence of other entities that do not actively lend cash, although they hold policy-rate balances or that of entities that favor transactions in the repo market to those in the call market could have weakened the correlation. To verify this, when we again look at the relationship between the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" held by sectors with large amounts outstanding of transactions in the call market[12] based on the "Amount Outstanding in the Call Market" released by the Bank and the call rate, the correlation coefficient was calculated as minus 0.64, and a clear negative correlation was confirmed between the two (Box Chart 6).

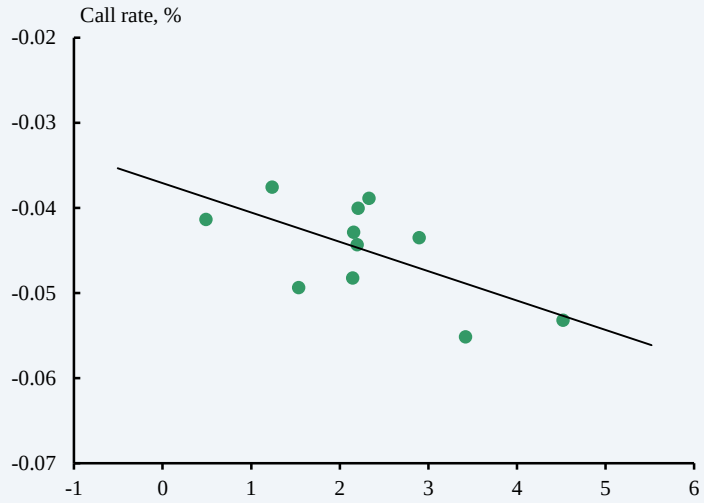
Box Chart 6: Policy-Rate Balance and the Uncollateralized Call Rate

%, trillion yen

RMP	Benchmark Ratio	Call market volume	Call rate	Policy-rate balance (actual)		Hypothetical policy-rate balance		
				Total	City banks, regional banks I and II, trust banks, securities companies	Total	Average	City banks, regional banks I and II, trust banks, securities companies
Apr. 2016	2.5	4.3	-0.069	21.2	7.1	12.2	12.2	2.7
May		5.1	-0.053	20.4	7.9	12.2		4.5
Jun.	7.5	5.0	-0.055	25.6	8.4	13.6	12.2	3.4
Jul.		5.7	-0.038	20.8	6.1	9.7		1.2
Aug.		5.9	-0.048	22.7	5.6	13.2		2.1
Sep.	10.0	5.8	-0.041	23.2	5.7	10.1	12.7	0.5
Oct.		6.8	-0.044	25.9	5.9	15.9		2.2
Nov.		6.7	-0.049	22.6	6.1	12.2		1.5
Dec.	13.0	7.8	-0.039	27.3	7.9	13.1	11.0	2.3
Jan. 2017		7.9	-0.043	22.0	6.9	10.0		2.2
Feb.		7.6	-0.040	21.2	6.7	10.0		2.2
Mar.	17.0	7.2	-0.044	21.6	8.3	6.0	-	2.9
Correlation with the call rate (RMPs from May 2016 to Mar. 2017)				-0.03	-0.31	-0.39	-	-0.64

Note: Call market volume is the average monthly amounts outstanding in the uncollateralized call market (O/N).

[12] Specifically, top four sectors (city banks, etc, regional banks I and II, trust banks, and securities and securities finance companies) with the largest average amounts outstanding in the call market (the sum of the amount of outstanding of borrowing and lending) during fiscal 2016. In calculating "hypothetical policy-rate balance after arbitrage transactions have taken place in full," the sector classification (city banks, regional banks, regional banks II, trust banks, and securities companies) in "Current Account Balances by Sector" released by the Bank is used for statistical reasons.



Hypothetical policy-rate balance of city banks, regional banks I and II, trust banks, and securities companies, trillion yen

B. Outright Purchases of JGBs: Targeting the Pace of Increase in the Amount Outstanding of JGBs Purchased and Yield Curve Control

From the beginning of fiscal 2016 to September, under QQE with a Negative Interest Rate, the policy decision was to "purchase JGBs so that the amount outstanding of the Bank's holdings will increase at an annual pace of about 80 trillion yen." It was also decided that the average remaining maturity of the Bank's JGB purchases would be "about 7-12 years" from January 2016.

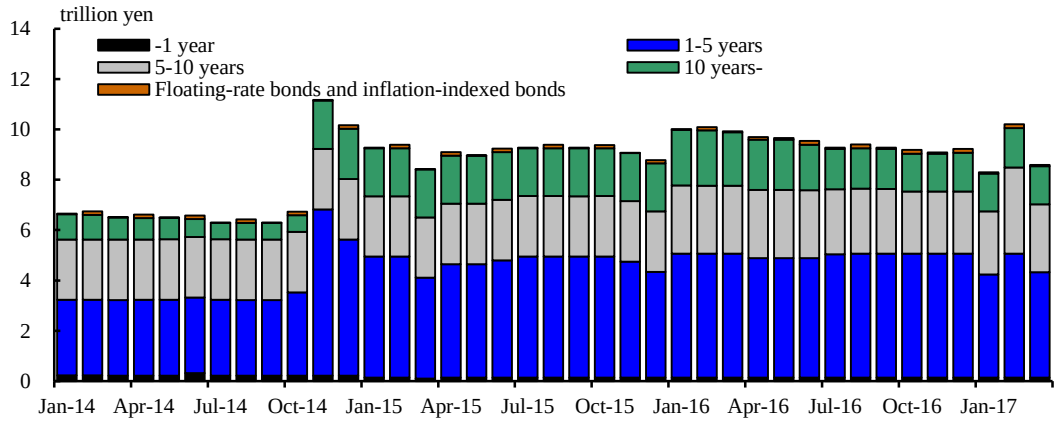
In accordance with this policy, the Bank offered outright purchases of JGBs at an almost constant pace every month. Specifically, the Bank continued to purchase about 10 trillion yen of JGBs every month (based on dates of offers and face value), because JGB purchases of about 120 trillion on a gross basis were necessary in 2016, taking into account the redemption amount of JGBs it already held (Chart 4-6).

Even under these circumstances, the amounts of purchases by residual maturity were adjusted as necessary. Specifically, in view of market developments and operation results at the time, the amount of purchases of super-long-term JGBs (residual maturity of more than ten years) was gradually reduced in June and July. In contrast, the amount of purchases of short- and

medium-term JGBs (residual maturity of more than one year and up to five years) was increased in July and August. The Bank reduced the amount of purchases of super-long-term JGBs, considering that the number of transactions in which yields on JGBs were below their coupon rates increased since the introduction of a negative interest rate, resulting in a stronger tendency for actual purchase amounts to exceed the amounts of offers at face value.

Under the aforementioned conduct of market operations, the amount outstanding of the Bank's JGB holdings on a start-day basis stood at 323.6 trillion yen at the end of June 2016 and 339.5 trillion yen at the end of August, an increase of 82.4 trillion and 82.0 trillion yen, respectively, from a year earlier. The average remaining maturity of the Bank's JGB purchases on a flow basis was 8.8 years from April to August, which was unchanged from fiscal 2015.

Chart 4-6: Amounts of Monthly Purchases of JGBs



Note: Based on dates of offers. Face value. Residual maturities are as of the month-end.

With the introduction of QQE with Yield Curve Control at the September MPM, it was decided that "the Bank will purchase JGBs so that 10-year JGB yields will remain more or less at the current level (around 0 percent)" under yield curve control. At the same time, regarding the amount of purchases, it was spelled out that "the Bank will conduct purchases more or less in line with the current pace -- an annual pace of increase in the amount outstanding of its JGB holdings of about 80 trillion yen -- aiming to achieve the target level of a long-term interest rate specified by the guideline," and the guideline for the average remaining maturity of the Bank's JGB purchases was abolished.

Thus, the Bank has encouraged the formation of a yield curve that is consistent with the guideline for market operations by offering outright purchases of JGBs through a conventional competitive auction method and, as necessary, carrying out purchases through the newly introduced fixed-rate method (fixed-rate purchase operations).

Looking back on the purchases along with interest rate developments during the same period, 10-year JGB yields, which are the long-term interest rate target, temporarily declined immediately after the September MPM. 10-year JGB yields then took an upward turn, partly reflecting the effects of the reduction in the amount of purchases (from 430 billion to 410 billion yen) of long-term JGBs (more than five years and up to ten years) on September 30, and remained stable more or less in the range of minus 0.1 to 0.0 percent in October. Thereafter, 10-year JGB yields entered positive territory in the middle of November following the U.S. presidential election, and rose further to near 0.09 percent in late January. In this situation, the Bank increased the amount of purchases of long-term JGBs (from 410 billion to 450 billion yen) on January 27. On February 3, because 10-year JGB yields temporarily surged to 0.15 percent after it offered purchases through a competitive auction method in the morning, the Bank carried out fixed-rate purchase operations for 10-year JGBs (yields on newly issued 10-year JGBs at 0.11 percent) in the afternoon (purchase size set at an unlimited amount; actual bidding amount was 723.9 billion yen). Thereafter, the Bank offered purchases of long-term JGBs on February 6 (for the second consecutive business day from February 3) and on February 8, and maintained the amount of offer at 450 billion yen toward the end of the fiscal year, although 10-year JGB yields had regained calm (Chart 4-7).

Short- and medium-term interest rates (yields on 2-year and 5-year JGBs) were relatively stable until the beginning of November 2016, but rose sharply in the middle of November following the U.S. presidential election. For this reason, the Bank offered fixed-rate purchase operations for 2-year and 5-year JGBs (purchase size set at an unlimited amount; actual bidding amount was 0) for the first time on November 17. In contrast, from December, bid yields of operations continued to dip below prevailing market rates, reflecting the downtrend in interest rates under tight supply and demand conditions; therefore, the Bank in January 2017 decided to reduce the frequency of purchases per month from six times in the previous month to five times.[13] Nonetheless, the

[13] From the monthly "Outline" ("Outline of Outright Purchases of Japanese Government Securities")

supply-demand balance for 2-year and 5-year JGBs continued to be tight; therefore, the Bank gradually reduced the amount of offer per auction (from 400 billion yen to 320 billion yen, and then to 300 billion yen for residual maturity of more than one year and up to three years; from 420 billion yen to 400 billion yen, and then to 380 billion yen for residual maturity of more than three years and up to five years) in March.

