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Market Operations in Fiscal 2018

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Bank of Japan

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I. Introduction

During fiscal 2018 (April 1, 2018 to March 31, 2019), 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.

Meanwhile, at the Monetary Policy Meeting (MPM) held on July 30 and 31, 2018, the Bank, with a view to strengthening the framework for continuous powerful monetary easing, decided to enhance the sustainability of QQE with Yield Curve Control. Specifically, regarding the long-term interest rate, the Bank stated, "the yields may move upward and downward to some extent mainly depending on developments in economic activity and prices. With regard to the amount of JGBs to be purchased, the Bank will conduct purchases in a flexible manner so that their amount outstanding will increase at an annual pace of about 80 trillion yen." As for purchases of ETFs and J-REITs, the Bank stated, "with a view to lowering risk premia of asset prices in an appropriate manner, the Bank may increase or decrease the amount of purchases depending on market conditions."

This paper explains market operations conducted under QQE with Yield Curve Control during fiscal 2018, including those based on the measures to strengthen the framework for continuous powerful monetary easing. 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. Then, 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 2018

A. Conduct of Market Operations

1. Monetary Policy Decisions and Guideline for Market Operations

During fiscal 2018, the Bank continued with QQE with Yield Curve Control introduced at the 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."

Meanwhile, at the MPM held on July 30 and 31, 2018, the Bank, with a view to strengthening the framework for continuous powerful monetary easing, decided to bolster its commitment to achieving the price stability target by introducing forward guidance for policy rates, and to enhance the sustainability of QQE with Yield Curve Control.

First, regarding the purchases of JGBs, the Bank stated, "the yields may move upward and downward to some extent mainly depending on developments in economic activity and prices. With regard to the amount of JGBs to be purchased, the Bank will conduct purchases in a flexible manner so that their amount outstanding will increase at an annual pace of about 80 trillion yen."[1] Second, for purchases of ETFs and J-REITs, it stated, "with a view to lowering

[1] It also stated that, "in case of a rapid increase in the yields, the Bank will purchase JGBs promptly and appropriately."

risk premia of asset prices in an appropriate manner, the Bank may increase or decrease the amount of purchases depending on market conditions."

In addition, the Bank decided to make the following two adjustments in accordance with these measures. First, it stated, "the Bank, under the condition that yield curve control can be conducted appropriately, will reduce the size of the policy-rate balance (calculated assuming that arbitrage transactions take place in full among financial institutions) in financial institutions' current account balances at the Bank -- to which a negative interest rate is applied -- from the current level of about 10 trillion yen on average." Second, it stated, "the Bank will revise the purchase amount of each ETF and increase that of ETFs which track the Tokyo Stock Price Index (TOPIX)."

Aside from the above, at the MPM held on January 22 and 23, 2019, the Bank decided to extend by one year the deadlines for new applications for such measures as the Fund-Provisioning Measure to Stimulate Bank Lending (hereafter the "Stimulating Bank Lending Facility").

2. Summary of Operations

Based on the above guidelines for market operations and asset purchases, the Bank conducted various operations during fiscal 2018 as described below.

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 purchases of JGBs and treasury discount bills (T-Bills) for the following month in advance on the last business day of each month.[2] With regard to outright purchases of JGBs, the "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).[3] During fiscal

[2] 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.

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

2018, the Bank conducted outright purchases of JGBs in a flexible manner. In particular, following its decision to enhance the sustainability of QQE with Yield Curve Control described in Chapter II.A.1, from September 2018, the Bank reduced the frequency of its purchases of JGBs, in light of the number of actual business days and other factors. In addition, from November, it scheduled auctions taking greater account of schedule balance throughout the month and market conditions. Furthermore, the Bank flexibly adjusted the purchase size per auction according to the circumstances at the time so that the yield curve would be formed in a manner 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). Meanwhile, in situations involving a rapid increase in the yields, the Bank, as necessary, carried out purchases of JGBs through the fixed-rate method (hereafter the "fixed-rate purchase operations") and a purchase of JGBs that had not been scheduled in the "Outline" in advance in a flexible manner.

As for 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 under 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 1.25 trillion yen of T-Bills per auction. In addition, the Bank scheduled purchase dates in a more flexible manner, just as it had with purchases of JGBs.

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 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," and also in line with one that stipulated that "with a view to lowering risk premia of asset prices in an appropriate manner, the Bank may increase or decrease the amount of purchases depending on market conditions," following the Bank's decision to enhance the sustainability of QQE with Yield Curve Control described in Chapter II.A.1.

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, in principle, offered the Fixed-Rate Funds-Supplying Operations against Pooled Collateral with a 2-week term once a week. Looking at this in detail, the Bank conducted these operations in a flexible manner taking account of market conditions. For instance, up through April 2018, it offered these operations with roughly a 100-day term once every 7 weeks, in addition to those with a 2-week term. However, there was a growing need for financial institutions to make fine-tuning adjustments to their current account balances at the Bank since the introduction of a negative interest rate policy, and the use of operations with roughly a 100-day term was sluggish. Given this, from May, the Bank suspended operations with roughly a 100-day term and only offered those with a 2-week term in principle. With respect to operations that would extend beyond the end of December 2018, in light of such factors as the duration of the New Year holiday, the Bank offered operations with a 3-week term to replace those with a 2-week term. Thereafter, from March 2019, the Bank increased the offered amount for operations with a 2-week term in light of the somewhat increased biding amounts. In addition, on March 8, it offered an operation with a 1-day term reflecting developments 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. Meanwhile, there were no problems such as it becoming difficult to obtain U.S. dollars, and bidders used these operations to confirm and maintain operational arrangements, except for the small sum at the end of December 2018. 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 2018, requests for offers of the Securities Lending Facility continued to be submitted with great frequency on virtually all business days. Conversely, the amount of successful bids remained stable, although it temporarily increased significantly from July through August. This was because the amount outstanding of new issues in the market rapidly fell during this period due to such factors as the Bank's large-scale purchases of JGBs via its fixed-rate purchase operations, which in turn tightened supply and demand conditions. Meanwhile, in May, with a view to supporting the smooth transition of market participants to a shortened JGB settlement cycle, the Bank implemented temporary operational changes to the Securities Lending Facility as precautions against the tightening of supply and demand

conditions of JGBs in the repo market and made the Securities Lending Facility available three times a day.

3. 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.

On this point, the Benchmark Ratio was set so that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" stayed at about 10 trillion yen on average up through the July 2018 reserve maintenance period. Afterwards, at the MPM held in July, the Bank decided to "reduce [this balance] from the current level of about 10 trillion yen on average" "under the condition that yield curve control can be conducted appropriately." Based on this, it set the Benchmark Ratio so that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" stayed at about 5 trillion yen on average from the August reserve maintenance period.[4] Specifically, the Benchmark Ratio was set at 27.0 percent for the reserve maintenance periods in April and May, 30.5 percent for the periods in June and July, 33.0 percent for the August period, 34.0 percent for the periods from September to November, 31.5 percent for the periods from December to February 2019, and 32.5 percent for the March period.

As a result, the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" stayed at about 10 trillion yen up through the July 2018 reserve maintenance period and about 5 trillion yen from the August reserve maintenance period on average, albeit with some monthly fluctuations.

[4] See Box 6 in "Market Operations in Fiscal 2017" regarding the process for revising the Benchmark Ratio.

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; see Box 1 regarding the monetary policies and balance sheets of major central banks during this period).

Specifically, the Bank's balance sheet stood at 557.0 trillion yen at the end of March 2019, an increase of 28.7 trillion yen from a year earlier. Meanwhile, the monetary base continued to expand, reaching 506.3 trillion yen at the end of March 2018, an increase of 19.3 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 2019 indicated that they all increased from their year-earlier levels, in line with the guidelines for asset purchases, with JGBs increasing by 33.0 trillion yen to 459.6 trillion yen, ETFs by 5.9 trillion yen to 24.8 trillion yen, and J-REITs by 42 billion yen to 518 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 0.5 trillion yen from the year-earlier level to 46.1 trillion yen.

Conversely, the amount outstanding of T-Bills purchased decreased by 10.9 trillion yen from the year-earlier level to 7.9 trillion yen at the end of March 2019. 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.

On the liability side of the balance sheet, current account balances at the Bank increased by 15.6 trillion yen from the year-earlier level to 393.9 trillion yen at the end of March 2019, 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	End-Mar. 2019	Year-on-year
JGBs	91.3	154.2	220.1	301.9	377.1	426.6	459.6	＋ 33.0
CP	1.2	1.9	2.0	2.0	2.0	2.1	2.0	▲ 0.0
Corporate bonds	2.9	3.2	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	24.8	＋ 5.9
J-REITs	0.12	0.15	0.21	0.29	0.38	0.48	0.52	＋ 0.04
Loan Support Program	3.4	11.8	27.0	30.1	43.4	45.6	46.1	＋ 0.5
Outright purchases of T-Bills	16.4	31.6	37.9	36.9	32.6	18.8	7.9	▲ 10.9
Funds-Supplying Operations against Pooled Collateral	21.7	14.1	6.8	3.7	0.7	0.4	0.7	＋ 0.3
Total assets (including others)	164.8	241.6	323.6	405.6	490.1	528.3	557.0	＋ 28.7
Banknotes	83.4	86.6	89.7	95.6	99.8	104.0	107.6	＋ 3.6
Current account balances	58.1	128.7	201.6	275.4	342.8	378.2	393.9	＋ 15.6
Total liabilities and net assets (including others)	164.8	241.6	323.6	405.6	490.1	528.3	557.0	＋ 28.7
Monetary base	146.0	219.9	295.9	375.7	447.3	487.0	506.3	＋ 19.3

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 2018.

The Fed raised its target range for the federal funds (FF) rate in June, September, and December 2018. Specifically, it raised the target range for the FF rate from 1.50-1.75 percent to 1.75-2.00 percent in June, to 2.00-2.25 percent in September, and to 2.25-2.50 percent in December, each time raising it by 25 basis points, amounting to a 75 basis point rise in total. Subsequently, in light of global economic and financial conditions and muted inflationary pressures, the Fed decided to adopt a patient approach regarding its decision to adjust the target range for the FF rate, keeping the target range unchanged. As mentioned above, over this timeframe, the Fed raised its target range for the FF rate by 25 basis points in both June and December. At the same time, it raised the interest rate paid on excess reserves (IOER) by 20 basis points, which was a smaller rise than that in the target range for the FF rate. This was a technical adjustment instituted to address the narrowing spread between the FF rate and IOER since the IOER was set at the upper limit of the target range for the FF rate to foster trading in the FF market at rates within this range.

With respect to asset purchases, the Fed reinvested the funds redeemed from agency mortgage-backed securities (MBSs; commenced in September 2012) and Treasury securities (commenced in January 2013) purchased under the large-scale asset purchase program while continuing to reduce the size of its balance sheet. Specifically, it reinvested each month's principal payments from both Treasury securities, and agency debt and agency MBSs to the extent that such payments exceed predetermined caps. The predetermined cap amounts were raised every three months, reaching 30 billion U.S. dollars for Treasury securities and 20 billion U.S. dollars for agency debt and agency MBSs in October 2018. However, in March 2019, the Fed announced that it intends to slow the reduction of its holdings of Treasury securities by lowering the cap on monthly Treasury redemptions to 15 billion U.S. dollars beginning in May, and that the final redemption cap would be applied to the September scheduled maturities.

Under these circumstances, the size of the Fed's balance sheet decreased modestly (Box Chart 1-1).

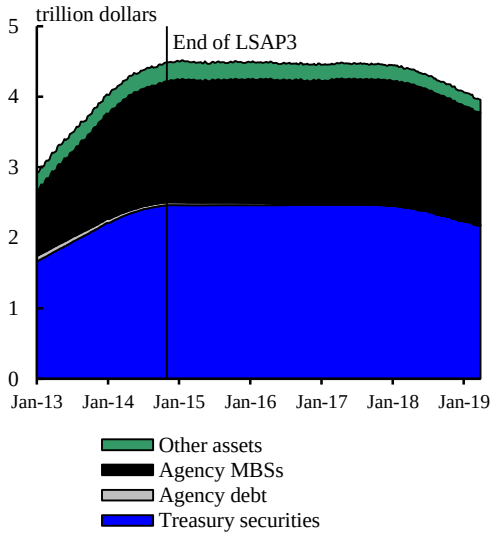
The European Central Bank (ECB) maintained its negative interest rate policy, in which the

interest rate on excess reserves and the deposit facility was set at minus 0.4 percent. Regarding its forward guidance on interest rates, in June 2018, it stated that it "expects the key ECB interest rates to remain at their present levels at least through the summer of 2019." Afterwards, it changed this in March 2019 to state that it "now expects the key ECB interest rates to remain at their present levels at least through the end of 2019." Meanwhile, in October 2018, the ECB reduced its monthly net purchases under its asset purchase programmes centered on the public sector purchase programme (PSPP; commenced in March 2015) for purchasing bonds and agency securities, including those issued by euro area central governments from 30 billion to 15 billion euros. It then decided in December to terminate net purchases, while at the same time announcing that the ECB intends to continue reinvesting, in full, the principal repayments from maturing securities purchased under these programmes for an extended period of time past the date when it starts raising the key ECB rates. Furthermore, in March 2019, the ECB decided to launch a new series of quarterly targeted longer-term refinancing operations (TLTRO-III), starting in September 2019, each with a maturity of two years, to help preserve favorable bank lending conditions and the smooth transmission of monetary policy.

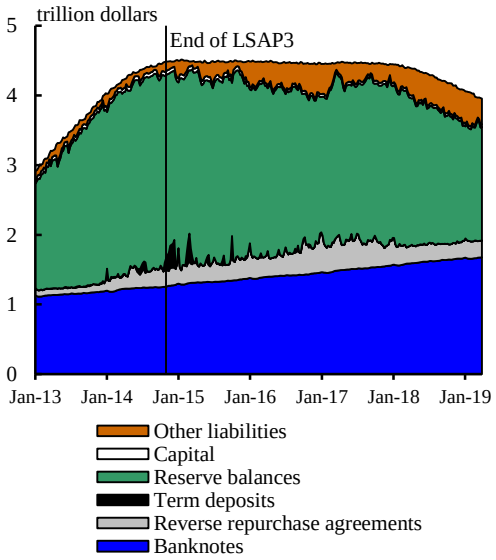
Under such circumstances, the ECB's balance sheet expanded up through December 2018, and thereafter remained generally stable from January 2019. On the asset side, in the period up through December 2018, assets subject to asset purchase programmes, particularly those of the PSPP, corporate sector purchase 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), increased. On the liabilities side, current account balances at the ECB increased in a manner commensurate with various asset purchases (Box Chart 1-2).

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

(Assets)



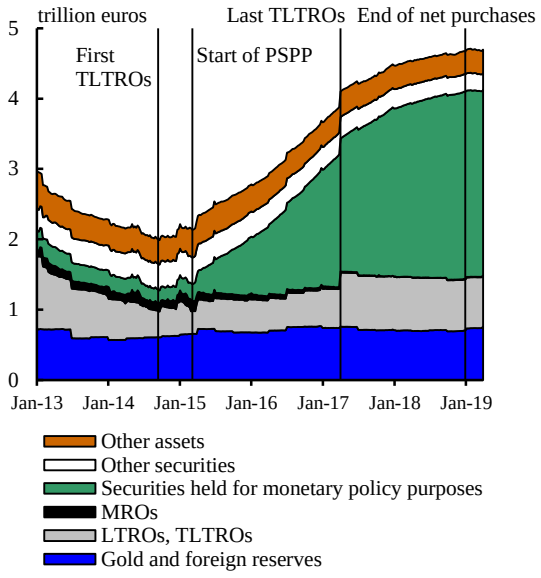
(Liabilities)



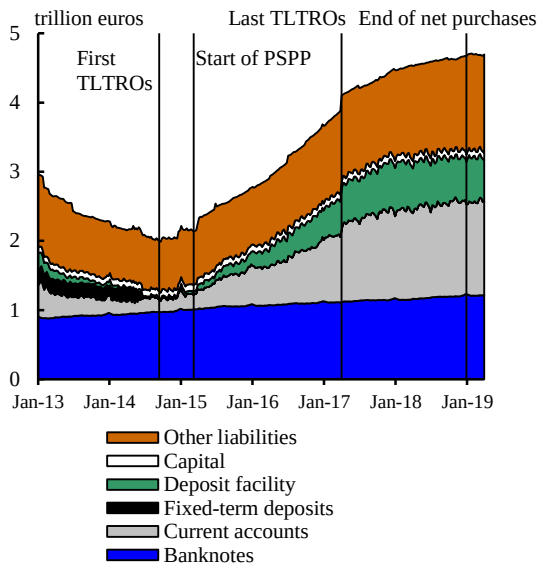
Notes: 1. Based on weekly data (as of Wednesday).
2. LSAP3 denotes third round of large-scale asset purchases.

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

(Assets)



(Liabilities)



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.

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 2018, 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 99.2 trillion yen. The current account balances at the Bank exhibited a smaller decrease compared with 110.0 trillion yen in fiscal 2017.

1. Changes in Banknotes

The outstanding balance of banknotes continued on an uptrend during fiscal 2018, and stood at 110.4 trillion yen (an increase of 3.4 percent year-on-year) at the end of December 2018 and 107.6 trillion yen (an increase of 3.4 percent year-on-year) at the end of March 2019 (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 in fiscal 2018, although the amount of net issuance fell from 4.2 trillion yen in fiscal 2017 to 3.6 trillion yen.

The cumulative changes in banknotes from the start of fiscal 2018 indicated that seasonal fluctuations in the amounts of issuance and redemption remained more or less unchanged from fiscal 2017 (Chart 2-3).

Chart 2-2: Outstanding Balance of Banknotes Issued

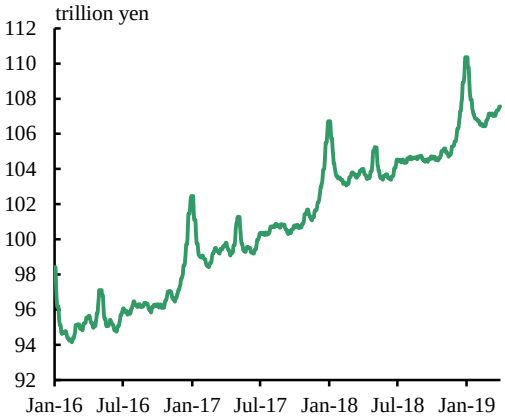
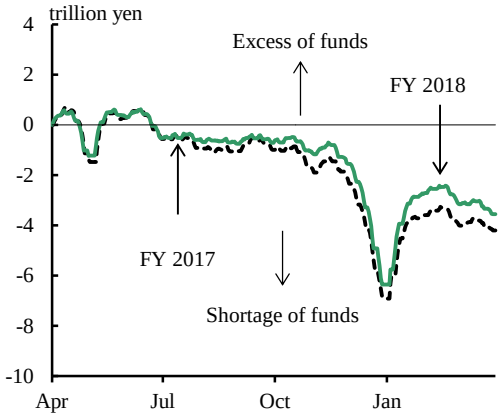


Chart 2-3: Cumulative Changes in Banknotes from the Start of the Fiscal Year



2. Changes in Treasury Funds and Others

In fiscal 2018, changes in treasury funds and others registered net receipts since net receipts from JGB and T-Bill issuances[5] (decrease in current account balances at the Bank) exceeded net payments of fiscal payments and revenues (increase in current account balances at the Bank). However, changes in treasury funds and others registered net receipts of 95.7 trillion yen in fiscal 2018, a decrease from net receipts of 105.8 trillion yen in fiscal 2017 (Chart 2-4). The decrease in net receipts during fiscal 2018 occurred mainly because redemptions of T-Bills purchased by the Bank decreased compared with those in fiscal 2017, while redemptions to private financial institutions (payments to current accounts at the Bank) increased. Meanwhile, after adjusting for the increment by which the repayment amount to financial institutions decreased as a result of the Bank having purchased JGBs and T-Bills as part of its market operations, net receipts for changes in treasury funds and others for fiscal 2018 amounted to 11.6 trillion yen (hereinafter referred to as the "repayment adjustment"[6]). Compared with fiscal

[5] The net amount of JGBs and T-Bills issued (or redeemed) is registered as changes in treasury funds and others, provided that the Bank does not engage in market operations. If the Bank purchases JGBs and T-Bills from financial institutions and holds them to maturity, these positions are not netted out. Specifically, the Bank records net receipts for changes in Treasury funds and others (decrease in current account balances at the Bank) when JGBs and T-Bills are issued by the government. The Bank's purchases of JGBs and T-Bills are sources of increase in current account balances at the Bank, while the current account balances do not see a change upon redemption of the securities. As a result, changes in treasury funds and others register substantial net receipts (decrease in current account balances at the Bank) due to the Bank`s market operations, although receipts and payments for changes in treasury funds and others are assumed to be largely commensurate with one another.

[6] With "repayment adjustments," regarding JGBs and T-Bills redeemed from the government to the Bank, adjustments are made to treat these as if the Bank sold them to financial institutions just before redemption and financial institutions received the redemptions from the government. For this reason, after repayment adjustments are carried out, there are changes in the amount of fluctuation for JGBs (with a residual maturity of more than 1 year) and T-Bills from among changes in treasury funds and others, as well as in purchases of JGBs and T-Bills as part of market operations (Chart 2-6). For example, movements in JGBs in fiscal 2018 before the repayment adjustment indicate that net receipts of treasury funds and others from JGBs (with a residual maturity of more than 1 year) amounted to 79.4 trillion yen, and purchases of JGBs as part of market operations caused current account balances at the Bank to increase by 87.5 trillion yen. Conversely, following repayment adjustments, which is to say, if the Bank's holdings from among those JGBs that were redeemed during fiscal 2018 (about 50 trillion yen worth) were resold by the Bank to financial institutions and financial institutions received the redemptions from the government, net receipts due to net issuance of JGBs (with a residual maturity of more than 1 year) from among changes in treasury funds and others would be 26.5 trillion yen, and net purchases of JGBs as part of market operations would cause current account balances to increase by 34.7 trillion yen (Chart 2-6).

2017 (when this was 8.4 trillion yen after the repayment adjustment), this represents a swing in the direction of a funding shortfall of 3.2 trillion yen (Charts 2-5 and 2-6). Contributing factors behind this include the decline in net redemptions of T-Bills and the decline in net payments of fiscal payments and revenues as a result of the increase in tax revenue.

Looking at trends in cumulative changes in treasury funds and others in detail, there was a tendency for net receipts to temporarily grow, primarily in months in which large volumes of JGBs are redeemed (March, June, September, and December). This was because the issuance dates of JGBs were brought forward. Specifically, starting from May 2018, to coincide with the shortening of the JGB settlement cycle (see Chapter VI.4), two changes were made: (1) the 5- to 30-year JGBs issued in months in which large volumes are redeemed that had been issued to coincide with redemption dates (on the 20th or the next business day if this fell on a holiday) regardless of their auction dates were changed to T+1 settlement, and (2) 2-year JGBs that had been issued on the 15th of the following month after auctions (or the next business day if this fell on a holiday) were issued on the 1st of the following month after auctions (or the next business day if this fell on a holiday). As a result, compared with fiscal 2017, (1) net receipts for changes in treasury funds and others expanded from the 1st through the 20th, due to the issuance of 5- to 30-year JGBs in months with mass redemptions. In addition, (2) net receipts for changes in treasury funds and others expanded on the 1st of the month rather than the 15th, due to the issuance of 2-year JGBs every month (Chart 2-5).

