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Market Operations in Fiscal 2017

Financial Markets Department

Bank of Japan

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Financial Markets Department, Bank of Japan

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I. Introduction

During fiscal 2017 (April 1, 2017 to March 31, 2018), the Bank of Japan pursued powerful monetary easing under Quantitative and Qualitative monetary easing (QQE) with Yield Curve Control. Under yield curve control, the Bank applied a negative interest rate of minus 0.1 percent to the policy-rate balances in current accounts held by financial institutions at the Bank as the short-term policy interest rate. Regarding the long-term interest rate, the Bank purchased Japanese government bonds (JGBs) so that 10-year JGB yields would remain at around 0 percent. Aside from JGBs, the Bank purchased a wide range of assets, including exchange-traded funds (ETFs), Japan real estate investment trusts (J-REITs), CP, and corporate bonds.

This paper explains market operations conducted under QQE with Yield Curve Control. 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 each measure in market operations and discusses 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 2017

A. Conduct of Market Operations

1. Monetary Policy Decisions and Guideline for Market Operations

During fiscal 2017, the Bank continued with QQE with Yield Curve Control introduced at the Monetary Policy Meeting (MPM) held on September 20 and 21, 2016, and pursued powerful monetary easing under the policy framework.

Specifically, this was a policy framework comprising the following. First, the guideline for market operations pertaining to yield curve control stipulated 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" as the short-term policy interest rate and, regarding the long-term interest rate, it "will purchase JGBs so that 10-year JGB yields will remain at around 0 percent." Second, guidelines for asset purchases, excluding those for JGB purchases, stipulated that "the Bank will purchase ETFs and J-REITs so that their amounts outstanding will increase at annual paces of about 6 trillion yen and about 90 billion yen, respectively," and that "as for CP and corporate bonds, the Bank will maintain their amounts outstanding at about 2.2 trillion yen and about 3.2 trillion yen, respectively." Third, with respect to its inflation-overshooting commitment, "the Bank will continue expanding the monetary base until the year-on-year rate of increase in the observed CPI (all items less fresh food) exceeds 2 percent and stays above the target in a stable manner."

In addition to the above, the Bank, at the MPM held on January 22 and 23, 2018, decided to extend by one year the deadlines for new applications for such measures as the Fund-Provisioning Measure to Stimulate Bank Lending (hereinafter 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" pertaining to JGBs and treasury discount bills (T-Bills) for the following month in advance on the last business day of each month.¹ With regard to JGBs, the monthly "Outline" has provided a range for the purchase size per auction for the following month and the specific dates of auctions for that month across the three main maturity zones (more than 1 year and up to 5 years, more than 5 years and up to 10 years, and more than 10 years).² As for T-Bills, the Bank provided in the "Outline" released until October 2017 its projections for the amount outstanding of its T-Bill holdings at the end of the month in a relatively narrow range. However, in order to ensure the flexibility of its conduct of market operations, the Bank has taken a different stance toward providing its projections for the amount outstanding of its T-Bill holdings, taking account of developments in the T-Bill market. Specifically, the Bank revised the "Outline" in November, to indicate the projections for the amount outstanding of its T-Bill holdings in a wider range. The Bank then decided not to refer to any specific amount outstanding of its T-Bill holdings starting from the "Outline" released in March 2018.

3. Summary of Operations

Based on the above guidelines for market operations and asset purchases as well as the monthly "Outline," the Bank conducted various operations during fiscal 2017 as described below.

Outright purchases of JGBs were carried out 10 times every month in accordance with the

¹ The Bank has also made advance announcements of the specific dates of auctions for outright purchases of CP and corporate bonds, Fund-Provisioning Measure to Support Strengthening the Foundations for Economic Growth (hereafter the "Growth-Supporting Funding Facility,") Stimulating Bank Lending Facility, Funds-Supplying Operation to Support Financial Institutions in Disaster Areas, Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake, and U.S. Dollar Funds-Supplying Operations.

² The "Outline" has provided the frequency of offers for maturity zones other than the three main maturity zones.

monthly "Outline." The Bank achieved the formation of a yield curve 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) by flexibly adjusting the purchase size per auction depending on market developments at the time and conducting fixed-rate purchase operations as necessary.

With respect to outright purchases of T-Bills, the Bank flexibly adjusted the purchase size per auction, depending on developments in yields on T-Bills and their supply and demand conditions, while considering the weight of T-Bill purchases within the framework of yield curve control. In particular, the Bank offered outright purchases of T-Bills once a week in principle and purchased 100 billion to 2 trillion yen of T-Bills per auction.

Outright purchases of CP and corporate bonds, albeit with some monthly fluctuations, were on average carried out in line with the guideline that stipulated that "the Bank will maintain their amounts outstanding at about 2.2 trillion yen and about 3.2 trillion yen, respectively." Outright purchases of ETFs and J-REITs were also carried out in line with the guideline that stipulated that "the Bank will purchase ETFs and J-REITs so that their amounts outstanding will increase at annual paces of about 6 trillion yen and about 90 billion yen, respectively."

Offers were made once every three months for both the Growth-Supporting Funding Facility and the 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.

The Bank offered the Fixed-Rate Funds-Supplying Operations against Pooled Collateral with a 2-week term once a week and those with about a 100-day term once every seven weeks. Nonetheless, the demand for these operations continued to be sluggish, mainly because perceptions of abundant liquidity remained extremely strong in money markets.

The Bank, in principle, offered 1-week U.S. Dollar Funds-Supplying Operations based on the U.S. dollar liquidity swap arrangements with the Federal Reserve System (Fed) once a week. Although many bidders utilized these operations to confirm and maintain their operational arrangements,

there were some occasions where bidding amounts increased somewhat for offers across quarter-ends against the background of rising U.S. dollar funding costs in the markets. Securities Lending to Provide Japanese Government Securities (JGSs) as Collateral for the U.S. Dollar Funds-Supplying Operations was only used for training purposes.

During fiscal 2017, requests for offers of the Securities Lending Facility were submitted on all business days except for seven days: July 21; August 2, 3, 10, 25; October 26; and November 22. The facility continued to be used quite frequently; however, the amount of successful bids was relatively stable.

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

The Bank, in principle, has reviewed the "Benchmark Ratio Used to Calculate the Macro Add-on Balance" once every three months to adjust the macro add-on balance, to which a zero interest rate is applied, depending on changes in the current account balance at the Bank as a whole, and through it, the policy-rate balance, to which a negative interest rate of minus 0.1 percent is applied, to the appropriate levels.

During fiscal 2017, the Bank set the Benchmark Ratio at 17.0 percent during the reserve maintenance periods from March to May 2017, 20.0 percent during those from June to August, 21.5 percent during those from September 2017 to February 2018, and at 23.5 percent in the March 2018 reserve maintenance period. As a result, the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" has stayed at about 10 trillion yen on average, albeit with some monthly fluctuations.

B. The Bank's Balance Sheet

Under the conduct of the aforementioned market operations, the Bank's balance sheet and the monetary base expanded (Chart 2-1).

Specifically, the Bank's balance sheet stood at 528.5 trillion yen at the end of March 2018, an increase of 38.4 trillion yen from a year earlier. Meanwhile, the monetary base continued to expand, reaching 487.0 trillion yen at the end of March 2018, an increase of 39.7 trillion yen from

a year earlier.

On the asset side of the balance sheet, the Bank's purchases of JGBs, ETFs, and J-REITs under QQE with Yield Curve Control led to an increase in the amounts outstanding of these assets.

The amounts outstanding of major assets at the end of March 2018 indicated that they all increased from their year-earlier levels, in line with the guidelines for asset purchases, with JGBs increasing by 49.4 trillion yen to 426.6 trillion yen, ETFs by 6.0 trillion yen to 18.9 trillion yen, and J-REITs by 87.8 billion yen to 470.1 billion yen. 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 2.1 trillion yen from the year-earlier level to 45.6 trillion yen.

The amount outstanding of T-Bills purchased decreased by 13.9 trillion yen from the year-earlier level to 18.8 trillion yen at the end of March 2018. This was because the Bank flexibly adjusted the purchase size per auction, depending on developments in yields on T-Bills and their supply and demand conditions under the framework of yield curve control. The amount outstanding of the Funds-Supplying Operations against Pooled Collateral decreased by 0.4 trillion yen from the year-earlier level to 0.4 trillion yen at the end of March 2018. This reflected extremely strong perceptions of abundant liquidity that continued to be evident in money markets.

On the liability side of the balance sheet, current account balances at the Bank increased by 35.5 trillion yen from the year-earlier level to 378.2 trillion yen at the end of March 2018, due to the Bank's provision of funds, mainly through large-scale asset purchases.

Chart 2-1: The Bank's Balance Sheet

trillion yen

	End-Mar. 2013	End-Mar. 2014	End-Mar. 2015	End-Mar. 2016	End-Mar. 2017	End-Mar. 2018	Year-on- year
JGBs	91.3	154.2	220.1	301.9	377.1	426.6	+ 49.4
CP	1.2	1.9	2.0	2.0	2.0	2.1	+ 0.0
Corporate bonds	2.9	3.2	3.2	3.2	3.2	3.2	▲ 0.0
ETFs	1.5	2.9	4.5	7.6	12.9	18.9	+ 6.0
J-REITs	0.12	0.15	0.21	0.29	0.38	0.47	+ 0.09
Loan Support Program	3.4	11.8	27.0	30.1	43.4	45.6	+ 2.1
Outright purchases of T-Bills	16.4	31.6	37.9	36.9	32.6	18.8	▲ 13.9
Funds-Supplying Operations against Pooled Collateral	21.7	14.1	6.8	3.7	0.7	0.4	▲ 0.4
Total assets (including others)	164.8	241.6	323.6	405.6	490.1	528.5	+ 38.4
Banknotes	83.4	86.6	89.7	95.6	99.8	104.0	+ 4.2
Current account balances	58.1	128.7	201.6	275.4	342.8	378.2	+ 35.5
Total liabilities and net assets (including others)	164.8	241.6	323.6	405.6	490.1	528.5	+ 38.4
Monetary base	146.0	219.9	295.9	375.7	447.3	487.0	+ 39.7

Note: Figures for end-March 2018 are preliminary.

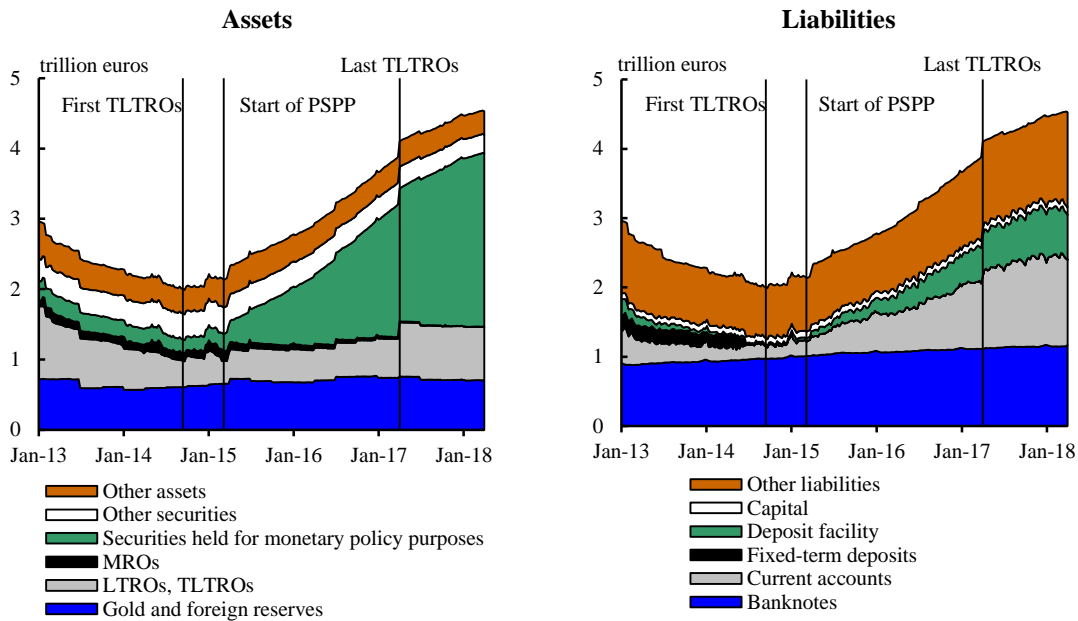
Box 1: Comparison of Monetary Policies and the Balance Sheets of Major Central Banks

This box outlines developments in monetary policies of major central banks overseas during fiscal 2017.

The European Central Bank (ECB) (1) maintained the negative interest rate policy, in which the interest rate on excess reserves and the deposit facility was set at minus 0.4 percent, and (2) continued with its asset purchase programmes centered on the public sector purchase programme (PSPP) for purchasing bonds and agency securities, including those issued by euro area central governments. The ECB gradually reduced its monthly net purchases under its asset purchase programmes from 80 billion euros to 60 billion euros in April 2017, and then to 30 billion euros in January 2018. Meanwhile, the ECB extended the duration of its asset purchases by nine months from "March 2017" to "December 2017," and then by another nine months to "September 2018."

Under such circumstances, the ECB's balance sheet has continued to expand since March 2015 following the commencement of the PSPP. On the asset side, the amounts outstanding of its asset purchase programmes, particularly those of the PSPP, corporate sector purchase programme (CSPP; commenced in June 2016), asset-backed securities purchase programme (ABSPP; commenced in November 2014), and the covered bond purchase programme (CBPP3; commenced in October 2014), have increased. On the liabilities side, current account balances at the ECB have increased due to various asset purchase programmes (Box Chart 1-1).

Box Chart 1-1: The ECB's Balance Sheet



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

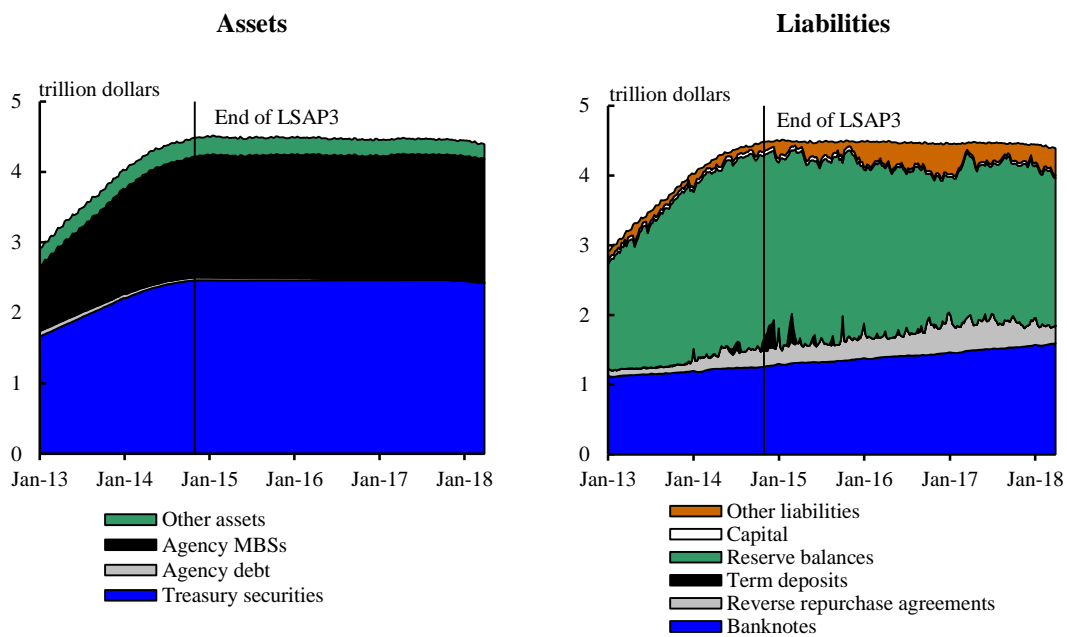
The Fed raised its target range for the federal funds (FF) rate in June and December 2017, and again in March 2018. Specifically, it raised the target range for the FF rate from 0.75-1.00 percent to 1.00-1.25 percent in June 2017, to 1.25-1.50 percent in December, and to 1.50-1.75 percent in March 2018, each time by 25 basis points, amounting to 75 basis points in total.

With respect to asset purchases, the Fed, even after terminating new purchases of agency mortgage-backed securities (MBSs; commenced in September 2012) and government bonds (commenced in January 2013) under the large-scale asset purchase (LSAP3) program, continued to reinvest funds redeemed from purchased assets and maintained the size of its balance sheet. However, the Fed decided in September 2017 to constrain a part of such reinvestments and reduce its balance sheet size. Specifically, the Fed decided, effective October 2017, to reinvest each month's principal payments from Treasury securities, and agency debt and agency MBSs to the extent that such payments exceed predetermined caps: 6 billion U.S. dollars for the former and 4 billion U.S. dollars for the latter. It was decided that the cap amounts would be raised every three months to as much as 30 billion U.S. dollars for Treasury securities and 20 billion U.S.

dollars for agency debt and agency MBSs.

Under these circumstances, the size of the Fed's balance sheet generally remained unchanged from October 2014 to September 2017, but has decreased very modestly since October 2017 (Box Chart 1-2).

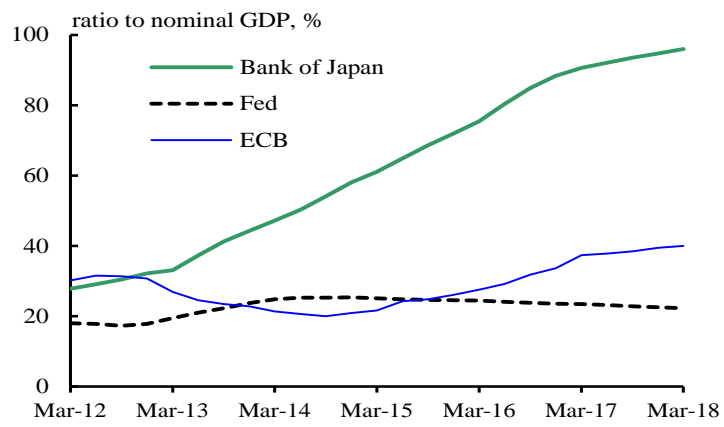
Box Chart 1-2: The Fed's Balance Sheet



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, the ratio for the Bank of Japan stood at some 96 percent as of March 31, 2018. This ratio remained extremely high compared with that of the Fed and the ECB, which were around 22 percent and around 40 percent, respectively (Box Chart 1-3).

Box Chart 1-3: Balance Sheets of Major Central Banks



Notes: 1. Calculated by dividing the size of the balance sheets at the quarter-end by the nominal GDP of the corresponding quarter.
2. With respect to the ECB, figures for the first quarter of 2018 are calculated by using the nominal GDP of the last quarter of 2017.

C. Developments in Exogenous Sources of Changes in Current Account Balances at the Bank

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 at the Bank, resulting from factors other than market operations, are called "exogenous sources of changes in current account balances at the Bank." Exogenous changes in the current account balances at the Bank are categorized into "changes in banknotes" resulting from exchanges of banknotes for deposits in the current accounts and "changes in treasury funds and others" resulting from exchanges of funds between the current accounts and government deposits.

During fiscal 2017, exogenous sources of changes in current account balances at the Bank, particularly changes in treasury funds and others, caused current account balances to decrease by 110.0 trillion yen. The current account balances at the Bank exhibited a smaller decrease compared with 134.8 trillion yen in fiscal 2016.

1. Changes in Banknotes

After having reached 100 trillion yen for the first time on December 20, 2016, the outstanding balance of banknotes continued on an uptrend during fiscal 2017 and stood at 106.7 trillion yen (an increase of 4.2 percent year-on-year) at the end of 2017 and 104.0 trillion yen (an increase of 4.2 percent year-on-year) at the end of March 2018 (Chart 2-2). Reflecting this increase in banknote issuance, changes in banknotes continued to be a source of decrease in current account balances at the Bank, and the amount of net issuance in fiscal 2017 stood at the same level as in fiscal 2016 at 4.2 trillion yen.