Super-long-term interest rates (yields on 20-year, 30-year, and 40-year JGBs) also took an upward turn in November 2016, as did those with other maturities. In the middle of December, interest rates on super-long-term JGBs rose further. Taking into account market participants' concerns over further changes in interest rates, the Bank increased its amounts of purchases (from 190 billion to 200 billion yen for residual maturity of more than ten years up to 25 years; from 110 billion to 120 billion yen for residual maturity of more than 25 years) on December 14. The operations conducted on this day were unprecedented in that the Bank simultaneously offered purchases of JGBs across the three main maturity zones, including those with JGBs with residual maturities of more than one year and up to five years, and more than five years and up to ten years (in reality, the offers were further divided and were made across five zones, that is, residual maturities of more than one year and up to three years, more than three years and up to five years, more than five years and up to ten years, more than ten years and up to 25 years, and more than 25 years), and that purchases of super-long-term JGBs were conducted on the day before the issuance auction date of the relevant JGBs (20-year JGBs). Regarding the latter, the Bank worked to clear uncertainty associated with the schedule of operations by releasing in advance that it would offer purchases of super-long-term JGBs again on December 16, the day after the issuance auction. With these measures, super-long-term interest rates declined sharply, and on December 28, the amounts of purchases were returned to their former levels. From the beginning of 2017, while the upward pressure on interest rates temporarily strengthened again, the Bank flexibly adjusted the amounts of purchases of super-long-term JGBs in February and March (from 190 billion to 200 billion yen for residual maturity of more than ten years and up to 25 years; from 110

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released at the end of December 2016, the frequency of purchases of bonds in the short- and medium-term zone was changed from "about 6" times to a range of "about 5-7" times per month. It should be noted, however, that, as indicated in the main text, from the monthly "Outline" released at the end of February 2017, the Bank decided, for JGB purchases across the three main maturity zones, to terminate the description of the number of auctions and to make advance announcements of the specific dates of auctions during the following month.

billion yen to 120 billion yen, and then to 100 billion yen for residual maturity of more than 25 years), taking into account the effects on 10-year JGB yields, which are the operating target.

Under the measures described above, Japan's yield curve has been formed in a manner consistent with the guideline for market operations. Specifically, 10-year JGB yields have remained in line with the operating target of "around 0 percent" since September 2016. Looking at yield spreads between 10-year JGBs and JGBs with other maturities, for example, there have been no major fluctuations and deformations on the whole, excluding those phases immediately before offers of fixed-rate purchase operations, although yield spreads against short- and medium-term JGBs and super-long-term JGBs both widened somewhat (the yield curves steepened) (Charts 4-8 and 4-9).

In this way, the Bank accumulated a wide range of experience related to the conduct of operations under the new framework of yield curve control over about half a year since September 2016. As mentioned above, from the monthly "Outline" released at the end of February 2017, the Bank decided to release in advance the scheduled dates of auctions across the three main maturity zones during the following month. This was because the Bank judged from its experience during this period that it was effective to increase transparency regarding the frequency and timing of purchases to avoid excessive changes in interest rates in the markets and realize the guideline for market operations more smoothly. On the other hand, the Bank decided to indicate only the range of the amount of offer in the "Outline," and to terminate releasing the planned amount of the first offer in the following month. To begin with, yield curve control was aimed to encourage the formation of a yield curve that is consistent with the guideline for market operations by flexibly adjusting the amount of offer for the operations depending on market developments at the time. In fact, the amount of offer is determined every time with comprehensive consideration of a wide range of factors; not only interest rate levels but also the direction and speed of interest rate changes, volatility, the background to interest rate changes, and past operation results. The Bank might offer fixed-rate purchase operations if needed. As a result, the amount of monthly purchases of JGBs since September 2016 fluctuated by some trillions of yen (Chart 4-6 above).

Chart 4-7: 10-Year JGB Yields

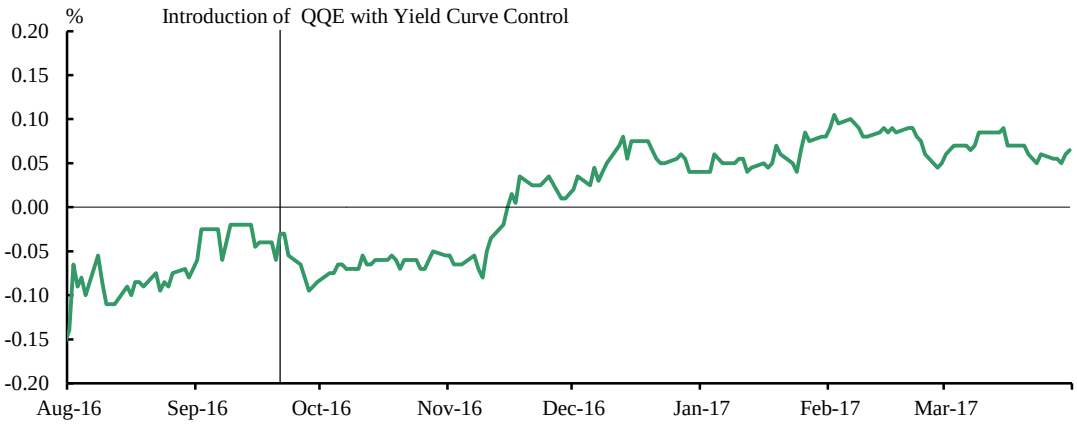


Chart 4-8: Yield Spreads between 10-Year JGBs and JGBs in Other Maturity Zones

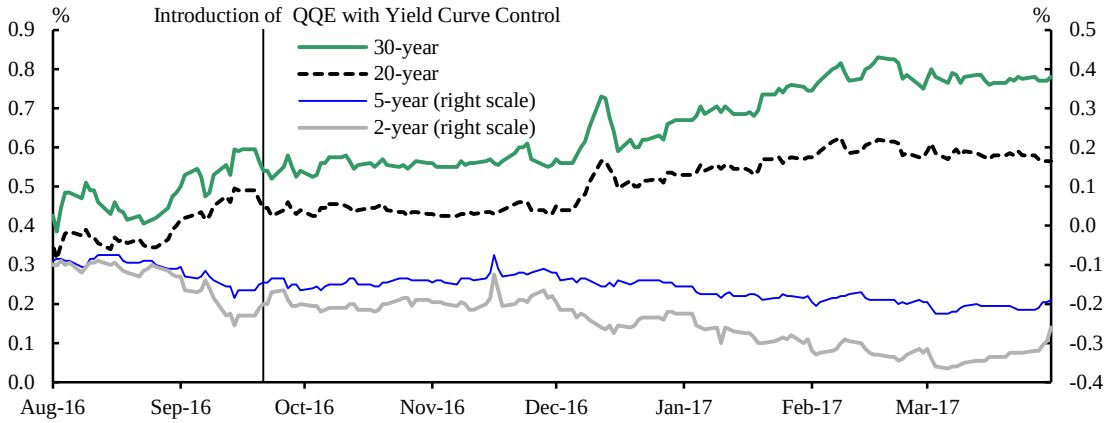
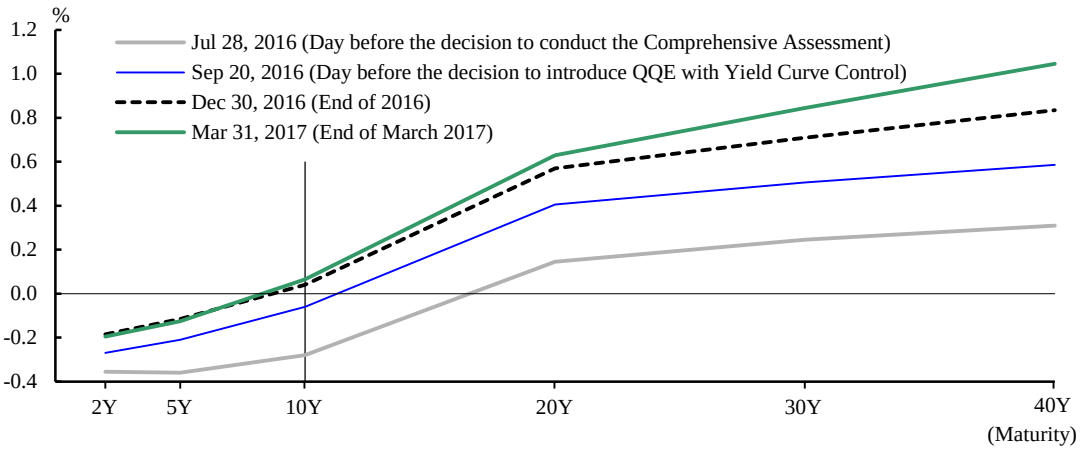


Chart 4-9: Changes in the JGB Yield Curve



Box 7: Overview of Fixed-Rate Purchase Operations and Market Response

At the MPM held in September 2016, the Bank decided to introduce outright purchases of JGBs through a fixed-rate method (fixed-rate purchase operations) as a new tool of market operations for facilitating yield curve control upon the introduction of QQE with Yield Curve Control. The basic framework of the fixed-rate purchase operations and the effects of the operations on the markets when they were actually implemented are explained below.

When carrying out fixed-rate purchase operations, the Bank offers outright purchases of JGBs with one or a few designated residual maturities (more than five years and up to ten years, more than ten years and up to 25 years, etc.), as is the case for the existing purchases of JGBs (competitive auction method). Bonds to be purchased are JGBs with coupons excluding floating-rate bonds and inflation-indexed bonds (2-year bonds to 40-year bonds). However, in reality, the Bank expects to designate on-the-run issues included in each residual maturity and several issues of JGBs issued immediately before as bonds to be purchased.

The Bank stands ready to offer fixed-rate purchase operations whenever necessary, such as when the level of the yield curve changes significantly. Therefore, although for existing outright purchases of JGBs, the Bank in principle refrains from announcing auctions for corresponding maturity segments on the day of JGB issuance auctions by the Ministry of Finance, this does not apply to fixed-rate purchase operations. The Bank, in principle, offers fixed-rate purchase operations at the same time as existing outright purchases of JGBs at 10:10 in the morning and at 14:00 in the afternoon. It should be noted, however, that depending on market conditions, the Bank may offer purchases at different times. The Bank may set the purchase size per auction at a fixed amount or at an unlimited amount, depending on market conditions. In the latter case, the Bank accepts the entire bidding amount unless there are special circumstances. The start date (settlement date) of fixed-rate purchases operations is two business days after the offer date, as is the case for existing outright purchases of JGBs.