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

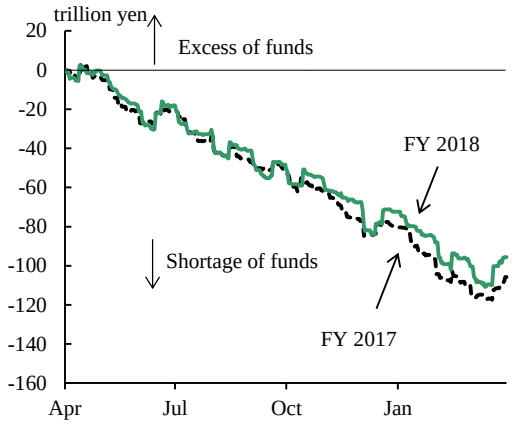


Chart 2-5: Cumulative Changes in Treasury Funds and Others from the Start of the Fiscal Year (After Repayment Adjustments)

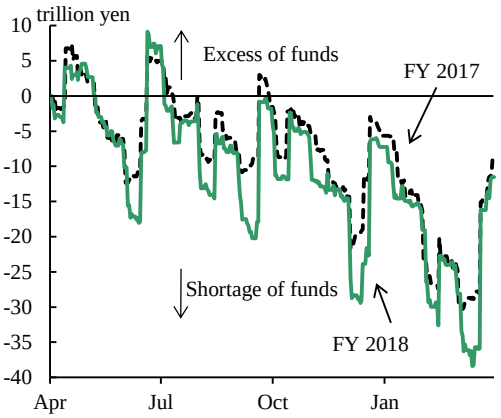


Chart 2-6: Sources of Changes in Current Account Balances at the Bank

trillion yen

	Before adjustment			After adjustment		
	FY 2017	FY 2018	Year-on-year	FY 2017	FY 2018	Year-on-year
Banknotes	-4.2	-3.6	0.6	-4.2	-3.6	0.6
Treasury funds and others	-105.8	-95.7	10.2	-8.4	-11.6	-3.2
Net fiscal payments	20.8	16.5	-4.3	20.8	16.5	-4.3
JGBs (more than 1 year)	-76.5	-79.4	-2.8	-31.2	-26.5	4.7
T-Bills	-43.5	-27.9	15.6	8.6	3.3	-5.3
Foreign exchange	-0.0	0.3	0.3	-0.0	0.3	0.3
Others	-6.6	-5.3	1.3	-6.6	-5.3	1.3
Surplus/shortage of funds	-110.0	-99.2	10.8	-12.6	-15.2	-2.5
BOJ loans and market operations	145.5	114.9	-30.6	48.1	30.8	-17.3
Outright purchases of JGBs	96.2	87.5	-8.7	50.9	34.7	-16.3
Outright purchases of T-Bills	38.3	20.3	-18.0	-13.8	-10.9	2.9
Loan Support Program	2.1	0.5	-1.6	2.1	0.5	-1.6
Other loans and market operations	8.8	6.5	-2.3	8.8	6.5	-2.3
Net change in current account balances	35.5	15.6	-19.8	35.5	15.6	-19.8

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 repayment adjustments do not take account of amortization, accumulation, and other factors; therefore, they diverge from the year-on-year figures on the balance sheet.
3. The shaded areas indicate increase or decrease of figures after repayment adjustments.

III. Developments in Domestic Money Markets and Bond Markets

A. Uncollateralized Call Market

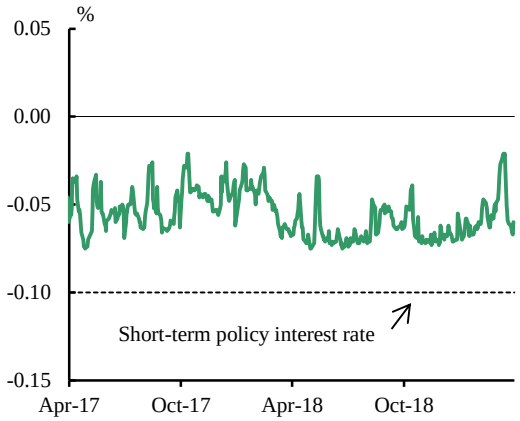
The call rate remained in the range of minus 0.07 to minus 0.02 percent (Chart 3-1).

Looking at this in more detail, from the February 2018 reserve maintenance period, the call rate declined from around minus 0.05 percent to around minus 0.07 percent, against the background of such factors as the increase in fund supply from investment trusts (see Box 2 for contributing factors behind the increased surplus funds of investment trusts). Thereafter, through July, the call rate remained more or less unchanged as the demand for funds from regional banks I and II hovered at low levels mainly due to the seasonality in receipts and payments of fiscal payments and revenues, and as fund supply from investment trusts remained at high levels (see Box 3 for contributing factors behind the call rate remaining stable at low levels). After July, the demand for funds rose among city banks and regional banks I and II due to the revision of the Benchmark Ratio discussed in Chapter II.A.3., and the call rate rose modestly to a range of around minus 0.06 to minus 0.05 percent. However, from October through December, the call rate once again declined to around minus 0.07 percent due to such factors as the further increase in the internal reserves of investment trusts. There was minimal fluctuation in the interest rate during the reserve maintenance periods during this period, given that fund supply from investment trusts remained at high levels. Thereafter during the reserve maintenance periods in January and February 2019, seasonal changes in treasury funds and others contributed to reducing the current account balances at the Bank, and the call rate temporarily rose to minus 0.021 percent in tandem with the rise in the general collateral (GC) repo rate.

The amount outstanding in the uncollateralized call market remained more or less in the range of about 7-9 trillion yen, hovering at a level at about or at a higher level than that before the introduction of a negative interest rate policy (Chart 3-2). This was because although arbitrage trading rose centered mainly on regional banks I and II, due to the effects of the revision of the Benchmark Ratio based on the decision at the MPM held on July 30 and 31, 2018, cash borrowing by trust banks and securities companies declined. Meanwhile, whereas, on the cash lending side, fund supply from investment trusts remained at high levels, on the cash borrowing side, regional banks I and II, which are susceptible to the seasonality of receipts and payments

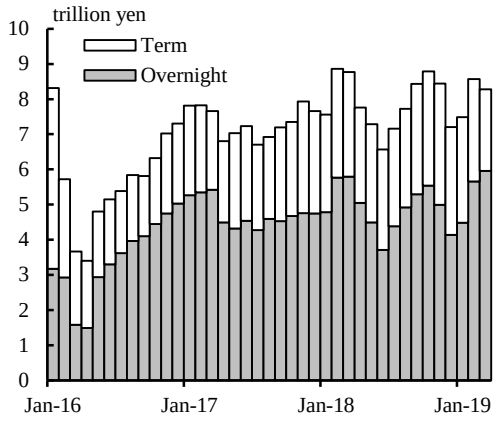
of fiscal payments and revenues, grew in presence (Chart 3-3).[7] As a result, the amount outstanding in the market for each reserve maintenance period fluctuated by a somewhat larger margin due to the seasonality in the receipts and payments of fiscal payments and revenues.

Chart 3-1: Call Rate



Note: Uncollateralized overnight call rate. Weighted average.

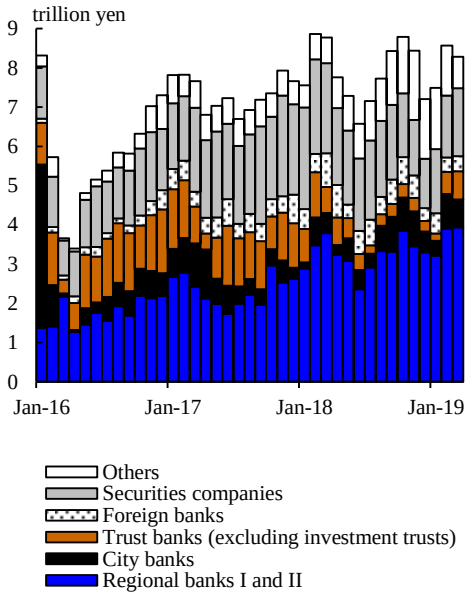
Chart 3-2: Amounts Outstanding in the Uncollateralized Call Market



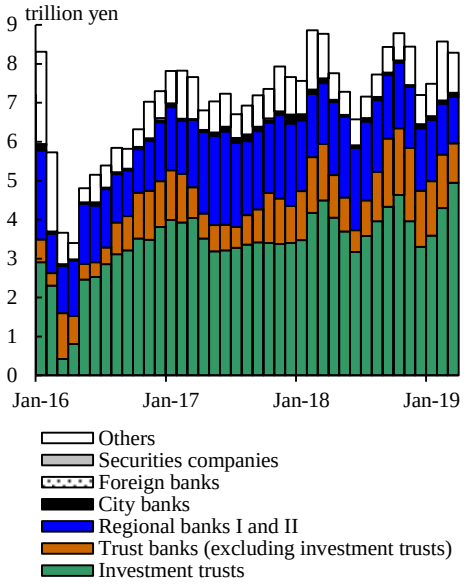
Note: Monthly average.

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

(Cash Borrowing Side)



(Cash Lending Side)



Note: Monthly average.

[7] See Box 2 in "Market Operations in Fiscal 2017" for seasonal changes in cash borrowing by regional banks I and II.

Box 2: Contributing Factors behind the Increased Surplus Funds of Investment Trusts

The call rate declined starting in February 2018 due to such factors as the increased fund supply from investment trusts to the uncollateralized call market. In fact, looking at cash lending activities by investment trusts, they substantially increased investments from March 2018, particularly in call loans and money trusts (Box Chart 2-1).

This was brought about by the increased surplus funds of investment trusts resulting from fund inflows to bull/bear-type investment trusts and stock lending (cash borrowing) in the stock repo market (Box Chart 2-2). Specifically, the surplus funds of investment trusts (1) increased due to such factors as fund inflows to bull/bear-type investment trusts following the decline in stock prices and the increase in volatility in February 2018, and fund inflows pertaining to the increase in stock repo transactions reflecting the decline in the FX swap-implied yen rate from the U.S. dollar in March. Thereafter, the surplus funds of investment trusts (2) further increased due to fund inflows following the decline in stock prices, the increase in volatility, and the decline in the FX swap-implied yen rate from the U.S. dollar in October.

(1) Fund Inflows to Bull/Bear-Type Investment Trusts

Bull (leveraged)-type investment trusts are funds in which prices fluctuate on a daily basis a few times as much as the price fluctuations of a stock index (e.g., Nikkei Stock Average) serving as a benchmark. Bear (inverse)-type investment trusts are funds in which prices fluctuate inversely with the price fluctuations of the benchmark stock index.[8] These bull/bear-type investment trusts take long positions on stock index futures (short positions in the case of bear-type investment trusts) and invest funds other than margins mainly in short-term assets. They therefore have a high proportion of cash investments compared with ordinary stock investment trusts (Box Chart 2-3). Looking at the net asset value of bull/bear-type investment trusts, it increased somewhat significantly in February and October of 2018, leading to the increased surplus funds of investment trusts (Box Charts 2-4).[9]

There is a possibility that such developments were in part caused by the purchases of bull-type

[8] See "Recent Developments in Leveraged Investment Funds" (*Bank of Japan Review Series*, No. 16-E-1, January 2016) for details on the nature of bull/bear-type investment trusts.

[9] See Chapter III.A.3. in the "Financial System Report" (April 2019) for details on the purchases of investment trusts by financial institutions.

investment trusts by retail investors -- who are said to take a strong "contrarian" position against market price trends -- amid declining stock prices, as well as the purchases of bear-type investment trusts by financial institutions amid strong concerns over a stock market slump.

(2) Stock lending (Cash Borrowing) in the Stock Repo Market

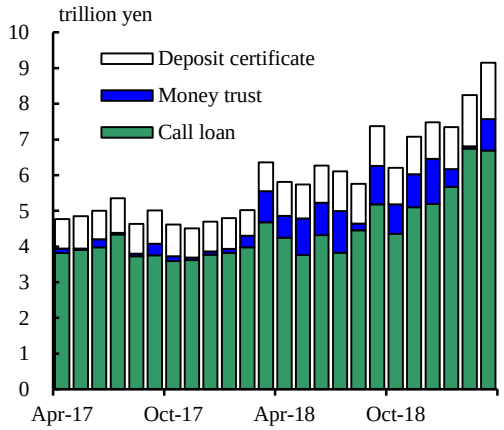
Stock repo transactions are transactions that involve the lending or borrowing of stocks using cash and other eligible assets as collateral. The amount outstanding of stocks borrowed by securities companies via repo transactions increased from March 2018 (Box Chart 2-5), leading to the increased surplus funds of investment trusts.

Looking at the amount outstanding in the stock repo market by borrowing or lending entity, foreign investors increased their presence as stock borrowers, whereas investment trust companies did the same as stock lenders (Box Chart 2-6). This reflected the fact that, on the stock borrowing side, foreign investors with dollar funds -- in view of the FX swap-implied yen rate from the U.S. dollar remaining at low levels and progress in financial regulatory compliance -- proactively invested in the T-Bill and stock repo markets with yen funds obtained at negative interest rates in the FX swap market when the FX swap-implied yen rate from the U.S. dollar declined considerably (particularly in March and October 2018) (Box Chart 2-7).[10] On the stock lending side, investment trust companies increased investments in index funds given their low sales commissions and trust fees, as well as their easy-to-understand nature. Given this, investment trust companies with enhanced lending capacity[11] proactively lent stocks via repo transactions in order to improve investment profits.

[10] Stock repo transactions are employed not only for cash lending via stocks but also for borrowing these stocks for short selling. During fiscal 2018, the ratio of short selling remained high due to such factors as the substantial decline in stock prices and the increase in volatility in financial markets. This also contributed to the increase in the amount outstanding in the stock repo market.

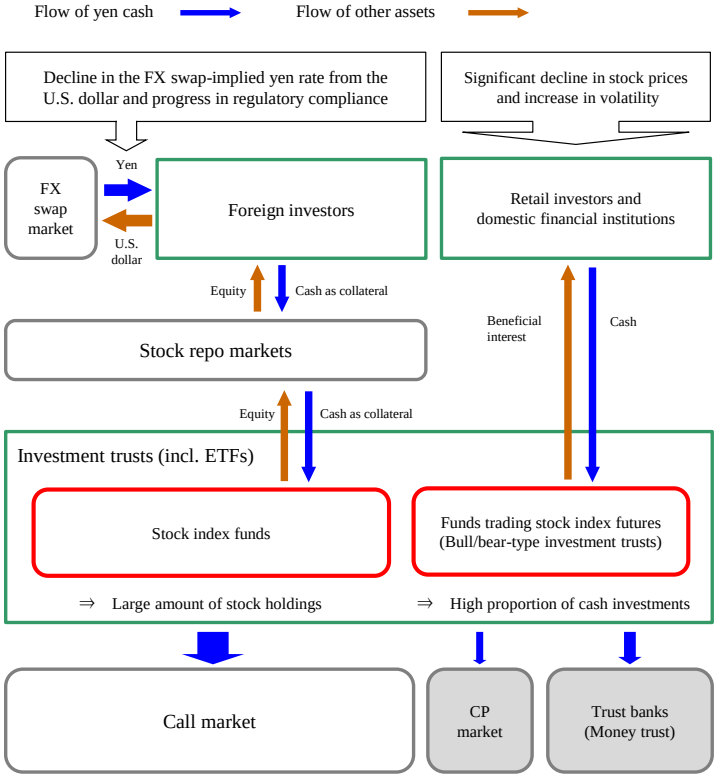
[11] The stable composition of index funds enhances the lending capacity of stocks via repo transactions when compared with active funds, which frequently see a change in their composition.

Box Chart 2-1: Investments of Surplus Funds by Investment Trusts



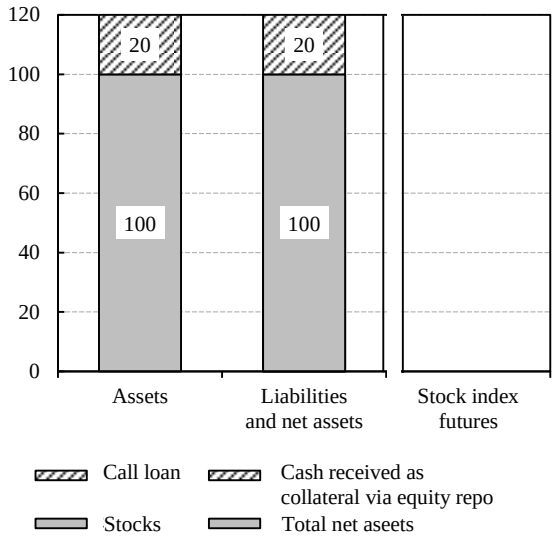
Notes: 1. Investment funds of publicly offered contractual-type stock investment trusts.
2. Figures are as of the month-end.

Box Chart 2-2: Fund Inflows to Investment Trusts

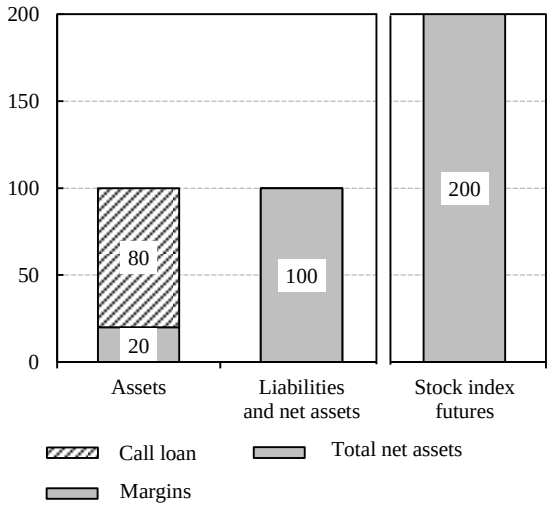


Box Chart 2-3: Balance Sheets of Investment Trusts

(Other Stock Investment Trusts)

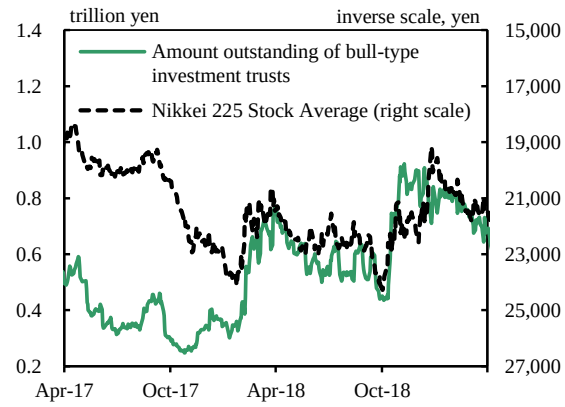


(Bull/Bear-Type Investment Trusts)



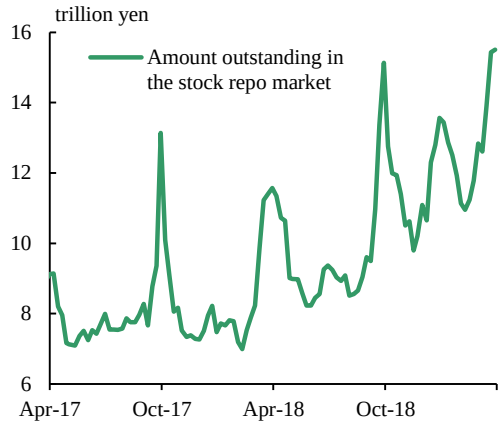
Note: For simplification, the balance sheet is illustrated as if all net assets are invested in stocks, the main investment asset. In reality, a portion of the net assets is used complementarily to go long on stock futures, in addition to investing in other assets such as cash.

Box Chart 2-4: Amounts Outstanding of Bull-Type Investment Trusts



Note: Amounts outstanding of bull-type investment trusts benchmarked by the domestic stock index that can be confirmed as of April 2019.

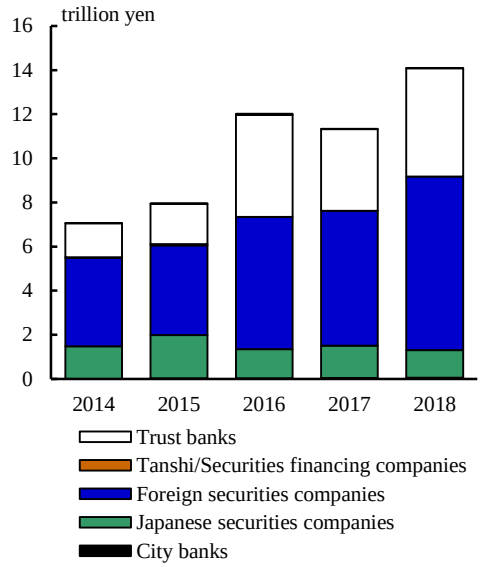
Box Chart 2-5: Amounts Outstanding in the Stock Repo Market



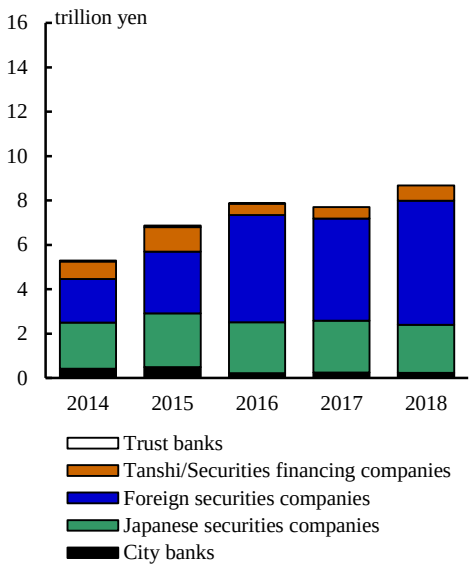
Notes: 1. Figures are as of the week-end.
2. Amounts outstanding of listed stocks borrowed by securities companies.

Box Chart 2-6: Amounts Outstanding in the Equity Repo Market by Investor Type

(Cash Borrowing Side)

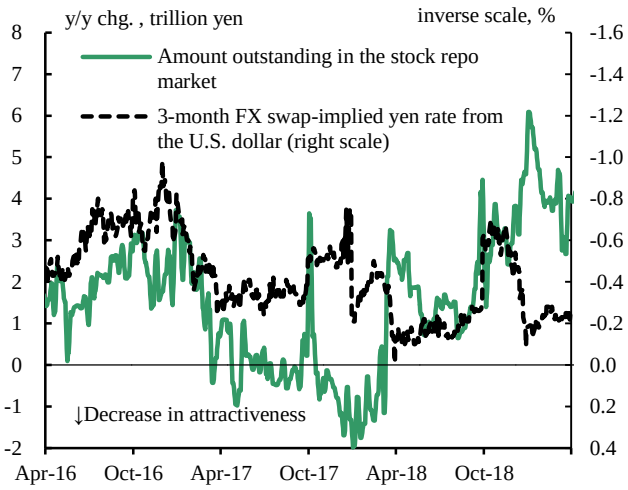


(Cash Lending Side)



Note: Excludes the institutional credit trading, general margin trading, and equity lending between a financial instruments business operator and a securities finance company.

Box Chart 2-7: Amounts Outstanding in the Stock Repo Market and the FX Swap-Implied Yen Rate



Box 3: The Lower Bound Rate and the Weighted Average Rate in the Call Market Remaining Stable at Low Levels

During fiscal 2018, the call rate tended to remain at around minus 0.07 percent, although strong downward pressure on interest rates persisted overall due to such factors as increased fund supply from investment trusts. Looking at the distribution of the call rate for individual transactions, from the February 2018 reserve maintenance period, the minimum transaction rate and the 25 percentile rate tended to be consistent at minus 0.086 percent. This suggests that the actual lower bound for the call rate was somewhat higher than the short-term policy interest rate (of minus 0.1 percent) (Box Chart 3-1).

This is consistent with the cash lending stance of investment trusts that have recently served as the primary suppliers of funds in the call market. Specifically, because investment trusts do not have current accounts at the Bank, their surplus funds are primarily invested via (1) cash lending in the uncollateralized call (O/N) market or (2) money trusts of trust banks. From the April 2016 reserve maintenance period, trust banks have imposed a minus 0.1 percent commission on money trusts from investment trusts. Thus, when the total costs involving cash lending in the call market -- the call rate with transaction fee and consumption tax added -- exceeds those involving money trusts -- the commissions charged by trust banks with consumption tax added -- the investment trusts would choose to perform cash lending in the call market (Box Chart 3-2).

Therefore, the "supply curve" which represents the relationship between the call rate and the amount of fund supply in the call market (primary from investment trusts) does not simply slope upward, but could potentially be kinked at a certain interest rate level (hereafter the "theoretical lower bound"). With such a kinked supply curve, investment trusts cannot sufficiently engage in cash lending in cases where the equilibrium is achieved on the horizontal part of the supply curve even if the "demand curve" which represents the relationship between the call rate and the financing capacity of borrowing entities in the call market were to fluctuate due to changes in treasury funds and others. As a result, the call rate would hover near the lower bound ("Supply-side model considering the existence of not-fully-invested surplus funds," Box Chart 3-3). These structural factors contributed to maintaining the call rate stable at a low level overall throughout fiscal 2018.