The cumulative changes in banknotes from the start of fiscal 2017 indicated that seasonal fluctuations in the amounts of issuance and redemption remained more or less unchanged from fiscal 2016. At the end of 2017, 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 2018, as banknotes used in the markets during year-end and New Year holidays were

withdrawn from circulation (Chart 2-3).

Chart 2-2: Outstanding Balance of Banknotes Issued

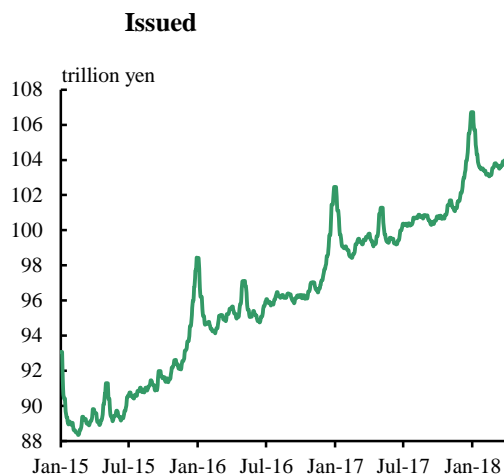
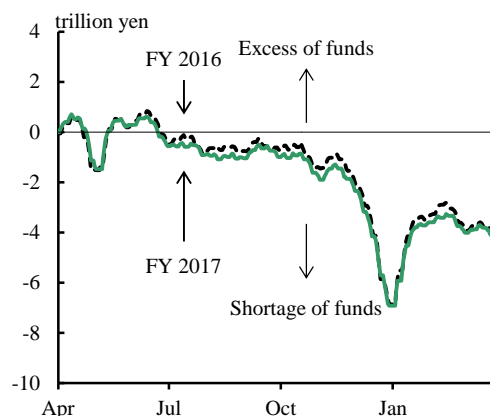


Chart 2-3: Cumulative Changes in Banknotes from the Start of the Fiscal Year



2. Changes in Treasury Funds and Others

In fiscal 2017, changes in treasury funds and others registered net receipts as net receipts from JGB and T-Bill issuances³ (sources of decrease in current account balances at the Bank) exceeded net payments of fiscal payments and revenues (sources of increase in current account balances at the Bank). However, changes in treasury funds and others registered net receipts of 105.8 trillion yen in fiscal 2017, a decrease from net receipts of 130.6 trillion yen in fiscal 2016 (Chart 2-4).

The decrease in net receipts during fiscal 2017 occurred mainly because redemptions of T-Bills purchased by the Bank decreased compared with those in fiscal 2016, while redemptions to private financial institutions (payments to current accounts at the Bank) increased. After adjusting for the

³ 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 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 (decrease in current account balances at the Bank).

impact of market operations conducted by the Bank,⁴ net receipts of treasury funds and others in fiscal 2017 amounted to 8.4 trillion yen vis-à-vis net receipts of 13.7 trillion yen in fiscal 2016 (also after removing the impact of the Bank's market operations), implying that current account balances at the Bank increased by about 5.3 trillion yen (Chart 2-5). This was attributable to the fact that T-Bill issuance was reduced through the fiscal year (the amount of T-Bills issued in fiscal 2017 stood at 282.1 trillion yen, compared with 295.0 trillion yen in fiscal 2016), thereby resulting in an increase in net redemptions of T-Bills. Net issuance of JGBs (with a residual maturity of more than 1 year) was also reduced through the fiscal year (the amount of JGBs issued in fiscal 2017 stood at 130.7 trillion yen, compared with 137.7 trillion yen in fiscal 2016) (Chart 2-6).

⁴ 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 2017 before the adjustment indicate that net receipts of treasury funds and others from JGBs (with a residual maturity of more than 1 year) amounted to about 80 trillion yen, and purchases of JGBs as market operations caused current account balances at the Bank to increase by about 100 trillion yen; if redemptions were to be made after the Bank's holdings of JGBs worth about 50 trillion yen maturing during fiscal 2017 were resold by the Bank to financial institutions, net receipts of treasury funds and others from JGBs (with a residual maturity of more than 1 year) would be about 30 trillion yen, and purchases of JGBs as market operations would cause current account balances to increase by about 50 trillion yen (Chart 2-6). Meanwhile, the increase in current account balances caused by purchases of JGBs as market operations after the adjustment generally corresponds with the increase in the amount outstanding of JGBs purchased.

Chart 2-4: Cumulative Changes in Treasury Funds and Others from the Start of the Fiscal Year

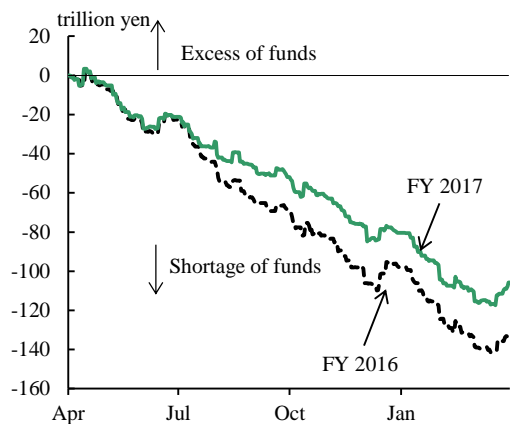


Chart 2-5: Cumulative Changes in Treasury Funds and Others from the Start of the Fiscal Year (Removing the Impact of the Bank's Market Operations)

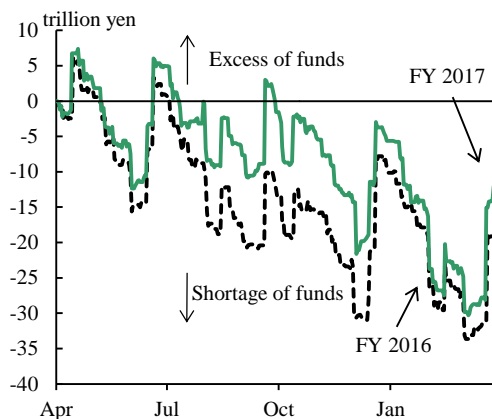


Chart 2-6: Sources of Changes in Current Account Balances at the Bank

	trillion yen					
	Before adjustment			After adjustment		
	FY 2016	FY 2017	Year-on-year	FY 2016	FY 2017	Year-on-year
Banknotes	-4.2	-4.2	0.0	-4.2	-4.2	0.0
Treasury funds and others	-130.6	-105.8	24.8	-13.7	-8.4	5.3
Net fiscal payments	21.5	20.8	-0.7	21.5	20.8	-0.7
JGBs (more than 1 year)	-72.1	-76.5	-4.4	-32.9	-31.2	1.6
T-Bills	-75.6	-43.5	32.1	2.0	8.6	6.6
Foreign exchange	0.4	-0.0	-0.4	0.4	-0.0	-0.4
Others	-4.7	-6.6	-1.9	-4.7	-6.6	-1.9
BOJ loans and market operations	202.1	145.5	-56.6	85.3	48.1	-37.2
Outright purchases of JGBs	115.8	96.2	-19.6	76.5	50.9	-25.6
Outright purchases of T-Bills	73.4	38.3	-35.0	-4.2	-13.8	-9.6
Loan Support Program	13.3	2.1	-11.2	13.3	2.1	-11.2
Other loans and market operations	-0.4	8.8	9.2	-0.4	8.8	9.2
Net change in current account balances	67.3	35.5	-31.8	67.3	35.5	-31.8

Notes: 1. Negative figures represent a net increase in banknotes, net receipts 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 account of amortization, accumulation, and other factors; therefore, they diverge from the year-on-year figures on the balance sheet.

III. Developments in Domestic Money Markets and Bond Markets

A. Uncollateralized Call Market

The uncollateralized overnight call rate remained more or less in the range of minus 0.07 to minus 0.02 percent (Chart 3-1).

Looking at this in more detail, the uncollateralized call rate stayed at a somewhat low level, more or less in the range of minus 0.06 to minus 0.05 percent in the first half of the reserve maintenance periods (from the 16th of every month to the 15th of the following month). This resulted from each financial institution maintaining its cautious stance toward borrowing to avoid generating policy-rate balances. In contrast, the rate stayed at a somewhat higher level, more or less in the range of minus 0.04 to minus 0.02 percent in the second half of the reserve maintenance periods given that financial institutions become more active in borrowing once they are able to foresee to a certain extent the average amount outstanding of their current account balances at the Bank. Meanwhile, the rate temporarily declined to around minus 0.07 percent at quarter-ends, when many institutions refrain from borrowing out of concerns over balance sheet constraints. As described above, the rate remained stable, generally hovering at around the same level as in fiscal 2016, albeit with some small fluctuations, during each reserve maintenance period and quarter.

In fiscal 2017, the amount outstanding of the uncollateralized call market did not show a significant increase, given that many financial institutions nearly resolved IT system constraints to trade at negative interest rates in fiscal 2016. However, the amount outstanding of the market stayed at a level at about or at a somewhat higher level than that before the introduction of a negative interest rate policy, more or less in the range of 7-9 trillion yen, amid active arbitrage trading that took advantage of the three-tier system of current accounts at the Bank (Chart 3-2). Meanwhile, seasonal fluctuations were observed in the amount outstanding of the uncollateralized call market. Specifically, the amount outstanding of the market stayed at a relatively low level in the first half of the fiscal year, and trended upward for the second half through fiscal year-end. This was attributable to the seasonality in receipts and payments of fiscal payments and revenues affecting borrowing in the uncollateralized call market by regional banks I and II and the formation of the call rate (see Boxes 2 and 3).

Chart 3-1: Uncollateralized Overnight Call Rate

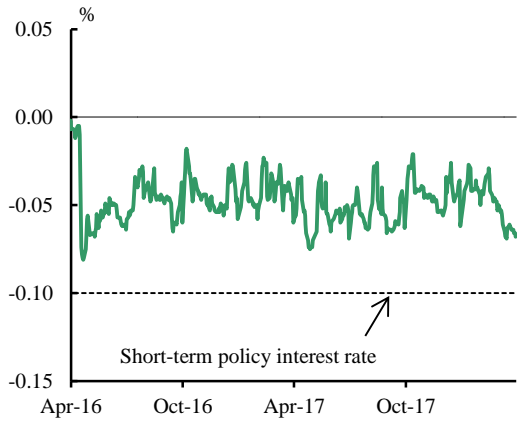
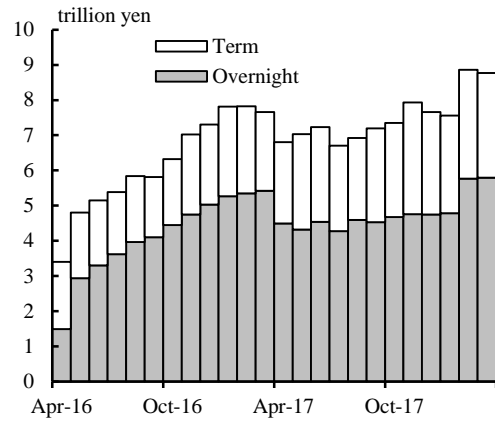


Chart 3-2: Amounts Outstanding in the Uncollateralized Call Market



Note: Monthly average.

Box 2: Seasonal Changes in Borrowing by Regional Banks I and II

A close look at the amount outstanding of the uncollateralized call market during fiscal 2017, focusing on the cash borrowing side, shows that borrowing by regional banks I and II declined somewhat significantly at the start of the fiscal year and then rose toward the second half of the fiscal year, while borrowing by sectors other than regional banks I and II remained more or less unchanged (Box Charts 2-1 and 2-2). This is attributable to seasonality in the pace of increase in the balances in current accounts held by regional banks I and II at the Bank, which reflects the seasonality in receipts and payments of fiscal payments and revenues.

Current account balances at the Bank follow an upward trend through the year in all sectors, amid continued expansion of the monetary base. However, the balances in current accounts held by regional banks I and II at the Bank show seasonality in which the balances increase at a pace exceeding that of all sectors in the first half of the fiscal year and fall behind in the second half of the fiscal year (Box Chart 2-3). As pointed out in Box 2 of "Market Operations in Fiscal 2016," the increase in current account balances at the Bank are more prominent in the reserve maintenance periods from March to May, when there are large payments, including payments for public construction and social security at the fiscal year-end. The same is true for the reserve maintenance periods from June to August, when pensions are paid twice and the allotments of local allocation taxes are scheduled. The increase in current account balances at the Bank is less significant during the reserve maintenance periods from September to February of the following year. Many of the receipts and payments of fiscal payments and revenues, including the allotments of local allocation taxes and payments for public construction, have a significant effect on regional banks I and II. Therefore, the balances in current accounts held by regional banks I and II at the Bank are more strongly influenced by the seasonality in receipts and payments of fiscal payments and revenues than those in other sectors.

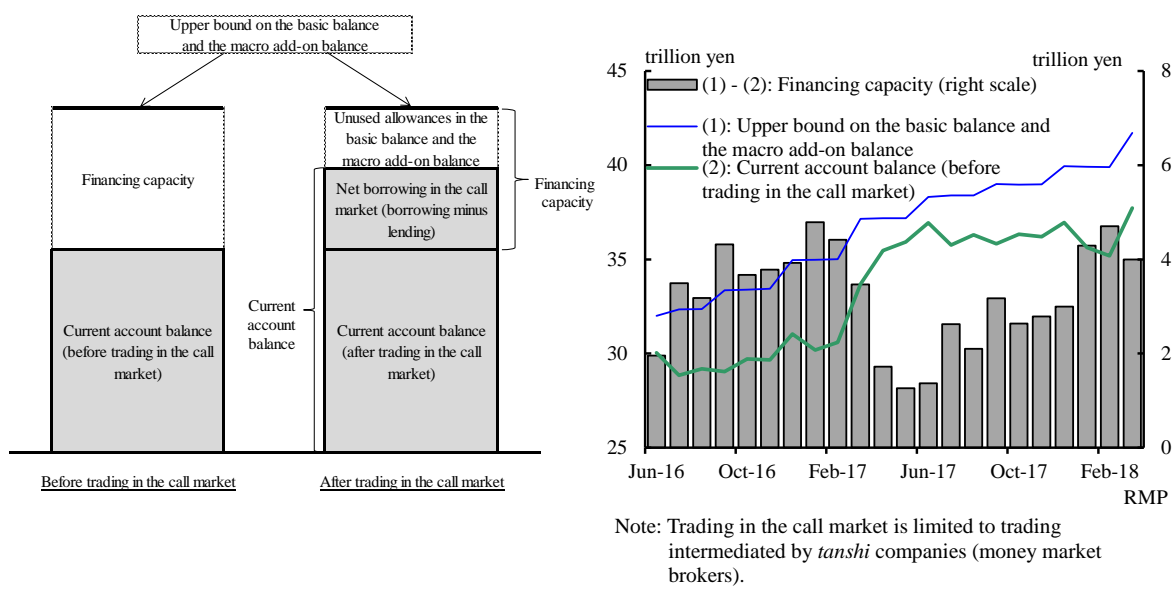
As a result, regional banks I and II somewhat curtail the amount of cash they borrow in the uncollateralized call market in the first half of a fiscal year, when their current account balances at the Bank increase at a faster pace, and borrow more in the second half of the fiscal year, when the pace of increase in their current account balances at the Bank becomes sluggish. Such a

Box 3: Relationship between the "Financing Capacity" of Regional Banks I and II and the Uncollateralized Call Rate

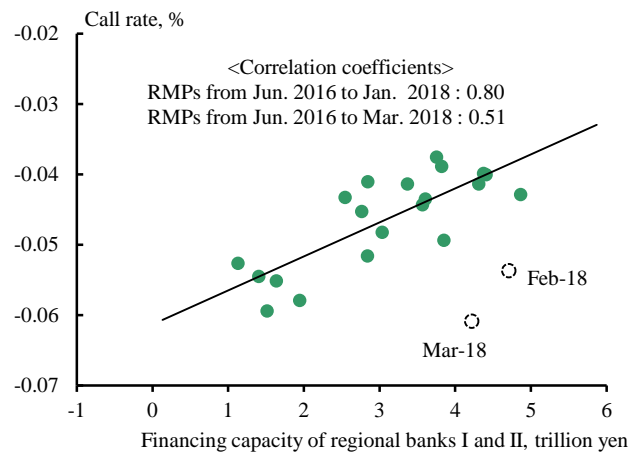
Box 2 concludes that seasonal changes in the borrowing behavior of regional banks I and II that reflect net fiscal payments cause seasonal fluctuations in the amount outstanding of the uncollateralized call market as a whole. In addition to this, regional banks I and II are the largest cash borrowing entities in the uncollateralized call market, accounting for about 40 percent of its amount outstanding. Thus, changes in their borrowing behavior are also considered to have a certain effect on the formation of the uncollateralized call rate.

The following steps are taken to verify this point. First, we define "financing capacity" (calculated by deducting the balances of current accounts held by regional banks I and II at the Bank before trade in the uncollateralized call market from the upper bound on their basic balances and macro add-on balances) as a variable exhibiting the borrowing behavior (potential borrowing needs) of regional banks I and II (Box Chart 3-1). Second, a look at the relationship between the "financing capacity" of regional banks I and II and the uncollateralized call rate shows a strong correlation (correlation coefficient: 0.80) between the two in the reserve maintenance periods from June 2016 to January 2018 (Box Chart 3-2).

Box Chart 3-1: "Financing Capacity" of Regional Banks I and II



Box Chart 3-2: Relationship between the "Financing Capacity" and the Uncollateralized Call Rate



Note: Retroactive data before the June 2016 reserve maintenance period are not available due to data constraints.

The reasons why the "financing capacity" of regional banks I and II influence the uncollateralized call rate can be reorganized as follows:

1. As explained above, regional banks I and II have a large share in the uncollateralized call market among cash borrowing entities.
2. The cash lending side prioritizes lending to regional banks I and II that offer somewhat high rates as much as possible under constraints, such as those on credit lines, and allocates remaining cash to other sectors that offer low rates. Thus, the "financing capacity" of regional banks I and II serves as a benchmark not only for their own borrowing rates, but also for the rates of other sectors, and could influence rate formation in the market as a whole.

However, the above is based on the assumption that the cash lending needs of lenders do not change significantly. The borrowing activity of regional banks I and II may not serve as a benchmark if the cash lending needs of lenders grow significantly and they start lending actively to other sectors offering lower rates. Indeed, some market participants point out that the uncollateralized call rate has declined since the February 2018 reserve maintenance period, as (1) internal reserves of investment trusts, which are originally the main lenders in the uncollateralized call market, have increased amid a substantial decline in stock prices particularly in advanced economies, and (2) investment trusts have seen growing needs to lend their internal reserves in the uncollateralized call market as the general collateral (GC) repo rate (T/N) has remained below minus 0.1 percent. As a result, the uncollateralized call rate in the reserve

maintenance periods from February to March 2018 seems to have fallen below that suggested by the relationship between the "financing capacity" of regional banks I and II and the uncollateralized call rate.

As described above, the formation mechanism of the uncollateralized call rate changes depending on the borrowing and lending behavior of each sector. Therefore, developments in the uncollateralized call market continue to warrant close monitoring from various perspectives.

B. Repo Market

The GC repo rate (T/N) remained more or less at a level slightly above the short-term policy interest rate (of minus 0.1 percent), due to financial institutions actively engaging in arbitrage trading that took advantage of the three-tier system of their current accounts at the Bank in addition to the financing of securities purchases by securities companies (Chart 3-3). The rate rose to a level above minus 0.05 percent when domestic investors' financing capacity heightened (for example, in the first half of April and December 2017), and in contrast stayed at a level below minus 0.1 percent when perceptions of abundant liquidity grew among them and the amount of cash lent increased (for example, in October and November 2017, and February and March 2018). Moreover, the rate temporarily declined significantly at month-ends (particularly at quarter-ends) when some financial institutions became less active in borrowing cash (lending securities) in the repo market out of concerns over balance sheet constraints.