Purchasing yields are set per auction by the yield spreads, with the Bank setting the "yield spreads

to be added to the benchmark yields."[14] If the Bank is to purchase multiple issues in a single auction, the yield spreads designated by the Bank would be the same for all issues. In these cases, since the benchmark yields are likely to differ for each issue, the fixed purchasing yields at which the Bank offers purchases are also likely to differ between issues.

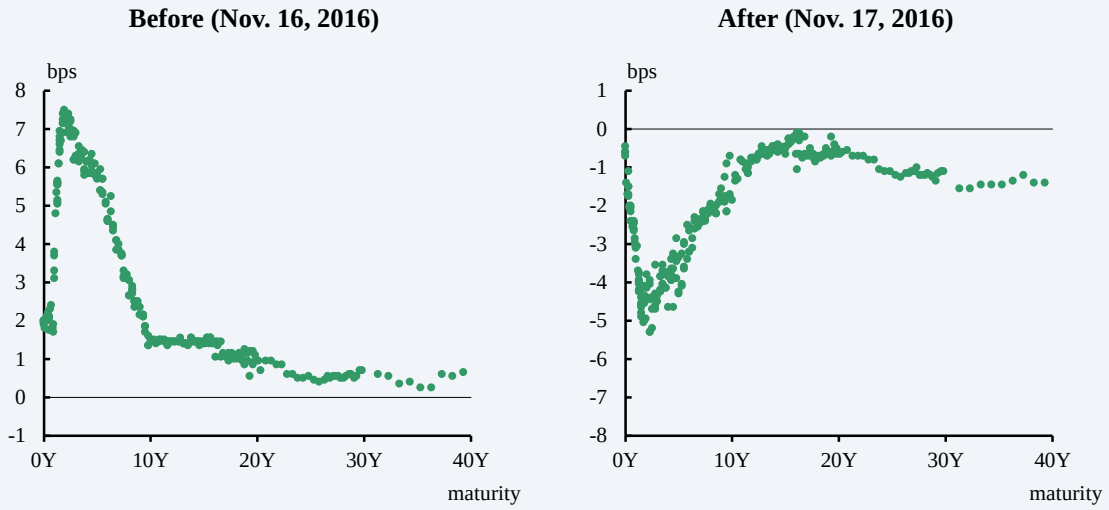
The Bank offered fixed-rate purchase operations twice during fiscal 2016. The first operations were offered at 10:10 on November 17, targeting JGBs with residual maturities of more than one year and up to three years, and more than three years and up to five years.[15] With the operations, the Bank aimed to encourage the formation of a yield curve that is consistent with the guideline for market operations in light of a sharp rise in short- and medium-term JGB yields before the operations. The Bank offered to purchase an unlimited amount of JGBs with a residual maturity of more than one year and up to three years at a yield of minus 0.09 percent (fixed purchasing yield) in the case of newly issued 2-year JGBs and an unlimited amount of JGBs with a residual maturity of more than three years and up to five years at a yield of minus 0.04 percent (fixed purchasing yield) in the case of newly issued 5-year JGBs, taking into account such factors as the interest rate movements during the previous day.

There was no bidding for the above operations, partly in reflection of purchasing yields that were slightly higher than the prevailing market yields at the time of offer. However, the first-time usage of the newly introduced fixed-rate purchase operations had a significant impact on the markets, and JGB yields, particularly in the short- and medium-term zone, declined substantially, immediately after the offer (Box Chart 7-1).

[14] Benchmark yields are Reference Statistical Prices of each issue released by the Japan Securities Dealers Association.

[15] In particular, the following issues were subject to purchases: for JGBs with residual maturity of more than one year and up to three years, 2-year bonds with coupons, issue numbers 370 (on-the-run at the time), 369, and 368; and for JGBs with residual maturity of more than three years and up to five years, 5-year bonds with coupons, issue numbers 129 (on-the-run at the time), 128, and 127.

Box Chart 7-1: Market Response before and after Fixed-Rate Purchase Operations (1-5 Years)

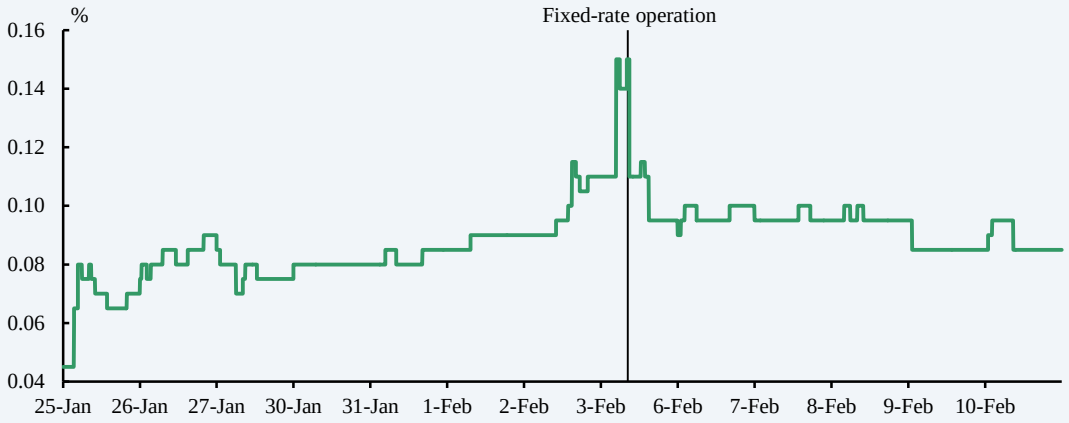


Note: Changes in yields from the previous business day.

The second fixed-rate purchase operations were conducted on February 3, 2017, targeting JGBs with a residual maturity of more than five years and up to ten years.[16] The Bank offered to purchase an unlimited amount of JGBs with purchasing yields designated at 0.11 percent in the case of newly issued 10-year JGBs. With these operations, the Bank aimed to effectively realize the guideline for market operations of achieving the target level of 10-year JGB yields of around 0 percent amid a surge in long-term interest rates. Long-term interest rates, which had been rising from around late January, reached 0.11 percent at the close of the market on February 2. The upward momentum in long-term interest rates continued to be seen the following day on February 3, and long-term interest rates temporarily rose sharply to 0.15 percent immediately after the Bank carried out normal auctions for outright purchases of JGBs in the morning. Under these circumstances, the Bank examined market conditions after the opening of the afternoon session at 12:25 and offered fixed-rate purchase operations immediately after at 12:30. The Bank moved forward the time of offer for the fixed-rate purchase operations from the usual time of 14:00 based on the idea that it could reduce confusion in the markets to some extent by making an offer before transaction volume expanded largely from the start of the afternoon session (Box Chart 7-2).

[16] In particular, the following issues were subject to purchases: 10-year bonds with coupons, issue numbers 345 (on-the-run at the time), 344, and 343.

Box Chart 7-2: 10-Year JGB Yields before and after Fixed-Rate Purchase Operations (5-10 Years)



Note: Yields on newly issued 10-year JGBs at Japan Bond Trading.

Purchasing yields were 0.11 percent, which were lower than the prevailing market yields at the time of offer. The Bank therefore received total bidding of 723.9 billion yen and accepted all bidding. Meanwhile, 10-year JGB yields plunged immediately after the offer, closing at 0.095 percent on February 3.

Box 8: Bid-to-Cover Ratio for Outright Purchases of JGBs

The bid-to-cover ratio (bidding amount divided by offered amount) for outright purchases of JGBs provides useful information for analyzing the supply and demand conditions in the JGB market. Under normal circumstances, a higher (lower) bid-to-cover ratio for JGB purchase operations implies a relatively large (small) number of auction participants seeking to sell JGBs to the Bank through competitive bidding, suggesting that the supply and demand conditions for JGBs has eased (tightened) at that time. Therefore, if the bid-to-cover ratio is high (low), auction participants become concerned over an easing (tightening) of the supply and demand conditions for JGBs, which, in many cases, puts upward pressure (downward pressure) on JGB yields after the announcement of operation results (downward pressure [upward pressure] is exerted on JGB prices).

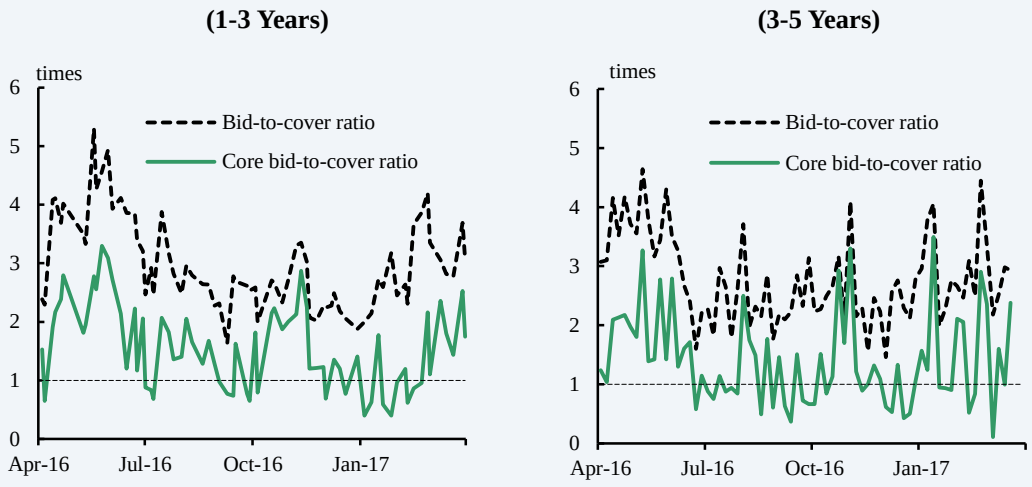
From December 2016 until around February 2017, however, JGB yields continued to decline in the short- and medium-term JGB market, although the bid-to-cover ratio for the JGB purchases stayed at somewhat high levels.

To explain this, it is necessary to understand that financial institutions participating in an auction could adopt either a positive or a negative stance toward selling JGBs. For example, those bidding in an auction can be divided into the following: (1) financial institutions that are actively seeking to sell JGBs to the Bank if they can earn gains on sales to a certain degree, and (2) those that are seeking to sell JGBs to the Bank only if they can earn gains on sales that outweigh the benefit of continuing to hold JGBs.