To verify this point, a kinked supply curve was estimated assuming that the supply curve was

fixed between the reserve maintenance periods from April 2018 to March 2019.[12] Looking at the results, the kink threshold (point at which surplus funds disappear) and the intercept amounted to 4.2 trillion yen and minus 0.069 percent, respectively (Box Chart 3-4), consistent with the fact that the surplus funds at investment trusts generally disappeared and the weighted average of the call rate rose when turnover exceeded this threshold. Meanwhile, in reality, some entities engaged in cash borrowing at rates that are higher than the theoretical lower bound due to such factors as the differences in credit scores. Given this, the lower bound for the call rate when viewed by its weighted average was presumably near minus 0.070 percent (and not minus 0.086 percent).

The estimated results are based on assumptions, and the results should be viewed as having a certain margin of error.[13]

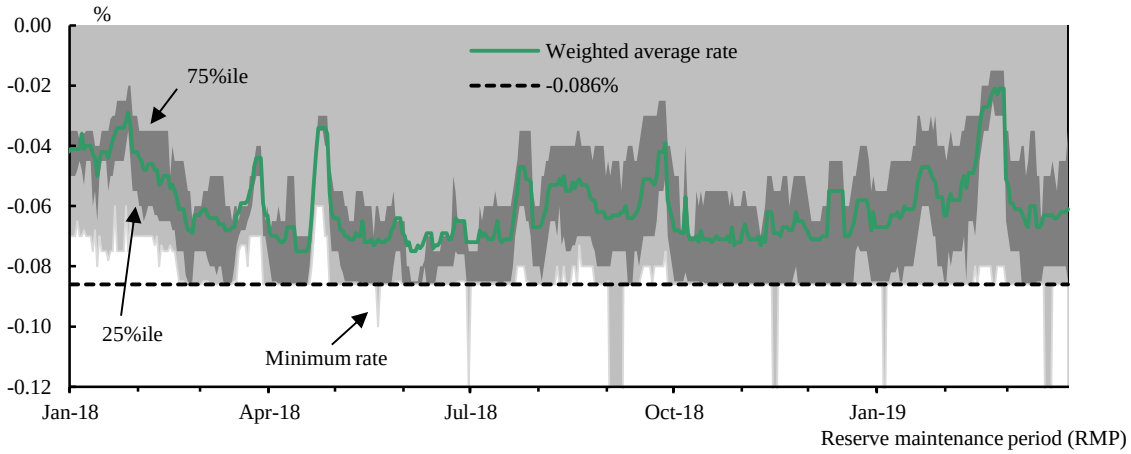
[12] This analysis attempts to explain supply factors via investment trusts since investment trusts and regional banks I and II in fiscal 2018 were largely fixed as the lending and borrowing entities, respectively, of funds in the uncollateralized call (O/N) market. Reference was made to the papers listed below regarding the rationale behind the inferences used here.

Hansen, B. E. (2017) "Regression kink with an unknown threshold," *Journal of Business & Economic Statistics*, Vol. 35(2), 228-240

Fong, Y. Huang, Y. Gilbert, P. B. and Permar, S. R. (2017) "chngpt: Threshold regression model estimation and inference," *BMC Bioinformatics*, Vol. 2018(1), 454-469

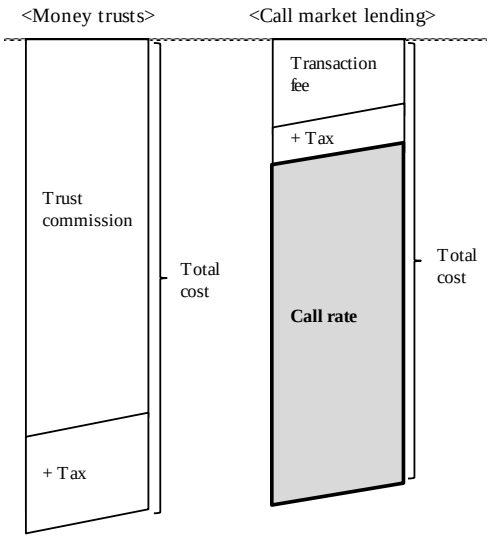
[13] Although this is inherently prone to generating simultaneity bias, the sample was restricted to days on which no surplus funds were generated, and the financing capacity of regional banks I and II (see Box 3 in "Market Operations in Fiscal 2017" for details) was used as instrumental variable to estimate a supply curve (free of kinks). The results obtained were largely the same, and thus acknowledged as having a certain degree of rationale.

Box Chart 3-1: Distribution of the Call Rate for Individual Transactions in the Uncollateralized Call Market

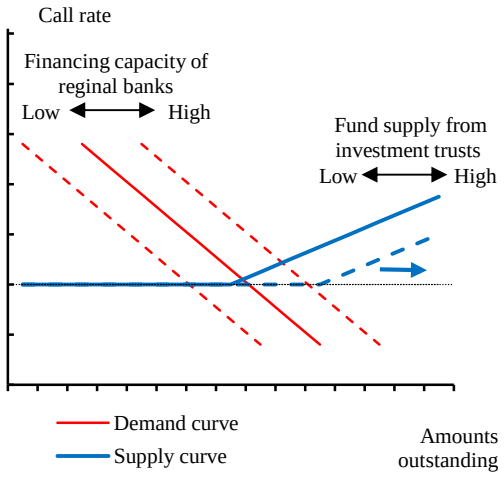


Note: The light shaded areas indicate the range where transactions were concluded. The dark shaded areas indicate the range between the 25 percentile and 75 percentile of all transactions during the day. The dashed line indicates minus 0.086 percent, which tended to be the minimum transaction rate on many days.

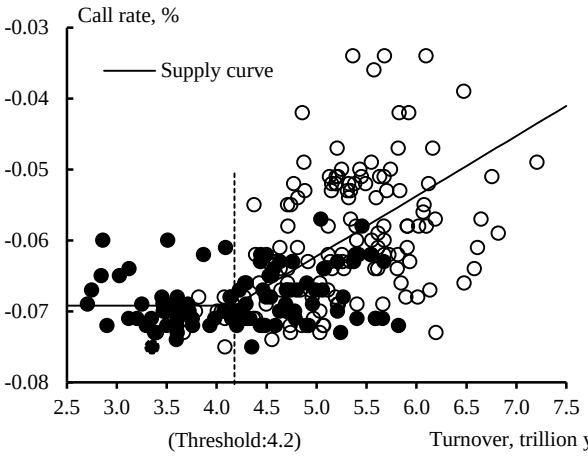
Box Chart 3-2: Cash Lending Stance of Investment Trusts



Box Chart 3-3: Supply-Side Model Considering the Existence of Not-Fully-Invested Surplus Funds



Box Chart 3-4: Estimated Supply Curve



Note: The black dots indicate the days on which more than two investment trust companies had continued to make offers at minus 0.086 percent in the call market at the end of morning session (when most of the transactions are concluded). The white dots indicate the other days.

B. Repo Market

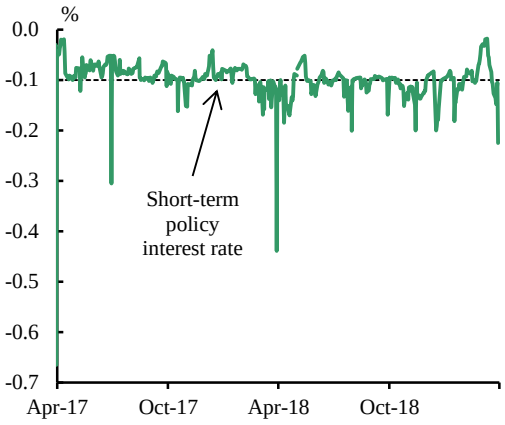
The GC repo rate generally stayed near the short-term policy interest rate (of minus 0.1 percent), due to financial institutions actively engaging in arbitrage trading that took advantage of the three-tier system of their current accounts at the Bank in addition to the financing of securities purchases by securities companies (Chart 3-4). Looking at this in detail, the GC repo rate fell somewhat significantly around the MPM held on July 30 and 31, 2018. This was because cash borrowing (securities lending) by investors was temporarily curved in order to flexibly carry out securities trading amid the somewhat significant fluctuation in interest rates. Furthermore, from the August reserve maintenance period when the financing capacity of domestic investors heightened somewhat due to the revision of the Benchmark Ratio described in Chapter II.A.3., some financial institutions grew increasingly proactive about borrowing cash in the repo market. Given this, during the February 2019 reserve maintenance period, the policy-rate balances in current accounts held by financial institutions that were proactive about arbitrage trading in the repo market were somewhat on the low side. Therefore, the GC repo rate temporarily rose to minus 0.018 percent (see Box 6). During fiscal 2017, the GC repo rate exhibited a downward trajectory at quarter-ends when some financial institutions became less proactive in borrowing cash (lending securities) in the repo market out of concern over balance sheet constraints. However, during fiscal 2018, a number of developments were seen: (1) securities borrowing at long maturities before quarter-ends and (2) financial institutions becoming increasingly proactive about borrowing cash over quarter-ends for arbitrage purposes in anticipation of this decline in the rate. Under such circumstances, no significant declines in the GC repo rate were observed such as those seen in fiscal 2017.

In the special collateral (SC) repo market, amid large-scale JGB purchases by the Bank, the supply and demand conditions 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 due to reduced inventory, and at quarter-ends when some financial institutions refrain from lending their JGBs. Moreover, the trading volume of cash JGBs increased around the MPM held on July 30 and 31, 2018, amid the somewhat sizable fluctuation in yields. In addition, the large-scale JGB purchases by the Bank via fixed-rate purchase operations resulted in a precipitous drop in the amount outstanding in the market, centered mainly on newly issued JGBs. On account of such factors, the supply and demand conditions of such issues tightened rapidly, and the SC repo rate fell drastically. Furthermore, as will be discussed below, from October, JGB issues with particularly low amounts outstanding in

the market served as the cheapest-to-deliver (CTD) issues from among JGB issues used to settle JGB futures contracts via delivery (deliverable issues). Under such circumstances, there was a tendency for supply and demand conditions to tighten centered mainly around such issues, and the SC repo rate to fall significantly. However, starting from the start of 2019, no such developments were observed in which the tightening of supply and demand conditions of individual issues in the SC repo market spread to the broader market (Chart 3-5).

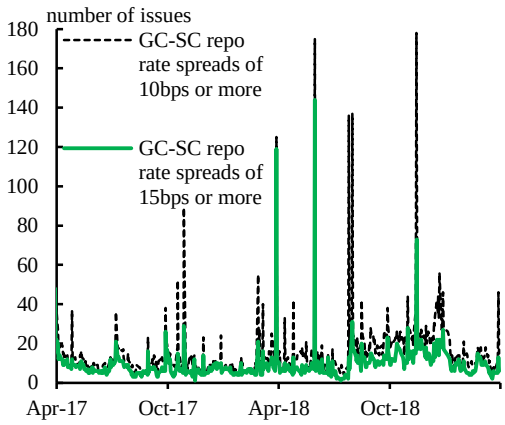
The amount outstanding in the repo market increased somewhat as a result of financial institutions actively engaging in arbitrage trading that took advantage of the three-tier system of their current accounts at the Bank when the financing capacity of domestic investors heighted somewhat due to the aforementioned revision of the Benchmark Ratio (Chart 3-6).

Chart 3-4: GC Repo Rate (O/N)



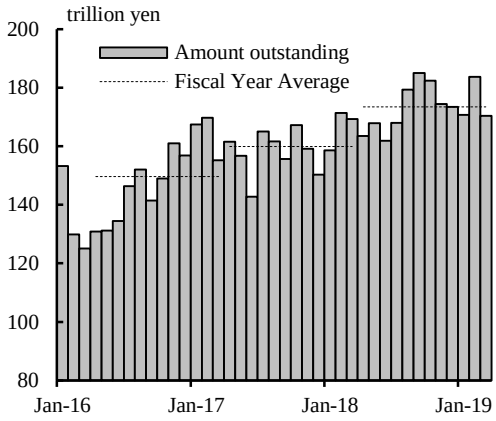
Note: Figures up to May 1, 2018 indicate T/N rates. Based on start date.

Chart 3-5: JGB Issues with Higher Borrowing Costs



Note: The Tokyo repo rate for transactions on the same day as SC repo (T/N; S/N up until May 1, 2018) is used for the GC repo rate.

Chart 3-6: 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

Yields on T-Bills (3-month) remained at levels below the short-term policy interest rate (of minus 0.1 percent), staying more or less in the range of minus 0.3 to minus 0.1 percent (Chart 3-7). Looking at this in slightly greater detail, from October 2018 up through the end of December, the yields edged slightly lower to roughly in the neighborhood of minus 0.3 to minus 0.2 percent on the back of robust demand from foreign investors (particularly those with dollar funds) who had undergone an expansion of their U.S. dollar funding premiums (3-month) in the FX swap market (see Box 4 regarding the effects of the FX swap-implied yen rate on yields on T-Bills). From the turn of the year, yields on T-Bills hovered roughly around minus 0.2 percent, due to such factors as the demand for collateral from domestic investors and their needs to hold T-Bills in order to avoid creating policy-rate balances, although the growth in demand from foreign investors slowed.

Looking at T-Bill holdings by entity, those of foreign investors increased, while those of the Bank decreased (Chart 3-8). This was presumably because (1) the attractiveness of yields based on the FX swap-implied yen rate from the U.S. dollar remained at high levels, and investing in Japanese T-Bills was appealing relative to the short-term government bonds in various countries, including U.S. T-Bills. Given this, investors with dollar funds proactively invested in Japanese T-Bills. In addition, (2) demand for T-Bills as part of foreign reserve management from other central banks continued to be seen (Chart 3-9). Meanwhile, T-Bill holdings of domestic investors remained more or less unchanged due to such factors as the demand for collateral.

Chart 3-7: Yields on T-Bills

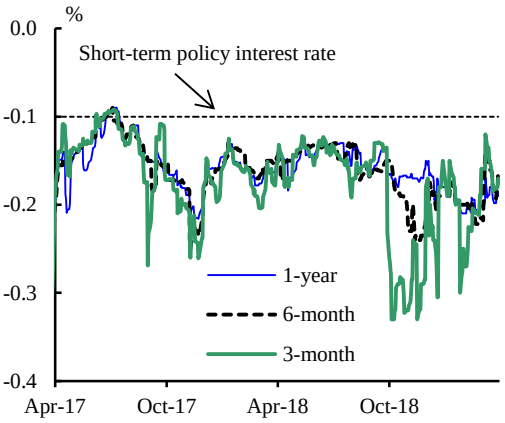
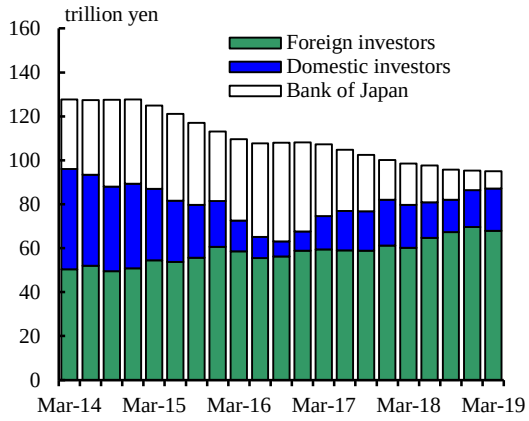
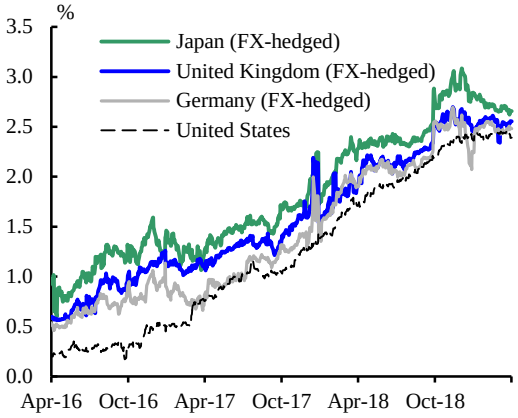


Chart 3-8: Amounts Outstanding of T-Bill Holdings by Entity



Note: Excludes 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 2019 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 3-9: 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 from the U.S. Dollar on Yields on T-Bills

Yields on T-Bills (3-month) remained at low levels from October to December 2018, on the back of robust demand from foreign investors (particularly those with dollar funds). Looking at this in greater detail, the yields edged below those from the same period of the previous year, during which demand from investors with dollar funds had similarly been observed (Box Chart 4-1).

The demand from foreign investors comprises the following: (1) demand that exists to a certain degree regardless of yield levels and (2) demand that varies depending on the attractiveness of yields based on the FX swap-implied yen rate from the U.S. dollar (U.S. dollar TED spreads + U.S. dollar funding premiums).[14]

As for the latter, the attractiveness of yields on 3-month T-Bills from October 2018 hovered around roughly 30-50 basis points, which was by no means especially high compared with the level in the same period of the previous year (Box Chart 4-2). Although the attractiveness of yields on 3-month T-Bills temporarily increased significantly at the year-end from October to December 2017, with fluctuations smoothed out, no major differences were observed in the attractiveness of yields by maturity. From October to December 2018, U.S. dollar funding premiums with longer-term maturities contracted. Given this, the attractiveness of yields on 3-month T-Bills remained at relatively high levels (compared with 2-year JGBs) (Box Charts 4-3, 4-4, and 4-5).[15] There was a possibility that these differences in U.S. dollar funding premiums by maturity boosted to some extent the relative attractiveness of yields on 3-month T-Bills and the robust demand for 3-month T-Bills from foreign investors.

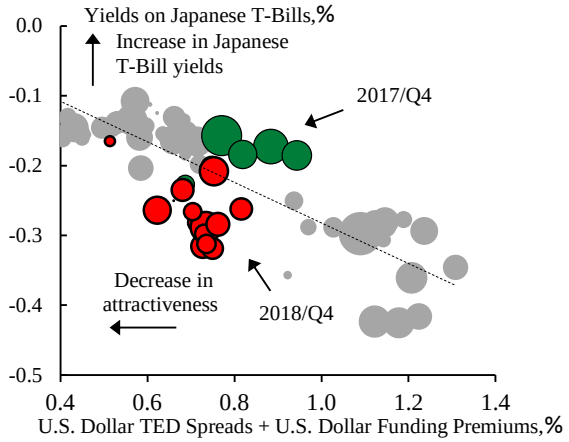
Contributing factors to those differences in premiums included the following. On the dollar demand side, (1) Japanese financial institutions from October 2018 persistently front-loaded their dollar funding over the end of December through 3-month FX swaps, and (2) demand for dollar funding at longer maturities via FX swaps relaxed, given that major banks in particular

[14] See Box 4 in "Market Operations in Fiscal 2017" regarding this latter demand mechanism.

[15] The attractiveness of yields on T-Bills/JGBs with maturity of over 6 months was calculated using U.S. dollar funding premiums with the same maturity. However, in a practical sense, it must be kept in mind that there are also cases where FX-hedging is not performed over the same term, for example, cases where FX-hedging is performed by rolling over hedges with maturity of 3 months even when investing in 2-year JGBs.

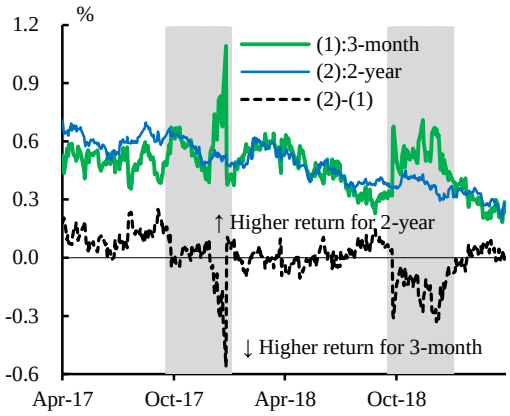
had increased stable funding such as dollar deposits and TLAC bonds in the long term.[16] On the dollar supply side, there was growing need to invest dollar funds overall owing to such factors as the progress made at U.S. banks in adhering to various financial regulations. Based on this, supply-side entities, in view of the flattening of the U.S. yield curve during this period, became increasingly proactive about long-term investments using dollar funds. However, U.S. dollar funding premiums with maturity of more than one year fluctuate along with the issuance of samurai bonds (yen-denominated bonds issued by non-residents), and thus must be viewed with a margin.

Box Chart 4-1: "U.S. Dollar TED Spreads + U.S. Dollar Funding Premiums" and Yields on Japanese T-Bills



Note: The size of the bubble refers to weekly net purchases of T-Bills by foreign investors (4-week backward moving average). The sample period is from October 2016 to December 2018.

Box Chart 4-2: Attractiveness of Yields on 3-Month Japanese T-Bills and 2-Year JGBs for Foreign Investors

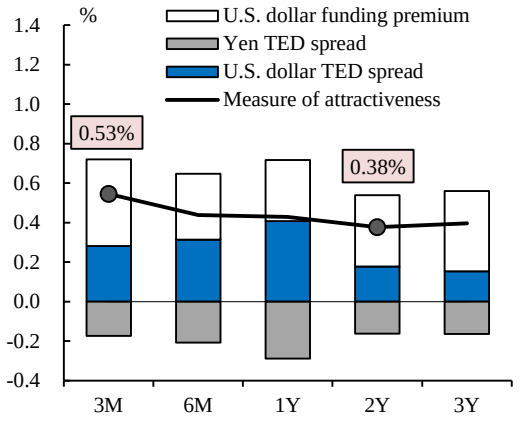


Notes: 1. Attractiveness of yields on 2-year JGBs is calculated using the equivalent maturity swap rate.
2. The shaded areas indicate the period during which 3-month rates price in premiums over the end of December.

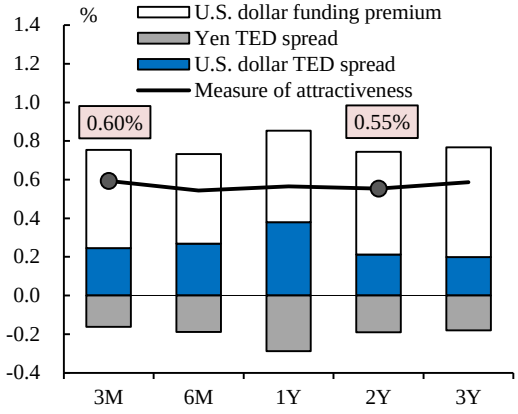
[16] For example, the stability gap (the gap between the amount of illiquid loans and the stable funding through client-related deposits, medium- to long-term FX and currency swaps, and corporate bonds including TLAC bonds) showed a tendency to shrink in the somewhat long term. See the Financial System Report (April 2019, Chapter IV.D.) for details.

Box Chart 4-3: Attractiveness of Yields on Japanese T-Bills for Foreign Investors by Maturity

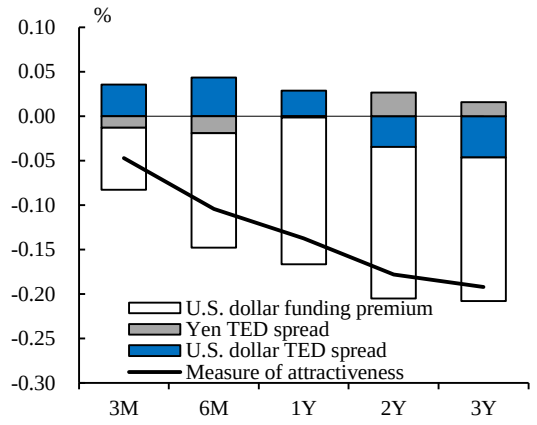
(2018/Q4 Average)



(2017/Q4 Average)



Box Chart 4-4: Average Attractiveness of Yields on Japanese T-Bills for Foreign Investors by Maturity (Spread between 2017/Q4 and 2018/Q4)



Box Chart 4-5: U.S. Dollar/Yen Cross-Currency Basis

D. JGB Market

Japanese long-term interest rates (10-year JGB yields) remained stable at around 0 percent under QQE with Yield Curve Control.

