2 Secondary Market for Government Bonds

Not only are government bonds a means for government financing, but they are also financial products traded on the ever-changing financial markets at the same time. For JGBs to be issued smoothly and fulfill their functions as indicators of bonds and interest rates, transparency and liquidity must be assured and secondary markets with reliable and efficient settlement must exist. This chapter outlines JGB market liquidity maintenance and enhancement initiatives, as well as how JGBs are traded on the market and how JGB transactions are settled.

(1) JGB Market Liquidity Maintenance and Enhancement

If the JGB market is liquid enough to allow investors to freely trade in JGBs in line with their respective interest rate outlooks and investment strategies, it will contribute to holding down medium to long-term fundraising costs. Therefore, the JGB issuance authority pays attention to the JGB market liquidity.

While liquidity is defined variously, with no strict definition existing, high liquidity is generally explained as allowing market participants to promptly buy or sell as much as they want at prices close to market prices. In order to assess JGB market liquidity, we must combine various indicators to analyze the market from a multifaceted perspective, instead of depending on a limited range of specific indicators.

The secondary JGB market consists of JGB Market Special Participants and other brokers, and various investors. The maintenance and enhancement of JGB market liquidity depends basically on the market's autonomous functions backed by transactions between such market participants. However, the JGB issuance authority complements JGB market liquidity by adjusting issuance amounts, maturities, reopening and other matters.

Specifically, the government has taken the following measures to maintain and enhance JGB market liquidity:

- Conducting Liquidity Enhancement Auctions to add to past issues (☞①)
- Reopening past issues (☞②) to expand the volume of each issue

The government has also held the Meeting of JGB Market Special Participants and the Meeting of JGB Investors (☞③) to identify market conditions through exchange of opinions with market participants.

☞① Ref: Chapter 1 3(2) "Liquidity Enhancement Auctions" (P86).
☞② Ref: Chapter 1 1(3) Ab "Reopening rule" (P44).
☞③ Ref: Chapter 1 3(5) "Dialogue with Market Participants" (P90).

(2) OTC Transactions and Transactions on the Stock Exchange

The secondary market can be divided into transactions that take place on the Stock Exchange and transactions that are made over-the-counter, for example, at securities companies (OTC transaction). OTC is a predominant transaction method for bonds because bonds have so many issues that their transactions and procedures on the Stock Exchange tend to be complicated and bond transactions are complex.

In the OTC market, in principle, a price is concluded through a negotiation between the parties concerned. However, in order to ensure fair and smooth OTC bond transactions, Self-regulatory Regulations by the Japan Securities Dealers Association require each securities company to maintain the fairness of the transaction by acting at a proper price according to a set of internal rules (☞).

☞ Furthermore, to improve the price discovery function of the OTC market, the Japan Securities Dealers Association publishes reference statistical prices [yields] for OTC bond transactions on every business day, based on the reports from its member security companies and some other firms. As financial institutions often engage in OTC transactions through their brokers, such transaction price data are available from these brokers.

Currently, 2-Year, 5-Year, 10-Year, 20-Year, 30-Year and 40-Year JGBs are listed on the Stock Exchange in Tokyo and Nagoya, and their transaction volume is published.

Fig. 2-10 Case of the Tokyo Stock Exchange

Particulars	JGB Trading System
Trading Hours	12:30 pm - 2:00 pm
Trading Unit	JPY 50,000 in par value
Tick Size	JPY 0.01
Types of Orders	Limit orders only (Market orders are not available)
Daily Price Limit	JPY 1
Trading Method	Orders are accepted only via Target (electronic document submission system of TSE)
Trade Execution	Individual auctions for each issue
Types of Trading and Settlement Dates	Regular transactions (T+1)
Settlement	Settlement through BOJ-NET

(Source) Japan Exchange Group

(3) Improvements to the JGB Transaction Settlement System

Ref: Chapter 1 1(5)B "The Bank of Japan government bond network system" (P50)

As for the book-entry transfer system for JGB transactions on the secondary JGB market, the Bank of Japan is designated as the transfer institution under the "Act on Book-Entry Transfer of Corporate Bonds and Shares" and operates the system. The system uses book-entry transfer for JGB delivery accompanying JGB transactions between market participants. Practically, settlements are conducted through the BOJ-NET JGB Services in which many private financial institutions participate.

The MOF has developed the JGB transaction settlement system in cooperation with the BOJ and other stakeholders to improve the safety and efficiency of the JGB market. The following section reviews the deliberations concerning the JGB transaction settlement system to date.