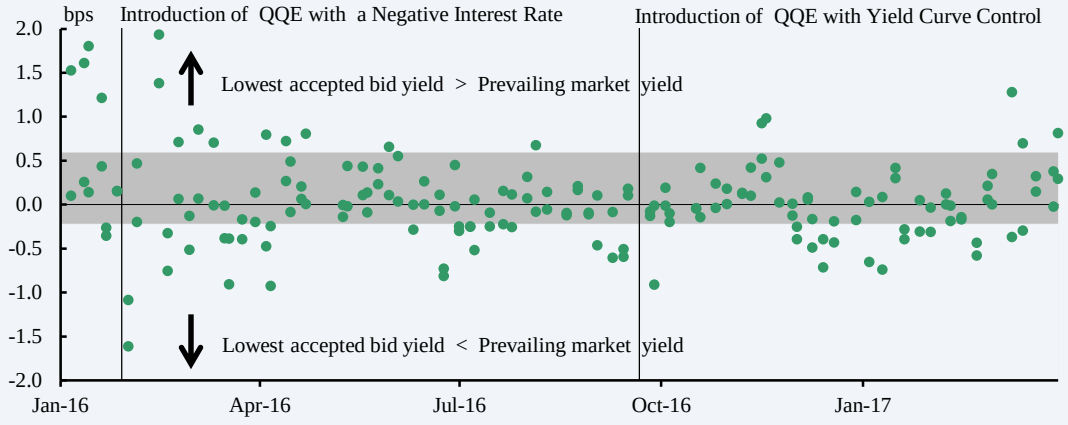
A closer analysis of the supply and demand conditions for JGBs can be conducted taking into account the differences between the financial institutions described in (1) and (2) above. Here, we attempt to analyze using a "core bid-to-cover ratio," calculated by extracting the amount of bidding tendered at a rate close to the prevailing market rate. Specifically, we extract the bidding amount for JGB purchases with higher yields than the offer rate put forward by sellers of JGBs (lower prices than the offer prices by sellers of JGBs) in the secondary market immediately before the deadline for submitting bids. The core bid-to-cover ratio is calculated by dividing the total of that amount by the offered amount.

Looking at the change in the core bid-to-cover ratio from December 2016 until around February 2017, the ratio deviated substantially from the overall bid-to-cover ratio, particularly for JGBs with a residual maturity of more than one year and up to three years, and remained below 1. A core bid-to-cover ratio below 1 implies that the amount of bidding from those seeking to sell JGBs at yields near prevailing market yields falls below the offered amount. This suggests that the supply-demand balance of JGBs was quite tight (Box Chart 8-1). Indeed, during this period, prices for the outright purchases tended to be high (low yields), although the usual bid-to-cover ratio was considerably high (Box Chart 8-2).

Box Chart 8-1: Core Bid-to-Cover Ratio



Box Chart 8-2: Differences between Accepted Bid Yields and Prevailing Market Yields (1-5 Years)



Note: 1. Figures are the differences between the lowest accepted bid yields and the prevailing market yields at each date of offer.
2. The shaded area indicates the one standard deviation band of average value of the difference between the lowest accepted bid yield and the prevailing market yield during the period from when QQE was introduced (April 4, 2013) to March 31, 2017.

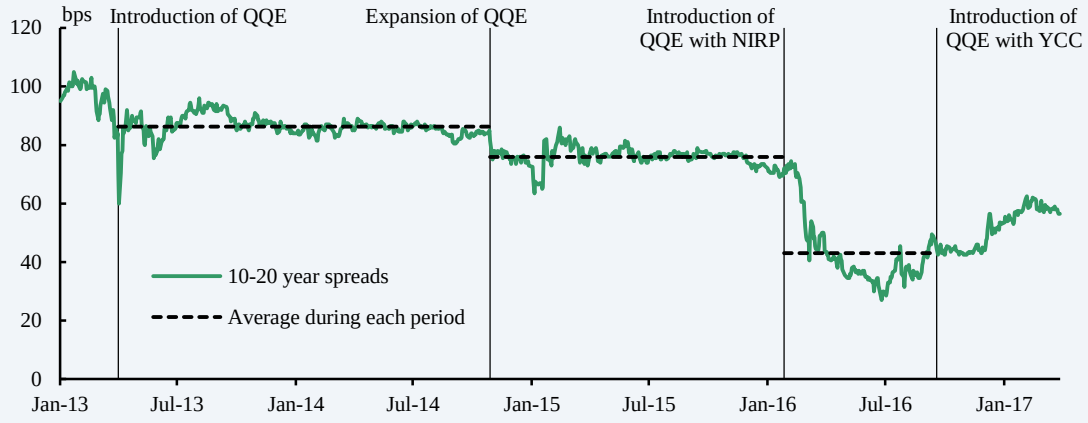
Box 9: Yield Spreads between 10-Year JGBs and 20-Year JGBs

Looking at developments in yield spreads between 10-year JGBs and 20-year JGBs (10-20 year spreads), they generally remained at slightly below 90 bps during the period from when QQE was introduced until its expansion (April 2013 to October 2014), and generally stayed at slightly below 80 bps thereafter until the introduction of QQE with a Negative Interest Rate (October 2014 to January 2016) (Box Charts 9-1 and 9-2).

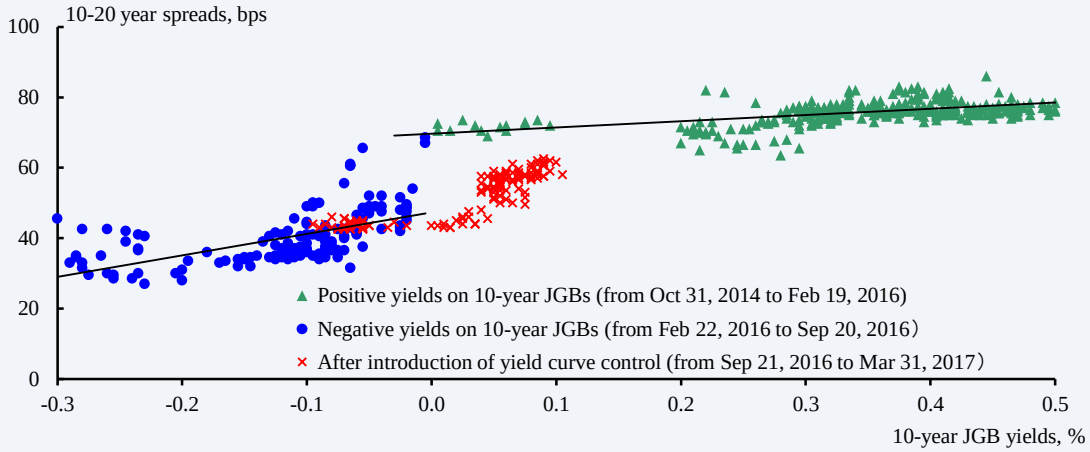
The level of 10-20 year spreads changed significantly once 10-year JGB yields fell into negative territory after the introduction of a negative interest rate. Specifically, 10-20 year spreads narrowed significantly, mainly as investors who did not wish to purchase bonds with a negative interest rate expanded their purchases to include super-long-term JGBs, whose yields were still positive, and the yield curve flattened.

Thereafter, once QQE with Yield Curve Control was introduced in September 2016, and 10-year JGBs returned into positive territory, 10-20 year spreads began to widen. It should be noted, however, that 10-20 year spreads remained at relatively low levels compared to the levels before the introduction of a negative interest rate.

Box Chart 9-1: 10-20 Year Spreads



Box Chart 9-2: Level of 10-Year JGB Yields and 10-20 Year Spreads



C. Outright Purchases of Other Assets

1. Outright Purchases of CP

The Bank purchased CP and maintained the amount outstanding of its holdings at about 2.2 trillion yen in accordance with the guidelines for asset purchases decided at the MPMs.

CP redemption schedules tend to concentrate at quarter-ends, and those for CP that had been purchased by the Bank also tend to follow the same trend. Under these circumstances, the Bank offered three outright purchases per month with 250-600 billion yen per operation, while offering purchases that were larger than usual at quarter-ends, taking into account the redemption schedules for CP that had been purchased by the Bank. As a result, the amount outstanding of CP purchased was maintained at about 2.2 trillion yen, with some fluctuations (Chart 4-10).

Meanwhile, the lowest accepted bid yield for outright purchases of CP was generally about minus 0.001 percent, dipping slightly into negative territory, excluding at quarter-ends. The accepted bid yield decreases at quarter-ends compared to other months, reflecting concerns over the tightening of the supply-demand balance for the reasons mentioned above. In particular, the lowest accepted bid yield temporarily declined substantially in September 2016 and March 2017, which were the semi-annual fiscal year-end and the full fiscal year-end, respectively (Chart 4-11).

Chart 4-10: Amounts Outstanding of CP Purchased and Amounts of Monthly Purchases of CP

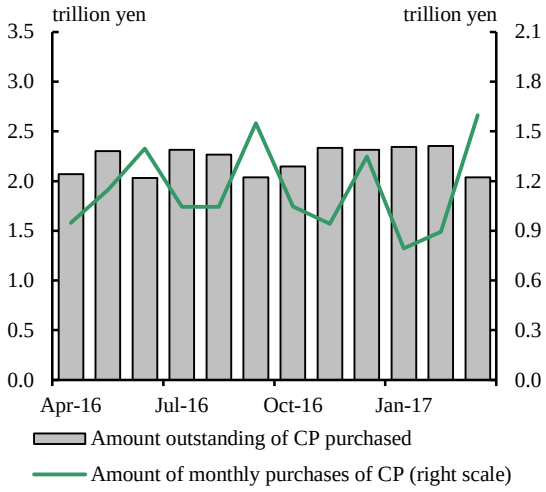
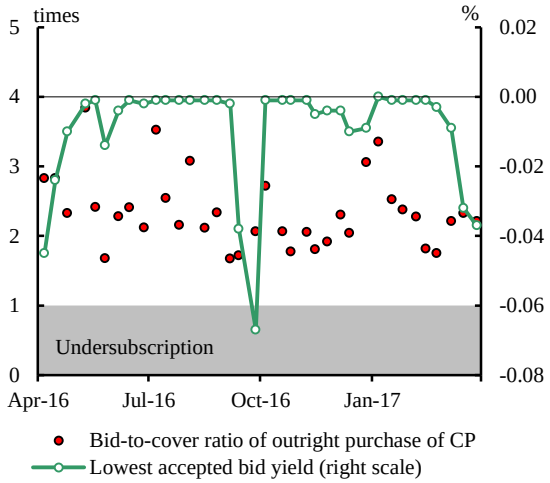


Chart 4-11: Bid-to-Cover Ratios and Lowest Accepted Bid Yield of Outright Purchase of CP



2. Outright Purchases of Corporate Bonds

The Bank purchased corporate bonds and maintained the amount outstanding of its holdings at about 3.2 trillion yen, in accordance with the guidelines for asset purchases decided at the MPMs.