Looking at this in detail, up through the middle of July 2018, these remained within the extremely narrow range of approximately 0.02-0.06 percent, despite the fluctuations in overseas interest rates. Interest rates temporarily rose rapidly around the MPM held on July 30 and 31, 2018. Prior to the MPM, this rise was owing to speculation ahead of the meeting, while after the MPM, this was owing to speculation that the Bank's market operations would facilitate a rise in interest rates, given that it had strengthened the framework for continuous powerful monetary easing. However, the stability of the JGB market was restored as this speculation abated with the purchase of JGBs on August 2 that had not been scheduled in the "Outline" in advance, and interest rates remained more or less unchanged throughout August. Following this, interest rates fluctuated in tandem with overseas interest rates. Specifically, from September, Japanese long-term interest rates edged higher to around 0.10-0.15 percent. This was because yields on U.S. Treasuries rose substantially mainly reflecting the stronger-than-expected economic indicators in the United States while the Bank conducted purchases of JGBs and other assets in a flexible manner. However, from the middle of October, interest rates declined, mainly led by JGB futures, and temporarily dropped to minus 0.05 percent on January 4, 2019. This decline was caused by such factors as the uncertainty surrounding the U.S.-China trade tensions, the decline in domestic and foreign stock prices and crude oil prices, and the lower expectations for rate hikes in the United States (see Box 5 regarding the overvaluation of JGB futures during this period). From late-January 2019, interest rates were entrenched in negative territory within the range of around minus 0.05 percent to 0 percent. This reflected the heightened concerns over the tightening supply and demand conditions of JGBs amid the globally abating expectations for interest rate increases. Then in March, interest rates fell to minus 0.10 percent, marking their lowest point of the fiscal year, based on the fact that overseas interest rates had fallen further due to the accommodative monetary policy stance in Europe and the United States (Chart 3-10).

Looking at yields on short- and medium-term JGBs, those on 2-year JGBs remained at around minus 0.18 to minus 0.10 percent, while they fluctuated due to changes in foreign investors' demand based on the FX swap-implied yen rate from the U.S. dollar, as well as in demand for collateral from domestic investors according to whether JGBs were undervalued or overvalued compared with T-Bills. From the middle of July 2018 up through October, yields on 5-year

JGBs hovered at around minus 0.10 to minus 0.05 percent, accompanying the rise in long-term interest rates. However, from December, these declined, in tandem with the substantial rise in JGB futures prices, and remained at around minus 0.20 to minus 0.10 percent (Chart 3-10).

Yields on super-long-term JGBs remained within a narrow range up through the MPM held on July 30 and 31, 2018, after which they fluctuated along with overseas interest rates. Specifically, after rising owing to speculation ahead of the MPM, the yields rose further in concert with the rise in yields on U.S. Treasuries while the Bank conducted purchases of JGBs and other assets in a flexible manner. Afterwards, the yields followed a downward trend, due in part to the fall in yields on U.S. Treasuries from November, and rising demand from life and non-life insurance companies with a view towards the end of March (Chart 3-10).

Meanwhile, looking at the co-movement with overseas interest rates in greater detail, yields on JGBs tended to fluctuate in concert with those on U.S. Treasuries while the Bank carried out its market operations in a flexible manner in line with the guideline on market operations set forth at the MPM held on July 30 and 31, 2018 (Chart 3-11). In addition, transaction volume in JGB markets declined up through the middle of July but rose thereafter compared with the past, albeit remaining at low levels, following the Bank's decision to strengthen the framework for continuous powerful monetary easing at the July MPM (Chart 3-12). On this basis, the range of fluctuations of the yield curve expanded both upward and downward (Chart 3-13).

Chart 3-10: Yields on JGBs

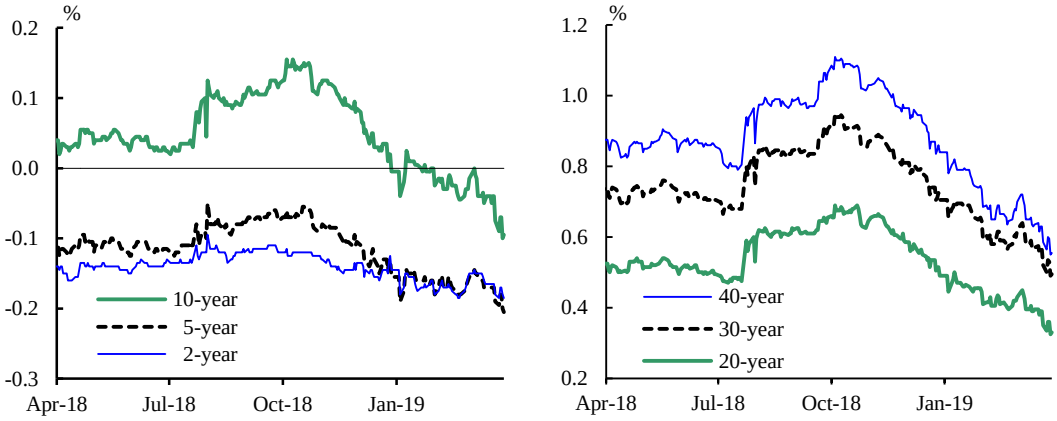


Chart 3-11: Long-Term Yields

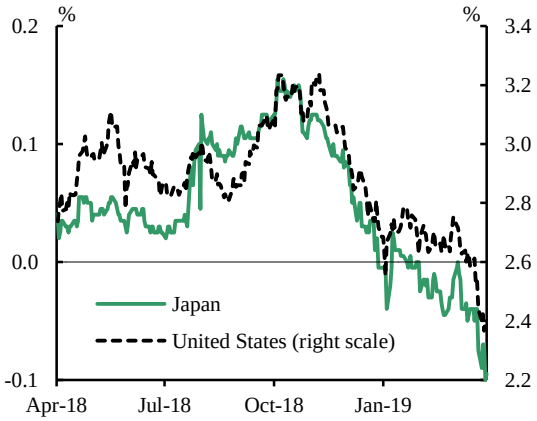
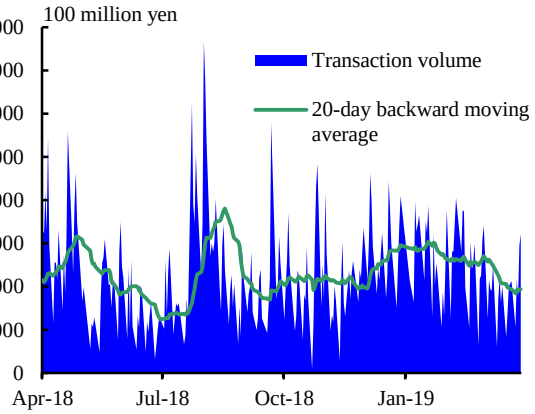


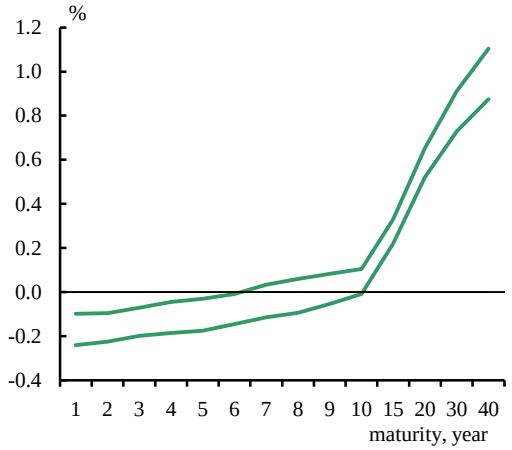
Chart 3-12: Inter-Dealer Transaction Volume



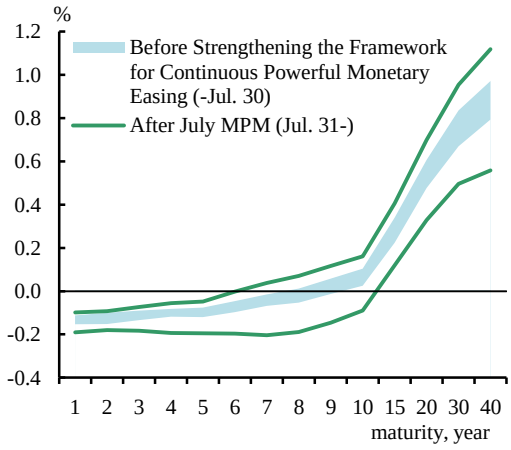
Note: The sum of the transaction volume for 2-year, 5-year, 10-year, 20-year, 30-year, and 40-year JGBs, and inflation-indexed JGBs via Japan Bond Trading.

Chart 3-13: Changes in the Yield Curve

(FY 2017)



(FY 2018)



Box 5: Overvaluation of JGB Futures[17]

Since the introduction of QQE in April 2013, the continued large-scale purchases of JGBs by the Bank have led to a decrease in the market holdings of CTDs of JGB futures (Box Chart 5-1). Under such circumstances, some market participants have pointed out two concerns: (1) that it would be difficult to trade JGB futures amid the sense of wariness that final settlement of JGB futures through delivery of CTDs could become challenging, and (2) that it would be less effective to hedge against the risk of interest rate fluctuations as JGB futures become overvalued along with the tightening of supply and demand conditions of CTDs, thereby decreasing co-movement between prices of cash JGBs and JGB futures.

As for (1), looking at developments before and after the rollover of JGB futures contracts, there were no indications of any particular problems during fiscal 2018, just as in the period up through fiscal 2017. It is expected that, if there are strong concerns that settlement 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). However, no such conspicuous developments have been observed at present given that transactions have been executed on the premise of a decrease in the market holdings of CTDs (Box Charts 5-2 and 5-3).

In contrast, with regard to (2), looking at the co-movement of prices between cash JGBs and JGB futures reveals that up through December 2018, the prices of futures and CTDs rapidly became overvalued amid a decline in overseas interest rates as they diverged from the prices of 5- and 10-year cash JGBs (Box Chart 5-4). As stated above, contributing factors to this, given the decrease in the market holdings of CTDs, include the following. (1) Demand from some foreign investors heightened rapidly mainly due to the decline in stock prices. In addition, (2) given the rapid rise in the prices of JGB futures, securities companies that had taken short positions on JGB futures in order to hedge against the risk of interest rate fluctuations on cash JGBs carried out buybacks at a definite loss. Meanwhile, market participants expressed their concern over distortions to the supply and demand conditions of individual issues at the Bond

[17] See Box 5 in "Market Operations in Fiscal 2017" for details on the roles and settlement methods for JGBs futures.

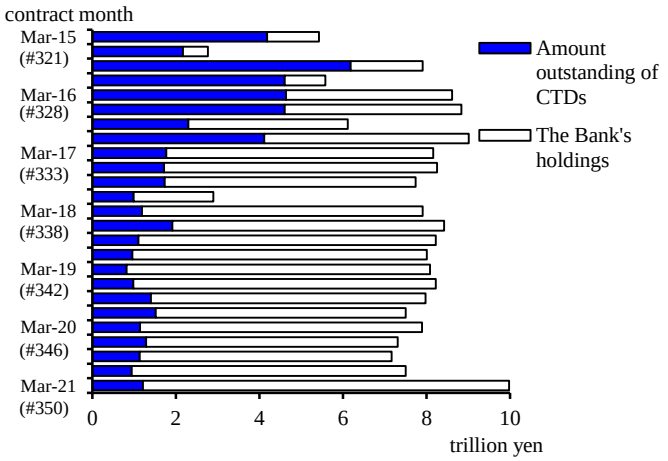
Market Group Meeting and other opportunities.[18] In fact, the trends in the GC-SC repo rate spread, which indicates scarcity in specific issues in the SC repo market, were reviewed to reveal that the GC-SC repo rate spread for CTD 10-year JGBs, issue number 340 and onward, were chronically tight compared with other issues. In addition, the GC-SC repo rate spread for many issues of 10-year JGBs that would serve as future CTDs widened (Box Chart 5-5).[19] Given this, from January 2019, whenever it selected eligible issues for each round of purchases of JGBs, the Bank expanded the issues excluded from purchases, focusing mainly on future CTDs.

Since the market holdings of CTDs is expected to remain at a low level going forward, the effects of the expansion of issues excluded from the Bank's purchases on the effectiveness of hedging through JGB futures and transactions of cash JGBs continue to warrant close attention.

[18] Specifically, the opinion was offered that, "since the relationship between the spot price of JGBs and the futures price of long-term JGBs has been unstable, it is difficult to hedge against interest rate risks." An outline of the proceedings from the eighth round of "Bond Market Group" meetings can be obtained via the following link:
http://www.boj.or.jp/en/paym/bond/mbond1812.pdf

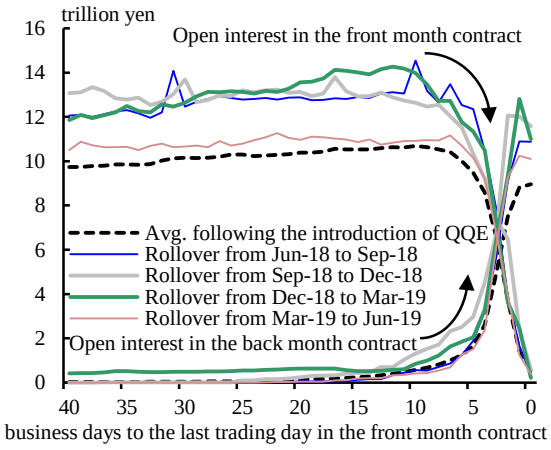
[19] This is a relative analysis of daily data throughout fiscal 2018, so the results must be viewed as potentially having a certain margin of error.

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

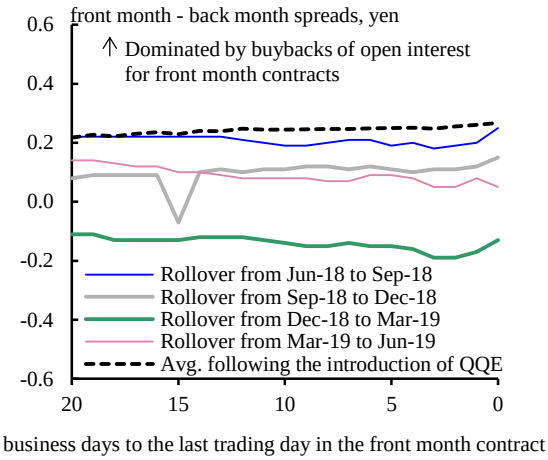


Notes: 1.Figures are as of the end of March 2019. "Amount outstanding of CTDs" is calculated by deducting the Bank's holdings from the amount outstanding of CTDs issued.
2. Figures in brackets represent issue number of each CTD 10-year JGBs.
3. Figures for CTDs in the future contract months are those for issues with a residual maturity closest to 7 years on each delivery date.

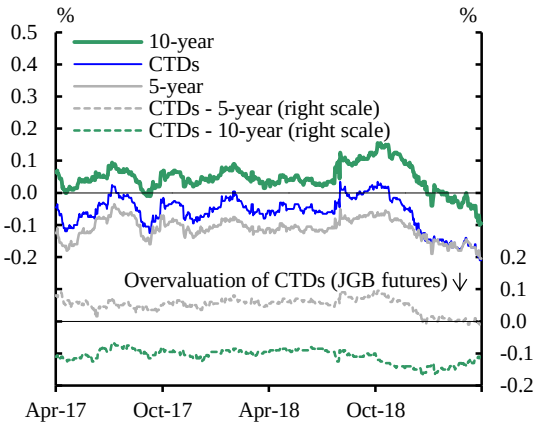
Box Chart 5-2: Open Interest before and after the Rollover of JGB Futures Contracts



Box Chart 5-3: Price Spreads between Front and Back Month Contracts (Calendar Spreads)

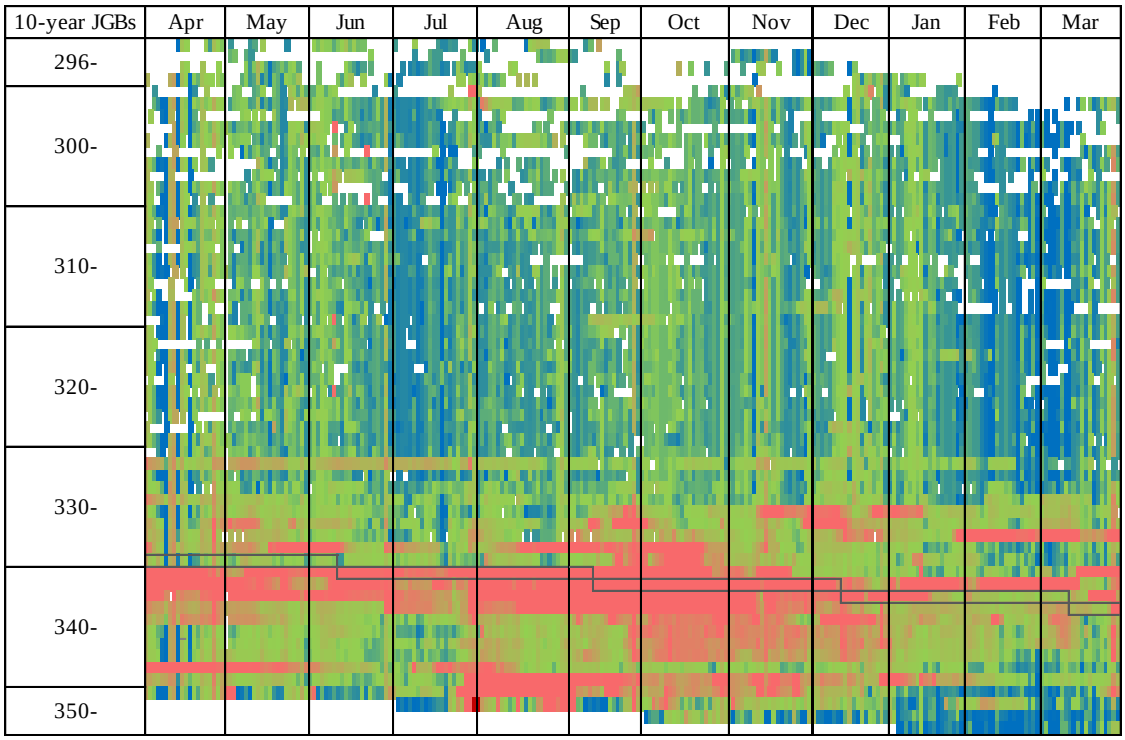


Box Chart 5-4: Yield Spreads between 5- and 10-Year JGBs and Yields on CTDs (JGB Futures)



Box Chart 5-5: GC-SC Repo Rate Spreads of 10-Year JGBs

<10-year JGBs, issues #296 to #353>



Notes: 1. In order to visualize the developments in JGB issues which were highly scarce during fiscal 2018, each cell represents the scarcity of all individual issues (traded on JBOND) over all periods and is in gradation colors as follows: (1) red when the GC-SC repo rate spread is in the upper 5 percentile, (2) blue when the spread is in the lower 5 percentile, and (3) green for the values in between these percentiles. However, the cells are colored deep red when the absolute level of the spreads exceeds 1 percentage point (as an indication of superior conditions).

2. The Tokyo repo rate for transactions on the same day as SC repo (T/N; S/N up until May 1, 2018) is used for the GC repo rate.
3. The gray outer frames which appear for 10-year JGBs (issue numbers 339 to 343) indicate the CTDs for the day.

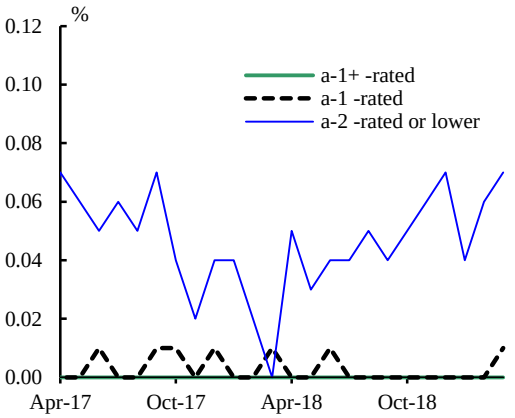
E. CP Market

During fiscal 2018, CP issuance rates, especially among issues with high ratings, remained at around 0 percent under highly accommodative financial conditions (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 2017, 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 low levels persisted and corporate profits continued to be favorable (Chart 3-15).

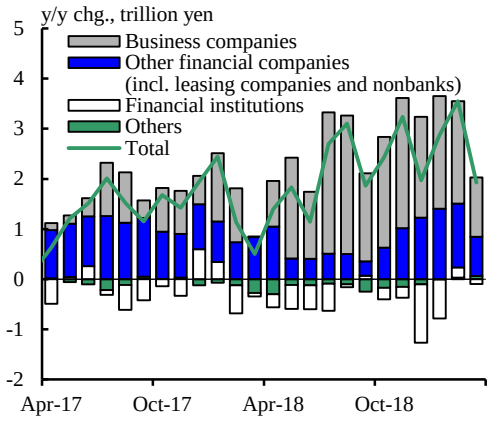
Looking at the characteristics of CP issuance during this period in greater detail and from a slightly longer-term perspective, in view of reducing commissions and fees as well as administrative costs, (1) the average duration of CP persistently lengthened (Chart 3-16), and (2) the amount outstanding of CP issuance per issue increased (Chart 3-17). Nonetheless, (3) there was only a minimal increase in the number of the issuing entities; instead, entities that were already issuing CP increased the amount outstanding of CP issuance (Chart 3-18).

Chart 3-14: CP Issuance Rates



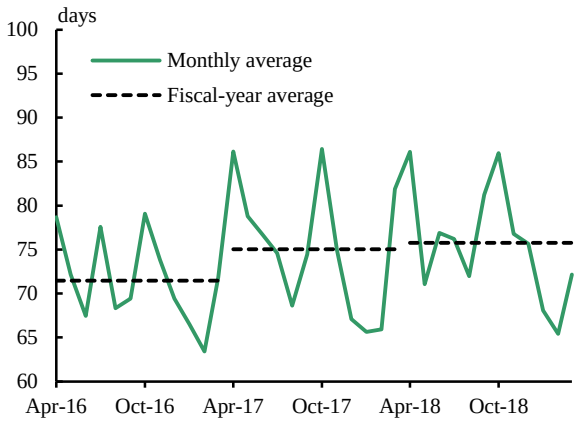
Notes: 1. 1-month rates.
2. CP issuance rates of business companies (including electric power and gas companies) and other financial companies (including leasing companies and nonbanks) on a monthly basis.

Chart 3-15: Amounts Outstanding of CP Issuance by Sector



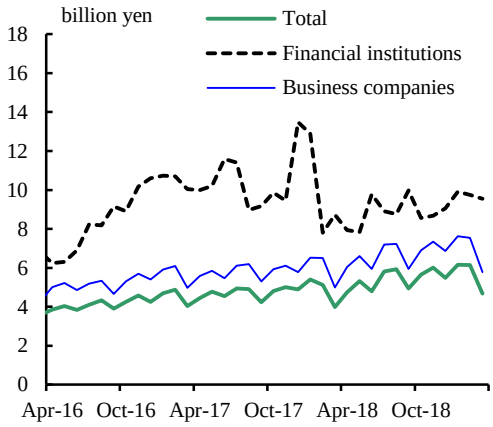
Notes: 1. Figures are as of the month-end.
2. "Business companies" includes electric power and gas companies.

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



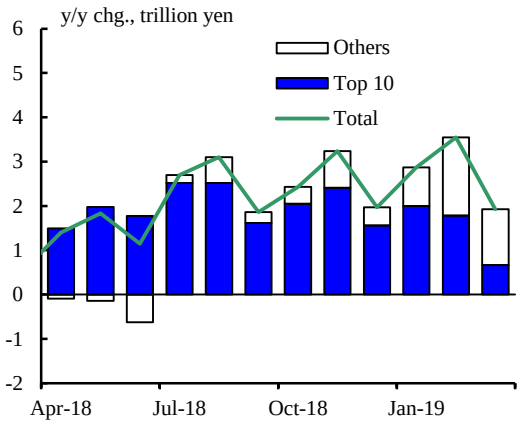
Note: Estimated based on the face value of newly issued CP during the month by maturity.

Chart 3-17: Amounts Outstanding of CP Issuance per Issue



Note: Calculated by dividing the amounts outstanding of CP issuance by the number of issues.