A. Improving and reconstructing BOJ-NET functions

In 1994, the BOJ-NET adopted Delivery-versus-Payment (DVP) settlement (☞①), and in January 2001 changed from the Designated-time Net Settlement (DTNS) (☞②) to Real-Time Gross Settlement (RTGS) (☞③), to prevent the occurrence of any systemic risk event.

The BOJ began to construct a new system (hereinafter referred to as the New BOJ-NET) in 2008 to further improve the safety and efficiency of the entire settlement system of Japan. The New BOJ-NET came into full operation in 2015. Its operation hours were extended until 21:00 in 2016.

B. Establishment and propagation of the Fails Practice

"Fail" refers to a case of non-delivery of specific securities by the scheduled time due to reasons other than the creditworthiness of the relevant trade counterparty. "Fails Practice" refers to a market routine that prescribes general clerical procedures to be performed between the parties in a Fail instance and provides as a principle that a Fail event does not automatically imply default (☞①).

Fails Practice was introduced in January 2001 when the RTGS system for JGB settlement was adopted in Japan. Back then, a fair number of parties neither understood the need for Fails Practice nor had the clerical processing frameworks in place, which prevented Fails Practice from becoming established procedure. However, in connection with the collapse of the investment bank Lehman Brothers in September 2008, default contagion caused an unprecedented surge in Fail events. Subsequently, as a means for market participants to reduce Fail risk, avoiding new repurchase transactions altogether became increasingly widespread, which reduced liquidity not only in the repurchase (repo) market but also in the JGB market. Based on such experience, Fails Practice was revised since November 2010 to introduce Fails Charge (☞②) and accelerate Cut-Off Time (☞③).

C. Shortening of settlement periods

An increase in unsettled transactions through defaults and fails after the September 2008 global financial crisis prompted market participants to strongly perceive settlement risks, leading once again to the realization that shortening settlement periods would be indispensable for effectively reducing unsettled transactions. Based on this experience and deliberations at

☞① DVP (Delivery-versus Payment) settlement of JGBs is a mechanism that prevents the occurrence of a situation in which "payment for securities is not received despite the delivery of the securities having been made" or where "securities are not delivered despite the payment of funds having been made," by making the delivery of securities and payment therefore conditional on each other.

☞② The DTNS (Designated-Time Net Settlement) system is designed to hold and accumulate various orders received for book entry transfers (payment orders) until a certain time, and at that time, pay or receive only the difference between the total amount receivable and the total amount payable as of such time. Under this settlement method, one single payment default at the time of settlement will cause the settlement of any and all payment orders issued by all participating financial institutions to be suspended and reversed, and by extension, may cause a systemic risk.

☞③ The RTGS (Real-Time Gross Settlement) system is a mechanism to transfer in real time the gross amount of each transfer order as received. By this method, settlement is effected for each transfer order. Any single payment default will only directly affect the counterparty of that order (which mitigates any systemic risk).

☞① Specifically, in case of a Fail event, neither will the right of contract cancellation be exercised nor will a penalty for late payment be imposed, in principle. If the Fail duration is prolonged, Buy-In provisions, etc., are stipulated as a method of resolution.
"Buy-In" means the purchase of the deliverable securities or identical securities by the recipient to resolve a Fail status that has continued for a certain period.

☞② "Fails Charge" means a payment imposed on the party that gives rise to a Fail event by failing to deliver. The Fails Charge was introduced for its conceivable power to reduce Fail frequency on the grounds of its compelling economic rationale, especially in a low-interest environment (For details refer to the relevant regulations including the "The Japanese Government Securities Guidelines for Real Time Gross Settlement").

☞③ Cut-Off Time refers to a daily settlement closing time established among market participants that occurs before the end of JGB related operations on the BOJ-NET in order to identify "fail events," etc., ahead of the end of settlement for the day. Currently the Cut-Off Time is set at 14:00.

the Working Group on Shortening of JGB Settlement Cycle established as a subordinate organ of the Promotion Meeting for Reform of the Securities Clearing and Settlement (☞①), the standard settlement period for JGB transactions was shortened to T+2 on April 23, 2012, and to T+1 on May 1, 2018 (☞②).