In the special collateral (SC) repo market, amid large-scale JGB purchases by the Bank, the supply and demand balance of some issues tightened and a large drop in the SC repo rate (increase in borrowing costs) was observed before JGB auctions when the needs of securities companies to borrow securities heighten, and at quarter-ends when some financial institutions refrain from lending their JGBs. However, such tightening of the supply and demand conditions of individual issues in the SC repo market did not spread to the broader market (Chart 3-4).

Meanwhile, the amount outstanding of the repo market remained at a high level following the introduction of a negative interest rate policy, mainly due to financial institutions actively engaging in arbitrage trading that took advantage of the three-tier system of current accounts at the Bank (Chart 3-5).

Chart 3-3: GC Repo Rate

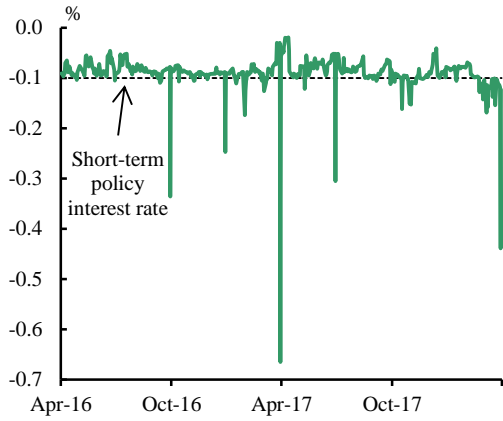
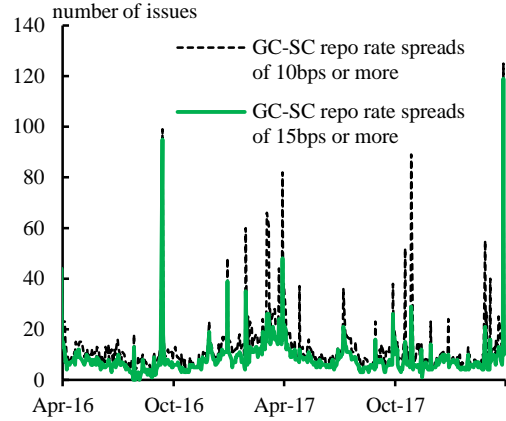
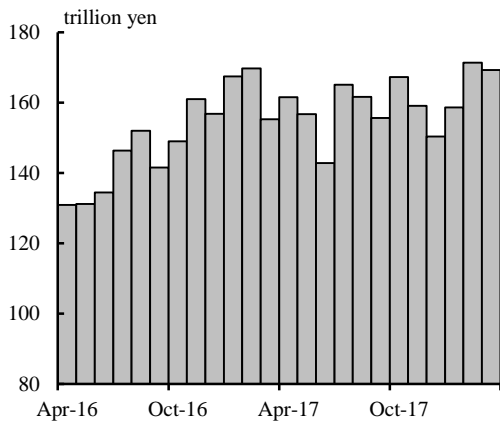


Chart 3-4: JGB Issues with Higher Borrowing Costs



Note: Tokyo Repo Rate (T/N). Based on trade date.

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.

C. T-Bill Market

During fiscal 2017, yields on T-Bills (3-month) remained at levels below the short-term policy interest rate (of minus 0.1 percent), more or less in the range of minus 0.2 to minus 0.1 percent, after having risen in negative territory from fiscal 2016 into the fiscal year (Chart 3-6).

Looking at T-Bill holdings by entity, those of domestic investors increased, while those of the Bank decreased (Chart 3-7). This was because yields on T-Bills rose in negative territory, thereby heightening the needs of domestic investors to hold T-Bills depending on changes in demand for collateral and their current account positions at the Bank. Meanwhile, foreign investors' T-Bill holdings remained at high levels. A certain level of demand existed for T-Bills regardless of yield levels as part of foreign reserve management by institutions such as other central banks to disperse the currency composition of foreign reserve portfolios. In addition, as the FX swap-implied yen rate from the U.S. dollar remained at a low level, foreign investors with dollar funds invested in Japanese T-Bills with yen acquired at negative rates by exchanging their dollars for yen in the FX swap market. In this way, foreign investors were able to secure higher profits than by investing in T-Bills of other countries, including U.S. T-Bills, and this also boosted robust demand for T-Bills (Chart 3-8, see Box 4).

Chart 3-6: Yields on T-Bills

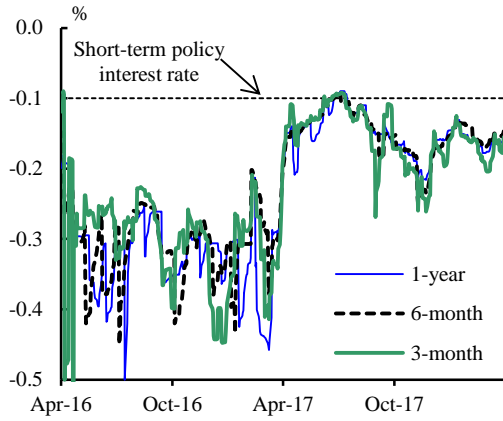
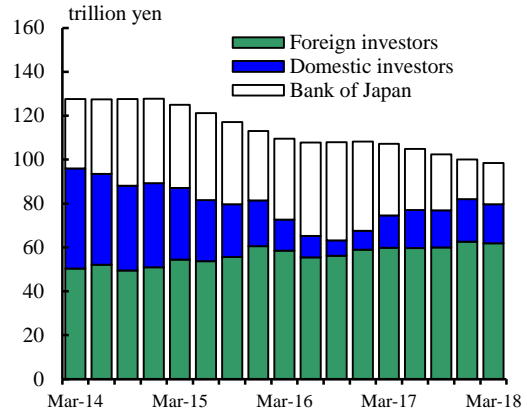
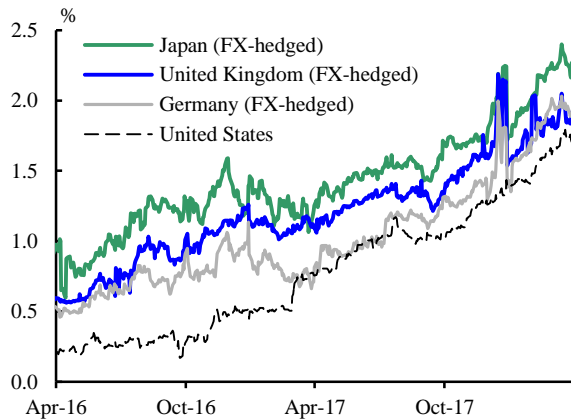


Chart 3-7: Amounts Outstanding of T-Bill Holdings by Entity



Note: Excluding T-Bills held by the central government and the Fiscal Loan Fund, as well as those underwritten by the Bank. Figures for the amount outstanding of foreign investors' T-Bill holdings as at the end of March 2018 are estimated by adding monthly net investment flows based on the Flow of Funds Accounts Statistics. Figures for domestic investors are calculated by deducting the amount outstanding of T-Bills held by the Bank and foreign investors from the total.

Chart 3-8: Yields on T-Bills (3-Month) of Major Economies for Foreign Investors with Dollar Funds



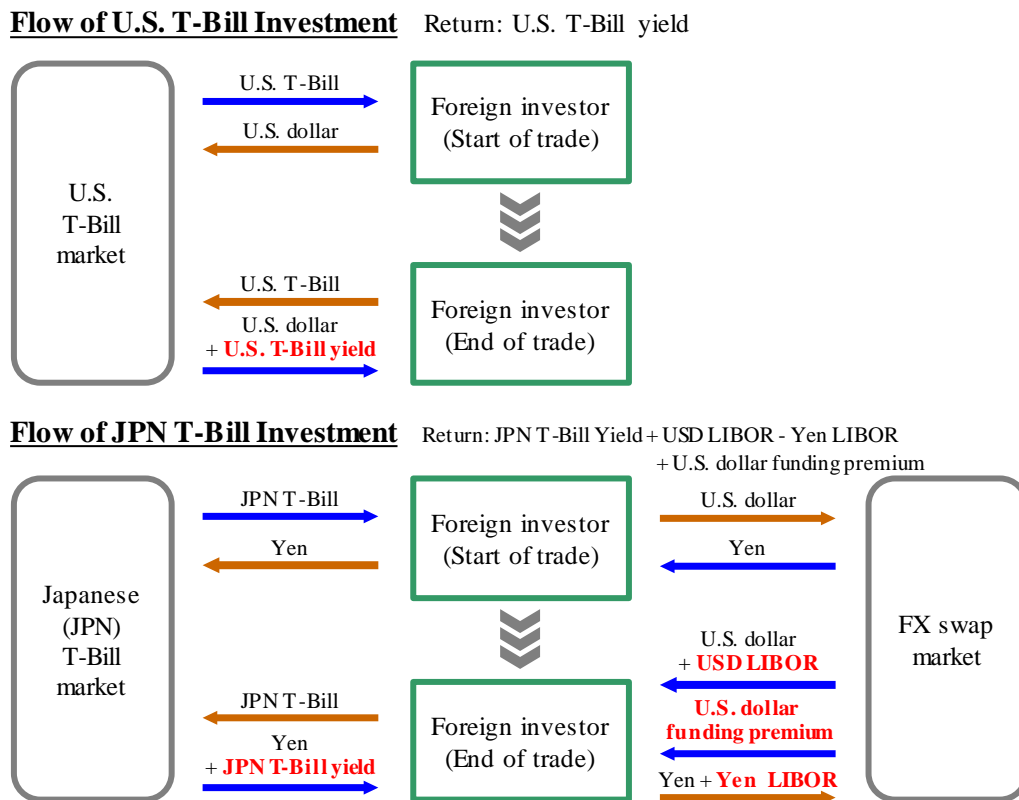
Note: Yields on investment in discount T-Bills (3-month) in each economy funded with local currency funds obtained through FX swaps (supplying U.S. dollars).

Box 4: Effects of the FX Swap-Implied Yen Rate on Yields on T-Bills

As pointed out in the main text, foreign investors' demand for T-Bills comprise (1) demand that exists to a certain extent regardless of yield levels (as part of foreign reserve management by institutions, such as other central banks) and (2) varying demand depending on the attractiveness of yields based on the FX swap-implied yen rate from the U.S. dollar.

Here, we elaborate on the attractiveness of yields described in (2) above. Foreign investors with dollar funds, for example, compare obtainable yields on investment in U.S. T-Bills and investment in Japanese T-Bills funded with yen acquired by exchanging dollars for yen in the FX swap market, and invest in Japanese T-Bills if the yields on the latter exceed the former (Box Chart 4-1).

Box Chart 4-1: Returns on U.S. and Japanese T-Bill Investment



... Investors with dollar funds decide to invest in U.S. T-Bills or JPN T-Bills by comparing the "returns on U.S. T-Bill investment" and "returns on JPN T-Bill investment."

The following formula defines the attractiveness of yields as seen from investors with dollar funds:

Attractiveness of yields

= (U.S. dollar LIBOR – yields on U.S. T-Bills) + U.S. dollar funding premiums

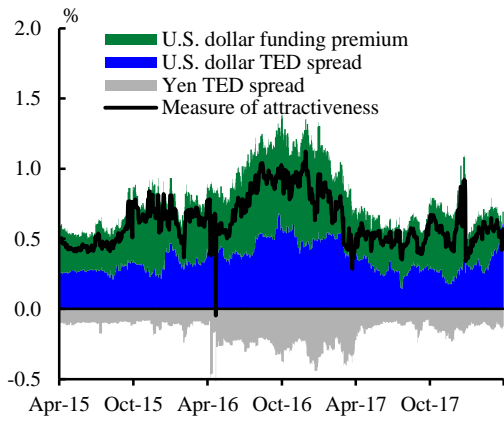
– (yen LIBOR – yields on Japanese T-Bills)

= U.S. dollar TED spreads + U.S. dollar funding premiums – yen TED spreads.

Specifically, foreign investors with dollar funds, in view of the level of "U.S. dollar TED spreads + U.S. dollar funding premiums" at the time, decide on a preferable level of yen TED spreads to secure the attractiveness of yields to a certain extent (which generally corresponds with that for yields on Japanese T-Bills in the current situation where the yen LIBOR is hovering at around 0 percent). From this perspective, a look at changes in the attractiveness of yields in the last few years (Box Chart 4-2) shows that "U.S. dollar TED spreads + U.S. dollar funding premiums" widened during fiscal 2016 when the amount outstanding of investments by U.S. prime money market funds (MMFs) decreased before the full implementation of MMF reforms in October, heightening market participants' vigilance toward a tightening of the supply and demand conditions of dollar funds. The attractiveness of yields on Japanese T-Bills was therefore consistently elevated as seen from investors with dollar funds. For this reason, foreign investors actively invested in Japanese T-Bills even as the Bank continued with its large-scale purchases of T-Bills and yields on T-Bills stayed in relatively deep negative territory. However, during fiscal 2017, "U.S. dollar TED spreads + U.S. dollar funding premiums" were consistently narrowed compared with fiscal 2016, and thus foreign investors raised their preferred level of rates pertaining to Japanese T-Bills. As a result, due to the combined effects of the decrease in the amount outstanding of the Bank's T-Bill holdings, there were some occasions where yields on T-Bills experienced upward pressure. Since foreign investors, during fiscal 2017, seemed to have invested in Japanese T-Bills while being more conscious of yields on T-Bills to secure the attractiveness of yields, the correlation between "U.S. dollar TED spreads + U.S. dollar funding premiums" and yields on T-Bills was stronger compared with fiscal 2016 (Box Chart 4-3).

Box Chart 4-2:

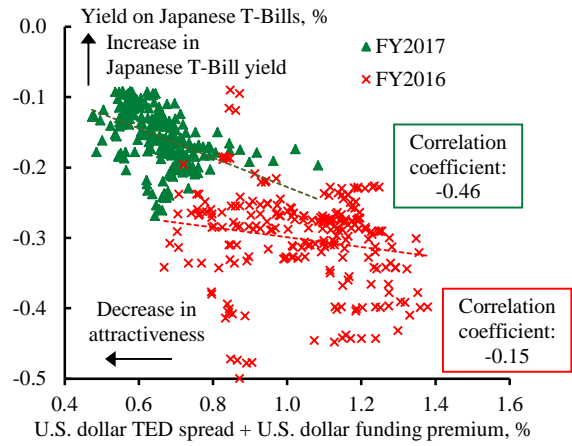
**Breakdown of the Attractiveness of
FX-Hedged Investment in T-Bills**



Notes: 1. Breakdown of the attractiveness of yields on T-Bills relative to that of yields on U.S. T-Bills in cases where investors with dollar funds acquire yen through FX swaps and invest in Japanese T-Bills. Yen TED spreads are on an inverse scale.
2. 3-month yields. The same applies for Box Chart 4-3.

Box Chart 4-3:

**"U.S. Dollar TED Spreads + U.S. Dollar
Funding Premiums" and Yields on T-Bills**



D. JGB Market

Japanese long-term interest rates (10-year JGB yields) remained stable more or less in the range of 0.0-0.1 percent through fiscal 2017 with the target level of long-term interest rates having been maintained at around 0 percent under QQE with Yield Curve Control. However, they temporarily exceeded 0.1 percent in early July 2017 when overseas interest rates rose due to concerns over a reduction in the degree of monetary easing by the ECB. Thereafter, the rates fell slightly into negative territory in early September 2017 when overseas interest rates declined mainly due to heightened geopolitical risks, in addition to concerns over tightening domestic supply and demand conditions (Charts 3-9 and 3-10).

Yields on short- and medium-term JGBs such as those for 2-year and 5-year JGBs generally remained more or less in the range of minus 0.2 to minus 0.1 percent, albeit with some fluctuations depending on changes in the FX swap-implied yen rate and domestic investors' cash lending needs (Chart 3-9). Meanwhile, amid a rise in yields on T-Bills, comovement between yields on short- and medium-term JGBs and yields on T-Bills increased, and yields on short- and medium-term JGBs were prone to be affected by changes in the supply and demand conditions of T-Bills (Chart 3-11).

Although generally remaining range bound, yields on super-long-term JGBs declined moderately toward the end of March 2017 (Chart 3-9). Looking at this in more detail, yields on 30-year and 40-year JGBs in particular rose in the first half of fiscal 2017, when overseas interest rates rose, while life and non-life insurance companies maintained a cautious purchasing stance. On the other hand, yields on 30-year and 40-year JGBs started to decline toward the second half of fiscal 2017, partly due to short covering by securities companies and foreign investors amid somewhat stronger demand from life and non-life companies (Chart 3-12).

Meanwhile, the implied volatility of JGB futures prices stayed at a low level as long-term interest rates remained range bound as described above under the framework of QQE with Yield Curve Control. In contrast, the implied volatility of U.S. Treasury futures prices rose due to a substantial rise in long-term interest rates in the beginning of 2018, mainly reflecting a rise in inflation expectations (Chart 3-13).

Chart 3-9: Yields on JGBs

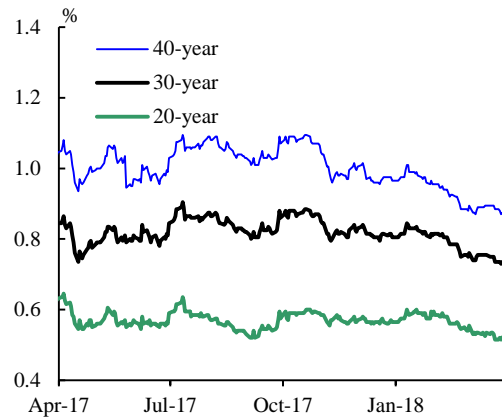
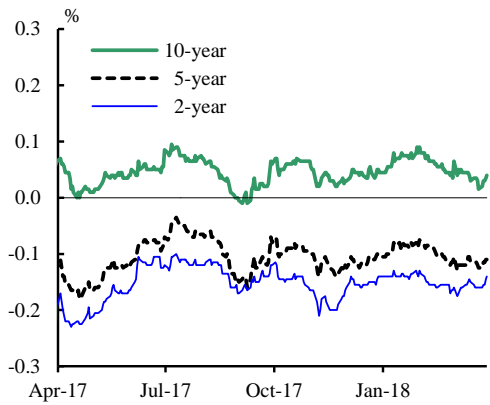


Chart 3-10: Long-Term Yields

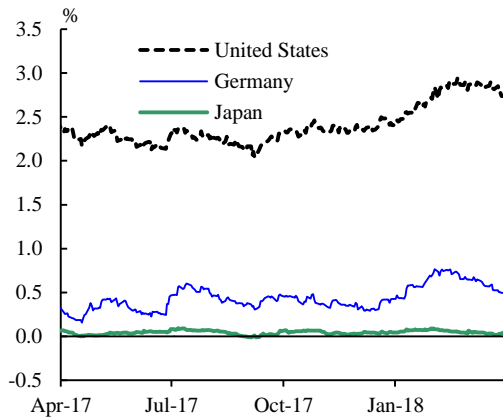
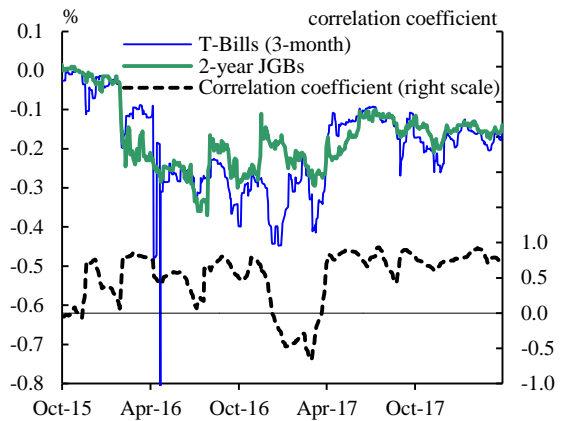


Chart 3-11: Yields on T-Bills and 2-Year JGBs



Note: Correlation coefficients are based on rolling samples of the past 60 business days.