Chart 3-18: Amounts Outstanding of CP Issuance of the Top 10 Issuing Entities



Note: The top 10 issuing entities are extracted based on the difference between the average amounts outstanding of CP issuance in fiscal 2017 and 2018.

F. Corporate Bond Market

While yields on JGBs, which serve as the base rate, were stable at low levels under QQE with Yield Curve Control, corporate bond yields and yield spreads between corporate bonds and JGBs in the secondary market remained at low levels (Chart 3-19). Although the yield spreads between corporate bonds and JGBs expanded somewhat from the end of the year, these generally remained stable compared with those in Europe and the United States (Chart 3-20).

The amount outstanding of corporate bonds continued to increase from fiscal 2017 under the aforementioned issuing environment (Chart 3-21).

Chart 3-19: Yields on Corporate Bonds and JGBs

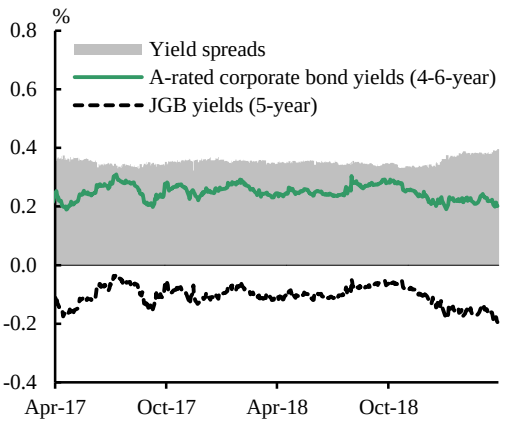
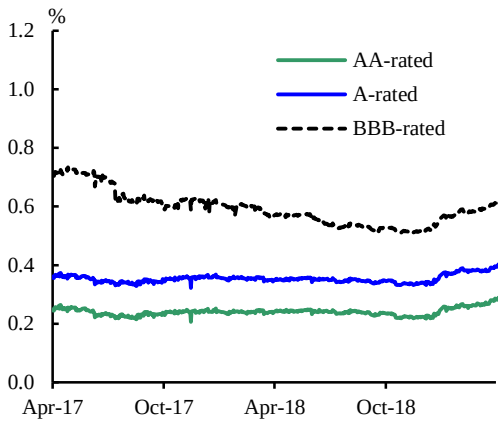
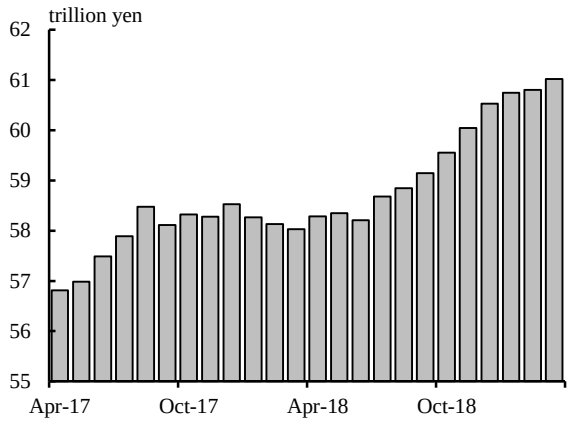


Chart 3-20: Yield Spreads between Corporate Bonds and JGBs



Note: Rated by R&I. The same applies to Chart 3-20.

Chart 3-21: Amounts Outstanding of Ordinary Corporate Bonds



Notes: 1. Figures are as of the month-end.
2. On a nominal basis. Excludes 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 during fiscal 2018, amid continued policy rate hikes in the United States (Charts 3-22 and 3-23).

Looking at this in detail, U.S. dollar funding costs showed only a slight rise up through September 2018, given that U.S. dollar LIBOR remained more or less unchanged. Afterwards, once the market began to price in developments over the end of December, there was a sense of wariness over how foreign banks could reduce dollar supply out of consideration for the leverage ratio requirement and regulations on G-SIBs. Given this, developments were noted whereby investors obtained U.S. dollar funds for use over the end of December at an early stage, and U.S. dollar funding costs rose significantly. However, even under such circumstances, there were no problems such as it becoming difficult to obtain U.S. dollars.

U.S. dollar funding costs declined somewhat at the beginning of 2019 due to the dissipation of such year-end factors, along with the abating expectations for policy rate hikes in the United States, and thereafter remained stable (Charts 3-22 and 3-23).

Chart 3-22: U.S. Dollar Funding Costs through Short-Term FX Swaps

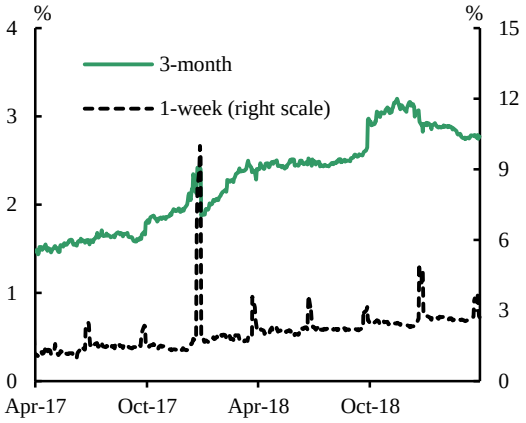
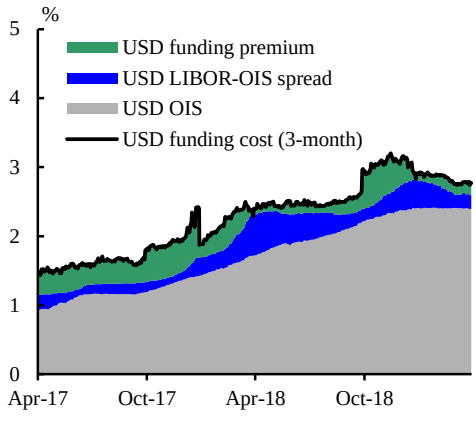


Chart 3-23: Breakdown of U.S. Dollar Funding Costs through Short-Term FX Swaps



Note: The U.S. dollar funding costs through short-term FX swaps are the total funding costs of raising yen at yen LIBOR and converting the proceeds into dollars through FX swap transactions.

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 2018, 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 2018, 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

Tier	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" "Average outstanding balance of the Loan Support Program and other measures"[20] "Money reserve funds (MRFs)"[21] "Macro add-on amount (Benchmark Balance[22]× Benchmark Ratio[23])"	0.0%
(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 at the Bank exceeds the upper

[20] "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).

[21] 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).

[22] Includes the average amount of the current account balance and the special reserve account balance at the Bank, based on the "Special Rules regarding Calculation of Interest of Complementary Deposit Facility for New Institutions" (see Chapter V.B.2.).

[23] 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.

bound on their basic balances and macro add-on balances. Whether or not financial institutions have "unused allowances" is one of the factors that gives rise to arbitrage trading at negative interest rates in money markets. In other words, financial institutions have an incentive to ensure profit margins (reduce their policy-rate balances) by borrowing (lending) cash at interest rates that are lower (higher) than those applied according to their current account balances at the Bank and depositing funds in their current accounts at the Bank (supplying funds from their current accounts).

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 through such arbitrage trading, 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. Specifically, the Bank set the Benchmark Ratio so that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" stayed at about 10 trillion yen on average up through the July 2018 reserve maintenance period. Afterwards, at the MPM held on July 30 and 31, the Bank decided to "reduce [this balance] from the current level of about 10 trillion yen on average" "under the condition that yield curve control can be conducted appropriately." Based on this, the Bank set the Benchmark Ratio so that this balance stayed at about 5 trillion yen on average from the August reserve maintenance period (Chart 4-2; see Box 6 regarding this decline in the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" and its impact on short-term interest rates). In addition, the Bank set different Benchmark Ratios for the reserve maintenance periods in March 2019 and in April and May, just as it did the previous year. This was done based on the seasonality of the receipts and payments of fiscal payments and revenues and in the interest of avoiding large fluctuations in the "hypothetical policy-rate balance after arbitrage transactions have taken place in full."

However, financial institution with policy-rate balances did not yet fully transfer funds to financial institutions with "unused allowances," but rather, these "unused allowances" continued to expand, albeit to a small extent. The actual policy-rate balances remained in the range of approximately 15-30 trillion yen, which was larger than the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" by these "unused allowances" (Chart 4-3).

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

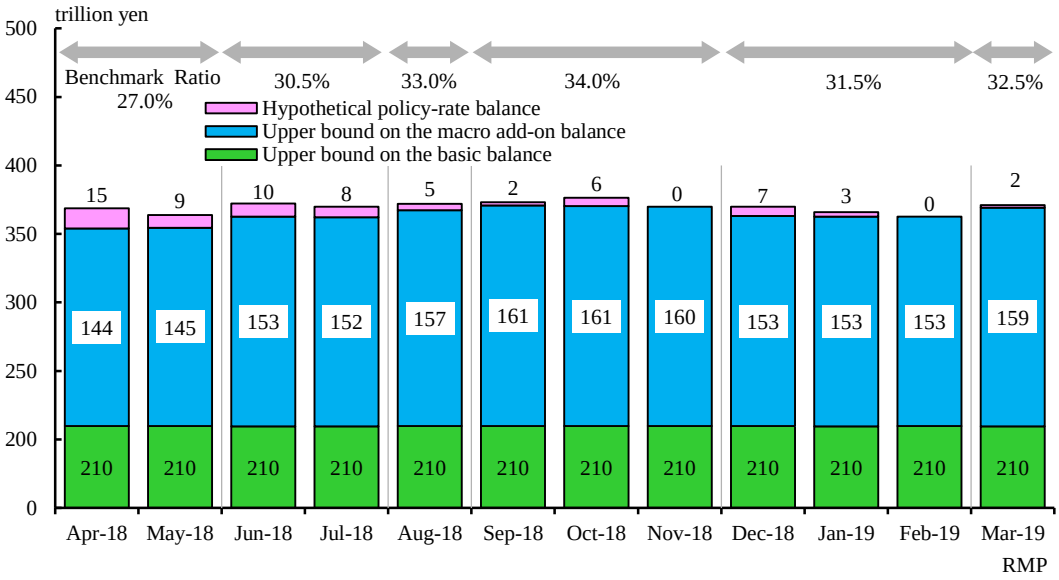
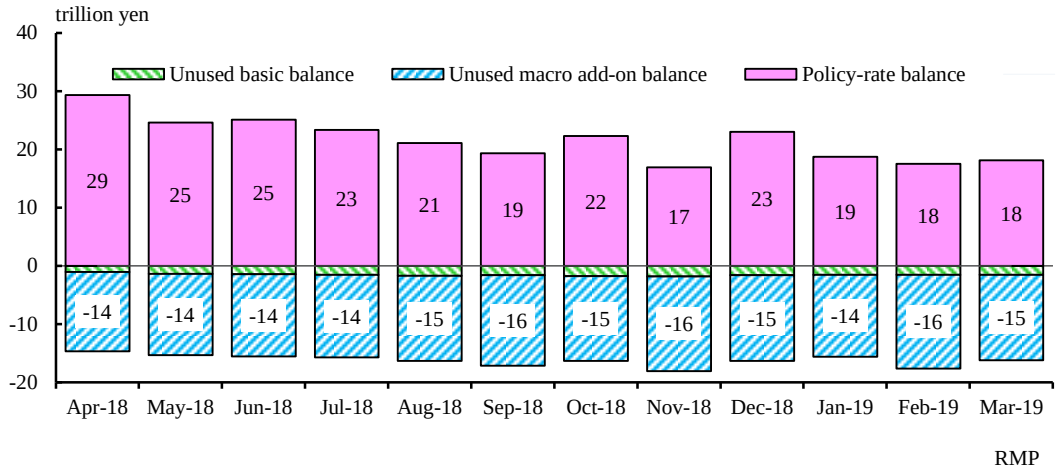


Chart 4-3: Unused Allowances in Tiers and the Policy-Rate Balance



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, although policy-rate balances rose among foreign banks, they conversely declined among other institutions subject to the complementary deposit facility (Chart 4-4). The below outlines the developments in each sector in greater detail.

City banks have managed their current account balances at the Bank in such a way that they do not generate policy-rate balances and use up almost all the "unused allowances" by borrowing cash and lending it, mainly in the repo market. Specifically, although the upper bound on macro add-on balances was raised, this was more than offset by the widening of the loan-deposit gap. Therefore, city banks tended to swing over to the cash lending side (Chart 4-5).

Regional banks I and II have taken mixed approaches; some are inclined to lend cash to avoid an accumulation of funds in their policy-rate balances, according to the scale of their current accounts at the Bank, while others with "unused allowances" in their current accounts are inclined to borrow. For the sector as a whole, the upper bound on macro add-on balances was raised, and the loan-deposit gap narrowed. These and other factors led to increased demand for funds, with cash borrowing having been actively carried out centered mainly on the uncollateralized call market (Chart 4-5). However, considering the low profitability and operational costs involved in arbitrage trading, some regional banks refrained from accumulating funds in their current account balances at the Bank despite having "unused allowances," while others engaged in operations that are predisposed to curbing their current account balances at the Bank by giving priority to ensuring that they do not generate policy-rate balances. As a result, there continued to be considerable amounts of "unused allowances" in the sector as a whole.

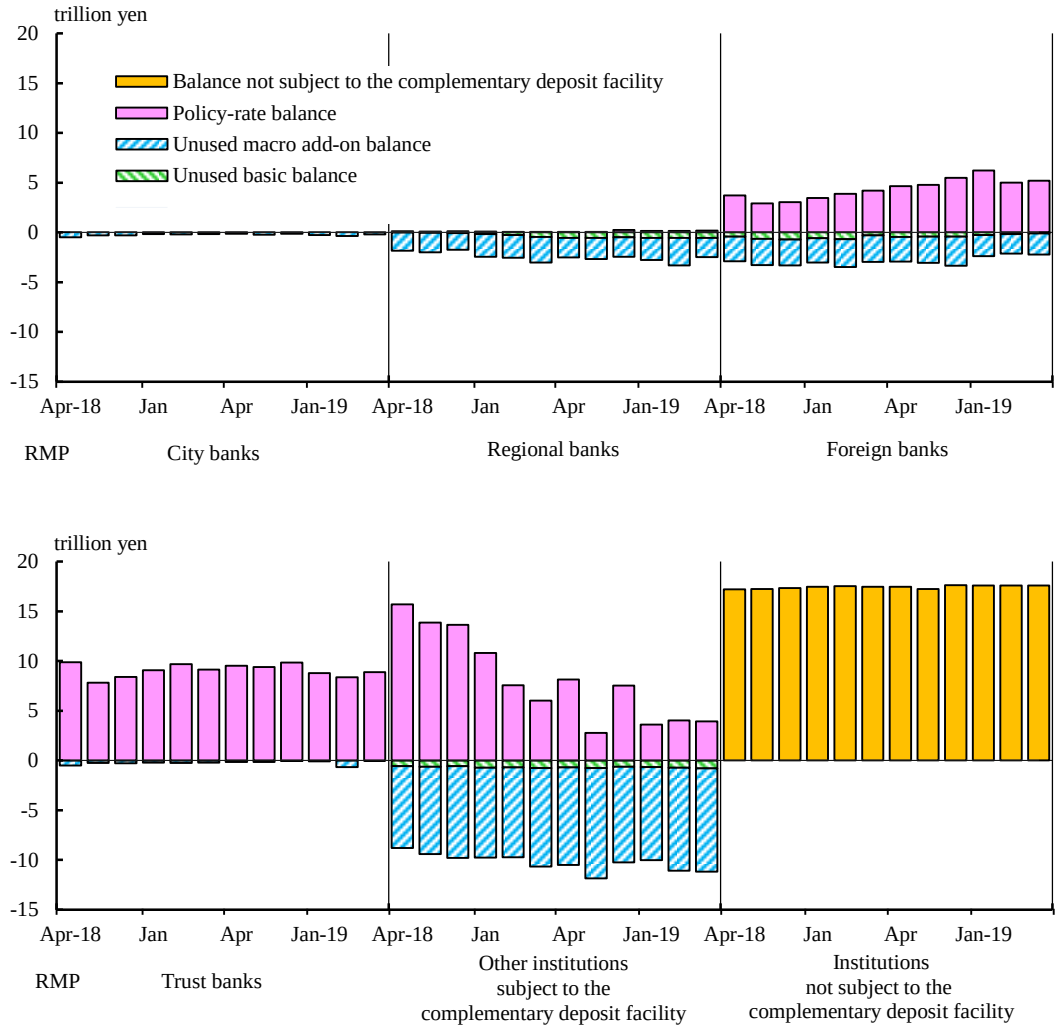
Some foreign banks proactively accumulated funds in their current account balances at the Bank. This reflected the fact that they were able to secure sufficient earnings, despite the cost of holding policy-rate balances (of minus 0.1 percent), given the relatively low yen funding cost in the FX swap market. Therefore, policy-rate balances of foreign banks increased. However, there were still many foreign banks which retained their "unused allowances" based on the cash management policy of their group as a whole.

Trust banks continued to maintain substantial amounts of policy-rate balances as surplus funds remained high among investment trusts and others. Looking at this in slightly greater detail, some trust banks reduced their policy-rate balances by lending cash in the call market, while others were not reluctant to hold policy-rate balances, reflecting that the practice of transmitting costs equivalent to the negative interest rates to trustees had become entrenched. Given this, the sector was not yet able to reduce policy-rate balances as a whole.

As for other institutions subject to the complementary deposit facility (other institutions subject to the reserve requirement, and institutions not subject to the reserve requirement), the size of their "unused allowances" and their stance on arbitrage trading largely varied among individual financial institutions. In general, among institutions with policy-rate balances, there were some that were enthusiastic about arbitrage trading and those that were not, whereas the majority of institutions with "unused allowances" were reluctant to engage in arbitrage trading. Therefore, for the sector as a whole, although policy-rate balances fluctuated along with fluctuations in the upper bound on macro add-on balances, the sector continued to retain its "unused allowances" with hardly any fluctuations.

Meanwhile, the current account balances of institutions not subject to the complementary deposit facility remained more or less unchanged.

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.

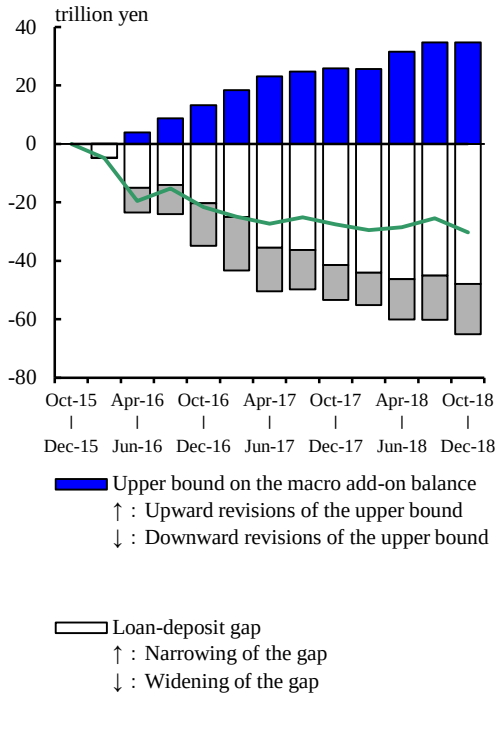
2. Other institutions subject to the reserve requirement include the following: Shinkin Banks (with deposits of more than 160 billion yen); Japan Net Bank; Seven Bank; Sony Bank; Rakuten Bank; SBI Sumishin Net Bank; Jibun Bank; AEON Bank; Daiwa Next Bank; ORIX Bank; ShinGinko Tokyo (until April 30, 2018); Shinsei Bank; Aozora Bank; Shinhan Bank Japan; The Resolution and Collection Corporation; The Norinchukin Bank; Japan Post Bank; Lawson Bank (since September 16, 2018): and GMO Aozora Net Bank (since October 1, 2018).

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.

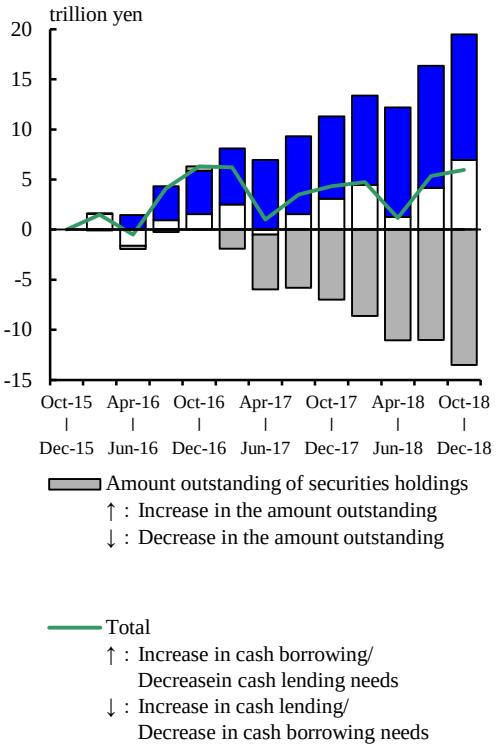
4. "Institutions not subject to the complementary deposit facility" include the following: Japanese Bankers Association; Japanese Banks' Payment Clearing Network; Tokyo Financial Exchange; Japan Securities Clearing Corporation; JASDEC DVP Clearing Corporation; CLS BANK International; Development Bank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

Chart 4-5: Initial Uneven Distribution of Funds by Sector

(City Banks)



(Regional Banks I and II)



Notes: 1. See Box 7 in "Market Operations in Fiscal 2017" for details on contributing factors behind the initial uneven distribution of funds.

2. Average amounts outstanding as of the month-end on a quarterly basis. Figures indicate deviations from the October-December quarter of 2015.

3. "Loan-deposit gap" = deposits + NCDs - loans. "Amount outstanding of securities holdings" includes T-Bills.

4. "Upper bound on the macro add-on balance" = "macro add-on amount (Benchmark Balance × Benchmark Ratio)" + the amount of increase in financial institutions' borrowing through the Loan Support Program and other measures from end-March 2016 (hereafter the "added amount") + "required reserves." This comes from the following reasons. The "upper bound on the macro add-on balance" comprises "required reserves," "average outstanding balance of the Loan Support Program and other measures," "MRFs," and the "macro add-on amount (Benchmark Balance × Benchmark Ratio)." Of these, 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 "added amount". However, for the purpose of analyzing fluctuations in cash borrowing and lending needs, the "upper bound on the macro add-on balance" only includes the "added amount." Meanwhile, it should be noted that 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. In addition, 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. The "average outstanding balance of the Loan Support Program and other measures" and the "Benchmark Balance" is calculated from "BOJ Current Account Balances by Sector." "MFRs" are assumed to be zero.

Box 6: The Decline in the "Hypothetical Policy-Rate Balance after Arbitrage Transactions have Taken Place in Full" and its Impact on Short-Term Interest Rates

At the MPM held on July 30 and 31, 2018, the Bank reached a decision regarding the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" to "reduce [this balance] from the current level of about 10 trillion yen on average" "under the condition that yield curve control can be conducted appropriately." Accordingly, from the August reserve maintenance period, the Bank set the Benchmark Ratio so that this balance stayed at about 5 trillion yen on average, which it set so that this balance stayed at about 10 trillion yen on average up until the July reserve maintenance period.

Meanwhile, the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" was zero during both the November 2018 and February 2019 reserve maintenance periods. Since arbitrage trading did not actually take place in full, policy-rate balances were generated (main text Chart 4-3) and money market interest rates hovered in negative territory during those reserve maintenance periods. However, under such circumstances, the call rate and the GC repo rate climbed to a fairly sizeable degree in the February 2019 reserve maintenance period compared with those in the November 2018 reserve maintenance period.