D. Establishing a clearing institution and expanding its use

Together with the change in January 2001 to JGB settlement by RTGS, Bilateral Netting (☞①) was also introduced. Since in the JGB market outright transactions and repurchase transactions are being carried out constantly by multiple market participants, settling all transactions by individual counterparty would render clerical procedures complicated and highly inefficient, and also compel consideration of counterparty risk when making transactions. With regard to transactions contracted between market participants, this situation gave rise to the demand for an arrangement in which payments and JGBs deliveries of JGB transactions are netted under the guarantee of settlement implementations by a clearing institution taking the position between parties (☞②).

In October 2003 the Japan Government Bond Clearing Corporation (JGBCC (Japan Securities Clearing Corporation or JSCC at present) (☞③)) was established as the Central Counterparty (CCP) for the JGB market. As a result, the relation of rights and obligations contracted between JGBCC participants was simplified to the effect that rights and obligations now exist between the JGBCC and each participant, with each party's counterparty risk now posed by the JGBCC instead of the transaction counterparty. Moreover, since participants and the JGBCC settle only the net balance of funds and identical JGB issues, the amounts of settlements, and funds and JGBs necessary for settlement, as well as their exposures during the day are significantly lower than before.

Later, clearing functions were improved through the enhancement of JGBCC governance and the participation in the JGBCC by trust banks that account for a large share of JGB transaction settlements.

☞① The "Promotion Meeting for Reform of the Securities Clearing and Settlement" is established under the "Committee for Reform of Securities Clearing and Settlement System" which is hosted by the Japan Securities Dealers Association. Its purpose is to engage, from an overarching, cross-sectional perspective, in the progress management of the securities settlement system reform and in the discussion of topics that cut across products and industries.

☞② As for the period between a JGB auction and issuance, T (auction date) +1 was also implemented for auctions from May 1, 2018, in principle (See Chapter 1 1(5)D "Shortening of Settlement Cycles in Primary JGB Market" (P52)).

☞① Bilateral netting is a method for the settlement of the difference between the various JGB delivery obligations and JGB payment obligations of two counterparties in situations where both types of obligation exist, as opposed to requiring each counterparty to meet each separate obligation as it falls due at the same time. All obligations are netted on each individual JGB and fund for settlement purposes. This netting process serves to reduce settlement volumes across the market as a whole.

☞② The clearing institution comes between buyers and sellers to clear credit and debt relations established between numerous parties for securities and other transactions by replacing those relations with those between the clearing institution and sellers and those between the institution and buyers.

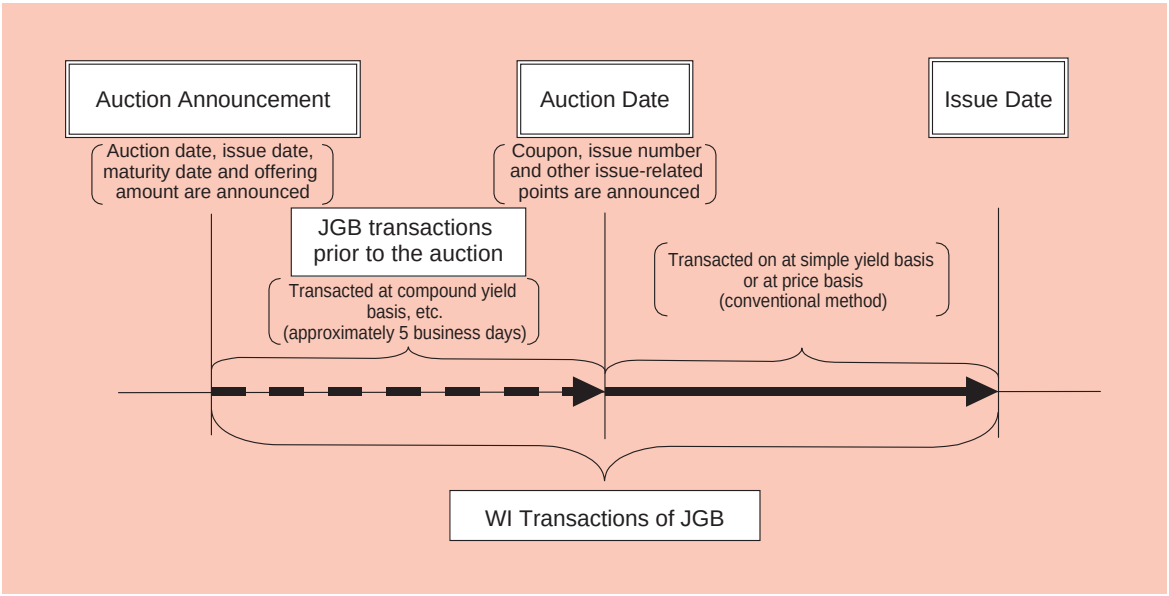
☞③ On October 1, 2013, the JSCC merged with the JGBCC and took over the JGBCC's clearing services for over-the-counter JGB trading.