Complying with this guideline, the Bank offered outright purchases once a month with 75-130 billion yen per operation, considering the redemption schedules of the bonds that had been purchased by the Bank (Chart 4-12).

Meanwhile, the lowest accepted bid yield for outright purchases of corporate bonds fell to about minus 0.3 percent, mainly reflecting the decline in corporate bond yields. Subsequently, however, the lowest accepted bid yield rose moderately to near 0 percent with corporate bond yields taking an upward turn, partly due to the abatement of expectations for additional cuts in the short-term policy interest rate from minus 0.1 percent (Chart 4-13).

Chart 4-12: Amounts Outstanding of Corporate Bonds Purchased and Amounts of Monthly Purchases of Corporate Bonds

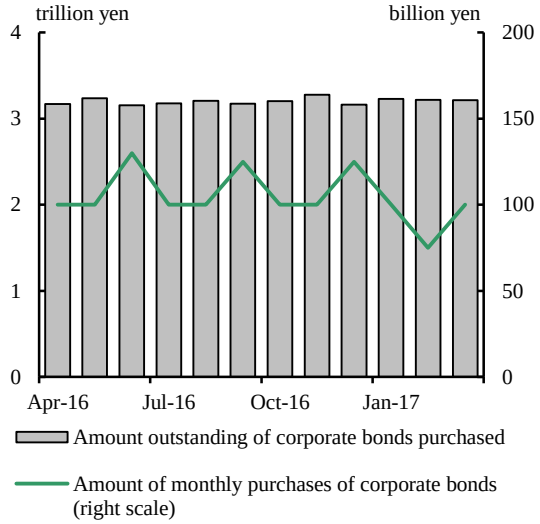
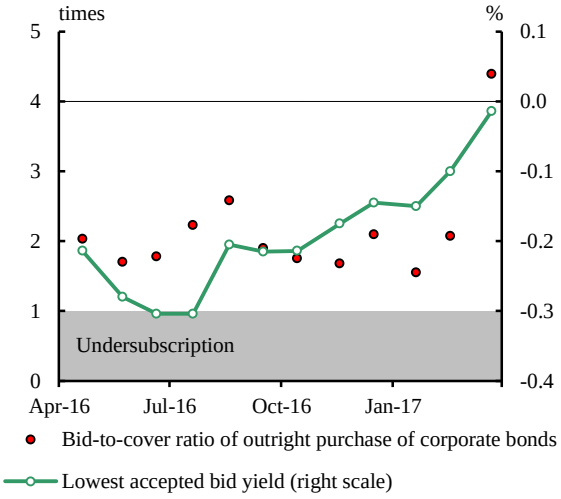


Chart 4-13: Bid-to-Cover Ratios and Lowest Accepted Bid Yield of Outright Purchase of Corporate Bonds



3. Outright Purchases of ETFs

The Bank purchased ETFs in accordance with the guidelines for asset purchases decided at the MPMs. Specifically, the Bank purchased ETFs so that the amount outstanding of its holdings would increase at an annual pace of about 3.3 trillion yen until July 2016. Thereafter, the Bank almost doubled the target for the pace of increase in its purchases to an annual pace of about 6 trillion yen at the MPM held in July and purchased ETFs so that the amount outstanding of its holdings would increase at this pace. Of about 6 trillion yen, 300 billion yen were used to purchase ETFs composed of stocks issued by "firms that are proactively investing in physical and human capital," as decided at the MPM held in December 2015.

At the MPM held in September 2016, the Bank decided that the maximum amount of each ETF to be purchased would be set so that the Bank's purchases would take into account the total market value of that ETF and the coverage of the index which that ETF tracks. In conformity to this guideline, the Bank decided to increase the weight of its purchases of ETFs that track the TOPIX (see V.B.5 for details).

The Bank offered 93 purchases (excluding purchases of ETFs composed of stocks issued by "firms that are proactively investing in physical and human capital" carried out every business day) during fiscal 2016. As a result, the amount outstanding of ETFs purchased by the Bank at the end of March 2017 stood at 12.9 trillion yen, an increase of 5.4 trillion yen from a year earlier.

4. Outright Purchases of J-REITs

The Bank purchased J-REITs so that the amount outstanding of its holdings would increase at an annual pace of about 90 billion yen, in accordance with the guidelines for asset purchases decided at the MPMs. The Bank offered 74 purchases during fiscal 2016, and the amount outstanding of J-REITs purchased by the Bank at the end of March 2017 stood at 382.2 billion yen, an increase of 88.6 billion yen from a year earlier.

5. Outright Purchases of T-Bills

The Bank continually offered outright purchases of T-Bills generally once a week.

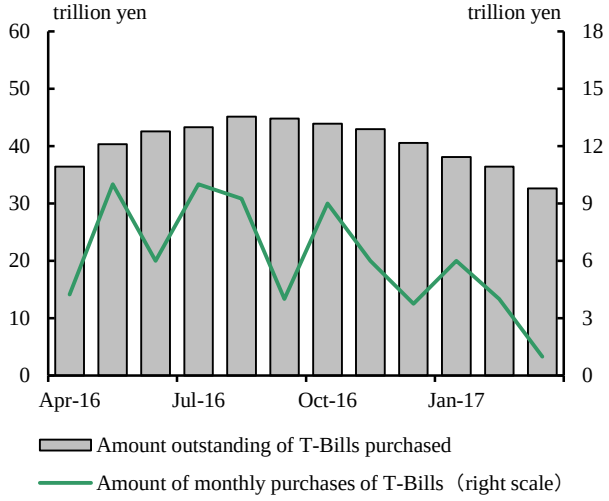
Before September 2016, the Bank offered outright purchases of T-Bills with the aim of accumulating the amount outstanding of the monetary base at an annual pace of increase of about 80 trillion yen in accordance with the guideline for money market operations. Specifically, the Bank offered 750 billion to 3.5 trillion yen per operation and reduced the amount at quarter-ends, when supply and demand conditions for T-Bills tightened. Meanwhile, the required purchase amount of T-Bills increased due to the decrease in the amount outstanding of Funds-Supplying Operations against Pooled Collateral and a shortage of funds caused by changes in treasury funds and others. As a result, the amount outstanding of T-Bills purchased at the end of August 2016 reached 45.1 trillion yen, the highest level since 2000.

Since the introduction of QQE with Yield Curve Control at the September 2016 MPM, no operating target regarding the monetary base has been set. Under the framework of yield curve control, the Bank decides the appropriate purchase amount per operation, considering its effects on financial markets, such as those on the supply and demand conditions and yields of T-Bills, as well as on relevant interest rates including the repo rate and short-term JGB yields.

Specifically, from September 2016, the Bank offered 250 billion to 3 trillion yen per operation. On March 23, 2017, the Bank decided to suspend offers for purchases during the rest of March to cope with tighter supply and demand conditions for JGSs in the repo market at the fiscal year-end. As a result, the amount outstanding of T-Bills purchased decreased at a pace of about 1-2 trillion yen every month, and stood at 32.6 trillion yen at the end of March, a decrease of 4.3 trillion yen from a year earlier (Chart 4-14).

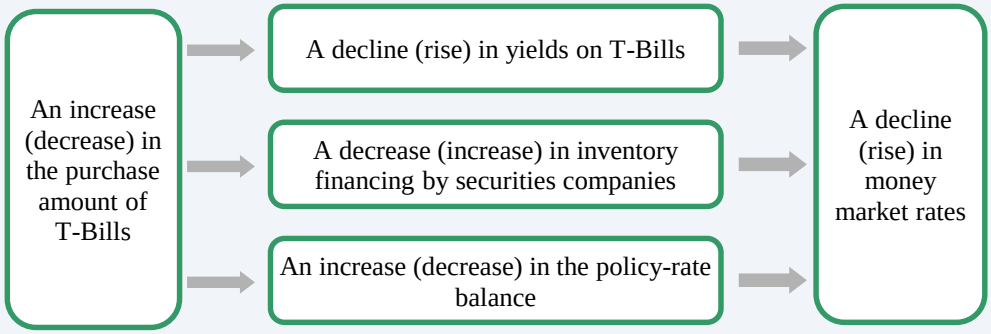
Following the changes in the frameworks and implementation from September 2016, the Bank, as mentioned above, decided to provide projections for the amount outstanding of its T-Bill holdings at the end of the following month in the "Outline of Outright Purchases of Japanese Government Securities" (monthly "Outline") released at the end of each month, with the aim of enhancing transparency in purchases of T-Bills.

Chart 4-14: Amounts Outstanding of T-Bills Purchased and Amounts of Monthly Purchases of T-Bills



Box 10: Outright Purchases of T-Bills and Money Market Rates

The Bank conducts outright purchases of T-Bills, taking into account the effects on financial markets, as mentioned in the main text. The changes in the purchase amount affect money market rates mainly through three routes.



First, an increase or decrease in the purchase amount of T-Bills affects yields on T-Bills, and this affects the uncollateralized call rate and repo rate through arbitrage between markets.

Arbitrage functions between interest rates in the T-Bill market, the repo market, and the uncollateralized call market as investors look for a means of investment. For example, a rise in yields on T-Bills enhances the attractiveness of investing in T-Bills compared to investing in repos. If this causes investment funds to shift from repos to T-Bills, upward pressure is exerted on the repo rate. Moreover, if the repo rate rises, funds normally invested in the call market shift to the repo market. This could cause the uncollateralized call rate to rise. Needless to say, incentives of market participants for conducting repo transactions in which they transact funds and bonds at the same time, and those for uncollateralized call transactions are not exactly the same. Therefore, it warrants attention that a smooth arbitrage relationship does not always exist between the two markets.

Second, an increase or decrease in the purchase amount of T-Bills affects the repo rate through an increase or decrease in the level of inventories at securities companies. For example, if the Bank reduces the purchase amount of T-Bills from the market, the level of inventories at securities companies would increase. In such a case, securities companies, under normal circumstances, would usually borrow cash in the repo market to finance their increased inventories until they are sold. This, in turn, could put upward pressure on the repo rate.