The differing trends in the short-term interest rates between those two periods could be due to differences in fund positions by sector and by individual financial institutions. Specifically, the impact of the revision of the Benchmark Ratio and receipts and payments of fiscal payments and revenues differ among financial institutions. Thus, even though the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" was zero for both periods, policy-rate balances were larger in the February 2019 reserve maintenance period than in the November 2018 period, mainly due to "other institutions subject to the reserve requirement" (Box Chart 6-1). This suggests that the policy-rate balances among financial institutions that proactively engaged in arbitrage trading in money markets were smaller in the February 2019 reserve maintenance period than in the November 2018 period. Specifically, the policy-rate balances were larger among financial institutions that were not proactively engaged in arbitrage trading in money markets due to the lower Benchmark Ratio in the February 2019 reserve maintenance period (31.5 percent) than that in the November 2018 period (34.0 percent), whereas the policy-rate balances were inherently smaller among financial institutions that were proactively engaged in arbitrage trading. The result was that fund supply in money markets (particularly the repo market) declined on the whole, which potentially led to upward pressure

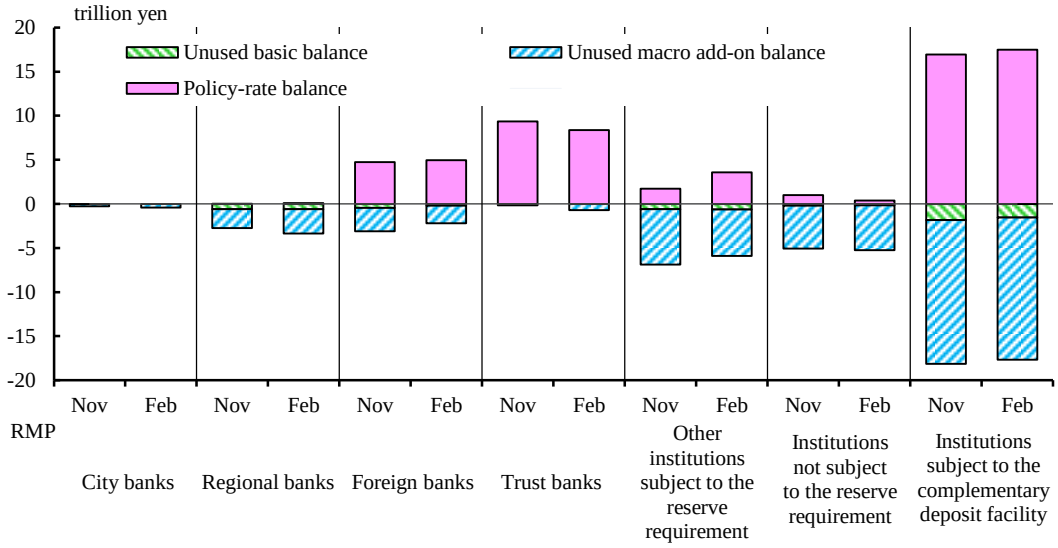
on rates in money markets (particularly the repo market).

These connections between the policy-rate balances of financial institutions that proactively engaged in arbitrage trading and the short-term interest rates can also be demonstrated via data. It can be observed that the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" excluding "other institutions subject to the reserve requirement"[24] -- which is said to comprise a relatively large number of individual financial institutions that are not proactively engaged in arbitrage trading but for some exceptions -- is negatively correlated with the call rate and the GC repo rate (Box Chart 6-2). The balance declined by about 2 trillion yen in the February 2019 reserve maintenance period compared with that in the November 2018 period, based on which those rates rose (yet the GC repo rate was somewhat higher for the February reserve maintenance period compared with past relationships).

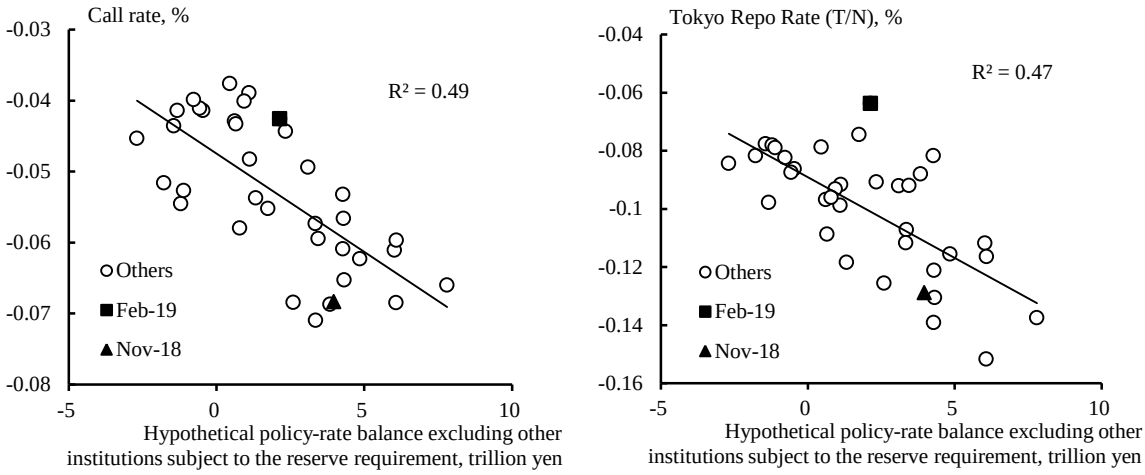
Just to reiterate, "other institutions subject to the reserve requirement," which were omitted here for the sake of convenience, contain institutions that are proactively engaged in arbitrage trading in money markets. There are conversely also institutions that are hesitant regarding such arbitrage trading outside of the institutions in the omitted sector. Furthermore, their stances towards arbitrage trading also vary depending on such factors as the level of short-term interest rates at the time, the distribution of funds, and the profitability of arbitrage trading. In fact, the short-term interest rates rose to a fairly sizeable degree during the February 2019 reserve maintenance period, owing to which institutions that had been hesitant to engage in arbitrage trading up until that point were heard to have grown somewhat more proactive about it. Based on those points, in order to grasp developments in the short-term interest rates, it is presumably important to get a thorough grasp of not only the "hypothetical policy-rate balance after arbitrage transactions have taken place in full" but also the differences in fund positions between sectors and between individual financial institutions.

[24] (1) City banks, regional banks I and II, trust banks, and securities companies account for a large share of the overall trading volume in the call market, whereas (2) city banks, regional banks I and II, trust banks, foreign investors, and bond dealers do the same for the repo market (bond repurchase agreements). In light of those facts, excluding "other institutions subject to the reserve requirement" that do not fall under those categories carries a certain degree of rationale.

Box Chart 6-1: Comparison between the November 2018 and February 2019 Reserve Maintenance Periods



Box Chart 6-2: "Hypothetical Policy-Rate Balance after Arbitrage Transactions have Taken Place in Full" and Short-Term Interest Rates



Note: Average interest rates on business days in each reserve maintenance period (based on settlement date).

B. Outright Purchases of T-Bills

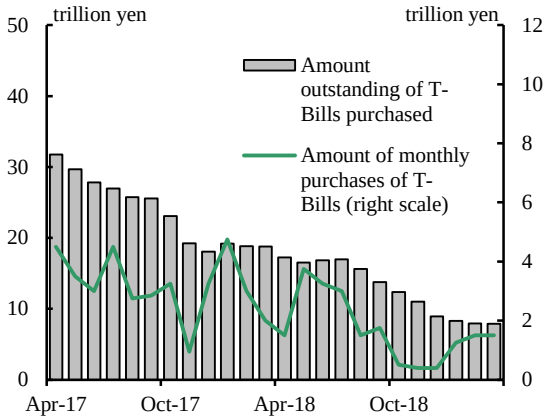
The Bank offered outright purchases of T-Bills generally once a week at 100 billion to 1.25 trillion yen per operation. Meanwhile, as mentioned above, yields on T-Bills during fiscal 2018 remained at levels below the short-term policy interest rate (of minus 0.1 percent), staying more or less in the range of minus 0.3 to minus 0.1 percent.

Under the framework of yield curve control, the Bank has decided on the purchase size and purchase dates, considering their 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. In particular, the Bank conducted purchases of T-Bills in a flexible manner, based on its decision made at the MPM held on July 30 and 31, 2018 to strengthen the framework for continuous powerful monetary easing.

Specifically, with regard to the purchase dates, the Bank, in principle, purchased T-Bills the day after auctions; however, in the "Outline" released in October 2018, it provided advance notice that its initial round of T-Bill purchases for October was scheduled on October 2 (two days after auctions), and from October 2018, it did not conduct operations on the day after auctions. In addition, the Bank flexibly adjusted the purchase size per operation. For example, from October 2018, it set the size at 100 billion yen up through the end of December, based on such factors as the robust demand from foreign investors (particularly those with dollar funds).

Based on this "Outline," the amount outstanding of T-Bills purchased fell at a pace of roughly 1-2 trillion yen each month up through the end of December 2018, although the pace by which the amount fell slackened later on. The amount outstanding at the end of March 2019 was 7.8 trillion yen, representing an 11.0 trillion yen year-on-year decline (Chart 4-6).

Chart 4-6: Amounts Outstanding of T-Bills Purchased and Amounts of Monthly Purchases of T-Bills



C. Outright Purchases of JGBs

During fiscal 2018, the Bank, under QQE with Yield Curve Control, purchased JGBs so that 10-year JGB yields would remain at around 0 percent. Meanwhile, at the MPM held on July 30 and 31 2018, the Bank decided to strengthen the framework for continuous powerful monetary easing, and stated that, while purchasing JGBs, the yields may move upward and downward to some extent mainly depending on developments in economic activity and prices.[25] The Bank also stated that with regard to the amount of JGBs to be purchased, the Bank would conduct purchases in a flexible manner so that their amount outstanding would increase at an annual pace of about 80 trillion yen.[26] The sections below look back on the Bank's purchases of JGBs before and after the July MPM.

1. Outright Purchases of JGBs Prior to the Decision to Strengthen the Framework for Continuous Powerful Monetary Easing

In June 2018, the Bank gradually reduced the amount of purchases of JGBs in the maturity zones of more than 3 years and up to 5 years (from 330 billion to 300 billion yen), and more than 5 years and up to 10 years (from 450 billion to 430 billion yen, and then to 410 billion yen). This was because the yields remained stable across these maturity zones, for which the Bank increased the amount of purchases at the beginning of 2018 when faced with climbing yields. The tightening supply and demand conditions due in part to the reduction in JGB issuance across these maturity zones from April also served as a contributing factor. In July, the Bank reduced the amount of purchases of JGBs in the maturity zone of more than 10 years (from 190 billion to 180 billion yen in the maturity zone of more than 10 years and up to 25 years; 70 billion to 60 billion yen in the maturity zone of more than 25 years) owing to such factors as the tightening supply and demand conditions partly reflecting the strong demand from investors.

Thereafter, before the July MPM, yields rose rapidly against the background of speculation leading up to the MPM. Given this, the Bank carried out fixed-rate purchase operations a total of three times for 10-year JGBs (Chart 4-7). Specifically, since long-term interest rates shot up

[25] In the evening of the same day, the governor indicated in a press conference that "it is borne in mind that the long-term yields may move upward and downward at about double the range of around plus or minus 0.1 percent since the introduction of yield curve control."

[26] In addition, the Bank announced that "in case of a rapid increase in the yields, the Bank will purchase JGBs promptly and appropriately."

from early in the morning on July 23, the Bank carried out fixed-rate purchase operation for 10-year JGBs (purchase size set at an unlimited amount; actual bidding amount was zero). Strong upward pressure on yields persisted thereafter, so the Bank carried out fixed-rate purchase operations for two consecutive business days on July 27 and 30 (purchase size set at an unlimited amount on both days; the actual bidding amount on the 27th was 94 billion yen and that on the 30th was 1.6403 trillion yen,[27] marking a record high). Meanwhile, the rate level for fixed-rate purchase operations was set at 0.11 percent on the 23rd and 0.10 percent on the 27th and 30th for newly issued JGBs in light of market conditions.

2. Outright Purchases of JGBs after the Decision to Strengthen the Framework for Continuous Powerful Monetary Easing

After the MPM held on July 30 and 31, 2018, the introduction of forward guidance for policy interest rates and other factors contributed to a temporary fall in long-term interest rates. However, in response to the governor's remarks in a press conference held that same evening that "it is borne in mind that the long-term yields may move upward and downward at about double the range of around plus or minus 0.1 percent since the introduction of yield curve control," interest rates shot up once again. In light of such market conditions, at 2:00 p.m. on August 2, the Bank conducted a purchase of JGBs in the maturity zone of more than 5 years and up to 10 years (400 billion yen worth) that had not been scheduled in the "Outline" in advance (Chart 4-7).[28]

Afterwards, the Bank conducted purchases of JGBs and other assets in a flexible manner under the guideline for market operations decided at the MPM held on July 30 and 31, 2018. In other words, the Bank was more flexible with respect to the provisions on the frequency of purchases and purchase dates in the monthly "Outline." The Bank also adjusted the purchase size per auction in a flexible manner in accordance with market conditions at the time (Chart 4-8).

[27] The fixed-rate purchase operation on the 30th attracted 1.6403 trillion yen in bids at the time when the bids were tendered. However, since some of the issues that were successfully bid at auction were not settled by the 31st, which was the delivery date, the Bank reduced the settlement amount.

[28] This operation, which was not scheduled in the "Outline" released at the end of the previous month, was implemented on the same day as the issuance auctions for JGBs with a corresponding residual maturity (10-year JGBs). However, the issue for which an issuance auction was held on this same day (10-year JGBs, issue number 351) was excluded from purchase.

Looking at this in greater detail, as for the frequency of purchases of JGBs, the Bank, up through August 2018, conducted purchases of JGBs in the maturity zones of more than 1 year and up to 5 years and more than 5 years and up to 10 years six times a month, and those in the maturity zone of more than 10 years five times a month. However, from September, the Bank repeatedly reduced the frequency of its purchases of JGBs in the "Outline," in light of the number of actual business days and other factors (Chart 4-8). As a result, the frequency of purchases of JGBs across the three major maturity zones was reduced to four times a month each in March 2019.

With regard to purchase dates, the Bank conducted purchases of JGBs across relative maturity zones on the day after JGB issuance auctions. However, from November 2018, the Bank scheduled auctions in a more flexible manner, based on schedule balance throughout the month and market conditions.

In addition, from January 2019, the scope of issues excluded from purchases was expanded whenever the judgment was made on the eligible issues for each round of purchases of JGBs in the maturity zone of more than 5 years and up to 10 years. This was done with forethought given to ensuring that purchases of JGBs did not excessively distort the supply and demand conditions of individual issues, with consideration added to financial market conditions and other such factors.[29]

Meanwhile, in the first round of operations conducted following the reduction in the frequency of purchases of JGBs in the "Outline," the amounts of purchases of JGBs across the eligible maturity zones were either increased or left as they were, according to market conditions (Chart 4-8). The Bank also adjusted purchase amounts for operations other than these depending on market conditions at the time. Specifically, on September 21, 2018, the Bank reduced the purchase amount of JGBs in the maturity zone of more than 25 years (from 60 billion to 50 billion yen), owing to such factors as the tightening supply and demand conditions partly reflecting the strong demand from investors.[30] On December 14, it reduced the purchase amount of JGBs in the maturity zone of more than 5 years and up to 10 years (from 450 billion

[29] The scope of issues not eligible for purchases was expanded from 10-year JGBs, issue numbers 342 to 344, to 10-year JGBs, issue numbers 342 to 350. See Box 5 regarding the overvaluation of JGB futures that motivated this change.

[30] The Bank reduced the purchase amount of these JGBs on the day after the issuance auctions for JGBs with a corresponding residual maturity (20-year JGBs) among those in the maturity zone of more than 10 years.

to 430 billion yen). Furthermore, on February 12, 2019, the Bank reduced the purchase amount of JGBs in the maturity zone of more than 10 years and up to 25 years (from 200 billion to 180 billion yen).

Amid this, the bid-to-cover ratio for purchases of JGBs during fiscal 2018 (bidding amount / amount of successful bids) declined for JGBs in the maturity zone of less than 10 years, due to enhanced final investor demand, the decline in outstanding market share, and other factors (Chart 4-9; see Box 7).

As a result of the outright purchases of JGBs described above, Japan's yield curve was formed in a manner consistent with the guideline for market operations, and 10-year JGB yields remained in line with the operating target of "around 0 percent" during fiscal 2018 (Charts 4-10 and 4-11). Furthermore, the Bank conducted purchases of JGBs and other assets in a flexible manner, in line with the guideline for market operations decided at the MPM held on July 30 and 31. Through this, the Bank engaged in more flexible price formation according to economic and price conditions, as well as trends in overseas interest rates, compared with in the past.

Chart 4-7: Market Operations around the July MPM

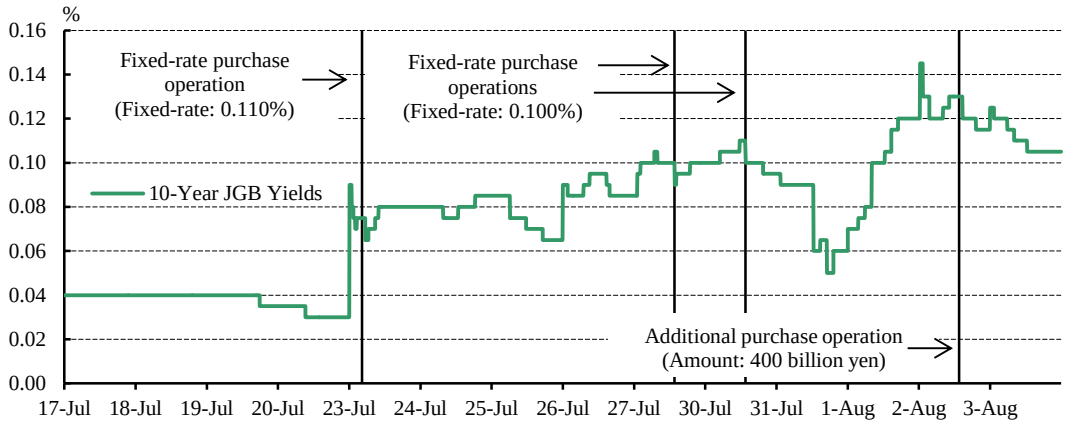


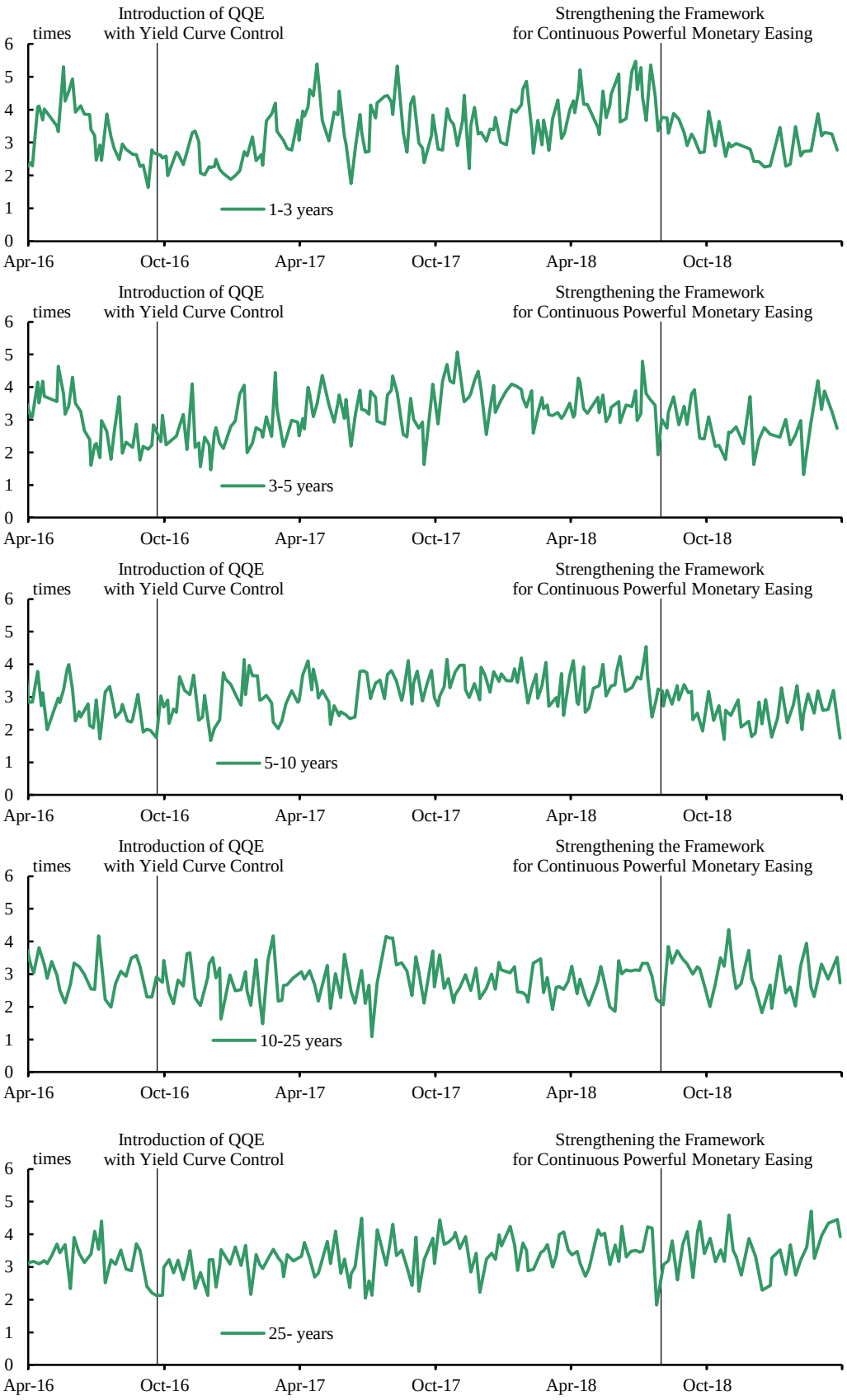
Chart 4-8: Changes of Monthly "Outline"

Residual maturity		Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan~Feb-19	Mar-19
1 | 5 Y	1 | 3 Y	About 2,000-3,000	About 2,000-4,000	About 2,000-4,000	About 2,500-4,500	About 2,500-4,500	About 2,500-4,500	About 2,500-4,500
		2,500	3,000	3,000	3,500	3,500	3,500	3,500
		6	5	5	4	4	4	4
	3 | 5 Y	About 2,500-3,500	About 2,500-4,500	About 2,500-4,500	About 3,000-5,500	About 3,000-5,500	About 3,000-5,500	About 3,000-5,500
		3,000	3,500	3,500	4,000	4,000	4,000	4,000
		6	5	5	4	4	4	4
5 | 10 Y		About 3,000-5,000	About 3,000-6,000	About 3,000-6,000	About 3,000-6,000	About 3,000-6,000	About 3,000-6,000	About 3,000-6,500
		4,000	4,500	4,500	4,500	4,500	4,300	4,800
		6	5	5	5	5	5	4
10 Y |	10 | 25 Y	About 1,500-2,500	About 1,500-2,500	About 1,500-2,500	About 1,500-2,500	About 1,500-2,500	About 1,500-2,500	About 1,500-2,500
		1,800	1,800	1,800	1,800	2,000	2,000	1,800
		5	5	5	5	4	4	4
	25 Y |	About 500-1,500	About 500-1,500	About 100-1,000	About 100-1,000	About 100-1,000	About 100-1,000	About 100-1,000
		600	600	500	500	500	500	500
		5	5	5	5	4	4	4

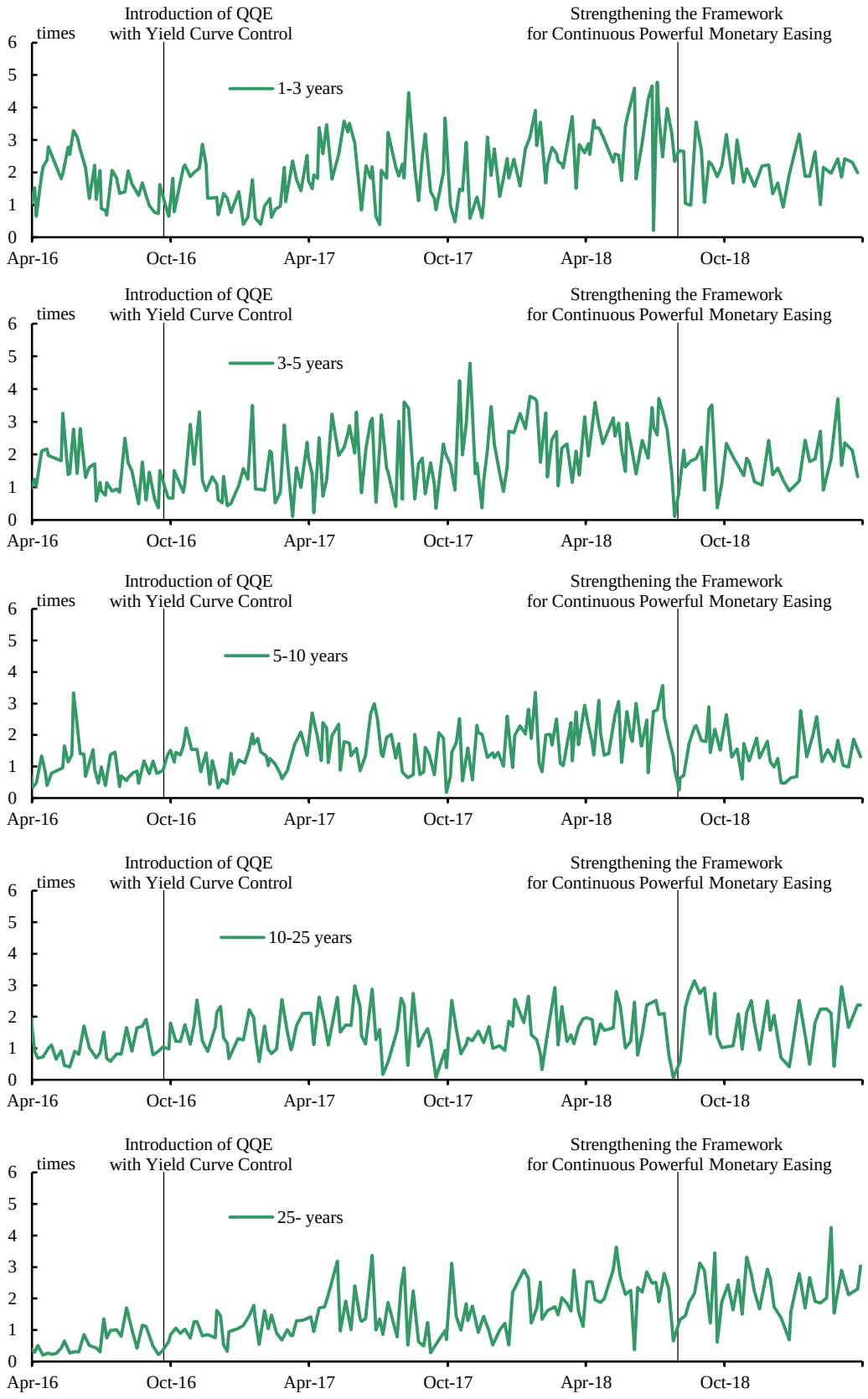
Note: From top to bottom, figures are the offered amount per auction (100 million yen), the offered amount in the first round of auctions (100 million yen), and the frequency of auctions.