(4) WI Transaction

A WI (When-Issued) transaction is a transaction made during a period between an auction announcement (in principle, a week before an auction date) and the previous day of its issuance. Besides a WI transaction during a period between an auction and the day of its issuance, one has become available prior to an auction date since February 2004.

A price of WI transactions functions as a predicted value of a bid price to be accepted because it reflects trends in the demand for a new issue prior to its auction. For the issuer, active WI transactions are considered to contribute to the efficiency of fundraising activities since they strengthen the linkage between the primary and secondary markets and reduce the uncertainty inherent in the auction process.

Fig. 2-11 WI Transactions - Conceptual Diagram



(5) Bond *Gensaki* and Bond-Lending Transactions

A. Bond *Gensaki* Transactions

Bond *Gensaki* Transactions are bond sales transactions in which the traded bonds are traded back in the opposite direction on a date and at a price specified in an agreement concluded in advance between the parties to the transaction.

Bond *Gensaki* Transactions were a principal fundraising means for financial institutions holding securities soon after the end of World War II. While new short-term financial products such as certificates of deposit (CDs), commercial paper (CP), and large-lot time deposits were widely accepted by investors later, however, Bond *Gensaki* Transactions have been replaced by Bond-Lending Transactions and other means because Bond *Gensaki* Transactions are subject to the securities transaction tax because they are classified as trading. Bond *Gensaki* Transactions were thus limited to those trading mainly in Treasury Bills and Financing Bills (today's Treasury Discount Bills) free from the securities transaction tax.

Following a recommendation from the "Sub-Council on the Internationalization of the Yen" under the Committee on Foreign Exchange and Other Transactions that Japan's repurchase market promote transaction formats consistent with global standards (☞①) and the abolition of the securities transaction tax in March 1999, a new Bond *Gensaki* Transaction format was introduced in April 2001 that incorporated risk management methods such as the use of a package settlement provision (☞②), margin call feature (☞③), and substitution (☞④).

Based on discussions at the Working Group on Shortening of JGB Settlement Cycle established in September 2009 (☞⑤), T+1 was implemented as the standard settlement cycle for JGB transactions on May 1, 2018. On this occasion, the settlement cycle for GC (General Collateral) repurchase transactions using unspecified bonds as collateral was shortened from T+1 to T+0, with new *Gensaki* transactions used for developing GC repos under the Subsequent Collateral Allocation Method, leading new *Gensaki* transactions to replace Bond-Lending Transactions.

Since November 2002, the BOJ has introduced JGB *Gensaki* operations using new *Gensaki* transactions in place of operations using the traditional Bond-Lending Transactions.

B. Bond-Lending Transaction

Bond-Lending Transactions are Loan Transaction that one party (a lender) lends bonds to a second party (a borrower), and after a specified period, the borrower returns bonds of the same kind and in the same amount to the lender, thereby settling the lending transaction.

Bond-Lending Transactions were introduced in 1989 concurrent with the deregulation of the short-selling of bonds to promote the development of the secondary bond market. Bond-Lending Transactions were for the most part fully uncollateralized initially because regulations were imposed on interest on cash collateral to prevent competition with the Bond *Gensaki* Transactions and because collateralized Bond-Lending Transactions using non-cash collateral such as substitute securities were shunned by market participants due to complicated clerical work.

The collapse of the Barings Bank in February 1995 served as a fresh reminder of the risk associated with unsecured dealings. In order to mitigate credit risk, Bond-Lending Transactions underwent a review towards collateralization, modeled after the U.S. repurchase

☞① "The internationalization of the yen for the 21st century—Japan's Response to Changes in Global Economic and Financial Environments," as replied to by the Council on Foreign Exchange and Other Transactions on April 20, 1999.

☞② A provision whereby if one of the two counterparties to the transaction defaults on payment, all the debts and credits under the basic agreement between them are replaced by one single monetary debt and credit (each of which is obtained by terminating all individual transactions and then offsetting the resulting loss or profit against the total collateral).

☞③ If, while transactions are being conducted, any difference arises as between the market value of the bond in a bond-lending and the value of the collateral provided because of fluctuations in bond prices, this feature permits a counterparty to claim a collateral shortage at any time.