Third, an increase or decrease in the purchase amount of T-Bills affects the size of the policy-rate balance in the short term through an increase or decrease in financial institutions' current account balances at the Bank. For example, a decrease in purchases of T-Bills by the Bank reduces the supply of funds to financial institutions, which, in turn reduces the policy rate balance. As a result, the incentives of financial institutions that hold policy-rate balances to invest weaken, and could in turn exert upward pressure on the uncollateralized call rate and the repo rate.

However, it warrants attention that an increase or decrease in the purchase amount of T-Bills does not lead to an increase or decrease in current account balances at the Bank by the same amount. For example, if the Bank reduces the purchase amount of T-Bills, it could in part lead to an increase in the purchase amount of T-Bills by overseas central banks. In this case, the deposits of these institutions at the Bank (and not the current account deposits of private financial institutions) decrease by the amount of investment funds paid. If this becomes the case, the policy-rate balance would not decrease as much as the amount outstanding of T-Bills purchased and the effects on the uncollateralized call rate would be alleviated to the same extent.

D. Other Operations

1. Funds-Supplying Operations against Pooled Collateral

The Bank continued to offer Funds-Supplying Operations against Pooled Collateral with a fixed interest rate of 0 percent at a pace of 800 billion yen per operation once a week. Regarding the duration of the loans, the Bank offered loans with a 3-month term until fiscal 2015, but as the need to adjust current account balances at the Bank with greater precision increased at each financial institution since the introduction of QQE with a Negative Interest Rate, the Bank decided to change the duration of the loans to two weeks from March 2016 as the operations came due. Nonetheless, perceptions of abundant liquidity remained extremely strong in the money markets and demand for the Funds-Supplying Operations against Pooled Collateral stayed sluggish.

The Bank also continued to offer operations with a 3-month term at a pace of 1.5 trillion yen per operation until the middle of 2016 for loans that matured from the operations conducted between April and May 2013 immediately after the introduction of QQE, which were offered with a 1-year term at a pace of 1.5-2 trillion yen per operation. However, demand for these operations was also sluggish for the same reasons described above. The Bank therefore consolidated the seven series of loans that existed in June 2016 into two series by October 2016, reducing the amount of offer per operation from 1.5 trillion yen to 500 billion yen.

At the MPM held in September 2016, the longest maturity of Fixed-Rate Funds-Supplying Operations the Bank could offer was extended from one year to ten years as a measure to control the yield curve smoothly. Nonetheless, the Bank did not offer loans with a term of more than one year during fiscal 2016 because it deemed it sufficient to conduct outright purchases of JGBs, including fixed-rate purchase operations, appropriately for day to day yield curve control under the subsequent market environment.

As a result, the amount outstanding of the operations stood at 0.7 trillion yen at the end of March 2017, a substantial decrease of 2.9 trillion yen from a year earlier (Charts 4-15 and 4-16).

Chart 4-15: Amounts Outstanding and Amounts of Monthly Operations of the Funds-Supplying Operations against Pooled Collateral

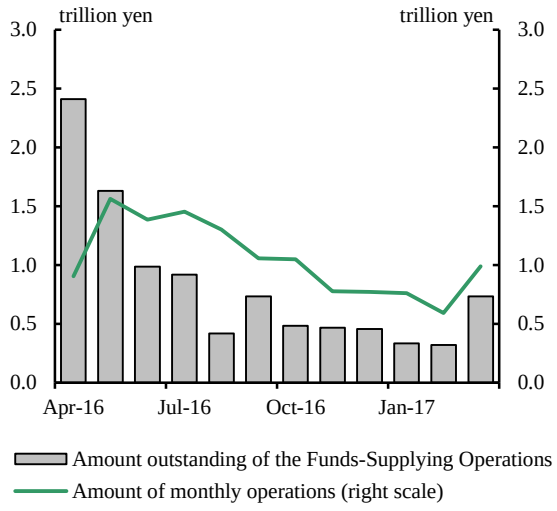
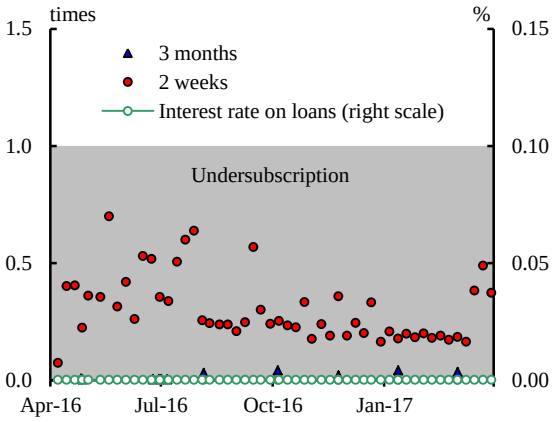


Chart 4-16: Bid-to-Cover Ratios of the Funds-Supplying Operations against Pooled Collateral



2. Growth-Supporting Funding Facility

During fiscal 2016, the Bank disbursed loans once a quarter, four times in total, under the main rules for the Growth-Supporting Funding Facility introduced in June 2010. In addition, the Bank disbursed new loans four times each under a line of credit for equity investments and assets-based lending established in June 2011 (following special rules for equity investments and asset-based lending), and under 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). The Bank disbursed new loans five times under 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 4-17). The Bank disbursed new loans under special rules for the U.S. dollar lending arrangement once more than those under other lines of credit, because it disbursed additional loans in October 2016 reflecting its decision at the July 2016 MPM to increase the size of these loans from 12 billion U.S. dollars to 24 billion U.S. dollars. The Bank offered loans with an interest rate of 0 percent per annum in accordance with the decision made at the January 2016 MPM, except for the loans under special rules for the U.S. dollar lending arrangement.

At the end of March 2017, the outstanding balance of loans under the main rules reached 6.3 trillion yen, an increase of 0.8 trillion yen from a year earlier, out of the ceiling of 10 trillion yen. The outstanding balance of loans under the special rules for equity investments and asset-based lending stood at 68.0 billion yen (a decrease of 19.8 billion yen from a year-earlier level) out of the ceiling of 500 billion yen and those under the special rules for small-lot investments and loans stood at 12.9 billion yen (an increase of 1.4 billion yen from a year-earlier level) out of the ceiling of 500 billion yen, both maintaining some room relative to the ceiling for loans. The outstanding balance of loans under the special rules for the U.S. dollar lending arrangement stood at 20.7 billion dollars at the end of March 2017, a substantial increase of 8.7 billion dollars from a year earlier, following the increase in the size of the loans in July 2016 (Chart 4-18).

Chart 4-17: Loan Disbursement under the Growth-Supporting Funding Facility

(Main rules)

100 million yen

24th (May 31, 2016)	25th (Aug. 31)	26th (Nov. 30)	27th (Feb. 28, 2017)	Outstanding balance of loans (as of end-Mar. 2017)
6,086	4,437	5,630	5,249	63,292 (7,452)

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

100 million yen

20th (May 30, 2016)	21st (Aug. 30)	22nd (Nov. 29)	23rd (Feb. 27, 2017)	Outstanding balance of loans (as of end-Mar. 2017)
20	4	39	20	680

(Special rules for small-lot investments and loans)

100 million yen

17th (May 30, 2016)	18th (Aug. 30)	19th (Nov. 29)	20th (Feb. 27, 2017)	Outstanding balance of loans (as of end-Mar. 2017)
19.06	8.78	13.12	16.29	129.48 (45.92)

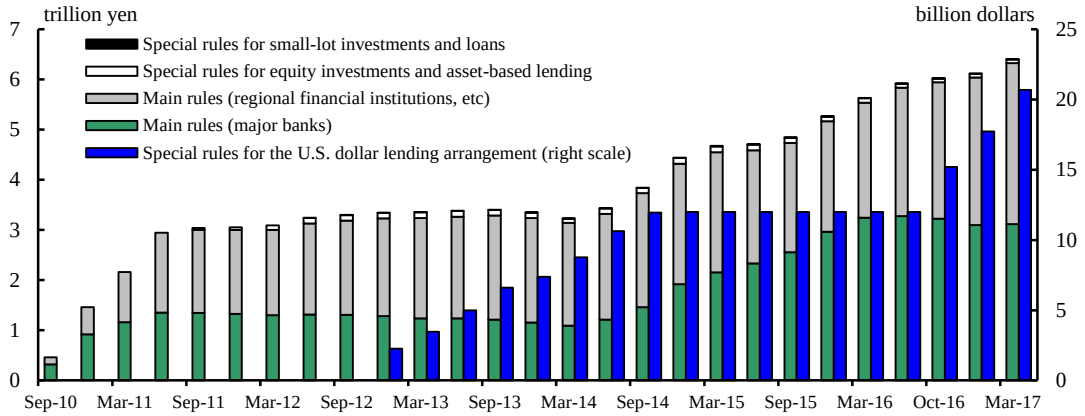
(Special rules for the U.S. dollar lending arrangement)

million U.S. dollars

16th (May 30, 2016)	17th (Aug. 30) + 17th (additional loans) (Oct. 7)	18th (Nov. 29)	19th (Feb. 27, 2017)	Outstanding balance of loans (as of end-Mar. 2017)
123	4,000	4,000	3,994	20,681

Notes: 1. The date in parentheses is the offer day, and the value denotes new loans. The same applies for Charts 4-19, 4-21, and 4-22.
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 4-19.