Chart 3-12: Net Transaction Volume of Super-Long-Term JGBs for Life and Non-Life Insurance Companies

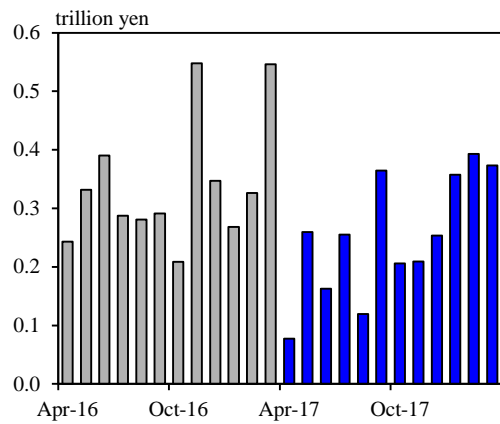
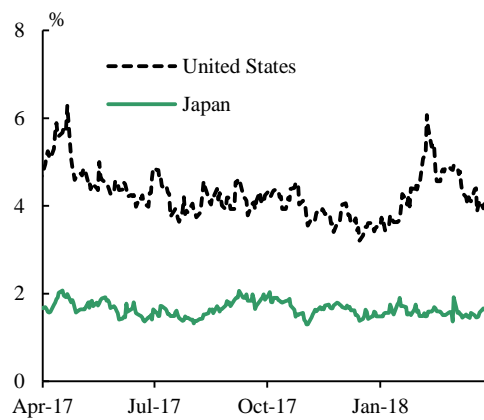


Chart 3-13: Implied Volatilities of Government Bond Futures Prices



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

Box 5: Effects of a Decrease in the Amount Outstanding of Cheapest-to-Deliver Issues in the JGB Futures Market

JGB futures are traded based on speculation of price changes, and also for the purpose of hedging the risk of price changes in cash JGBs (trade is executed in the opposite direction as cash JGBs) under the premise that prices of cash JGBs exhibit high comovement with those of JGB futures, and thus play an important role in market participants' adjustment of securities positions.

JGB futures contracts are settled by (1) net settlement in which a counterparty conducts reversing trades by the final trading date (five business days before the settlement date), and (2) delivery of cash JGBs in which a counterparty delivers deliverable issues (10-year JGBs with a residual maturity of more than 7 years and less than 11 years). In (2), cheapest-to-deliver (CTD), the cheapest issues among deliverable issues in a futures contract, is delivered to settle the contract. At the current level of interest rates, CTDs in JGB futures contracts are typically issues with a residual maturity closest to 7 years.

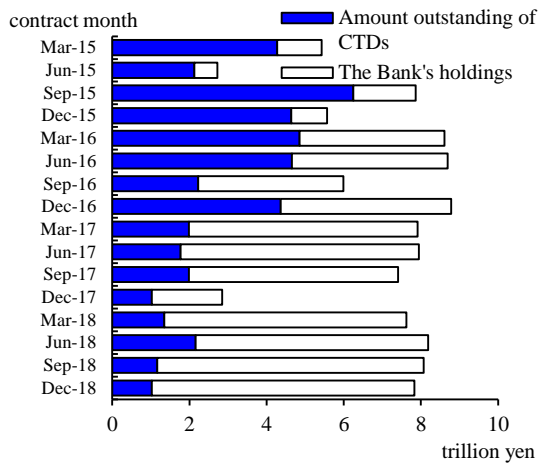
The amount outstanding of CTDs in the JGB futures market has recently decreased because the Bank has continued to conduct large-scale purchases of JGBs since the introduction of QQE in April 2013 (Box Chart 5-1). Under such circumstances, some market participants point out the risks that (1) the effectiveness of hedging would be reduced as JGB futures become overvalued along with the tightening of supply and demand conditions of CTDs, thereby lowering comovement between prices of cash JGBs and JGB futures, and (2) concerns that settlement through delivery of cash JGBs could become challenging would cause reluctance toward conducting hedging transactions through JGB futures (making it difficult to develop cash JGB positions). The remainder of the Box examines the effects of the decrease in the amount outstanding of CTDs of cash JGBs on the effectiveness of hedging through JGB futures.

First, looking at comovement between cash JGBs and JGB futures, a somewhat strong correlation has continued to be observed even after 2017 when the amount outstanding of CTDs decreased notably. As least for now, comovement between cash JGBs and JGB futures do not seem to have been lost (Box Chart 5-2).

Second, we examine developments before and after the rollover of JGB futures contracts. It is expected that, if there are strong concerns that settlement through delivery of cash JGBs would become challenging, the timing of the rollover to another contract in a later month would be brought forward, or the price spreads between front and back month contracts (calendar spreads) would widen (due to buybacks of open interest to sell in the current contract month), but such developments have not been observed at present (Box Charts 5-3 and 5-4).

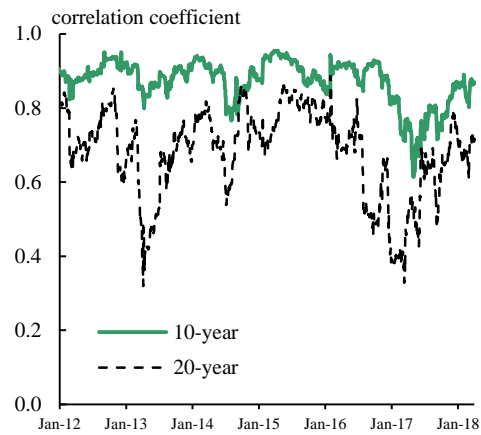
As confirmed above, there have been no particular signs that the effectiveness of hedging through JGB futures has been reduced due to the decrease in the amount outstanding of CTDs. However, since the amount outstanding of CTDs is expected to remain at a low level going forward, the possibility that this would affect the effectiveness of hedging through JGB futures and in turn, transactions of cash JGBs continues to warrant close attention.

Box Chart 5-1: Amounts Outstanding of CTDs in the JGB Futures Market



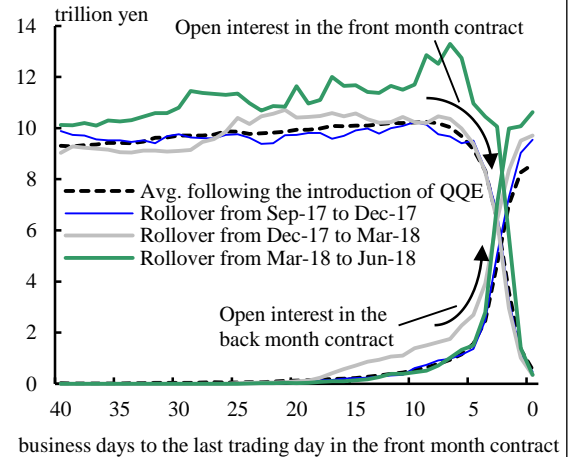
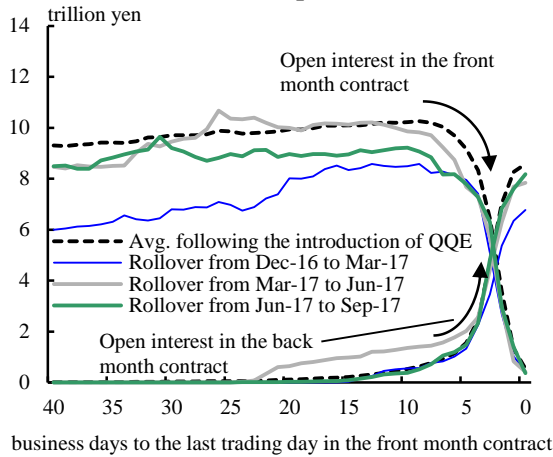
Note: Figures are as of the end of March 2018. "Amount outstanding of CTDs" is calculated by deducting the Bank's holdings from the amount outstanding of CTDs.

Box Chart 5-2: Comovement between Cash JGBs and JGB Futures

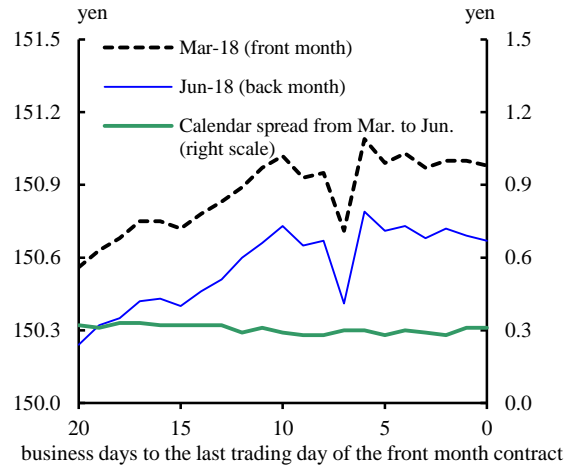
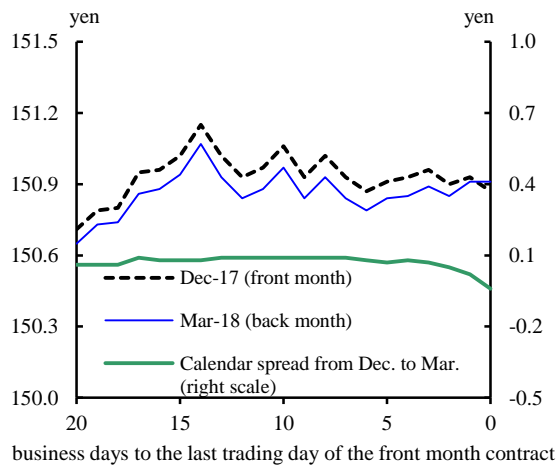


Note: Correlation coefficients between yields on cash JGBs and JGB futures (day-to-day basis; based on rolling samples of the past 60 business days).

Box Chart 5-3: Open Interest before and after the Rollover of JGB Futures Contracts



Box Chart 5-4: Price Spreads between Front and Back Month Contracts (Calendar Spreads)

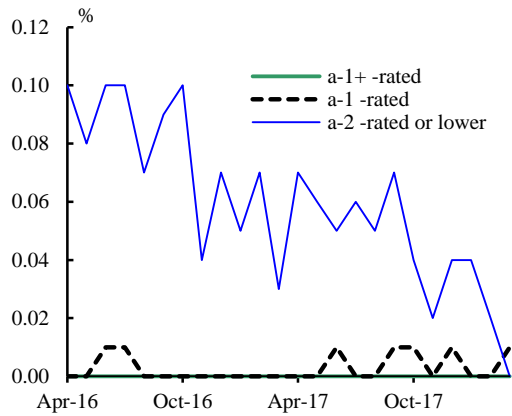


E. CP Market

CP issuance rates, especially among issues with high ratings, remained at around 0 percent under highly accommodative financial conditions. The rates among issues with low ratings declined further (Chart 3-14). Meanwhile, some CP was issued at rates slightly in negative territory.

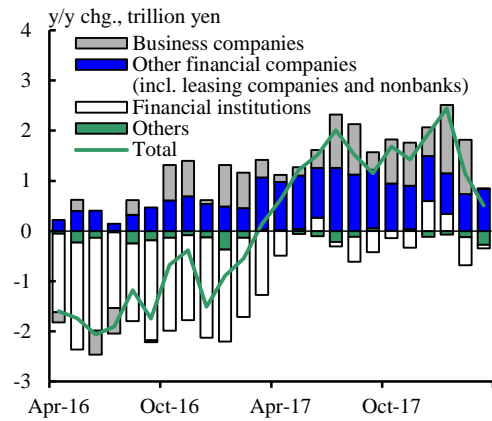
The amount outstanding of CP issuance was higher than in fiscal 2016, particularly among business companies and other financial companies (including leasing companies and nonbanks), against the background of heightened demand for cash as an environment where cash could be borrowed at rates at their lowest levels persisted and corporate profits continued to be favorable (Char 3-15). In particular, the average duration of CP lengthened somewhat because of an increase in CP issuance by other financial companies (including leasing companies and nonbanks) with longer durations (Chart 3-16).

Chart 3-14: CP Issuance Rates



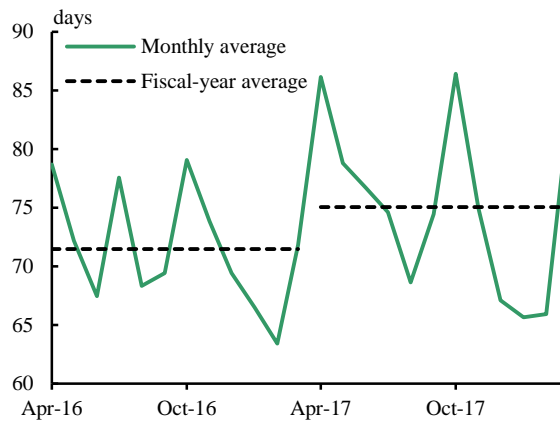
Notes: 1. 1-month rates.
2. CP issuance rates of business companies (including electric power and gas companies) and other financial companies (including leasing companies and nonbanks) on a monthly basis.

Chart 3-15: Amounts Outstanding of CP by Sector



Notes: 1. Figures are as of the month-end.
2. "Business companies" includes electric power and gas companies.

Chart 3-16: Estimated Average Durations of Newly Issued CP



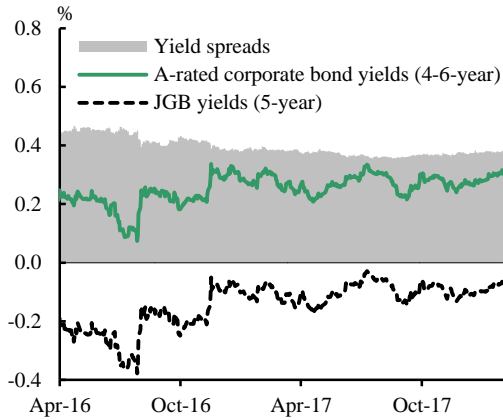
Note: Estimated based on the face value of newly issued CP during the month by maturity.

F. Corporate Bond Market

Corporate bond yields remained at low levels as yields on JGBs, the base rate, were stable under QQE with Yield Curve Control (Chart 3-17). Looking at yield spreads between corporate bonds and JGBs in the secondary market, the yield spreads narrowed further, especially among issues of investment-grade bonds with low ratings but with relatively high yields due to investors' search for yield (Chart 3-18).

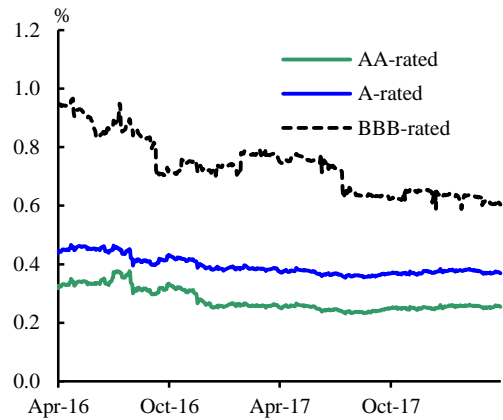
The amount outstanding of corporate bonds continued to increase for the second consecutive fiscal year from fiscal 2016, supported by demand for cash for M&As and refinancing as issuing conditions for corporate bonds continued to be favorable with stable yields (Chart 3-19).

Chart 3-17: Corporate Bond Yields and JGB Yields



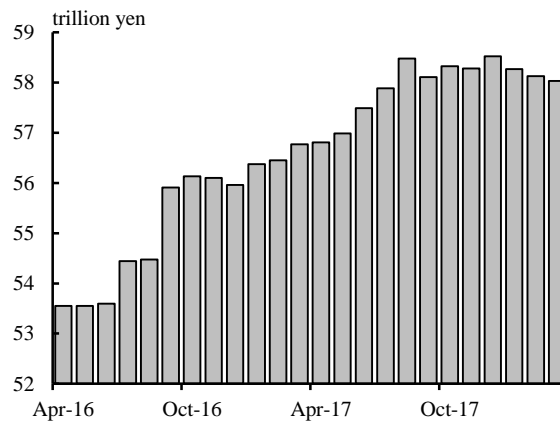
Note: Rated by R&I. The same applies for Chart 3-18.

Chart 3-18: Yield Spreads between Corporate Bonds and JGBs



Note: Estimated by calculating yields on issues with a residual maturity of 4-6 years for corporate bonds and those with a residual maturity of 5 years for JGBs.

Chart 3-19: Amounts Outstanding of Ordinary Corporate Bonds



Note: Figures are as of the month-end. On a nominal basis. Excluding general mortgage bonds.

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 through fiscal 2017, along with the rise in U.S. dollar LIBOR, amid continued policy rate hikes in the United States (Charts 3-20 and 3-21). However, U.S. dollar funding premiums declined from fiscal 2016. This was because there seemed to be less demand for investment in currency-hedged U.S. bonds due to lower yields on U.S. Treasuries after currency-hedging costs were taken into account, in addition to the diversification of U.S. dollar funding means among Japanese financial institutions, and the supply and demand balance of dollar funds improved somewhat (Charts 3-21 and 3-22).

Meanwhile, since foreign banks continued to constrain U.S. dollar supply at quarter-ends out of consideration for financial regulations, such as the leverage ratio requirement, U.S. dollar funding costs continued to trend significantly upward toward quarter-ends. In particular, U.S. dollar funding costs rose notably at the end of December 2017 compared to other quarters, given that foreign banks constrained U.S. dollar supply toward the end of the year against the background of regulations on global systemically important banks (G-SIBs).⁵ However, even under such circumstances, there was no problem with the availability of dollar funds itself.

U.S. dollar funding costs temporarily declined significantly at the beginning of 2018 due to the dissipation of such year-end factors, but gradually rose thereafter along with the rise in U.S. short-term interest rates reflecting policy rate hikes and the increase in issuance of U.S. T-Bills. However, U.S. dollar funding premiums declined toward the end of March, mainly because there seemed to be less demand for investment in currency-hedged U.S. bonds by Japanese financial institutions compared with the past (Charts 3-21 and 3-22).

⁵ Additional capital buffers for G-SIBs are calculated based on balance sheet figures at the end of the year.

Chart 3-20: Short-Term FX Swap-Implied U.S. Dollar Rate from the Yen

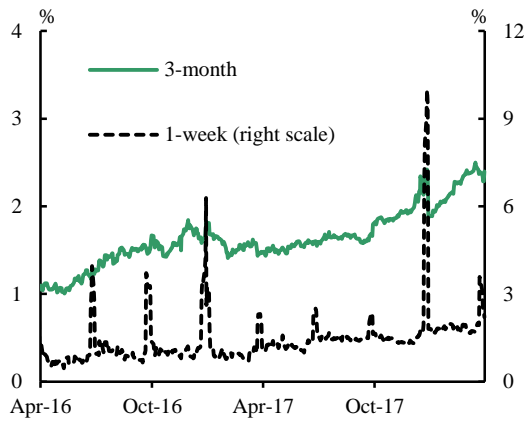
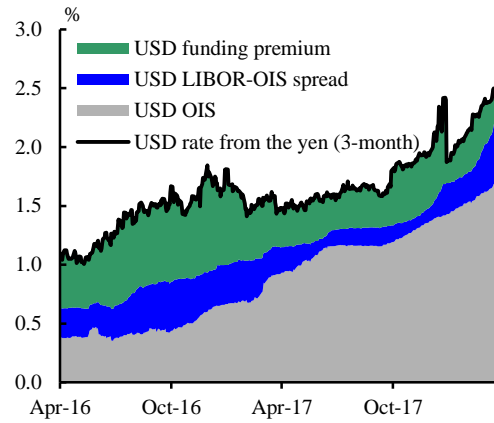
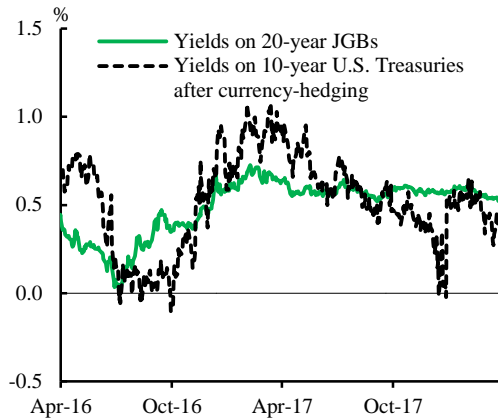


Chart 3-21: Breakdown of the Short-Term FX Swap-Implied U.S. Dollar Rate from the Yen



Note: The FX swap-implied U.S. dollar rate from the yen is the total funding cost of acquiring yen at yen LIBOR and converting them into U.S. dollars in the FX swap market

Chart 3-22: Yields on 10-Year U.S. Treasuries after Currency-Hedging



Note: Currency-hedging takes account of the cost of hedging through FX swaps (3-month) for investors with yen funds.