☞④ A feature whereby, during the transaction period, another bond of equal or higher market value can be used to substitute for the bond being sold or purchased, subject to the agreement of both parties and following a notification given by one counterparty to the other of such an intention to substitute.

☞⑤ Ref: Chapter 1 2(3) C "Shortening of settlement periods" (P66).

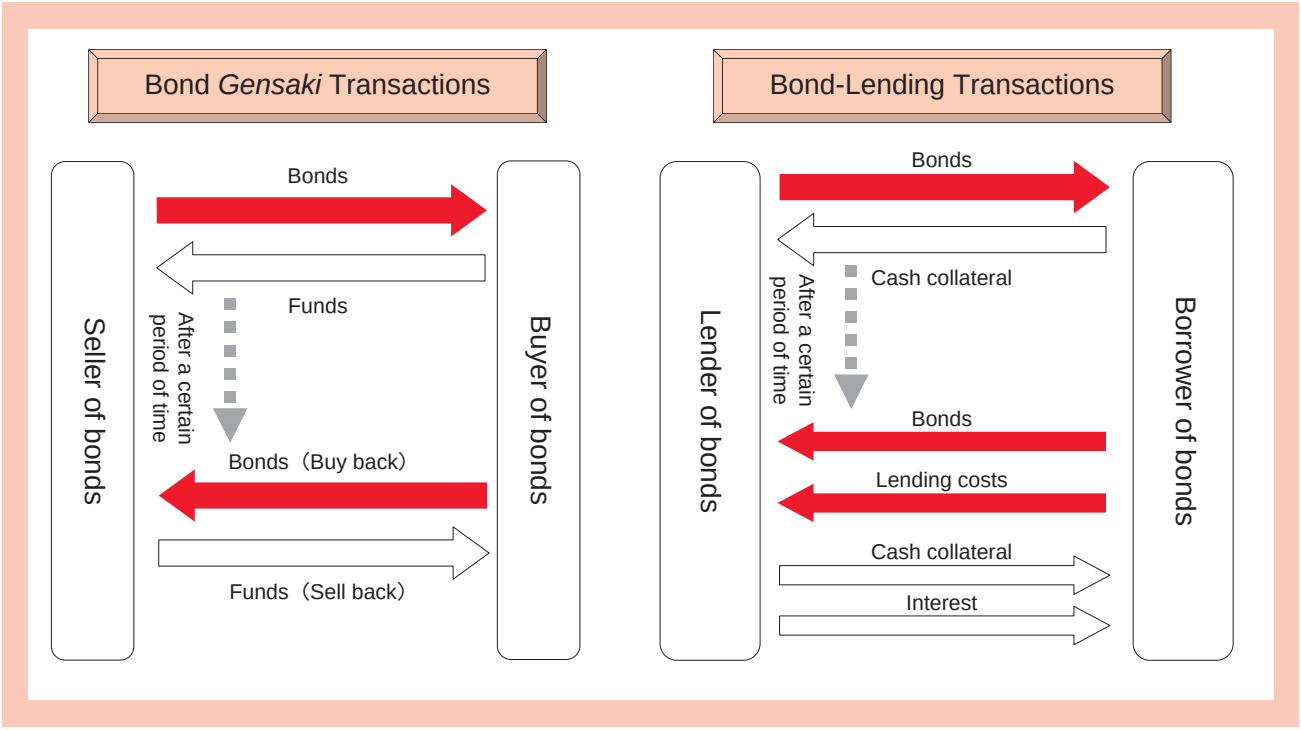
transactions. Risk management was reinforced by putting into place a package settlement provision and margin call features, and with the change to rolling settlement (☞①) of JGB transactions, the minimum limit for cash collateral was abolished along with the limit on interest. Beginning in April 1996, cash-secured Bond-Lending Transactions were initiated (☞②).

Cash-secured Bond-Lending Transactions have actively been made for GC transactions and SC (Special Collateral) transactions to procure cash bonds required for unwinding short positions on bonds. In November 1997, they were included in the operations of the BOJ. Moreover, the JGBCC in May 2005 started settlement services including repo transaction settlements (such as obligation assumption and netting) and risk management, contributing to expanding repo transactions.

☞① Rolling settlement is a method to settle transaction sequentially, when it passed by the scheduled days. Before the change, settlements were concentrated on a specific day every month.