Chart 4-9: Bid-to-Cover Ratio and Core Bid-to-Cover Ratio

(Bid-to-Cover Ratio)



(Core Bid-to-Cover Ratio)



Note: 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 put forward by sellers of JGBs) in the secondary market immediately before the bid-submission cut-off time (generally, the closing time of the morning session), and dividing the total of that amount by the offered amount. For details on the thinking behind the core bid-to-cover ratio, see Box 8 in "Market Operations in Fiscal 2016."

Chart 4-10: 10-Year JGB Yields

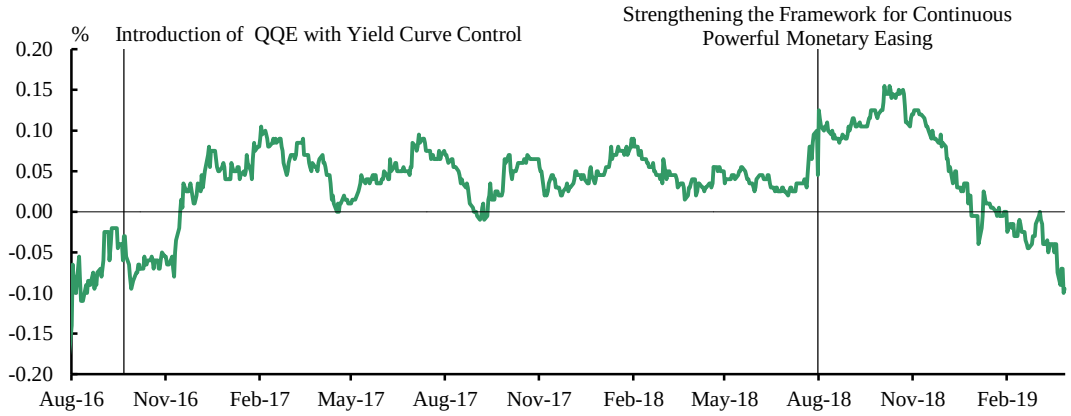
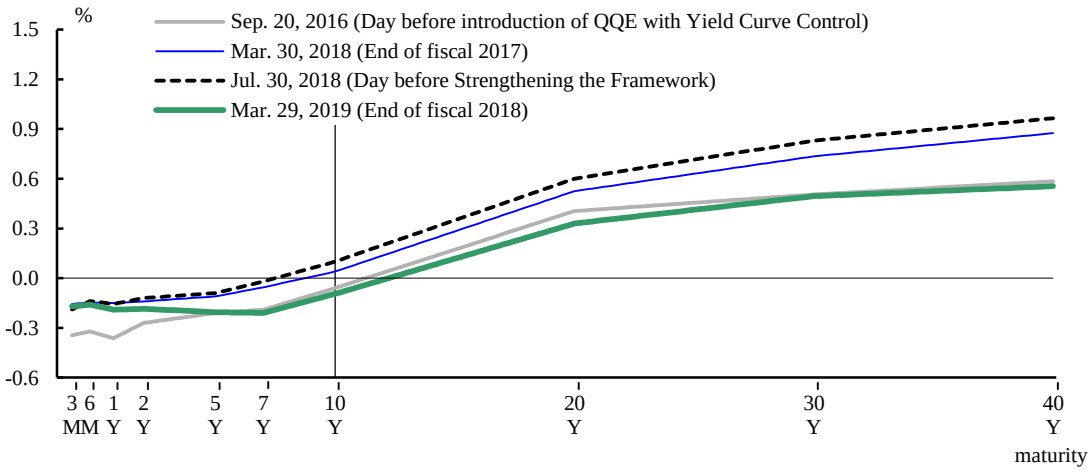


Chart 4-11: Changes in the JGB Yield Curve



Note: Figures for residual maturity of 7 years are yields on CTDs (JGB futures).

Box 7: Contributing Factors behind the Decline in the Bid-to-Cover Ratio for Purchases of JGBs

During fiscal 2018, the bid-to-cover ratio declined for purchases of JGBs in the maturity zone of up to 10 years. Generally speaking, a low bid-to-cover ratio for operations signifies that there are relatively few auction participants seeking to sell JGBs to the Bank through competitive bidding, which suggests that the supply and demand conditions for JGBs have tightened at that time. This box examines the contributing factors behind the tightening supply and demand conditions for JGBs in each maturity zone, focusing on (1) final investor demand and (2) the decline in the outstanding market share due to the continued large-scale purchases of JGBs by the Bank since the introduction of QQE in April 2013.

First, looking at JGBs in the maturity zone of more than 1 year and up to 3 years, although yields on 2-year JGBs rose in tandem with the rise in long-term interest rates from July 2018, conversely, yields on T-Bills declined from October. Therefore, 2-year JGBs continued to be undervalued compared with T-Bills (Box Chart 7-1). Based on this, there was an increase in final investor demand for the purpose of securing collateral, owing to which the supply and demand conditions for JGBs in this maturity zone tightened and the bid-to-cover ratio declined. However, amid a slight rise in yields on T-Bills from January 2019, some tendencies to pledge T-Bills as collateral instead of 2-year JGBs were observed, which drove up the bid-to-cover ratio to some extent.

Next, looking at JGBs in the maturity zone of more than 3 years and up to 5 years, the residual maturity of 10-year JGBs, issued after the introduction of QQE in April 2013, and of which the Bank' share of holdings was high, sequentially fell to 5 years or less; as a result, the outstanding market share of this maturity zone declined (Box Chart 7-2). Based on this, the bid-to-cover ratio remained on a downward trajectory during fiscal 2018, albeit with some fluctuations.

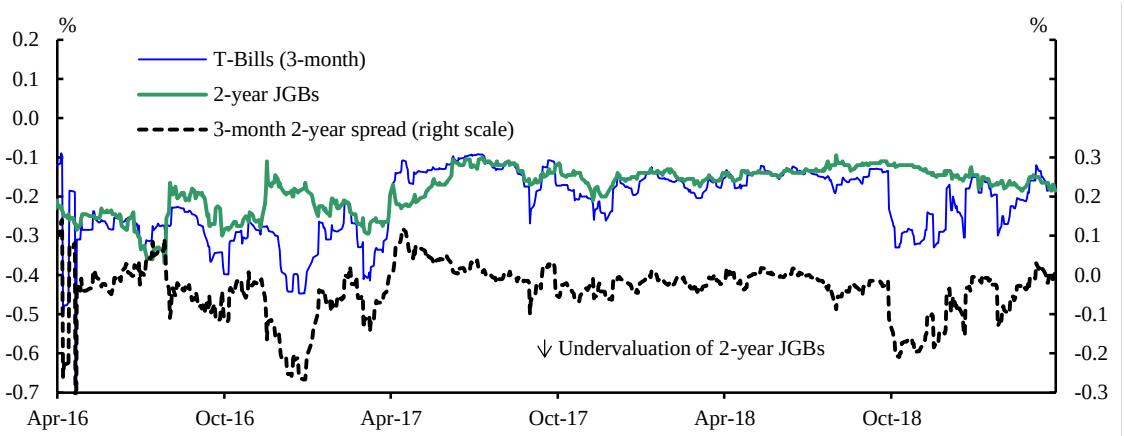
Lastly, looking at JGBs in the maturity zone of more than 5 years and up to 10 years, there continued to be purchases in large sums relative to issuances compared with the other maturity zones, owing to which the outstanding market share further declined. In addition, when faced with climbing yields from July 2018, final investor demand heightened somewhat, which led to the decline in the bid-to-cover ratio.

JGBs in the maturity zone of more than 10 years and up to 25 years have seen no decline in

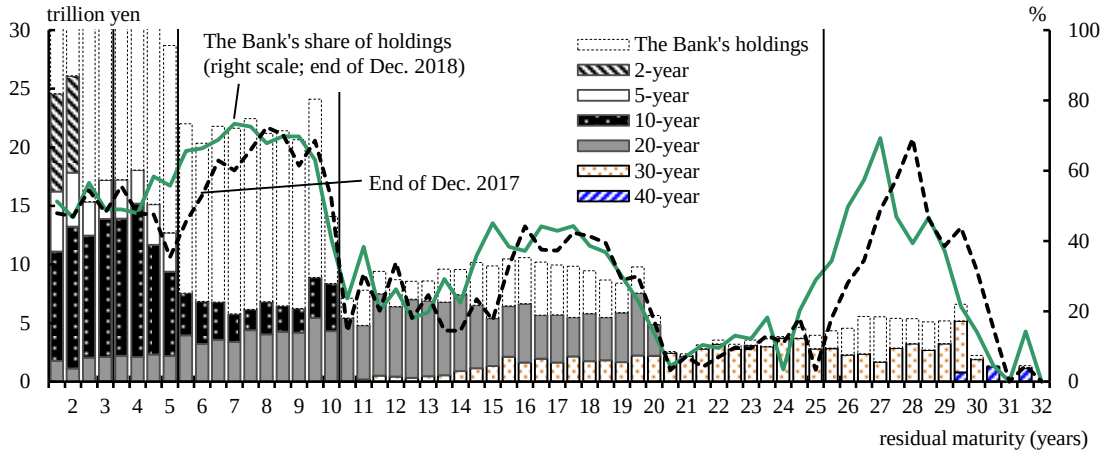
their bid-to-cover ratio thus far. However, these JGBs inherently entail strong final investor demand. Furthermore, when the residual maturity of 30-year JGBs, of which the Bank's share of holdings is high, falls to 25 years or less, the outstanding market share of this maturity zone would decline, potentially leading to a tightening of supply and demand conditions and a decline in the bid-to-cover ratio (Box Chart 7-2).

Aside from the above, when JGB futures diverged from prices of cash JGBs and rapidly became overvalued up through the end of December 2018,[31] securities companies, in particular, temporarily refrained from selling via operations. This could have contributed to the declines in the bid-to-cover ratios in the adjacent maturity zones of more than 3 years and up to 5 years and more than 5 years and up to 10 years.

Box Chart 7-1: Yields on T-Bills and 2-Year JGBs



Box Chart 7-2: Amounts Outstanding and the Bank's Share of JGB Holdings by Residual and Original Maturity



Notes: 1. 2-year, 5-year, 10-year, 20-year, 30-year, and 40-year JGBs are classified by residual maturity in 6-month intervals.
2. Figures for the amounts outstanding are as of the end of December 2018.

[31] See Box 5.

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.

The Bank continued to offer three outright purchases per month. However, it offered slightly smaller purchases than in fiscal 2017 (200-550 billion yen) with 200-500 billion yen per operation, given that the residual maturity of CP purchased by the Bank grew longer as the maturity of CP lengthened. Therefore, the downward trajectory in the offered amount continued unabated (Chart 4-12). 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 4-13).

The lowest accepted bid yield for outright purchases of CP remained in very shallow negative territory (Chart 4-14).

Chart 4-12: Offered Amount of Outright Purchases of CP

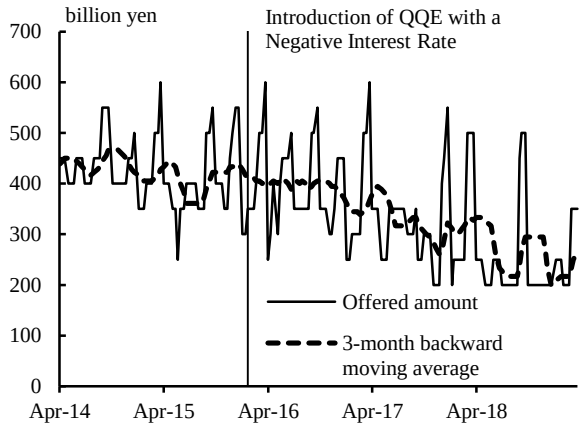


Chart 4-13: Amounts Outstanding of CP Purchased and Amounts of Monthly Purchases of CP

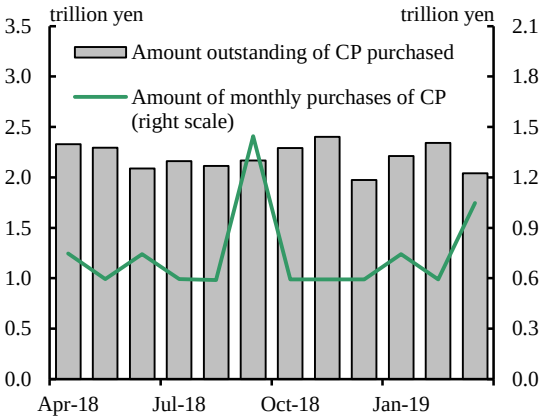
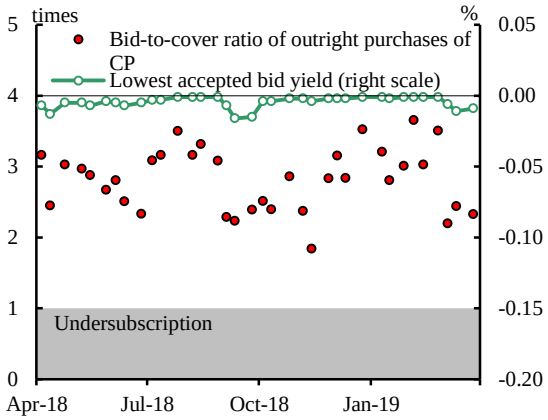


Chart 4-14: Bid-to-Cover Ratios and Lowest Accepted Bid Yields of Outright Purchases of CP



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 50-175 billion yen per operation, considering the redemption schedules of the bonds purchased by the Bank (Chart 4-15).

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 low level in the first half of the fiscal year. Given this, the lowest accepted bid yield for outright purchases of corporate bonds remained somewhat deep in negative territory. However, the amount outstanding of corporate bonds eligible for purchase through the Bank's operations rose over the second half of the fiscal year, and there was also a heightened need to sell the bonds through the Bank's operations when credit spreads on corporate bonds widened somewhat from December 2018. As a result, the lowest accepted bid yield rose into positive territory (Chart 4-16).

Chart 4-15: Amounts Outstanding of Corporate Bonds Purchased and Amounts of Monthly Purchases of Corporate Bonds

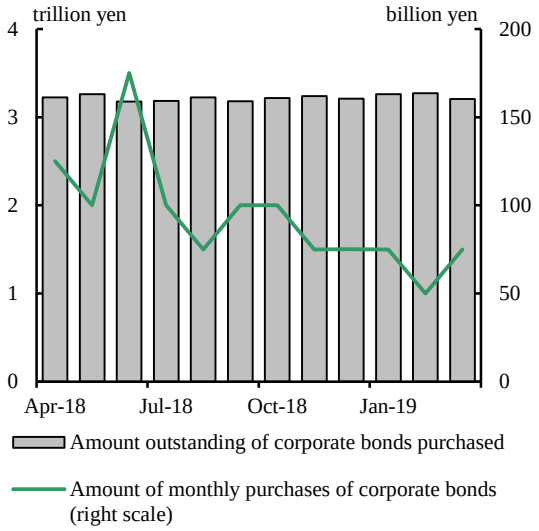
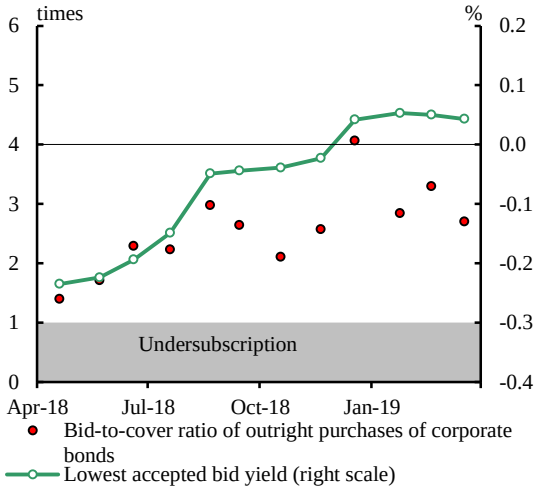


Chart 4-16: Bid-to-Cover Ratios and Lowest Accepted Bid Yields of Outright Purchases of Corporate Bonds



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. As part of the guidelines for asset purchases, at the MPM held on July 30 and 31, 2018, the Bank stated that, with a view to lowering risk premia of asset prices in an appropriate manner, it may increase or decrease the amount of purchases depending on market conditions. Meanwhile, the Bank continued to purchase ETFs composed of stocks issued by "firms that are proactively investing in physical and human capital" at an annual pace of about 300 billion yen as decided at the MPM held on December 17 and 18, 2015.

Under such circumstances, the Bank offered 76 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 2018. As a result, the amount outstanding of ETFs purchased by the Bank at the end of March 2019 stood at 24.8 trillion yen. Furthermore, the amount of monthly purchases of ETFs (based on trade date) stood at 168.2-870 billion yen during fiscal 2018 (Chart 4-17).

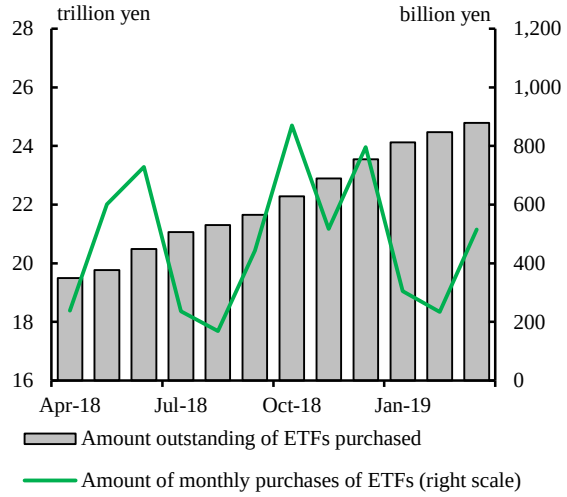
Meanwhile, at the MPM held on July 30 and 31, 2018, the Bank decided to revise the purchase amount of each ETF and increase that of ETFs which track the TOPIX and made adjustments in line with this decision (see Chapters V.A and V.B.1.).

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. As part of the guidelines for asset purchases, at the MPM held on July 30 and 31, 2018, the Bank stated that, with a view to lowering risk premia of asset prices in an appropriate manner, it may increase or decrease the amount of purchases depending on market conditions.

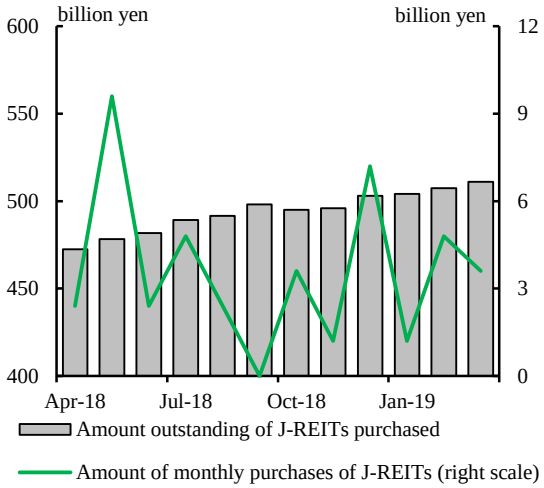
Under such conditions, the Bank offered 36 purchases during fiscal 2018, and the amount outstanding of J-REITs purchased by the Bank at the end of March 2019 stood at 517.9 billion yen. The amount of monthly purchases of J-REITs (based on trade date) stood at 0-9.6 billion yen during fiscal 2018 (Chart 4-18).

Chart 4-17: Amounts Outstanding of ETFs Purchased and Amounts of Monthly Purchases of ETFs



Note: "Amount of monthly purchases of ETFs" is based on trade date. The same applies to Chart 4-18.

Chart 4-18: Amounts Outstanding of J-REITs Purchased and Amounts of Monthly Purchases of J-REITs



E. Other Operations

1. Funds-Supplying Operations against Pooled Collateral

The Bank continued to offer Funds-Supplying Operations against Pooled Collateral with a fixed interest rate of 0 percent generally once a week.

The Bank flexibly adjusted the offered amount and the term of the operations according to such factors as the market conditions at the time. Specifically, the Bank, up through April 2018, offered operations with a 2-week term at a pace of 800 billion yen per operation once a week and those with roughly a 100-day term at a pace of 500 billion yen per operation at a frequency of once every seven weeks. However, the Bank, from May, ceased to offer operations with roughly a 100-day term, instead only offering those with a 2-week term. This was because there was a growing need among financial institutions to make fine-tuning adjustments to their current account balances at the Bank since the introduction of QQE with a Negative Interest Rate, which in turn led to sluggish use of longer-term operations. Thereafter, the Bank offered operations with a 3-week term -- and not those with a 2-week term -- over the end of December, in light of the number of actual business days during the New Year holiday. From March 2019, the Bank increased the offered amount (from 800 billion to 1500 billion yen), based on the fact that the bidding amount rose somewhat reflecting such factors as the demand for cash flow from financial institutions. In addition, on March 8, 2019, the Tokyo repo rate (T/N) rose to minus 0.006 percent, and on this basis, the Bank offered an operation with a 1-day term and a start date of March 11 (T/N).

As a result, the amount outstanding of the operations stood at 0.7 trillion yen at the end of March 2019, an increase of 0.3 trillion yen from a year earlier (Charts 4-19 and 4-20).