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 the Current Accounts and Review of the Benchmark Ratio

During fiscal 2017, the Bank, under QQE with Yield Curve Control, adopted a three-tier system in which the outstanding balance of each financial institution's current account at the Bank was divided into three tiers, to which a positive interest rate, a zero interest rate, or a negative interest rate was 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. The interest rate applied to the policy-rate balance was regarded as the "short-term policy interest rate" and its level was to be decided at every MPM. During fiscal 2017, the short-term interest rate was maintained at minus 0.1 percent (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" ⁶	
	"Money reserve funds (MRFs)" ⁷	
	"Macro add-on amount (Benchmark Balance × Benchmark Ratio ⁸)"	
(3) Policy-rate balance	Current account balance in excess of the amount outstanding of (1) and (2)	-0.1%

For individual financial institutions, the amounts of their basic balances and macro add-on balances act 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. Other financial institutions 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

⁶ "Loan Support Program and other measures" are the Stimulating Bank Lending Facility, Growth-Supporting Funding Facility, 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. The amount of the increase in financial institutions' borrowing through the Loan Support Program and other measures from end-March 2016 is added to each of their macro add-on balances (twice as much as the amount of increase is included in their macro add-on balances).

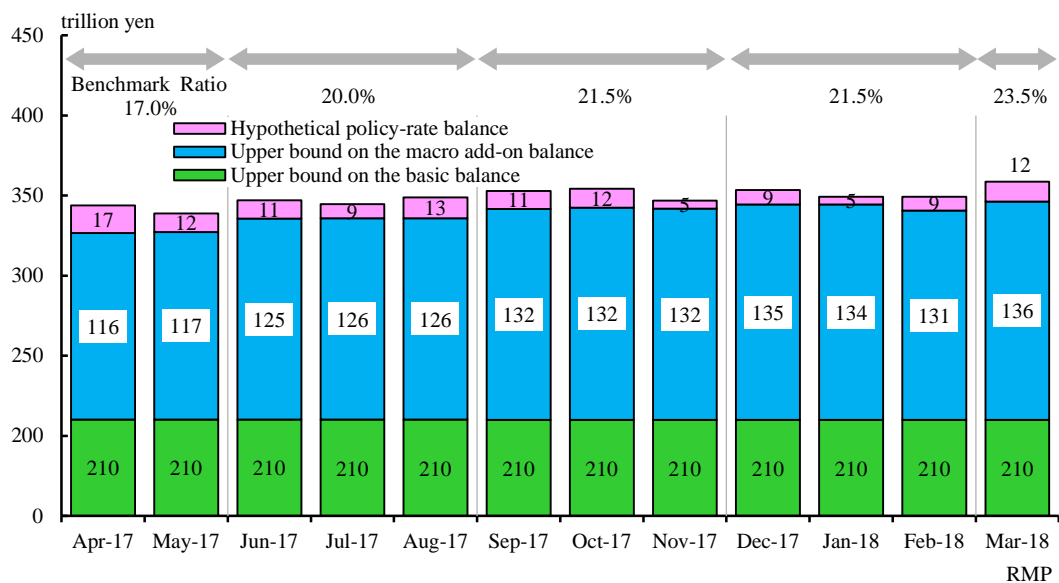
⁷ The smaller of the average amount outstanding of MRFs entrusted to an institution during the reserve maintenance periods from January to December 2015 (on a net asset basis; including the amount that was not deposited in the current accounts at the Bank as a result of investment) and that entrusted 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).

⁸ 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 balances 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 (see Box 6).

system produces incentives for arbitrage trading at negative interest rates in money markets. In other words, 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.

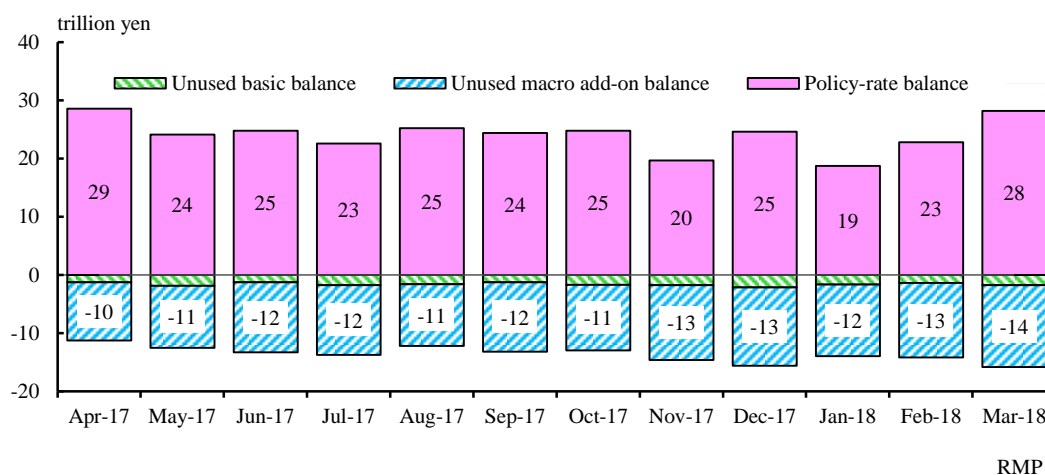
Under such circumstances, if assuming that financial institutions with "unused allowances" in their basic balances and/or macro add-on balances utilize all of their "unused allowances" to borrow cash from financial institutions with policy-rate balances, the policy-rate balance left is referred to as the "hypothetical policy-rate balance after arbitrage transactions have taken place in full." The Bank, in principle, has reviewed the Benchmark Ratio once every three months, so that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" stays within a certain range. As a result, the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" remained at about 10 trillion yen on average during fiscal 2017 (Chart 4-2).

Chart 4-2: Upper Bound on the Basic Balance and the Macro Add-on Balance and the Hypothetical Policy-Rate Balance



However, a look at the three-tier system of the current accounts with focus on the "unused allowances" in the basic balances and/or macro add-on balances shows that, in reality, it is not necessarily the case that funds are fully transferred from financial institutions with policy-rate balances to those with "unused allowances" in their basic balances and/or macro add-on balances. Although two years have passed since the introduction of QQE with a Negative Interest Rate in January 2016, there has not been a time -- at least not until now -- where "unused allowances" have been completely utilized, instead constantly leaving a balance of about 10 trillion yen. Therefore, policy-rate balances have actually remained in the range of about 20-30 trillion yen, which exceeds the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" by the amount of "unused allowances" not fully utilized (Chart 4-3).

Chart 4-3: Unused Allowances in Tiers and the Policy-Rate Balance



Box 6: Process for Reviewing the Benchmark Ratio and Background of the Review in Fiscal 2017

As described in the main text, 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 balances 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. Here, an explanation of the specific process for reviewing the Benchmark Ratio is provided below.

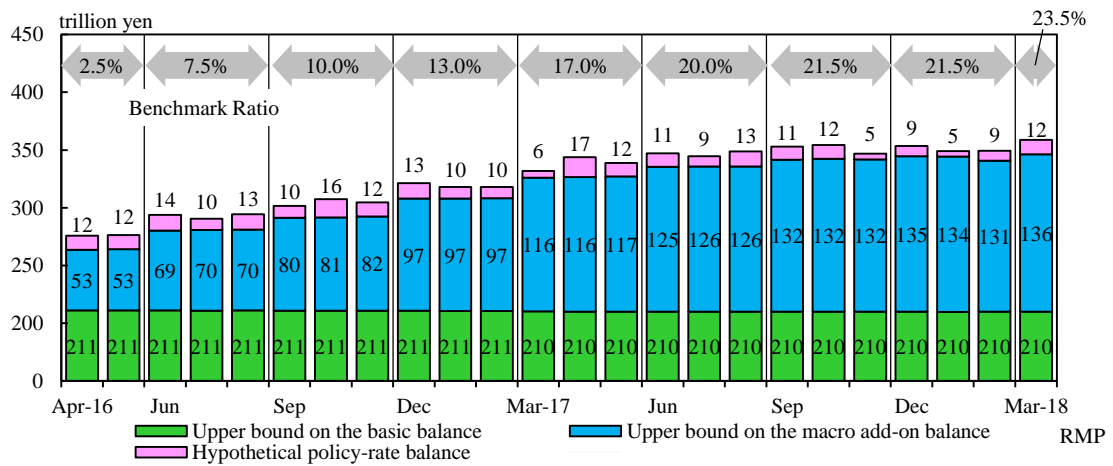
- (1) Estimate future changes in banknotes and those in treasury funds and others that are exogenous sources of changes in current account balances at the Bank, as precisely as possible, based on various factors including seasonality and special factors, and prepare projections for the current account balances at the Bank taking account of the future conduct of market operations.
- (2) Prepare projections for the macro add-on balance excluding the macro add-on amount (i.e., $\text{Benchmark Balance} \times \text{Benchmark Ratio}$) based on estimated changes in the average outstanding balance of the Loan Support Program and other measures and the amount outstanding of MRFs to which special rules apply.
- (3) Decide on the macro add-on amount (and in turn, the Benchmark Ratio) based on the projections made in (1) and (2) above so that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" generally remains at about 10 trillion yen.

The current account balances at the Bank have been on an increasing trend as the Bank has continued to supply funds through its large-scale asset purchases. Accordingly, the Benchmark Ratio has also been raised as a trend (Box Chart 6-1). However, the extent and the timing for raising the Benchmark Ratio are not always the same mainly because (1) the pace of increase in the current account balances at the Bank changes due to factors such as the seasonality of changes in banknotes and those in treasury funds and others (Box Chart 6-2), and (2) changes in the macro add-on balance excluding the macro add-on amount, e.g., the average outstanding balance of the Loan Support Program and other measures, show mixed developments (Box Chart 6-3).

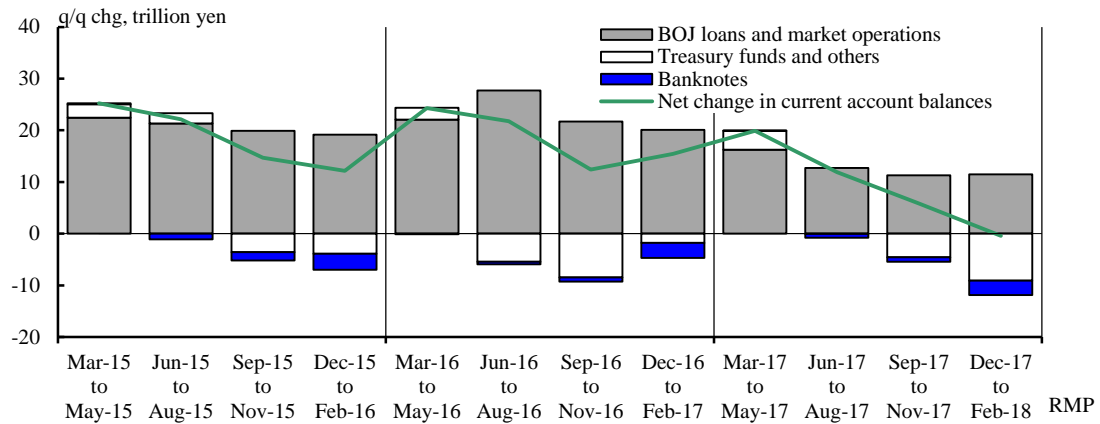
For example, the Bank left the Benchmark Ratio unchanged in the reserve maintenance periods from December 2017 to February 2018 compared with the previous three reserve maintenance periods. This was because the current account balances at the Bank were not expected to increase significantly from the previous three reserve maintenance periods as it was the season during which changes in banknotes and those in treasury funds and others tended to push down the current account balances at the Bank, and redemptions of JGBs to the private sector was to decrease significantly in December 2017 compared with the previous year.

With respect to the reserve maintenance periods from March to May 2018, the Bank set different Benchmark Ratios for the reserve maintenance periods in March and in April and May, so that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" would not change significantly for each reserve maintenance period. This was because the current account balances at the Bank were projected to increase significantly from the March reserve maintenance period into the April reserve maintenance period, due to the overlapping of payments including payments for public construction and allotments of local allocation taxes until the middle of April (Benchmark Ratio in the March reserve maintenance period was set at 23.5 percent, and was then raised to 27.0 percent in the reserve maintenance periods in April and May).

Box Chart 6-1: Benchmark Ratio and the Hypothetical Policy-Rate Balance

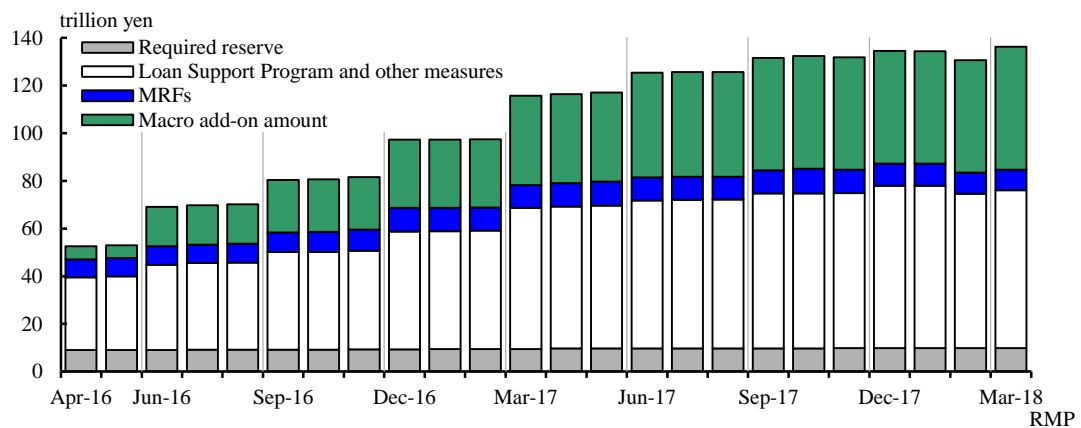


Box Chart 6-2: Pace of Increase and Sources of Changes in Current Account Balances at the Bank



Note: Figures after adjusting for the effects of market operations on changes in treasury funds and others (see Chart 2-6).

Box Chart 6-3: Breakdown of the Upper Bound on the Macro Add-On Balance



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

Looking at developments in the three tiers of the current account balances at the Bank by sector, there have been no significant changes from fiscal 2016, only to show the following characteristics (Chart 4-4).

City banks have managed their current accounts at the Bank in such a way that they do not generate policy-rate balances and use up almost all the "unused allowances" in their macro add-on balances by borrowing cash and lending it mainly in the repo market.

Some regional banks I and II, depending on the scale of their current accounts at the Bank, 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 has lent cash, mainly in the call market, and the latter has also borrowed cash in the call market for arbitrage trading purposes. However, not a few of the latter, taking account of the upward pressure on borrowing rates in the call market and daily operational costs, have refrained from accumulating funds in their current account balances at the Bank even if they have "unused allowances" in their macro add-on balances, or have managed their current accounts at the Bank in a suppressed manner, placing priority on not generating policy-rate balances. As a result, there have continued to be considerable amounts of "unused allowances" in macro add-on balances in the sector as a whole.

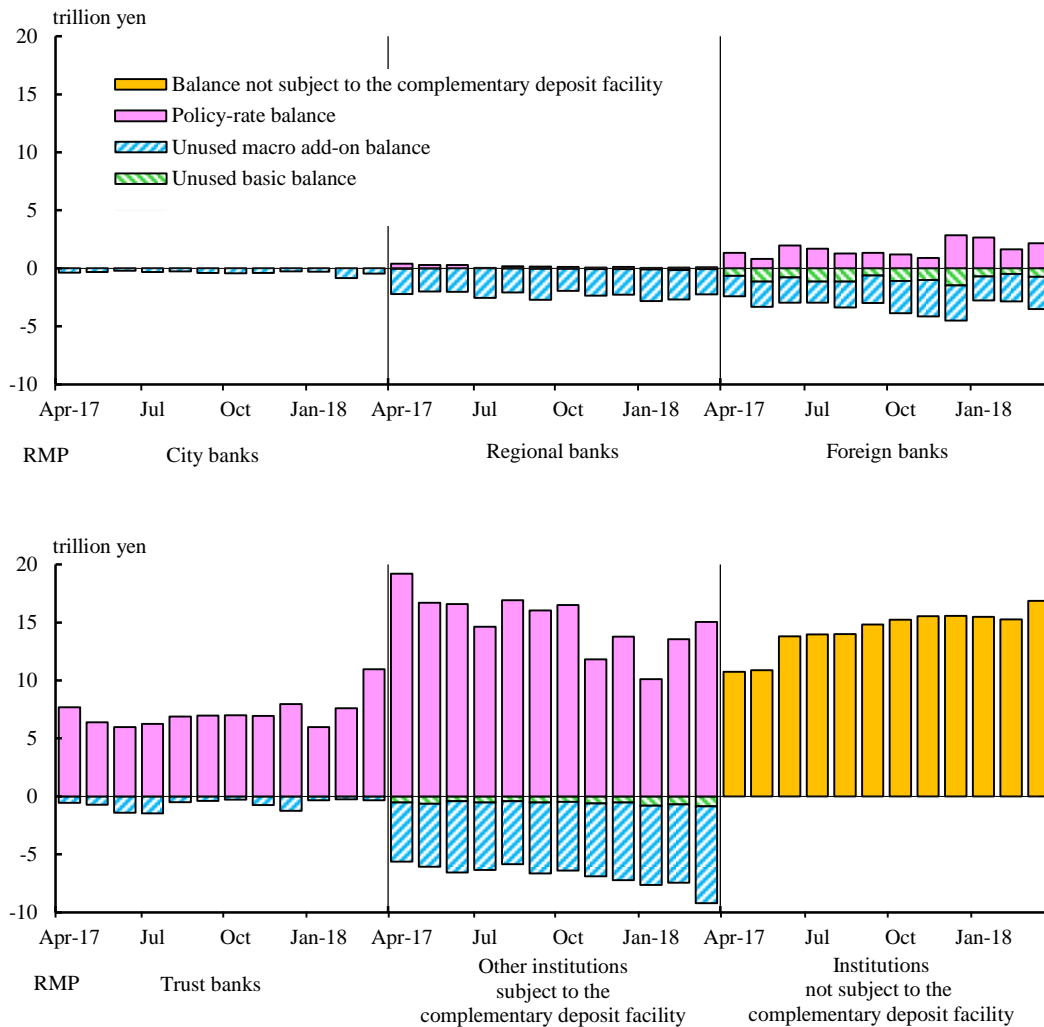
Foreign banks have managed their current accounts at the Bank under the cash management policy of their group as a whole. Under such circumstances, many foreign banks have not used up the "unused allowances" in their basic balances and/or their macro add-on balances. On the other hand, some are not reluctant 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 of holding policy-rate balances (minus 0.1 percent). However, during fiscal 2017, such banks' policy-rate balances were at low levels given that the yen funding cost in the FX swap market was not low on the whole compared with fiscal 2016.