Chart 4-18: Amounts Outstanding of the Growth-Supporting Funding Facility



3. Stimulating Bank Lending Facility

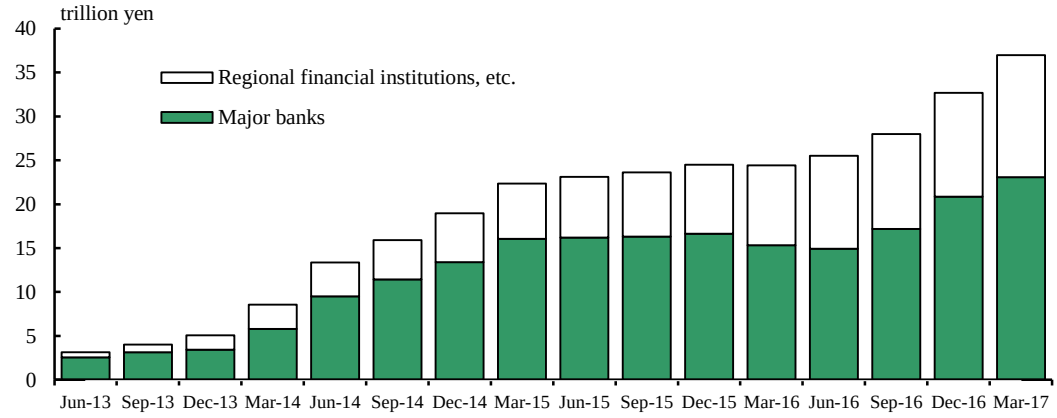
During fiscal 2016, the Bank disbursed loans once a quarter, four times in total, under the Stimulating Bank Lending Facility introduced in December 2012 (Chart 4-19). All these loans were offered with an interest rate of 0 percent per annum. The outstanding balance at the end of March 2017 reached 37.0 trillion yen, a substantial increase of 12.6 trillion yen from a year earlier (Chart 4-20). This was attributable to the following: (1) the decision at the MPM held in January 2016 to reduce the interest rate on new loans to 0 percent per annum; (2) the decision at the MPMs held in March and April to introduce a measure where the increase in the amount outstanding of financial institutions' borrowing under this facility from the end of March 2016 would be added to their macro add-on balances (twice as much as the amount of increase would be included in their macro add-on balances); and (3) the implementation of the framework in which the Bank would accept financial institutions' housing loans portfolio as collateral through a trust scheme from June 30, 2016.

Chart 4-19: Loan Disbursement under the Stimulating Bank Lending Facility

100 million yen

Jun. 2016 (Jun. 16)	Sep. 2016 (Sep. 14)	Dec. 2016 (Dec. 13)	Mar. 2017 (Mar. 15)	Outstanding balance of loans (as of end-Mar. 2017)
62,028	49,502	53,971	63,355	369,963 (11,716)

Chart 4-20: Amounts Outstanding of the Stimulating Bank Lending Facility



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

During fiscal 2016, the Bank disbursed loans once a month, twelve times in total (Chart 4-21). All these loans were offered with an interest rate of 0 percent per annum and a 1-year term. The outstanding balance at the end of March 2017 stood at 409.0 billion yen out of the ceiling of 1 trillion yen (an increase of 94.6 billion yen from a year-earlier level).

Chart 4-21: Loan Disbursement under the Funds-Supplying Operations to Support Financial Institutions in Disaster Areas

100 million yen

60th (Apr. 18, 2016)	61st (May 16)	62nd (Jun. 20)	63rd (Jul. 17)	64th (Aug. 22)	65th (Sep. 15)
1,068	0	543	1,105	428	808

66th (Oct. 17)	67th (Nov. 18)	68th (Dec. 15)	69th (Jan. 17, 2017)	70th (Feb. 20)	71st (Mar. 17)	Outstanding balance of loans (as of end-Mar. 2017)
83	0	55	0	0	0	4,090

5. Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake

At the April 2016 MPM, the Bank decided to introduce Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake, with a view to supporting financial institutions in disaster areas affected by the Kumamoto Earthquake in their effort to meet demand for funds for restoration and rebuilding. The Bank also decided to set the total amount of loans at 300 billion yen, the interest rate on loans at 0 percent per annum, and the duration of the loans at one year.

During fiscal 2016, the Bank disbursed loans once a month from June, ten times in total. The outstanding balance at the end of March 2017 stood at 116.1 billion yen (Chart 4-22).

Chart 4-22: Loan Disbursement under the Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake

100 million yen

1st (Jun. 8, 2016)	2nd (July 15)	3rd (Aug. 22)	4th (Sep. 15)	5th (Oct. 17)
369	0	467	2	158

6th (Nov. 18)	7th (Dec. 15)	8th (Jan. 17, 2017)	9th (Feb. 20)	10th (Mar. 17)	Outstanding balance of loans (as of end-Mar. 2017)
1	0	164	0	0	1,161

6. Sale of JGSs with Repurchase Agreements

As part of "Measures to Cope with Tighter Supply and Demand Conditions of Japanese Government Securities in the Repo Market at the End of March" released on March 23, 2017, the Bank offered sale of JGSs with repurchase agreements (with a 1-week term; with the exercise date as March 27 and the repurchase date as April 3) for the first time in about eight years since November 2008. The amount of the offer was 1 trillion yen and the securities to be sold were T-Bills issue number 608. The accepted bid rate was minus 0.11 percent, which was higher than the market rate[17] on the previous day by about 0.7 percent.

When the Bank offers sale of JGSs with repurchase agreements, it absorbs funds from the markets, albeit temporarily, and the operations before November 2008 were carried out with this objective. However, it should be noted that the operations conducted this time was aimed at "supplying JGSs" in the repo market, where the supply and demand conditions for JGSs were tightening.

[17] Tokyo repo rate on March 23, 2017 (1-week GC repo rate; with the exercise date as March 27 and the repurchase date as April 3) was minus 0.788 percent.

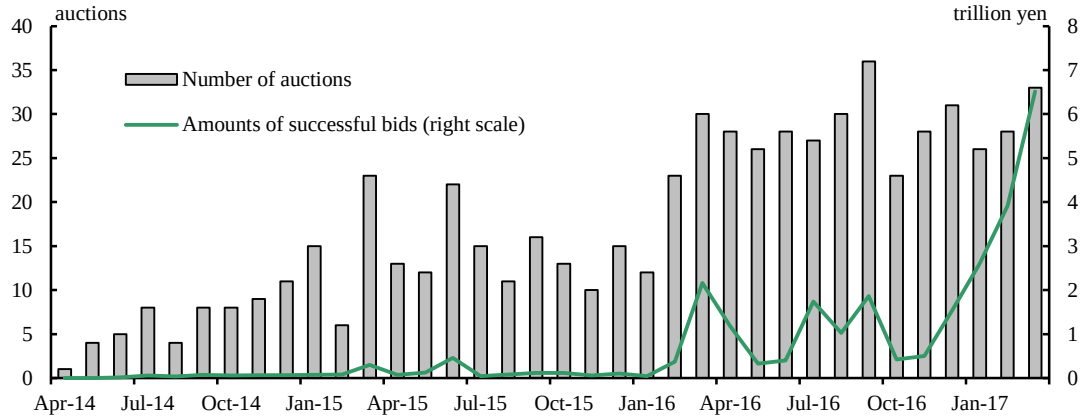
7. Securities Lending Facility

The Bank offers the Securities Lending Facility to provide a temporary and secondary source of JGSs to the markets, with a view to facilitating its market operations, as well as to contributing to the smooth settlement of both JGSs and funds.

The number of securities lending facility auctions conducted in fiscal 2016 increased substantially to 344 from 192 in fiscal 2015 (Chart 4-23). The use of the facility increased primarily due to its becoming more user friendly against the background of the Bank's successive relaxation of its conditions for use to ensure the smooth settlement of JGSs. On this basis, from the perspective of financial institutions, the facility is used to (1) cover failures caused, for example, by incorrect orders from non-residents and (2) acquire issues for which they could not cover short positions in the markets due to a tightening of the supply and demand conditions of JGSs. In either case, the facility serves as a temporary and a secondary source of JGSs when market participants try but fail to obtain JGSs on their own.

For example, regarding the latter, the use of the Securities Lending Facility tended to increase markedly at quarter-ends after the introduction of QQE with a Negative Interest Rate, because some financial institutions refrained from borrowing cash (lending JGSs) in the repo market. As these developments were especially evident toward the end of March 2017, the Bank relaxed the upper limit on the number of issues of JGSs to be requested through the Securities Lending Facility as part of "Measures to Cope with Tighter Supply and Demand Conditions of Japanese Government Securities in the Repo Market at the End of March" (released on March 23). Specifically, for the Securities Lending Facility offered between March 31 and April 7, the Bank temporarily relaxed the upper limit on the number of issues of JGSs, allowed to be requested by a counterparty per auction, from 20 to 30 issues. As a result, on March 31, the amount of successful bids was 2,351.5 billion yen and the total number of issues of JGSs requested was 59, both substantially exceeding historical highs (998.8 billion yen on February 14, 2017, and 43 issues on March 21, respectively).

Chart 4-23: Number of the Securities Lending Facility Auctions



8. U.S. Dollar Funds-Supplying Operations

During fiscal 2016, 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 within the amount of eligible collateral submitted to the Bank by individual financial institutions.

The operations are used as a backstop for such cases as when issues arise regarding the availability of U.S. dollars, despite market participants' efforts to obtain them in the markets, or when tensions heighten in the U.S. dollar money market, as for example when there is a substantial rise in the U.S. dollar funding rate.

With respect to the use of these operations during fiscal 2016, bidding increased for offers that matured over quarter-ends (the ends of June, September, and December 2016, and March 2017), when U.S. dollar funding costs increased in the markets. In particular, the amount of bidding for offers that matured over the end of June 2016, immediately after the referendum on the United Kingdom's exit from the European Union (EU) stood at 1,475 million U.S. dollars, which slightly exceeded the usual bidding amount for offers that matured over quarter-ends. Bidding for offers other than these was limited to several per month in small amounts to confirm and maintain operational procedures.

9. Securities Lending to Provide JGSs as Collateral for the U.S. Dollar Funds-Supplying Operations

At the MPM held in July 2016, the Bank introduced a facility for lending JGSs to be pledged as collateral for the U.S. Dollar Funds-Supplying Operations as part of measures to ensure smooth funding in foreign currencies by firms and financial institutions. Under this facility, the Bank provides counterparties to the U.S. Dollar Funds-Supplying Operations with the Bank's JGSs to be pledged as collateral to the Bank. During fiscal 2016, the use of the facility was limited to small amounts to confirm operational procedures.

E. Complementary Lending Facility

During fiscal 2016, 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 powerful monetary easing, which created strong perceptions of abundant liquidity in the money market.

V. Changes in the Frameworks Related to Market Operations

A. Introduction of QQE with Yield Curve Control

At the MPM held in September 2016, the Bank decided to introduce QQE with Yield Curve Control with a view to achieving the price stability target of 2 percent at the earliest possible time. The new policy framework consists of two major components: the first is yield curve control, in which the Bank controls short-term and long-term interest rates; and the second is an inflation-overshooting commitment, in which the Bank commits itself to expanding the monetary base until the year-on-year rate of increase in the observed CPI exceeds the price stability target of 2 percent and stays above the target in a stable manner.