Chart 4-19: Amounts Outstanding and Amounts of Monthly Operations of the Funds-Supplying Operations against Pooled Collateral

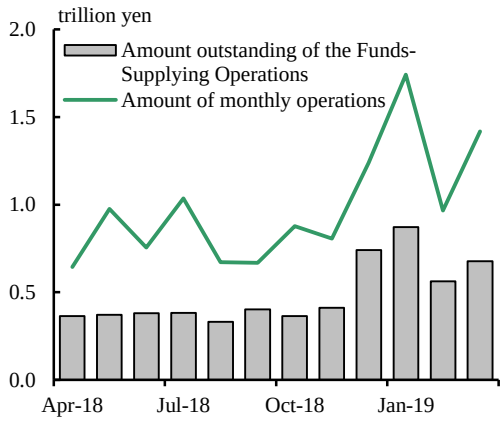
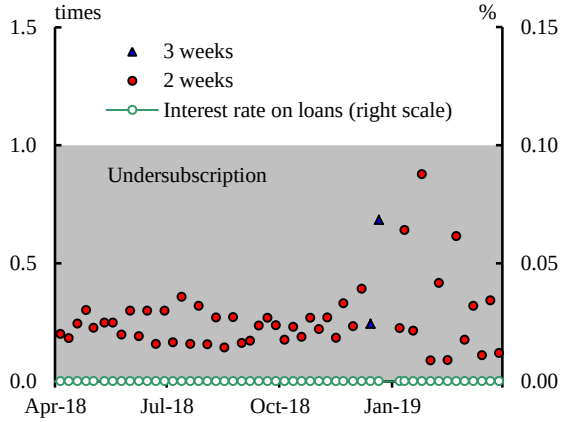


Chart 4-20: Bid-to-Cover Ratios of the Funds-Supplying Operations against Pooled Collateral



2. Growth-Supporting Funding Facility

During fiscal 2018, 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 4-21). 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 2019, the outstanding balance of loans under the main rules reached 6.3 trillion yen, a decrease 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 17.7 billion yen (a decrease of 12.1 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 13 billion yen (a decrease 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 (a decrease of 0.02 billion dollars from the year-earlier level) out of the ceiling of 24.0 billion dollars (Chart 4-22).

Chart 4-21: Loan Disbursement under the Growth-Supporting Funding Facility

(Main rules)

100 million yen

32nd (May 30, 2018)	33rd (Aug. 30)	34th (Nov. 29)	35th (Feb. 27, 2019)	Outstanding balance of loans (as of end-Mar. 2019)
5,222	2,910	4,099	2,852	63,216 (18,387)

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

100 million yen

28th (May 29, 2018)	29th (Aug. 29)	30th (Nov. 28)	31st (Feb. 26, 2019)	Outstanding balance of loans (as of end-Mar. 2019)
13	8	3	1	177

(Special rules for small-lot investments and loans)

100 million yen

25th (May 29, 2018)	26th (Aug. 29)	27th (Nov. 28)	28th (Feb. 26, 2019)	Outstanding balance of loans (as of end-Mar. 2019)
7.38	7.66	5.98	6.80	129.99 (66.05)

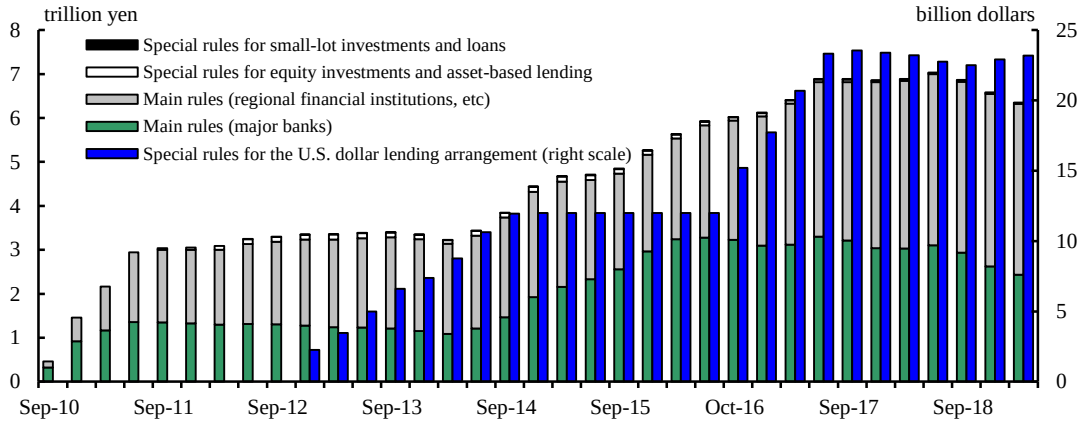
(Special rules for the U.S. dollar lending arrangement)

million U.S. dollars

24th (May 29, 2018)	25th (Aug. 29)	26th (Nov. 28)	27th (Feb. 26, 2019)	Outstanding balance of loans (as of end-Mar. 2019)
1,450	1,399	832	575	23,187

Notes: 1. The date in parentheses is the offer day, and the value denotes new loans. The same applies to Charts 4-23, 4-25, and 4-26.
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 to Chart 4-23.

Chart 4-22: Amounts Outstanding of the Growth-Supporting Funding Facility



3. Stimulating Bank Lending Facility

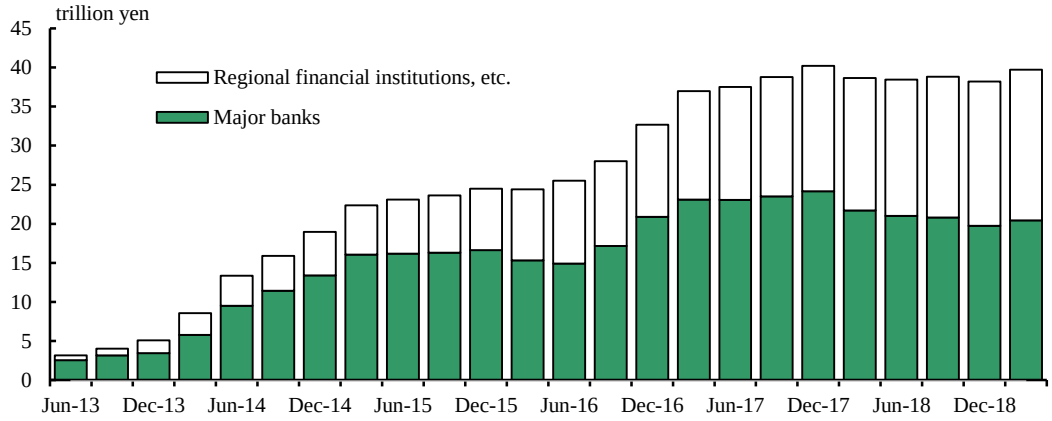
During fiscal 2018, the Bank disbursed loans once a quarter, four times in total, under the Stimulating Bank Lending Facility (Chart 4-23). All of these loans were offered with an interest rate of 0 percent per annum. The outstanding balance at the end of March 2019 reached 39.7 trillion yen, an increase of 1.1 trillion yen from a year earlier (Chart 4-24).

Chart 4-23: Loan Disbursement under the Stimulating Bank Lending Facility

100 million yen

Jun. 2018 (Jun. 18)	Sep. 2018 (Sep. 12)	Dec. 2018 (Dec. 12)	Mar. 2019 (Mar. 14)	Outstanding balance of loans (as of end-Mar. 2019)
17,559	10,663	17,417	37,714	397,226 (31,596)

Chart 4-24: Amounts Outstanding of the Stimulating Bank Lending Facility



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

During fiscal 2018, the Bank disbursed loans once a month, 12 times in total (Chart 4-25). 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 2019 stood at 407.5 billion yen out of the ceiling of 1 trillion yen (an increase of 3.6 billion yen from the year-earlier level).

Chart 4-25: Loan Disbursement under the Funds-Supplying Operation to Support Financial Institutions in Disaster Areas

100 million yen

84th (Apr. 16, 2018)	85th (May 14)	86th (Jun. 8)	87th (Jul. 13)	88th (Aug. 20)	89th (Sep. 14)
1,068	0	494	1,105	428	807

90th (Oct. 15)	91st (Nov. 20)	92nd (Dec. 19)	93rd (Jan. 16, 2019)	94th (Feb. 20)	95th (Mar. 19)	Outstanding balance of loans (as of end-Mar. 2019)
102	0	71	0	0	0	4,075

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

During fiscal 2018, the Bank disbursed loans once a month, 12 times in total (Chart 4-26). 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 2019 stood at 277.3 billion yen out of the ceiling of 300 billion yen (an increase of 189.1 billion yen from the year-earlier level).

Chart 4-26: Loan Disbursement under the Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake

100 million yen

23rd (Apr. 16, 2018)	24th (May 14)	25th (Jun. 8)	26th (Jul. 13)	27th (Aug. 20)	28th (Sep. 14)
200	300	1,763	0	500	0

29th (Oct. 15)	30th (Nov. 20)	31st (Dec. 19)	32nd (Jan. 16, 2019)	33rd (Feb. 20)	34th (Mar. 19)	Outstanding balance of loans (as of end-Mar. 2019)
8	0	0	2	0	0	2,773

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.

During fiscal 2018, 362 auctions were carried out in which 2,395 issues were requested, both remaining at high levels as in fiscal 2017 (when 336 auctions were carried out in which 1,571 issues were requested) (Charts 4-27 and 4-28). Moreover, at quarter-ends, since some financial institutions refrain from borrowing cash (lending JGSs) in the SC repo market, there continued to be a tendency for both the number of issues requested and those offered to increase.

Meanwhile, from May 1 to 11, 2018, the Bank, with a view to supporting the smooth transition of market participants to a shortened JGB settlement cycle (see Chapter VI.4.), implemented temporary operational changes to the Securities Lending Facility as precautions against the tightening of supply and demand conditions of JGBs in the repo market until market participants become familiar with the new market practice, and made the Securities Lending Facility available three times a day. However, many market participants took a conservative approach, such as undertaking the necessary preparations in advance via repo transactions with longer maturities, so the actual use of the facility was limited.

Looking at the extent to which the facility was used in fiscal 2018 in slightly greater detail, from late July, the trading volume of cash JGBs increased, amid somewhat volatile interest rates. In addition, as a result of the Bank's large-scale purchases of JGBs during this period, the amount outstanding of cash JGBs in the market plunged rapidly, centered mainly on new issues. For these and other reasons, the amount of successful bids for the Securities Lending Facility temporarily rose significantly. In particular, the Bank's offer of the Securities Lending Facility in the morning on July 31 -- the day after the fixed-rate purchase operation was carried out on July 30 -- was met with large bids for 10-year JGBs, issue number 351, and the average successful bid rate fell significantly to minus 4.76 percent (Chart 4-29).[32] Furthermore, as mentioned above, during fiscal 2018, issues with a particularly small amount outstanding in the market served as the CTDs for JGB futures, based on which the number of bids increased centered

[32] In August, the Bank brought to attention that bidding in JGB and T-Bill operations which assumes the use of the Securities Lending Facility is prohibited. This reflected factors such as the reduction in the settlement amount, as mentioned in Note 27 in Chapter IV.C.

mainly on such issues.

Chart 4-27: Number of Securities Lending Facility Auctions

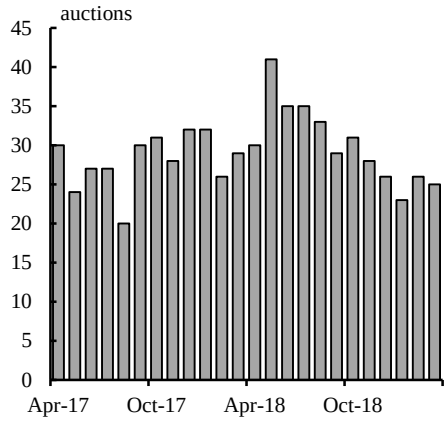


Chart 4-28: Requests for Offers and Acceptance of Bids through the Securities Lending Facility

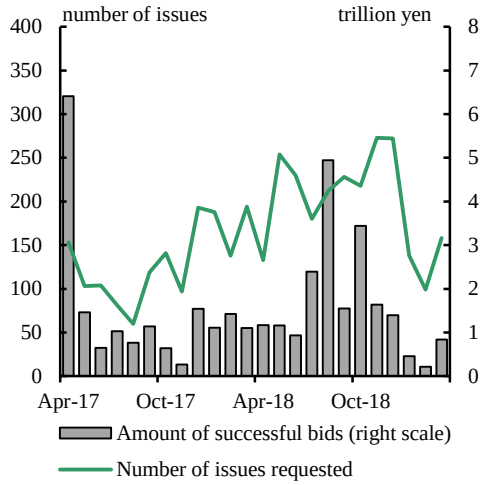
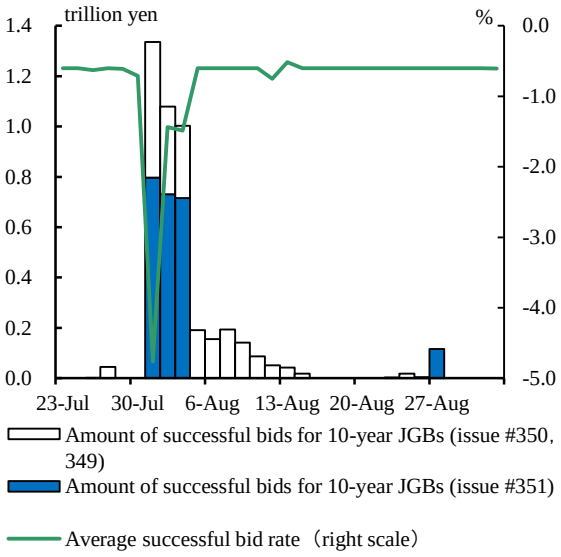


Chart 4-29: Amounts of Successful Bids and Average Successful Bid Rate for Issues Eligible for Purchase through Fixed-Rate Purchase Operations



Note: 10-year JGBs, issues #349 to #351, were eligible for purchase through the fixed-rate purchase operation on July 30, 2018

7. U.S. Dollar Funds-Supplying Operations

During fiscal 2018, 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 market participants find difficulty in obtaining U.S. dollars despite adequate efforts to obtain them in the markets, due to heightened tensions in U.S. dollar money markets, or when there is a substantial rise in the U.S. dollar funding rate.

With respect to the use of these operations during fiscal 2018, bidding for offers other than those that matured over the end of December 2018 was limited to several per month in small amounts to confirm and maintain operational procedures. The amount of bidding for offers that matured over the end of December 2018 was small at 0.01 billion U.S. dollars, mainly given that Japanese investors frontloaded their borrowing of U.S. dollars.

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

During fiscal 2018, the use of the facility was limited to small amounts to confirm operational procedures.

F. Complementary Lending Facility

During fiscal 2018, the use of the facility was limited to small amounts to confirm operational procedures. This reflected 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

A. Strengthening the Framework for Continuous Powerful Monetary Easing

At the MPM held on July 30 and 31, 2018, the Bank, with a view to persistently continuing with powerful monetary easing, decided to strengthen its commitment to achieving the price stability target by introducing forward guidance for policy interest rates, and to enhance the sustainability of QQE with Yield Curve Control.

Specifically, the Bank, under the framework of yield curve control, set the following guideline for market operations.

> The short-term policy interest rate: The Bank will apply a negative interest rate of minus 0.1 percent to the policy-rate balances in current accounts held by financial institutions at the Bank.
> The long-term interest rate: The Bank will purchase JGBs so that 10-year JGB yields will remain at around 0 percent. While doing so, the yields may move upward and downward to some extent mainly depending on developments in economic activity and prices.[33] With regard to the amount of JGBs to be purchased, the Bank will conduct purchases in a flexible manner so that their amount outstanding will increase at an annual pace of about 80 trillion yen.

With regard to asset purchases other than JGB purchases, the Bank set the following guidelines for purchases of ETFs and J-REITs.

> 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. With a view to lowering risk premia of asset prices in an appropriate manner, the Bank may increase or decrease the amount of purchases depending on market conditions.

In addition, the Bank made the following adjustments in accordance with the measures described above.

(i) Change in the size of the policy-rate balance

[33] In case of a rapid increase in the yields, the Bank will purchase JGBs promptly and appropriately.

The Bank, under the condition that yield curve control can be conducted appropriately, will reduce the size of the policy-rate balance in financial institutions' current account balances at the Bank -- to which a negative interest rate is applied -- from the current level of about 10 trillion yen on average. This balance is calculated assuming that arbitrage transactions take place in full among financial institutions.

(ii) Change in the amount of each ETF to be purchased

The Bank will revise the purchase amount of each ETF and increase that of ETFs which track the TOPIX.

B. Other Changes in Frameworks

1. Change in the Amount of Each ETF to Be Purchased

At the MPM held on July 30 and 31, 2018, the Bank decided to increase the purchase amount of ETFs which track the TOPIX with respect to the purchase amount of each ETF.

In accordance with this decision, the Bank made the following changes to the amount of each ETF to be purchased using 5.7 trillion yen out of the 6 trillion yen that it devotes to purchasing ETFs each year, excluding the purchases of ETFs composed of stocks issued by firms that are proactively investing in physical and human capital (annual purchase of 300 billion yen), and conducted purchases of ETFs from August 6, 2018.

(i) The Bank will use 1.5 trillion yen (3 trillion yen before the change) to purchase ETFs which track any of the three indices (the TOPIX, the Nikkei 225 Stock Average, or the JPX-Nikkei Index 400) so that the Bank's purchases will roughly be proportionate to the total market value of that ETF issued.

(ii) The Bank will use the remaining 4.2 trillion yen (2.7 trillion yen before the change) to purchase ETFs which track the TOPIX so that the Bank's purchases will roughly be proportionate to the total market value of that ETF issued.

2. Establishment of Special Rules regarding Calculation of Interest of Complementary Deposit Facility for New Institutions

At the MPM held on September 18 and 19, 2018, the Bank decided to include the amount calculated by multiplying the average amount of the current account balance and the special reserve account balance at the Bank during the Deemed Benchmark Period[34] by the Benchmark Ratio to the macro add-on amount for New Institutions (institutions which became eligible for the complementary deposit facility from January 16, 2016 and do not have Benchmark Balances), effective from the October 2018 reserve maintenance period.

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

At the MPM held on January 22 and 23, 2019, 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.

4. Shortening of the Settlement Cycle for Purchases of JGBs and Other Operations

Following the shortening of the JGB settlement cycle effective May 1, 2018, the Bank, from this date onward, shortened the number of days from offer to start for purchases of JGBs and purchases of T-Bills from two business days (T+2) to one business day (T+1). Moreover, in conjunction with this, the Bank also shortened the number of days from offer to start for (Fixed-Rate) Funds-Supplying Operations against Pooled Collateral among forward-day operations.

5. Clarification of Procedures to Suspend Offers to Counterparties, and to Exclude them as Eligible Counterparties, etc.

[34] The period between the reserve maintenance period which includes the day a New Institution becomes eligible and the reserve maintenance period which includes the day 11 months later.

In October 2018, the Bank clarified procedures (suspending offers to the counterparties, excluding them as eligible counterparties, etc.) in cases where eligible counterparties for market operations violate compliance rules. Specifically, these covered not only the Bank's purchases of JGBs and other JGB-related operations, for which procedures have been specifically laid out, but all market operation transactions. In addition, the Bank defined the preconditions and explained the details of the procedures including for cases other than where eligible counterparties fail to deliver JGBs.

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 2018 related to dialogue with market participants as follows:

1. Holding of the Meeting on Market Operations[35]

The Meeting on Market Operations, which in principle is held twice a year with eligible counterparties for market operations, was held on October 23, 2018, and February 22, 2019. 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 the results of the Tokyo Money Market Survey [August 2018]), and (4) exploring interest rate benchmark reforms at home and abroad.[36]

2. Holding of the Bond Market Group Meeting

The Bond Market Group Meeting, which in principle is held twice a year with bond market participants, was held on June 6 and 7, 2018, and from December 5 to 7. 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.[37]

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[35] The Japanese name for the Meeting on Market Operations was changed starting with the meeting held in February 2019. The English name remained unchanged.

[36] See below for summaries of the Meeting on Market Operations held in fiscal 2018.
The October 2018 meeting (second round of 2018):
http://www.boj.or.jp/en/announcements/release_2018/rel181024b.pdf
The February 2019 meeting:
http://www.boj.or.jp/en/announcements/release_2019/rel190225a.pdf

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

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

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 22, 2018. At this meeting, the Bank exchanged opinions on (1) recent developments in short-term money markets and (2) initiatives for interest rate benchmark reform, among other issues.

4. Dialogue on the Shortening of the JGB Settlement Cycle

As mentioned above, a shortened JGB settlement cycle was implemented, effective May 1, 2018. As an observer, the Bank participated in a working group comprising representatives from each sector that undertake transactions in the JGB market and repo market, and actively supported the implementation of the shortened JGB settlement cycle. After the implementation of the shortened JGB settlement cycle, the Bank continued to monitor developments in the JGB and repo markets, among others. In the Tokyo Money Market Survey released on October 12, 2018, the Bank comprehensively surveyed money market participants on the transition to the shortened JGB settlement cycle and passed on the results to market participants.[38][39]

5. Establishment of the Cross-Industry Committee on Japanese Yen Interest Rate Benchmarks

In light of the global developments surrounding interest rate benchmarks, the Cross-Industry Committee on Japanese Yen Interest Rate Benchmarks was established on August 1, 2018 to

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[38] For details, see the Bank's website (http://www.boj.or.jp/en/paym/market/market1811.htm/).

[39] Also, the "Trends in Market Transactions after the Shortening of the JGB Settlement Cycle (to T+1) -- particularly in the Repo Market --" released on May 30, 2019 (http://www.boj.or.jp/research/brp/ron_2019/ron190530a.htm/) (available only in Japanese), examines initiatives involving market infrastructures particularly in the repo market, that is, shortening the settlement cycle, facilitating use of a new type of repo transactions, and increasing the number of clearing participants, and outlines actual transactions after the shortening of the JGB settlement cycle to T+1.

conduct the necessary deliberations with aims to facilitate market participants and interest rate benchmark users to appropriately choose and use Japanese yen interest rate benchmarks. The Committee comprises a diverse set of market participants and interest rate benchmark users, including financial institutions, institutional investors, and non-financial corporates. The Bank participates as an observer, while also serving as its secretariat.

The Committee deliberates on (1) developing recommendations for the stocktaking of ideas on the appropriate choice and usage of Japanese yen interest rate benchmarks; (2) identifying specific challenges arising from (1) above and proposing solutions; and (3) developing transition plans based on (1) and (2) above for a new framework enabling the use of Japanese yen interest rate benchmarks. These deliberations include issues such as ensuring the robustness of financial contracts in case the publication of existing interest rate benchmarks such as LIBOR is discontinued permanently, as well as developing the term structure of risk-free reference rates that might be needed for the transition from IBORs to risk-free reference rates.[40]

[40] For details, see the Bank's website (http://www.boj.or.jp/en/paym/market/jpy_cmte/index.htm/).

Reference: Number of Auctions and Eligible Counterparties for Market Operations

numbers

	Fiscal 2013	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Number of eligible counterparties
Outright purchases of JGBs	295	359	372	388	392	354	53
Outright purchases of T-Bills	53	50	50	48	50	50	50
Outright purchases of CP	36	36	36	36	36	36	35
Outright purchases of corporate bonds	12	12	12	12	12	12	35
Outright purchases of ETFs	77	71	86	93	81	76	—
Outright purchases of J-REITs	77	66	67	74	75	36	—
Funds-Supplying Operations against Pooled Collateral	111	77	74	64	62	53	269
Growth-Supporting Funding Facility	37	47	59	61	62	64	161
Stimulating Bank Lending Facility	10	15	17	18	16	16	215
Funds-Supplying Operations to Support Financial Institutions in Disaster Areas	12	12	12	12	12	12	36
Funds-Supplying Operation to Support Financial Institutions in Disaster Areas of the 2016 Kumamoto Earthquake	—	—	—	10	12	12	12
Purchases of JGSs with repurchase agreements	0	0	1	0	0	0	50
Sales of JGSs with repurchase agreements	0	0	0	1	0	0	49
U.S. Dollar Funds-Supplying Operations	64	53	49	51	50	48	70
Securities Lending Facility	48	102	192	344	336	362	49
Total	832	900	1,027	1,212	1,196	1,131	—

Notes: 1. The number of auctions (excluding outright purchases of ETFs and J-REITs) is the number of the Bank's notification of auction guidelines (offer) to eligible counterparties.
2. The number of eligible counterparties is as of end-March 2019. 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 outright purchases of ETFs excludes purchases of ETFs to support firms proactively investing in physical and human capital (offered every business day since April 4, 2016).

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