Trust banks, particularly those specialized in asset management, maintained substantial amounts of policy-rate balances through fiscal 2017, mainly because investment trusts piled up idle money, amid continuous inflows of funds from redemptions of JGBs. Although some trust banks have reduced policy-rate balances by lending cash in the call market, the sector has not yet sufficiently reduced policy-rate balances as a whole.

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 have shown mixed attitudes toward supplying cash, but have actively lent it in the call and repo markets, working to reduce policy-rate balances through active purchases of foreign bond investment trusts. However, the policy-rate balances in the sector have remained at high levels, amid continuous inflows of funds from redemptions of JGBs and deposits.

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 continued on a moderate increasing trend. This is partly attributable to the fact that some 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 institutions subject to the complementary deposit facility to those that are not, as in the case described above, the current account balances 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 has controlled the level of the "hypothetical policy-rate balance after arbitrage transactions have taken place in full," while also taking into account such movements in funds.

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



- Notes: 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; 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 7: Characteristics of Cash Borrowing and Lending Needs by Sector

As examined in the main text, there have been no significant changes in the distribution of funds under the three-tier system of the current accounts by sector since the introduction of the negative interest rate policy. However, the distribution of funds under the three-tier system by sector examined thus far is at its final stage on the last day of each reserve maintenance period only to be reached after financial institutions trade in money markets. In reality, there is initially an uneven distribution of funds at financial institutions at the beginning of each reserve maintenance period according to the characteristics of the sector, and from this initial stage, the distribution of funds reaches its final stage on the last day of each reserve maintenance period, as examined in the main text, after financial institutions trade in money markets. In other words, the cash borrowing and lending needs in money markets are decided by the initial uneven distribution of funds at financial institutions, and then changes depending on developments in the distribution of funds.

Although it is difficult to accurately capture the distribution of funds at financial institutions at its initial stage at the beginning of each reserve maintenance period, in order to estimate the initial uneven distribution of funds at financial institutions, we concentrate on three factors described below that cause changes in cash borrowing and lending needs and examine how they have changed since the introduction of the negative interest rate policy, focusing on characteristic sectors (Box Chart 7).

(1) Upward/Downward Revisions of the Upper Bound on Macro Add-On Balances

Cash borrowing needs increase (cash lending needs decrease) when the upper bound on macro add-on balances is raised due to upward revisions of the Benchmark Ratio and an increase in the use of the Loan Support Program and other measures. In contrast, cash lending needs increase (cash borrowing needs decrease) when the upper bound on macro add-on balances is lowered through repayments under the Loan Support Program and other measures.

(2) Narrowing/Widening of the Loan-Deposit Gap

Cash borrowing needs increase (cash lending needs decrease) when the loan-deposit gap narrows (the amount of deposits decreases or that of loans increases). In contrast, cash lending needs increase (cash borrowing needs decrease) when the loan-deposit gap widens (the amount of deposits increases or that of loans decreases).

(3) Increase/Decrease in the Amount Outstanding of Securities Holdings

Cash borrowing needs increase (cash lending needs decrease) when the amount outstanding of securities holdings increases. In contrast, cash lending needs increase (cash borrowing needs decrease) when the amount outstanding of securities holding decreases.

The amount outstanding of securities held by city banks has started to decrease mainly due to redemptions and the loan-deposit gap has continued to widen significantly. Meanwhile, the pace at which the upper bound on city banks' macro add-on balances is raised has slowed gradually; therefore, cash borrowing needs have decreased as a trend and cash lending needs have increased.

Although the amount outstanding of securities held by regional banks I and II has decreased, its effects have been somewhat offset by upward revisions of the upper bound on macro add-on balances. Thus, regional banks I and II have had cash borrowing needs on average. Looking at this in more detail, the loan-deposit gap at regional banks I and II exhibit a seasonal pattern in which it widens at the beginning of the fiscal year and narrows toward the second half of fiscal year due to the effects of the seasonality in receipts and payments of treasury funds. It is characteristic that, as a result, a seasonal pattern is also observed in the magnitude of their cash borrowing needs.

Securities companies' cash borrowing needs have increased. This is attributable to the fact that while their securities positions are generally fixed and they do not have inflows of deposits unlike banks, the upper bound on securities companies' macro add-on balances has been raised moderately due to upward revisions of the Benchmark Ratio.

Against the background of such characteristics in the cash borrowing and lending needs by sector, the following developments have been observed in major money markets since the introduction of the negative interest rate policy.

Uncollateralized Call Market: On the cash borrowing side, the presence of regional banks I and II with cash borrowing needs on average, and that of securities companies with increased cash borrowing needs, has heightened while the presence of city banks with decreased cash borrowing needs has diminished. In particular regarding regional banks I and II, as described

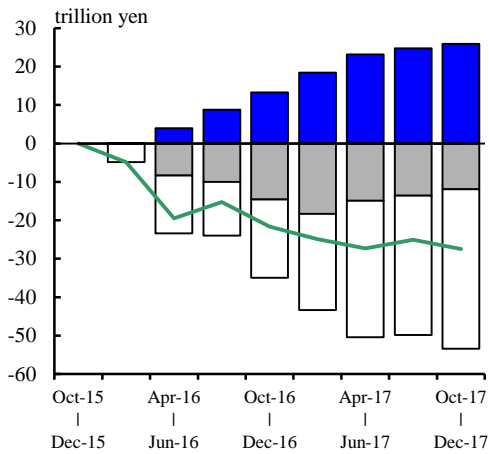
in Box 2, the seasonal changes in the magnitude of their cash borrowing needs have caused seasonal fluctuations in the amount outstanding of the uncollateralized call market as a whole, and as described in Box 3, their borrowing behavior has had a significant effect on the formation of the uncollateralized call rate mainly reflecting their large presence.

GC Repo Market: The presence of city banks has been growing on both the cash borrowing and lending sides, and the balance between the two sides has had greater effects on the formulation of the GC repo rate.

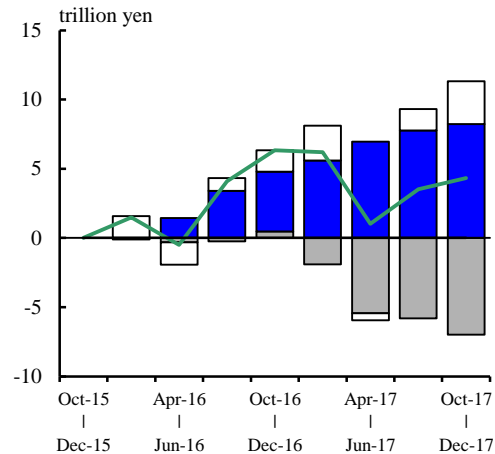
T-Bill Market: The amount of city banks' T-Bills holdings has increased. This is because city banks have increased their T-Bill holdings for the purpose of securing collateral while the amount outstanding of their securities holdings has decreased. Moreover, in phases during which cash lending needs have heightened, they have increased their T-Bill holdings for the purpose of investing surplus funds in term instruments.

Box Chart 7: Initial Uneven Distribution of Funds by Sector

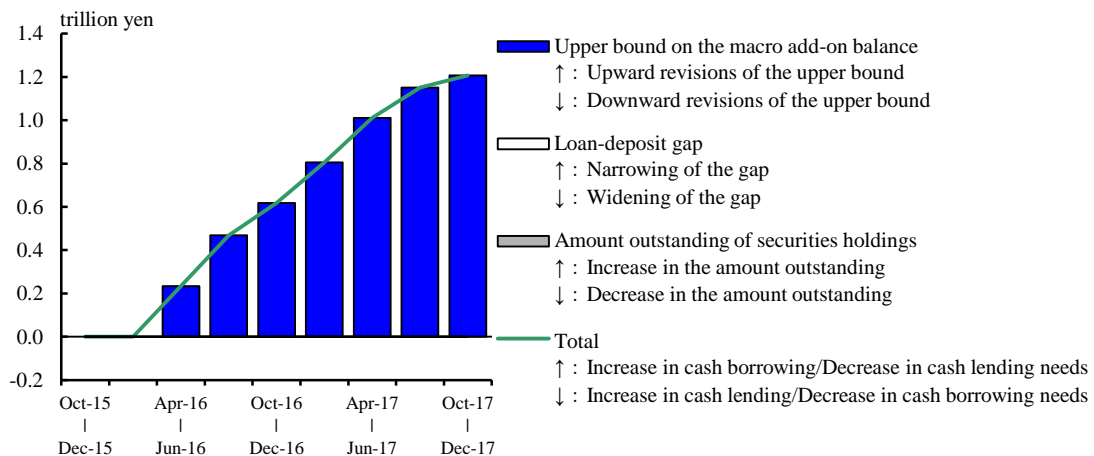
(City Banks)



(Regional Banks I and II)



(Securities Companies)



- Notes: 1. Average amounts outstanding as of the month-end on a quarterly basis. Figures indicate deviations from the October-December quarter of 2015.
2. "Loan-deposit gap" = deposits + NCDs – loans. "Amount outstanding of securities holdings" includes T-Bills. It is assumed that the "loan-deposit gap" and the "amount outstanding of securities holdings" of securities companies do not change.
3. Of the "upper bound on the macro add-on balance," the "average outstanding balance of the Loan Support Program and other measures" is the sum of (1) the average outstanding balance of the Loan Support Program and other measures, and (2) the amount of increase in financial institutions' borrowing through the Loan Support Program and other measures from end-March 2016 (hereafter the "added amount") (Chart 4-1). With regard to (1), the "upper bound on the macro add-on balance" is raised by the amount of increase in financial institutions' current account balances at the Bank on an aggregate basis from the funds supplied by the Bank. For this reason, the "upper bound on the macro add-on balance" only includes the "added amount."
- However, the "added amount" by sector is undisclosed, and is estimated based on the assumption that it amounts to half of the amount of increase in the "average outstanding balance of the Loan Support Program and other measures" from the March 2016 reserve maintenance period, calculated by deducting "required reserves" and the "macro add-on amount (Benchmark Balance × Benchmark Ratio)" from the "upper bound on the macro add-on balance" by sector ("MRFs" are assumed to be zero). Meanwhile, figures should be seen with a considerable margin, due to the estimation bias inherent if there are financial institutions that increase borrowing through the Loan Support Program and other measures and those that do not within the same sector.

B. Outright Purchases of T-Bills

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

Under the framework of yield curve control, the Bank has decided on the appropriate purchase size per operation, considering its effects on yields on T-Bills and their supply and demand conditions, as well as on relevant interest rates including the repo rate and short-term JGB yields. Specifically, the Bank, during fiscal 2017, offered 100 billion to 2 trillion yen per operation.

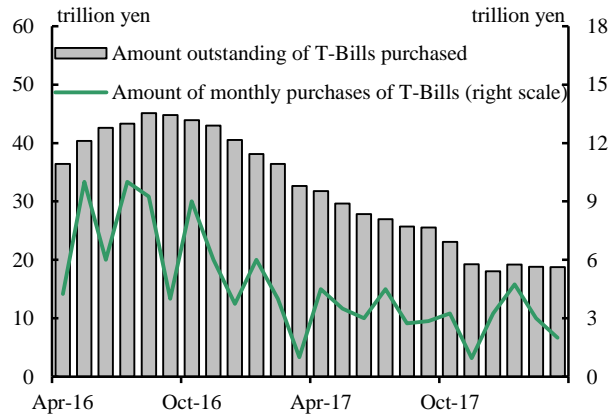
Meanwhile, as mentioned above, yields on T-Bills during fiscal 2017 remained at levels below the short-term policy interest rate (of minus 0.1 percent), more or less in the range of minus 0.2 to minus 0.1 percent, after having risen in negative territory from fiscal 2016 into fiscal 2017. Under such circumstances, the Bank, which eliminated its monetary base target upon the introduction of QQE with Yield Curve Control, gradually reduced the amount outstanding of its purchases of T-Bills until around the middle of fiscal 2017. Thereafter, the Bank has decided the size of purchases in a more flexible manner, depending on developments in yields on T-Bills and their supply and demand conditions, while considering the weight of T-Bill purchases within the framework of yield curve control.

Consequently, the Bank revised the description regarding the amount outstanding of its T-Bill holdings in the "Outline of Outright Purchases of Japanese Government Securities" (monthly "Outline") released on the last business day of each month. Specifically, the Bank provided in the "Outline" released until October 2017 its projections for the amount outstanding of its T-Bill holdings at the end of the month in a relatively narrow range. However, in order to ensure the flexibility of its conduct of market operations, the Bank revised the "Outline" in November, taking account of developments in the T-Bill market, to indicate the projections for the amount outstanding of its T-Bill holdings in a wider range. The Bank then decided not to refer to any specific amount outstanding of its T-Bill holdings starting from the "Outline" released in March 2018.

Based on such an outline, the amount outstanding of T-Bills purchased decreased at a pace of about 1-3 trillion yen every month until the end of November 2017, but remained more or less

unchanged thereafter. The amount outstanding of T-Bills purchased stood at 18.8 trillion yen at the end of March 2018, a decrease of 13.9 trillion from a year earlier (Chart 4-5).

Chart 4-5: Amounts Outstanding of T-Bills Purchased and Amounts of Monthly Purchases of T-Bills



C. Outright Purchases of JGBs

During fiscal 2017, the Bank, under QQE with Yield Curve Control introduced in September 2016, maintained the guideline for market operations, which stipulated that "the Bank will purchase JGBs so that 10-year JGB yields will remain more or less at around 0 percent."

Under such circumstances, the Bank has encouraged the formation of a yield curve consistent with the guideline for market operations by offering outright purchases of JGBs through the competitive auction method and, as necessary, carrying out purchases through the fixed-rate method (i.e., fixed-rate purchase operations). With respect to purchases through the competitive auction method, the Bank has provided a range for the purchases size per auction for the following month, and the specific dates of auctions or the frequency of offers for that month in the "Outline of Outright Purchases of Japanese Government Securities" (monthly "Outline"). Moreover, the Bank has flexibly adjusted the purchase size per auction depending on market developments at the time. Specifically, the size of purchases has been decided in a comprehensive manner taking account of a wide range of factors, including interest rate levels, the direction and speed of interest rate changes, volatility, whether interest rate changes are temporary or a trend, the supply and demand conditions of JGBs, and results⁹ of previous 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, declined in April 2017 partly due to the decline in overseas interest rates and the heightened geopolitical risks arising from the situation in Syria and North Korea. However, they began to rise from late June, in line with the rise in overseas interest rates reflecting concerns over a reduction in the degree of monetary

⁹ As for the results of operations, the pro-rata rate, average successful bid rate, allocation on a pro-rata basis rate, bid-to-cover ratio, core bid-to-cover ratio, etc. are taken into account. Among them, the core bid-to-cover ratio is calculated by extracting 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 (generally, the closing time of the previous session), and dividing the total of that amount by the offered amount (Chart 4-6). For details on the thinking behind the core bid-to-cover ratio, see Box 8 in "Market Operations in Fiscal 2016."

easing by the ECB, and reached 0.105 percent on July 7. In response, the Bank increased the amount of purchases (from 450 billion to 500 billion yen) of long-term JGBs (more than 5 years and up to 10 years) on the same day and concurrently carried out fixed-rate purchase operations for 10-year JGBs (yields on newly issued 10-year JGBs at 0.11 percent) (purchase size set at an unlimited amount; actual bidding amount was zero). Thereafter, as yields on long-term JGBs declined due to concerns over geopolitical risks arising from the situation in North Korea, supply and demand conditions tightened, and the core bid-to-cover ratio also fell to a low level. Thus, the Bank gradually reduced the amount of purchases of long-term JGBs (from 500 billion to 470 billion yen, to 440 billion yen, and then to 410 billion yen) in July and August. In September, amid concerns over the tightening of domestic supply and demand conditions and the decline in overseas interest rates reflecting increasingly heightened vigilance about geopolitical risks, 10-year JGB yields temporarily fell into negative territory for the first time since November 2016. However, they soon returned to positive territory, due to the limited demand from investors to trade at negative interest rates. Subsequently, as vigilance about geopolitical risks gradually abated, 10-year JGB yields generally remained stable, more or less in the range of 0.02-0.07 percent. At the beginning of 2018, given that concerns heightened over the direction of the Bank's monetary policy amid a substantial rise in overseas interest rates, prompting foreign short-term investors in particular to take short positions on futures, 10-year JGB yields temporarily rose to 0.095 percent in early February. In response, the Bank increased the amount of purchases (from 410 billion to 450 billion yen) of long-term JGBs on February 2 and concurrently carried out fixed-rate purchase operations for 10-year JGBs (yields on newly issued 10-year JGBs at 0.11 percent) (purchase size set at an unlimited amount; actual bidding amount was zero). Thereafter, 10-year JGB yields generally remained stable more or less in the range of 0.02-0.09 percent (Chart 4-7).

The Bank flexibly changed the amount of purchases of short- and medium-term JGBs (2-year and 5-year JGBs) depending on market developments.¹⁰ In April and May, the supply and

¹⁰ Meanwhile, the Bank increased the amount of purchases of JGBs with a residual maturity of up to 1 year (from 70 billion to 100 billion yen) in June, partly due to the rise in the bid-to-cover ratio at the beginning of fiscal 2017. However, the Bank then decreased the amount from October (from 100 billion to 70 billion yen, and then to 50 billion yen), partly due to the decline in the bid-to-cover ratio.

demand conditions of short- and medium-term JGBs tightened, and the core bid-to-cover ratio for purchases of JGBs with a residual maturity of more than 3 years and up to 5 years frequently fell to a low level. Thus, the Bank gradually reduced the amount of purchases of short- and medium-term JGBs (from 300 billion to 280 billion yen for residual maturity of more than 1 year up to 3 years; from 380 billion to 350 billion yen, to 320 billion yen, and then to 300 billion yen for residual maturity of more than 3 years up to 5 years). The Bank then increased the amount of purchases of JGBs with a residual maturity of more than 3 years and up to 5 years (from 300 billion to 330 billion yen) because a rise in overseas interest rates abruptly pushed up yields on 5-year JGBs from late June. Subsequently, the Bank reduced the amount of purchases of JGBs with a residual maturity of more than 3 years and up to 5 years (from 330 billion to 300 billion yen) in early September, given the robust demand from investors for 5-year JGBs due to concerns over geopolitical risks arising from the situation in North Korea, the tightening of supply and demand conditions of such JGBs that followed, and the resultant lower core bid-to-cover ratio. In November before the end of the year, the supply and demand conditions of 2-year JGBs tightened and the core bid-to-cover ratio declined, amid an expansion of U.S. dollar funding premiums and heightened collateral demand from Japanese investors. Thus, the Bank reduced the amount of purchases of JGBs with a residual maturity of more than 1 year and up to 3 years (from 280 billion to 250 billion yen). At the beginning of 2018, in light of the upward pressure on 5-year JGB yields driven by foreign short-term investors taking short positions on futures, the Bank increased the amount of purchases of JGBs with a residual maturity of more than 3 years and up to 5 years (from 300 billion to 330 billion yen).

Super-long-term interest rates (yields on 20-year, 30-year, and 40-year JGBs) continued to decline moderately from the second half of fiscal 2017, due to the tightening of supply and demand conditions, supported by robust demand from investors. Taking such market developments into account, the Bank gradually reduced the amount of purchases of super-long-term JGBs (from 200 billion to 190 billion yen for residual maturity of more than 10 years and up to 25 years; and from 100 billion to 90 billion yen, to 80 billion yen, and then to 70 billion yen for residual maturity of more than 25 years)

As a result of outright purchases of JGBs described above, Japan's yield curve has been formed in a manner consistent with the guideline for market operations. Specifically, 10-year JGB yields

remained in line with the operating target of "around 0 percent" during fiscal 2017 (Chart 4-7). Looking at yield spreads between 10-year JGBs and JGBs in other maturity zones, although the spreads between 10-year JGBs and super-long-term JGBs narrowed somewhat (yield curve flattened), there were no major fluctuations and deformations on the whole during fiscal 2017 (Charts 4-8 and 4-9).