Under this framework, the Bank decided to set the guideline for market operations for the intermeeting period as follows.[18] As for the short-term policy interest rate, it would apply a negative interest rate of minus 0.1 percent to the policy-rate balances in current accounts held by financial institutions at the Bank. Regarding the long-term interest rate, it would purchase JGBs so that 10-year JGB yields would remain more or less at the current level of around 0 percent. With regard to the amount of JGBs purchased, the Bank would conduct purchases more or less in line with the current pace -- an annual pace of increase in the amount outstanding of its JGB holdings of about 80 trillion yen -- aiming to achieve the target level of a long-term interest rate specified by the guideline.

The Bank also decided that JGBs with a wide range of maturities would continue to be eligible for purchase, while the guideline for the average remaining maturity of the Bank's JGB purchases would be abolished.

In addition, at the MPM held in September 2016, the Bank decided to introduce the following new operations as measures to control the yield curve smoothly.

[18] The Bank maintained the guideline for market operations at the four MPMs held in fiscal 2016 (October and December 2016 and January and March 2017).

(1) Outright purchases of JGBs with yields designated by the Bank (fixed-rate purchase operations)
(2) Fixed-Rate Funds-Supplying Operations for a period of up to ten years

B. Other Changes in the Frameworks

1. Adoption of Supplementary Measures for QQE

Of the supplementary measures for QQE which were decided to be introduced at the MPM held in December 2015, the Bank started with purchases of ETFs composed of stocks issued by "firms that are proactively investing in physical and human capital" in April 2016, and made effective the framework in which the Bank would accept financial institutions' housing loans portfolio as collateral through a trust scheme from June 30, 2016 as preparations from a practical perspective were completed.

2. Introduction of Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake

At the MPM held in April 2016, the Bank decided to introduce Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake, with a view to supporting financial institutions in disaster areas affected by the Kumamoto Earthquake in their effort toward meeting demand for funds for restoration and rebuilding.

The specifics of this operation were as follows: the total amount of loans was set at 300 billion yen; the Bank would provide loans with a 1-year term at an interest rate of 0 percent per annum within the amount of eligible collateral to financial institutions that have business offices that conduct lending in disaster areas; and twice as much as the amount outstanding of financial institutions' borrowing through this operation would be added to their macro add-on balances. In addition, the Bank decided to relax the eligibility standards of debt of companies in disaster areas, with the aim of securing sufficient financing capacity of financial institutions in disaster areas.

3. Increase in Purchases of ETFs

Taking into account increased uncertainties surrounding overseas economies mainly against the backdrop of the United Kingdom's vote to leave the EU, the Bank decided at the MPM held in July 2016 to purchase ETFs so that the amount outstanding of its holdings would increase at an annual pace of about 6 trillion yen, almost doubling the previous pace of about 3.3 trillion yen, in order to prevent these uncertainties from leading to a deterioration in business confidence and consumer sentiment.

4. Measures to Ensure Smooth Funding in Foreign Currencies by Japanese Firms and Financial Institutions

At the MPM held in July 2016, the Bank, as measures to ensure smooth funding in foreign currencies by Japanese firms and financial institutions, decided to double the size of its U.S. dollar lending program to support growth (the Special Rules for the U.S. Dollar Lending Arrangement to Enhance the Growth Supporting Funding Facility) from 12 billion U.S. dollars to 24 billion U.S. dollars, and to establish a new facility for lending JGSs to be pledged as collateral for the U.S. Dollar Funds-Supplying Operations. Amid increased uncertainties surrounding overseas economies and continued volatile developments in global financial markets, the measures were aimed to prevent these uncertainties from leading to deterioration in business confidence and consumer sentiment as well as to ensure smooth funding in foreign currencies by Japanese firms and financial institutions, thereby supporting their proactive economic activities.

5. Change in the Maximum Amount of Each ETF to be Purchased

At the MPM held in September 2016, the Bank decided that the maximum amount of each ETF to be purchased would be set so that the Bank's purchase would take into account the total market value of that ETF and the coverage of the index which that ETF tracks in order to facilitate smooth market operations.

In accordance with the above, the Bank decided to make the following changes to the maximum amount of each ETF to be purchased and implement the changes from October 2016.

(1) Of the annual purchase amount of 5.7 trillion yen, 3 trillion yen would be used for ETFs that track any of the three indices (the TOPIX, the Nikkei 225 Stock Average, or the JPX-Nikkei Index 400 [JPX-Nikkei 400]) as before. The maximum amount of each ETF to be purchased shall be set so that the Bank's purchase would roughly be proportionate to the total market value of that ETF.

(2) The remaining 2.7 trillion yen would be used for ETFs that track the TOPIX. The maximum amount of each ETF to be purchased shall be set so that the Bank's purchase would roughly be proportionate to the total market value of that ETF.

6. Extension of the Application Periods for the Loan Support Program and Other Measures

At the MPM held on January 2017, the Bank decided to extend by one year the deadlines for new applications for such measures as the Stimulating Bank Lending Facility, the Growth-Supporting Funding Facility, and Funds-Supplying Operation to Support Financial Institutions in Disaster Areas affected by the Great East Japan Earthquake and by the Kumamoto Earthquake. The decision was made to continue to (1) encourage the positive behaviors of financial institutions, as well as those of firms and households, with a view to stimulating bank lending and strengthening the foundations for economic growth, and (2) support financial institutions in disaster areas in their initiatives toward rebuilding.

VI. Actions to Enhance Dialogue with Market Participants

Under powerful monetary easing, the Bank carefully examined the developments and functioning of financial markets as well as the impact on financial markets of the Bank's operations and conducted daily market monitoring and various market surveys with a view to further deepening dialogues with market participants. Moreover, after its decision to introduce QQE with Yield Curve Control, the Bank explained to market participants the details of the policy and its impact on financial markets. Furthermore, the Bank's Financial Markets Department took various initiatives in fiscal 2016 regarding its dialogue with market participants as follows:

A. Dialogue with Market Participants

1. Holding of the Meetings on Market Operations

The Meeting on Market Operations, which in principle is held twice a year with eligible counterparties for market operations, was held on October 19, 2016, and February 21, 2017. At these meetings, the Bank explained and exchanged opinions with participants on: (1) recent developments in the financial markets and market operations; (2) liquidity in the JGB market; (3) trends in the money market in Japan (including results of the Tokyo Money Market Survey [August 2016]); and (4) shortening of the JGB settlement cycle to T+1.

2. Holding of the Bond Market Group Meeting

The Bond Market Group Meeting, which in principle is held twice a year with bond market participants, was held on June 6 and 7, 2016, and December 6 and 7, 2017. 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

The Bank hosted the Repo Market Forum on March 22, 2017, to enable wide-ranging players in the repo market to discuss their efforts toward further development of the repo market. In this forum, the Bank exchanged views with participants on: (1) recent developments in the repo market; (2) discussions on the repo market at international forums and preparation for the domestic implementation of internationally agreed policies; and (3) progress toward shortening the JGB settlement cycle.

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

The Bank hosted a working-level meeting, which in principle is held once a year, with the Study Group for Activation of Short-Term Money Markets, comprising representatives of businesses that conduct short-term money market transactions, on November 11, 2016. At this meeting, the Bank exchanged opinions on: (1) recent developments in the short-term money markets, and (2) initiatives by the Study Group for Activation of Short-Term Money Markets.

B. Response to Requests from Market Participants regarding Market Operations

The Bank has been taking steps to improve and enhance market operations based on requests from market participants. In fiscal 2016, the Bank decided to respond to the requests listed below (Chart 6).

(Chart 6) Responses to Requests from Market Participants in Fiscal 2016

Providing an Excel-based tool that enables calculation of financial institutions' current account balances by tier	Based on requests from market participants, the Bank provided an Excel-based tool that enables each financial institution to calculate the upper bound on, and "unused allowance" in its macro add-on balance, as well as its basic balance, as needed.
Enhancing "BOJ Current Account Balances by Sector"	Based on requests from the Study Group for Activation of Short-Term Money Markets, the Bank released additional information about the breakdown of current account balances to which a zero interest rate is applied (the amounts added reflecting the increase in the amount outstanding of financial institutions' borrowing through the Loan Support Program and other measures) in "BOJ Current Account Balances by Sector."
Providing material with an overview of the operational procedures for loan disbursements under the Growth-Supporting Funding Facility and the Stimulating Bank Lending facility	Based on requests from the Study Group for Activation of Short-Term Money Markets, the Bank compiled a new list of the operational procedures for loan disbursements under the Growth-Supporting Funding Facility and the Stimulating Bank Lending Facility as reference material and informed eligible counterparties.
Releasing material with an overview of the Bank's eligible collateral framework	Based on requests from the Study Group for Activation of Short-Term Money Markets, the Bank compiled and released material that facilitates understanding of the Bank's eligible collateral framework as a whole.
Conducting funds supplying operation for business continuity plan (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 Operations (same-day-start) as part of the BCP training for three financial markets combined on October 20, 2016.

Reference: Number of Auctions and Eligible Counterparties for Market Operations

numbers

	Fiscal 2013	Fiscal 2014	Fiscal 2015	Fiscal 2016	Number of eligible counterparties
Outright purchases of JGBs	295	359	372	388	51
Outright purchases of T-Bills	53	50	50	48	51
Outright purchases of CP	36	36	36	36	36
Outright purchases of corporate bonds	12	12	12	12	36
Outright purchases of ETFs	77	71	86	93	—
Outright purchases of J-REITs	77	66	67	74	—
Funds-Supplying Operation against Pooled Collateral	111	77	74	64	271
Growth-Supporting Funding Facility	37	47	59	61	162
Stimulating Bank Lending Facility	10	15	17	18	213
Funds-Supplying Operations to Support Financial Institutions in Disaster Areas	12	12	12	12	36
Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake	—	—	—	10	12
Purchases of JGSs with repurchase agreements	0	0	1	0	51
Sales of JGSs with repurchase agreements	0	0	0	1	51
U.S. Dollar Funds-Supplying Operations	64	53	49	51	69
Securities Lending Facility	48	102	192	344	48
Total	832	900	1,027	1,212	—

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 the end of March 2017. The number of eligible counterparties for the Funds-Supplying Operation against Pooled Collateral is that for the 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).

3. The number of offers for outright purchases of ETFs excludes purchases of ETFs composed of stocks issued by "firms that are proactively investing in physical and human capital" (offered every business day since April 4, 2016).

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