Chart 4-6: Core Bid-to-Cover Ratio

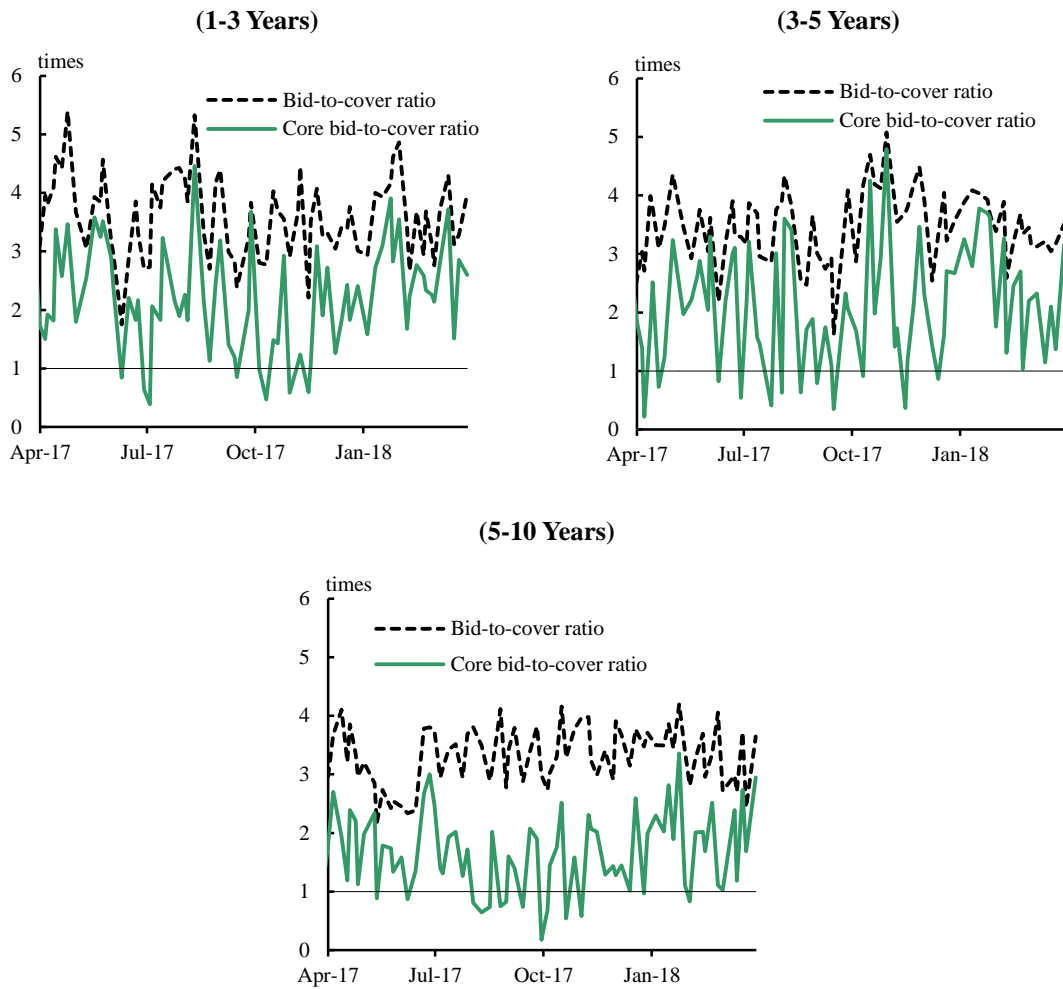


Chart 4-7: 10-Year JGB Yields

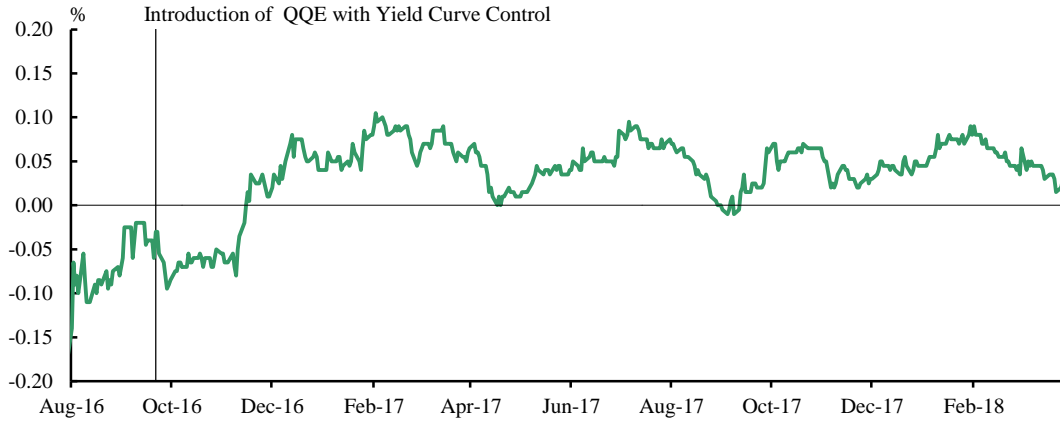


Chart 4-8: Yield Spreads between 10-Year JGBs and JGBs in Other Maturity Zones

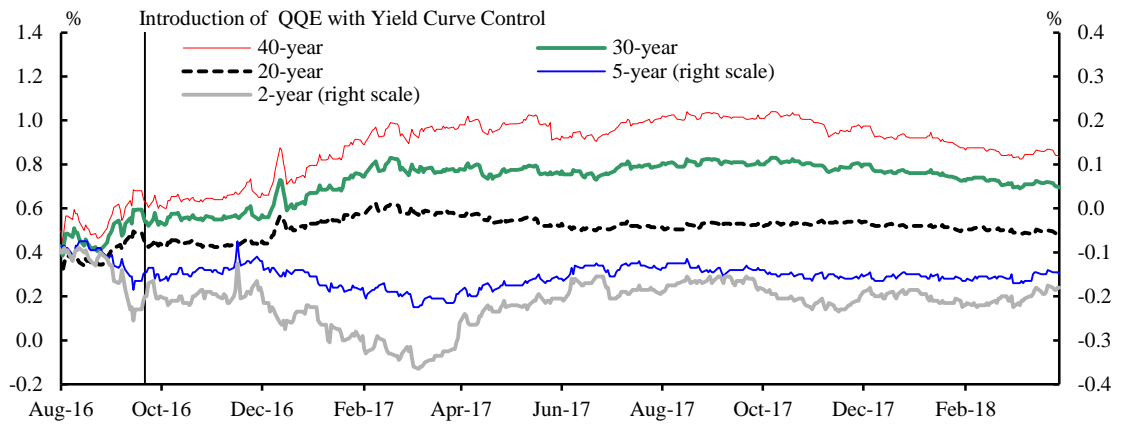
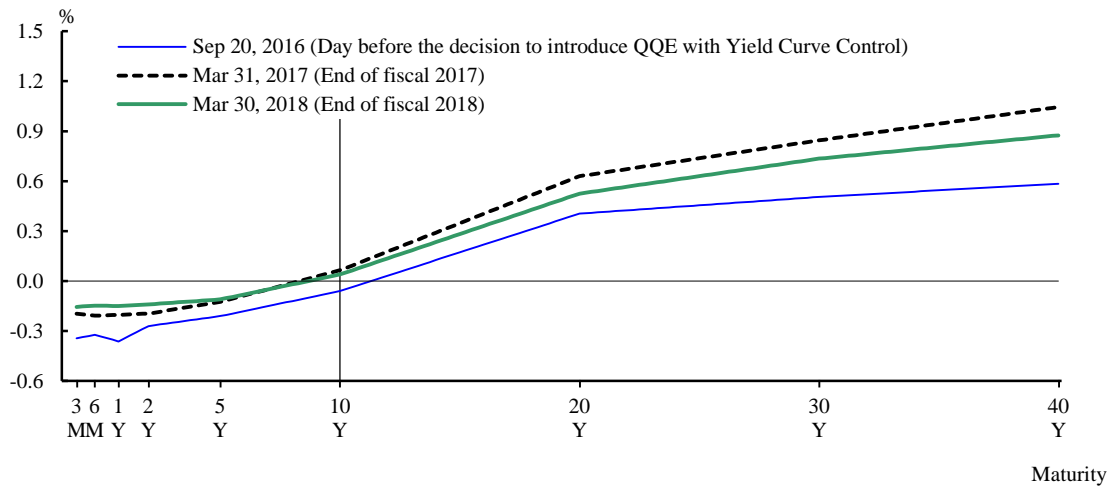


Chart 4-9: Changes in the JGB Yield Curve



Box 8: A Rise in the Share of the Bank's JGB Holdings and the Amount of Purchases of JGBs

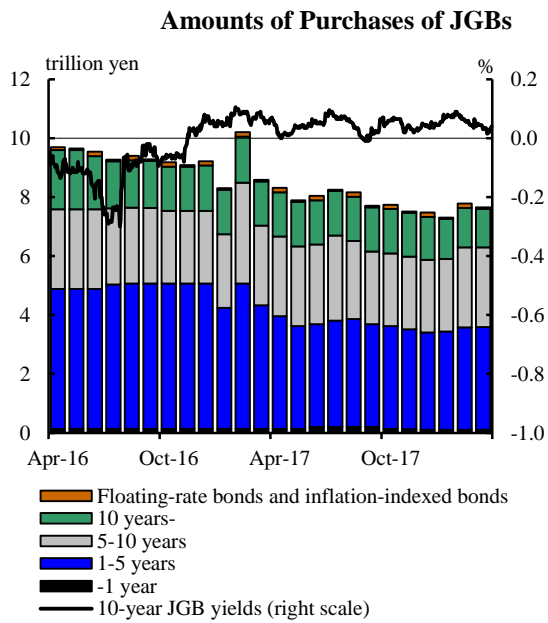
As described in the main text, the Bank, under the framework of QQE with Yield Curve Control, has flexibly adjusted the amount of purchases of JGBs, depending on market developments at the time, to encourage the formation of a yield curve consistent with the guideline for market operations in which the target level of 10-year JGB yields is set at "around 0 percent."

Looking at changes in the amount of monthly purchases of JGBs since the introduction of QQE with Yield Curve Control, it has decreased moderately, albeit with some fluctuations (Box Chart 8-1). This is because the amount outstanding of JGBs in the markets has decreased due to the Bank's large-scale purchases of JGBs since the introduction of QQE in April 2013, in addition to the fact that upward pressure on interest rates has not strengthened significantly during the same period, and the Bank's purchases of JGBs have firmly pushed down interest rates.

In fact, a look at the Bank's share of JGB holdings to the amount outstanding of JGBs issued (on a stock basis) shows that it rose to a level exceeding 40 percent in fiscal 2017, suggesting "stock effects" of the Bank's JGB holdings (Box Chart 8-2).

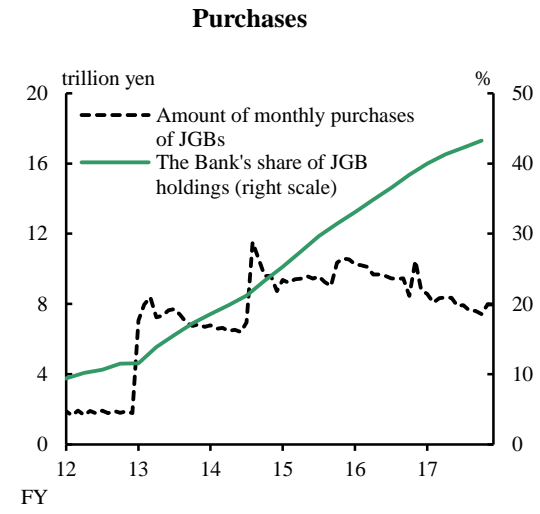
Needless to say, the amount of purchases of JGBs necessary to realize a yield curve consistent with the guideline for market operations changes depending on financial market conditions. For this reason, the Bank will continue to flexibly adjust the amount of purchases of JGBs depending on market developments to realize a yield curve consistent with the guideline for market operations.

Box Chart 8-1: 10-year JGB Yields and



Note: Figures for the amount of purchases of JGBs are based on dates of offers. The same applies for Box Chart 8-2.

Box Chart 8-2: Stock and Flow of JGB



Note: "The Bank's share of JGB holdings" is the Bank's share of JGB holdings to the total amount outstanding of JGBs issued (on a quarterly basis). Here, the value at the end of the previous quarter is plotted for each quarter.

D. 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.

Although the Bank continued to offer three outright purchases per month, it offered slightly smaller purchases than in fiscal 2016 (250-600 billion yen) with 200-550 billion yen per operation. This was because the residual maturity of CP purchased by the Bank grew longer as the maturity of CP lengthened. CP redemption schedules tend to concentrate at quarter-ends, and those for CP purchased by the Bank also tend to follow the same trend. Therefore, the Bank's tendency to offer larger purchases than usual at quarter-ends remained unchanged. As a result, the amount outstanding of CP purchased was maintained at about 2.2 trillion yen, with fluctuations smoothed out (Chart 4-10).

The lowest accepted bid yield for outright purchases of CP remained in very shallow negative territory on the whole, although having temporarily declined somewhat significantly at around the end of the first and second half of the year and at around the fiscal year-end (Chart 4-11).

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

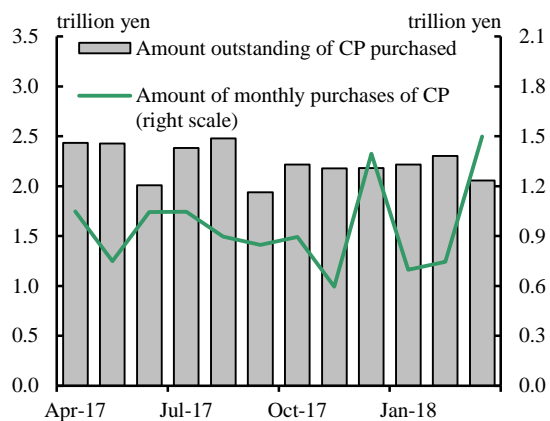
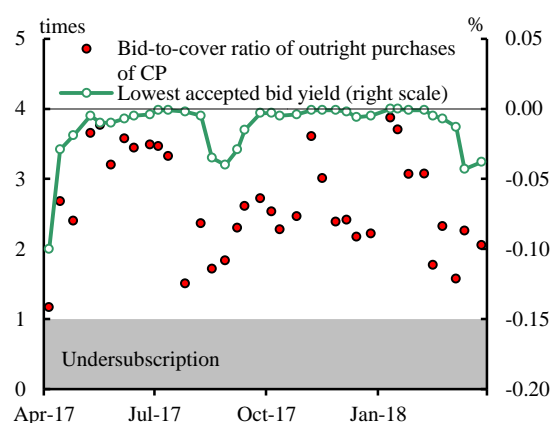


Chart 4-11: Bid-to-Cover Ratios and Lowest Accepted Bid Yields of Outright Purchases of CP



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 these guidelines, the Bank offered outright purchases once a month with 75-150 billion yen per operation, considering the redemption schedules of the bonds purchased by the Bank (Chart 4-12).

Meanwhile, the amount outstanding of corporate bonds eligible for purchase through the Bank's operations with a residual maturity of more than 1 year and up to 3 years remained at a high level. Amid heightened needs to sell the bonds through the Bank's operations, the lowest accepted bid yield for outright purchases of corporate bonds rose into positive territory in May 2017 for the first time since the introduction of the negative interest rate policy, and stayed there until December. However, it then returned into negative territory given that there were relatively few issuances of corporate bonds with a residual maturity eligible for purchase through the Bank's operations due to seasonal factors, in addition to lower expectations for sales at the low yields offered in the Bank's operations (Chart 4-13).

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

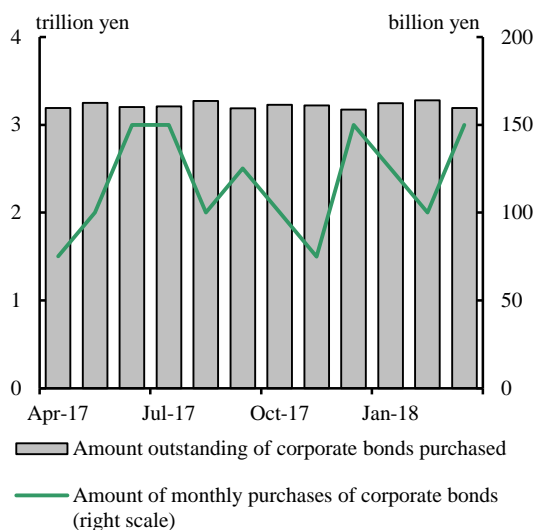
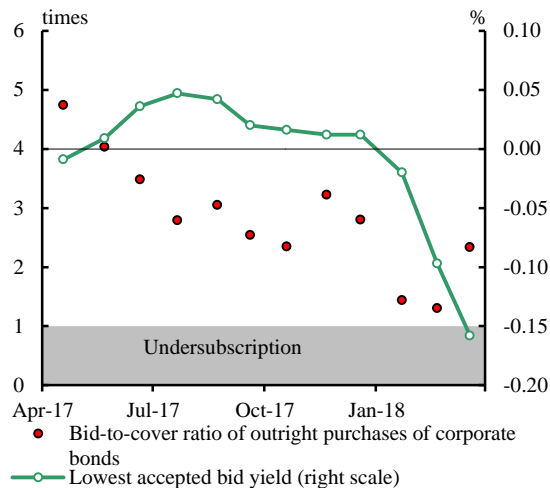


Chart 4-13: Bid-to-Cover Ratios and Lowest Accepted Bid Yields of Outright Purchases of Corporate Bonds



3. Outright Purchases of ETFs

The Bank purchased ETFs so that the amount outstanding of its holdings would increase at an annual pace of about 6 trillion yen, in accordance with the guidelines for asset purchases decided at the MPMs. Of about 6 trillion yen, 300 billion yen was 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. The Bank offered 81 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 2017. As a result, the amount outstanding of ETFs purchased by the Bank at the end of March 2018 stood at 18.9 trillion yen, an increase of 6.0 trillion yen from a year earlier.

As outright purchases of ETFs are conducted to influence risk premiums in the stock market, the amount of monthly purchases may change depending on market conditions. Moreover, the Bank conducts outright purchases of ETFs so that the amount outstanding of its holdings would increase at an annual pace of about 6 trillion yen on average, in accordance with the guidelines for asset purchases, but it has not decided on a specific point of time for achieving the guidelines. Under such circumstances, the amount of monthly purchases of ETFs (based on trade date) stood

at 167.0-833.3 billion yen during fiscal 2017 (Chart 4-14).

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 75 purchases during fiscal 2017, and the amount outstanding of J-REITs purchased by the Bank at the end of March 2018 stood at 470.1 billion yen, an increase of 92.5 billion yen from a year earlier. Moreover, the amount of monthly purchases of J-REITs (based on trade date) stood at 0-12.9 billion yen during fiscal 2017 (Chart 4-15).

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

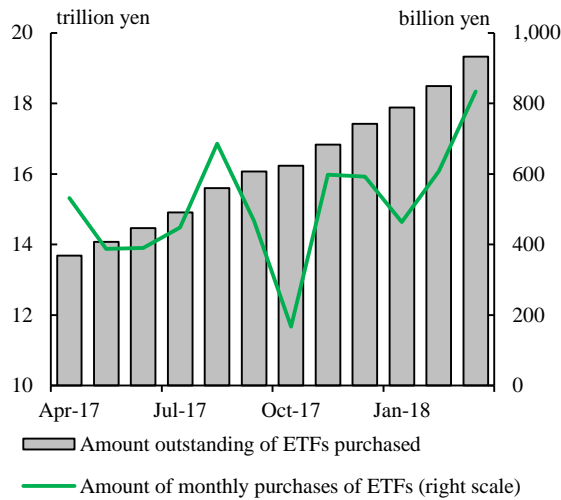
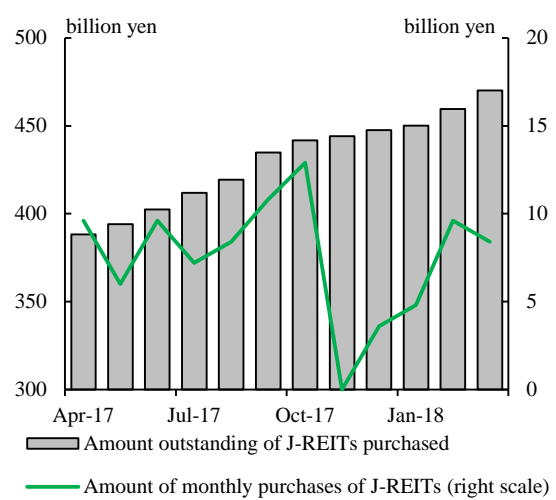


Chart 4-15: Amounts Outstanding of J-REITs Purchased and Amounts of Monthly Purchases of J-REITs



Note: "Amount of monthly purchases of ETFs" is based on trade date. The same applies for Chart 4-15.

E. Other Operations

1. Funds-Supplying Operations against Pooled Collateral

The bank continued to offer Funds-Supplying Operations against Pooled Collateral with a 2-week term at a pace of 800 billion yen per operation once a week and those with about a 100-day term at a pace of 500 billion yen per operation once every seven weeks. All of these operations were offered with a fixed interest rate of 0 percent. Nonetheless, perceptions of abundant liquidity remained extremely strong in money markets and demand for the Funds-Supplying Operations against Pooled Collateral stayed sluggish.

As a result, the amount outstanding of the operations stood at 0.4 trillion yen at the end of March 2018, a decrease of 0.4 trillion yen from a year earlier (Charts 4-16 and 4-17).

Chart 4-16: Amounts Outstanding and Amounts of Monthly Operations of the Funds-Supplying Operations against Pooled Collateral

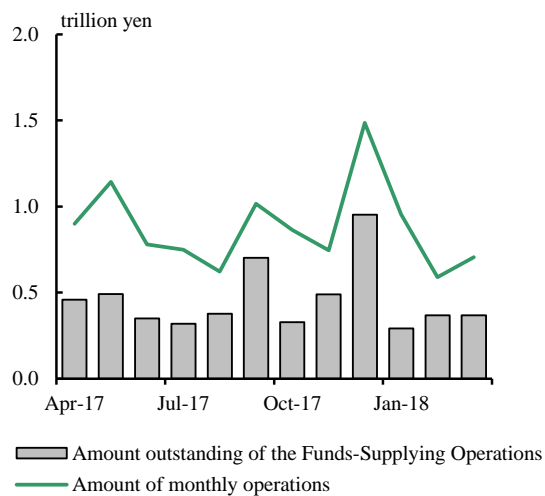
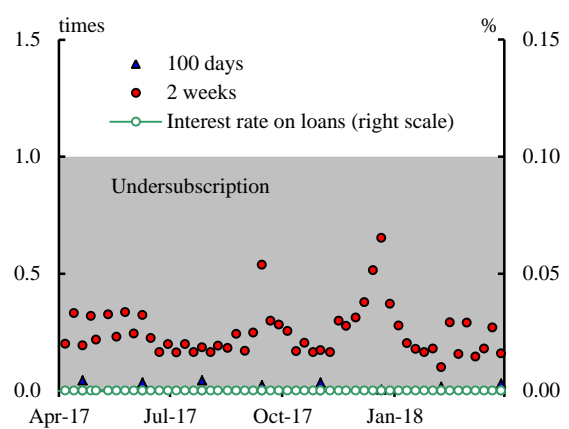


Chart 4-17: Bid-to-Cover Ratios of the Funds-Supplying Operations against Pooled Collateral



2. Growth-Supporting Funding Facility

During fiscal 2017, 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 once a quarter, four times each, under a line of credit for equity investments and asset-based lending established in June 2011 (following special rules for equity investments and asset-based lending), small-lot investments and loans (for 1 million yen or more but less than 10 million yen) introduced in March 2012 (with special rules for small-lot investments and loans), and investments and loans denominated in foreign currencies introduced in April 2012 (under special rules for the U.S. dollar lending arrangement) (Chart 4-18). The Bank offered loans with an interest rate of 0 percent per annum, except for the loans under special rules for the U.S. dollar lending arrangement.

At the end of March 2018, the outstanding balance of loans under the main rules reached 6.8 trillion yen, an increase of 0.5 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 29.8 billion yen (a decrease of 38.2 billion yen from the year-earlier level) out of the ceiling of 500 billion yen. The outstanding balance of loans under the special rules for small-lot investments and loans stood at 14.4 billion yen (an increase of 1.4 billion yen from the year-earlier level) out of the ceiling of 500 billion yen. The outstanding balance of loans under the special rules for the U.S. dollar lending arrangement stood at 23.2 billion dollars (an increase of 2.5 billion dollars from the year-earlier level) out of the ceiling of 24.0 billion dollars (Chart 4-19).

Chart 4-18: Loan Disbursement under the Growth-Supporting Funding Facility

(Main rules)

100 million yen

28th (May 31, 2017)	29th (Aug. 30)	30th (Nov. 29)	31st (Feb. 27, 2018)	Outstanding balance of loans (as of end-Mar. 2018)
8,622	4,000	6,156	4,008	68,438 (13,613)

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

100 million yen

24th (May 30, 2017)	25th (Aug. 29)	26th (Nov. 28)	27th (Feb. 26, 2018)	Outstanding balance of loans (as of end-Mar. 2018)
14	9	20	28	298

(Special rules for small-lot investments and loans)

100 million yen

21st (May 30, 2017)	22nd (Aug. 29)	23rd (Nov. 28)	24th (Feb. 26, 2018)	Outstanding balance of loans (as of end-Mar. 2018)
22.90	7.03	7.19	7.83	143.89 (58.63)

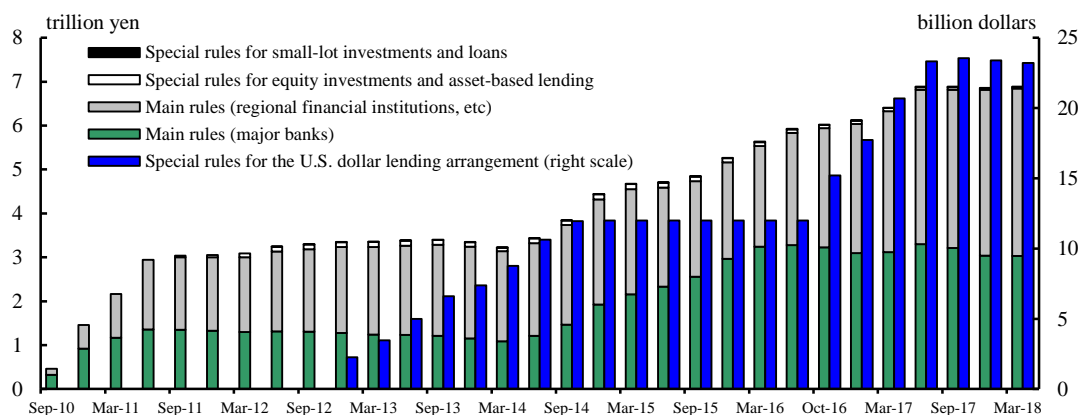
(Special rules for the U.S. dollar lending arrangement)

million U.S. dollars

20th (May 30, 2017)	21st (Aug. 29)	22nd (Nov. 28)	23rd (Feb. 26, 2018)	Outstanding balance of loans (as of end-Mar. 2018)
4,000	1,722	681	1,250	23,211

Notes: 1. The date in parentheses is the offer day, and the value denotes new loans. The same applies for Charts 4-20, 4-22, and 4-23.
2. The value in parentheses below the outstanding balance of loans is the outstanding balance of loans to financial institutions that are members of central organizations (financial institutions that do not hold current accounts at the Bank). The same applies for Chart 4-20.

Chart 4-19: Amounts Outstanding of the Growth-Supporting Funding Facility



3. Stimulating Bank Lending Facility

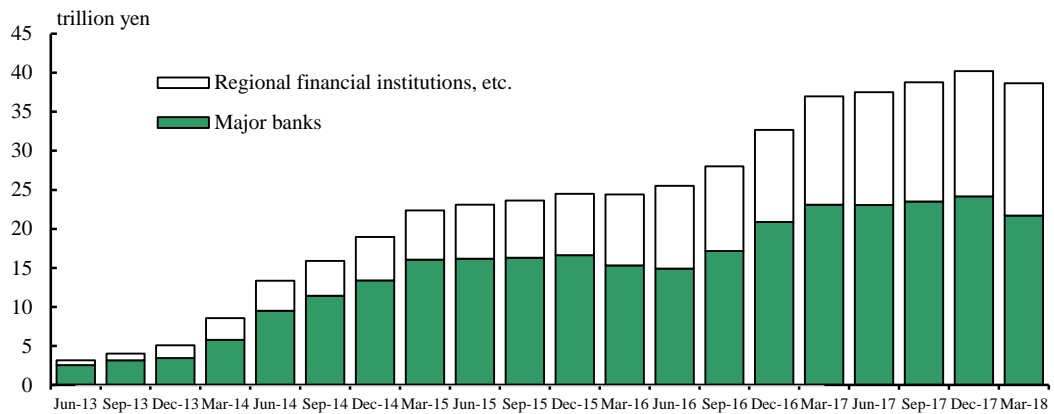
During fiscal 2017, the Bank disbursed loans once a quarter, four times in total, under the Stimulating Bank Lending Facility (Chart 4-20). All of these loans were offered with an interest rate of 0 percent per annum. The outstanding balance at the end of March 2018 reached 38.7 trillion yen, an increase of 1.7 trillion yen from a year earlier (Chart 4-21).

Chart 4-20: Loan Disbursement under the Stimulating Bank Lending Facility

100 million yen

Jun. 2017 (Jun. 16)	Sep. 2017 (Sep. 13)	Dec. 2017 (Dec. 13)	Mar. 2018 (Mar. 14)	Outstanding balance of loans (as of end-Mar. 2018)
26,427	33,835	28,945	27,823	386,636 (23,900)

Chart 4-21: Amounts Outstanding of the Stimulating Bank Lending Facility



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

During fiscal 2017, the Bank disbursed loans once a month, 12 times in total (Chart 4-22). All of 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 2018 stood at 403.9 billion yen out of the ceiling of 1 trillion yen (a decrease of 5.1 billion yen from the year-earlier level).

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

100 million yen

72nd (Apr. 17, 2017)	73rd (May 15)	74th (Jun. 8)	75th (Jul. 13)	76th (Aug. 21)	77th (Sep. 19)
1,068	0	494	1,105	428	807

78th (Oct. 16)	79th (Nov. 17)	80th (Dec. 18)	81st (Jan. 12, 2018)	82nd (Feb. 19)	83rd (Mar. 16)	Outstanding balance of loans (as of end-Mar. 2018)
86	0	51	0	0	0	4,039

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

During fiscal 2017, the Bank disbursed loans once a month, 12 times in total (Chart 4-23). All of 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 2018 stood at 88.2 billion yen out of the ceiling of 300 billion yen (a decrease of 27.9 billion yen from the year-earlier level).

Chart 4-23: Loan Disbursement under the Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake

100 million yen

11th (Apr. 17, 2017)	12th (May 15)	13th (Jun. 8)	14th (Jul. 13)	15th (Aug. 21)	16th (Sep. 19)	
3	0	369	0	500	0	

17th (Oct. 16)	18th (Nov. 17)	19th (Dec. 18)	20th (Jan. 12, 2018)	21st (Feb. 19)	22nd (Mar. 16)	Outstanding balance of loans (as of end-Mar. 2018)
8	0	0	2	0	0	882

6. 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 contributing to the smooth settlement of both JGSs and funds.

Securities Lending Facility auctions were carried out quite frequently for the second consecutive year: 344 times in fiscal 2016 and 336 times in fiscal 2017 (Chart 4-24). However, looking at the amount of successful bids, it rose to the range of 6-7 trillion yen per month in March and April 2017 amid successive requests for offers and acceptance of bids for specific issues, but has remained stable thereafter in the range of several 100 billion to 2 trillion yen per month (Chart 4-25).

Meanwhile, the number of issues requested through the Security Lending Facility continued to show a tendency to increase at quarter-ends. This was attributable to the fact that (1) some financial institutions refrained from borrowing cash (lending JGSs) in the SC repo market at quarter-ends, and (2) incorrect orders from nonresidents to substitute issues increased amid large-scale issuance and redemptions of JGSs during the final month of each quarter.

Chart 4-24: Number of Securities Lending Facility Auctions

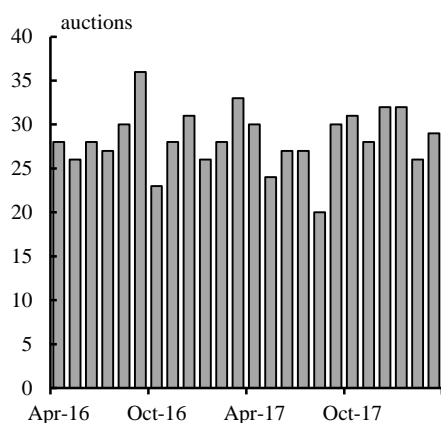
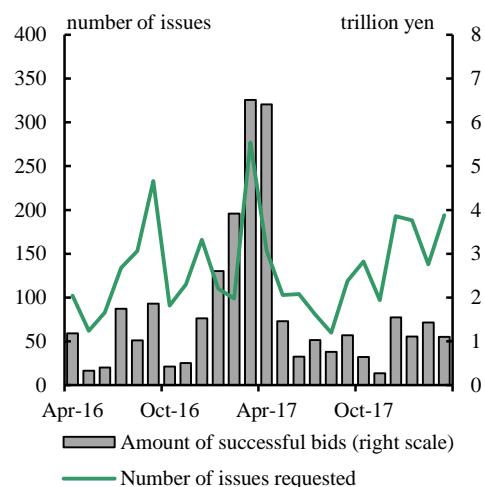


Chart 4-25: Requests for Offers and Acceptance of Bids through the Securities Lending Facility



7. U.S. Dollar Funds-Supplying Operations

During fiscal 2017, the Bank conducted 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 dollar funds, despite market participants' efforts to obtain them in the markets, or when tensions heighten in U.S. dollar money markets, 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 2017, bidding tended to increase for offers that matured over quarter-ends when U.S. dollar funding costs increased in the markets. In particular, the amount of bidding for offers that matured over the end of December 2017 was relatively large (at 0.16 billion U.S. dollars), but fell below the amount of bidding for offers that matured over the end of December 2016 (at 1.22 billion U.S. dollars). This was because Japanese investors with diversified means of borrowing cash frontloaded their borrowing of U.S. dollars, and demand for dollar funds was limited even amid a substantial rise in U.S. dollar funding costs immediately before the end of the year. Moreover, there was no use of these operations for offers that matured over the end of March 2018 as U.S. dollar funding premiums remained stable. Meanwhile, bidding for offers other than those that matured over quarter-ends was limited to several per month in small amounts to confirm and maintain operational procedures.

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

During fiscal 2017, the use of the facility was limited to small amounts to confirm operational procedures.

F. Complementary Lending Facility

During fiscal 2017, 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 money markets.

V. Changes in the Frameworks Related to Market Operations

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

At the MPM held in January 2018, the Bank decided to extend by one year the deadlines for new applications for such measures as the Stimulating Bank Lending Facility, Growth-Supporting Funding Facility, and the 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 behavior of financial institutions, as well as that 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 QQE with Yield Curve Control, the Bank carefully examined the developments and functioning of financial markets as well as the impact of the Bank's operations on financial markets and conducted daily market monitoring and various market surveys with a view to further deepening dialogue with market participants.

Furthermore, the Bank's Financial Markets Department took various initiatives in fiscal 2017 related to dialogue with market participants as follows:

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, 2017, and February 22, 2018. 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 markets, (3) trends in the money market in Japan (including results of the Tokyo Money Market Survey [August 2017]), and (4) exploring interest rate benchmark reforms at home and abroad.¹¹

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 20 and 21, 2017, 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 the financial markets and market operations.¹²

¹¹ See below for the summary of the Meeting of Market Operations held in fiscal 2017.

The October 2017 meeting (second round of 2017):

https://www.boj.or.jp/en/announcements/release_2017/re1171020b.pdf

The February 2018 meeting (first round of 2018):

https://www.boj.or.jp/en/announcements/release_2018/re1180223b.pdf

¹² For details, see the Bank's website (<http://www.boj.or.jp/en/paym/bond/index.htm/>).

3. Expansion of the "Bond Market Survey" and "Liquidity Indicators in the JGB Markets"

The expansion of the "Bond Market Survey" and "Liquidity Indicators in the JGB Markets" was conducted to examine bond market liquidity and functioning from a broader range of perspectives and facilitate dialogue with market participants. With regard to the "Bond Market Survey," the Bank decided to include in the survey (from February 2018) responses from major insurance companies, asset management companies, etc., in addition to those currently received from eligible institutions for the Bank's outright purchases and sales of JGBs, mainly consisting of banks and securities companies. As for "Liquidity Indicators in the JGB Markets," the Bank compiled new indicators and expanded "Liquidity Indicators in the JGB Markets" from the perspective of capturing liquidity in the JGB cash market in more detail (and released them from March 2018).¹²

4. Dialogue with the Study Group for Activation of Short-Term Money Markets

As an observer, the Bank participated in the Study Group for Activation of Short-Term Money Markets, comprising representatives of businesses that conduct short-term money market transactions, and actively supported the deliberations and initiatives by market participants for the activation of short-term money markets. Moreover, 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 on November 9, 2017. At this meeting, the Bank exchanged opinions on (1) recent developments in short-term money markets, (2) risk-free reference rates, and (3) initiatives toward the shortening of the JGB settlement cycle.

Reference: Number of Auctions and Eligible Counterparties for Market Operations

numbers

	Fiscal 2013	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Number of eligible counterparties
Outright purchases of JGBs	295	359	372	388	392	53
Outright purchases of T-Bills	53	50	50	48	50	50
Outright purchases of CP	36	36	36	36	36	33
Outright purchases of corporate bonds	12	12	12	12	12	33
Outright purchases of ETFs	77	71	86	93	81	—
Outright purchases of J-REITs	77	66	67	74	75	—
Funds-Supplying Operations against Pooled Collateral	111	77	74	64	62	272
Growth-Supporting Funding Facility	37	47	59	61	62	163
Stimulating Bank Lending Facility	10	15	17	18	16	215
Funds-Supplying Operations to Support Financial Institutions in Disaster Areas	12	12	12	12	12	36
Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake	—	—	—	10	12	12
Purchases of JGSs with repurchase agreements	0	0	1	0	0	50
Sales of JGSs with repurchase agreements	0	0	0	1	0	49
U.S. Dollar Funds-Supplying Operations	64	53	49	51	50	70
Securities Lending Facility	48	102	192	344	336	49
Total	832	900	1,027	1,212	1,196	—

- 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 2018. The number of eligible counterparties for the Funds-Supplying Operations against Pooled Collateral is that for the Funds-Supplying Operations against Pooled Collateral at all offices (of which 40 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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