☞② Cash-secured Bond-Lending Transactions are called "Japanese Repurchase (Repo) Transactions." While global standard repo transactions are buying and selling transactions, Japan's repo transactions center on borrowing and lending transactions (particularly for cash-secured Bond-Lending Transactions) and are called Japanese Repo Transactions discriminated from global-standard repo transactions. They are also called "cash-secured repos" or "bond-lending repos."

Fig. 2-12 Bond *Gensaki* and Bond-Lending Transactions (images)



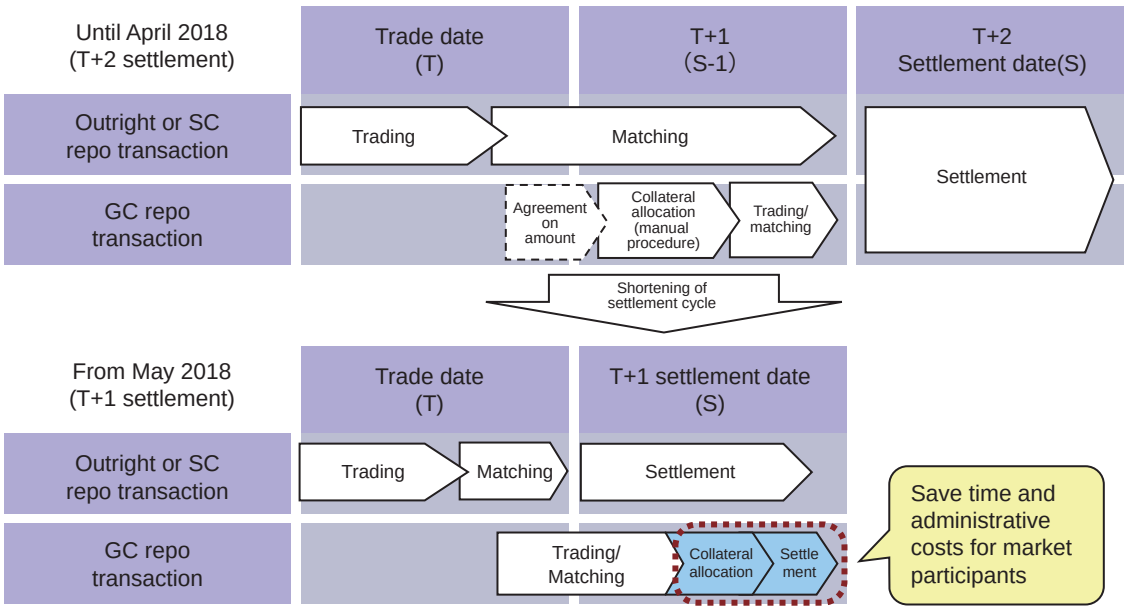
C. GC Repos under Subsequent Collateral Allocation Method

When the standard JGB settlement cycle was shortened to T+1 on May 1, 2018, the settlement cycle for ordinary JGB transactions (hereinafter referred to as outright transactions) and SC repurchase transactions was shortened from T+2 to T+1. At the same time, JSCC introduced GC Repos under Subsequent Collateral Allocation Method (Subsequent Collateral Allocation Repos), making GC repo transactions available for the T+0 settlement cycle.

GC repo transactions are frequently conducted by securities companies to raise funds to cover shortages after outright or SC repo transactions. GC repo transactions thus accompany

outright or SC repo transactions. When the T+1 standard settlement cycle took effect for outright and SC repo transactions, therefore, how to accelerate post-trade procedures for GC repo transactions became a challenge. Then, the Subsequent Collateral Allocation Repos through new *Gensaki* transactions were introduced, based on precedent European and U.S. cases. Parties to a Subsequent Collateral Allocation Repo transaction designate the amount of funds to be delivered and a JGB basket (e.g., conditions for specifying the scope of JGBs for collateral allocation such as "Treasury Discount Bills" and "JGBs with maturity of less than 10 years or Treasury Discount Bills") before contracting, leaving JSCC to allocate the specific issue of JGBs for the transaction just before the settlement. In this way, market participants' administrative costs including the selection of JGB issues have been reduced, allowing the time for post-trade procedures to be shortened.

Fig. 2-13 Image of Shortening of JGB Settlement Cycle



(Source) Prepared by the MOF based on the "Grand Design for Shortening of JGB Settlement Cycle (T+1)" published on November 26, 2014, by the Working Group on Shortening of JGB Settlement Cycle

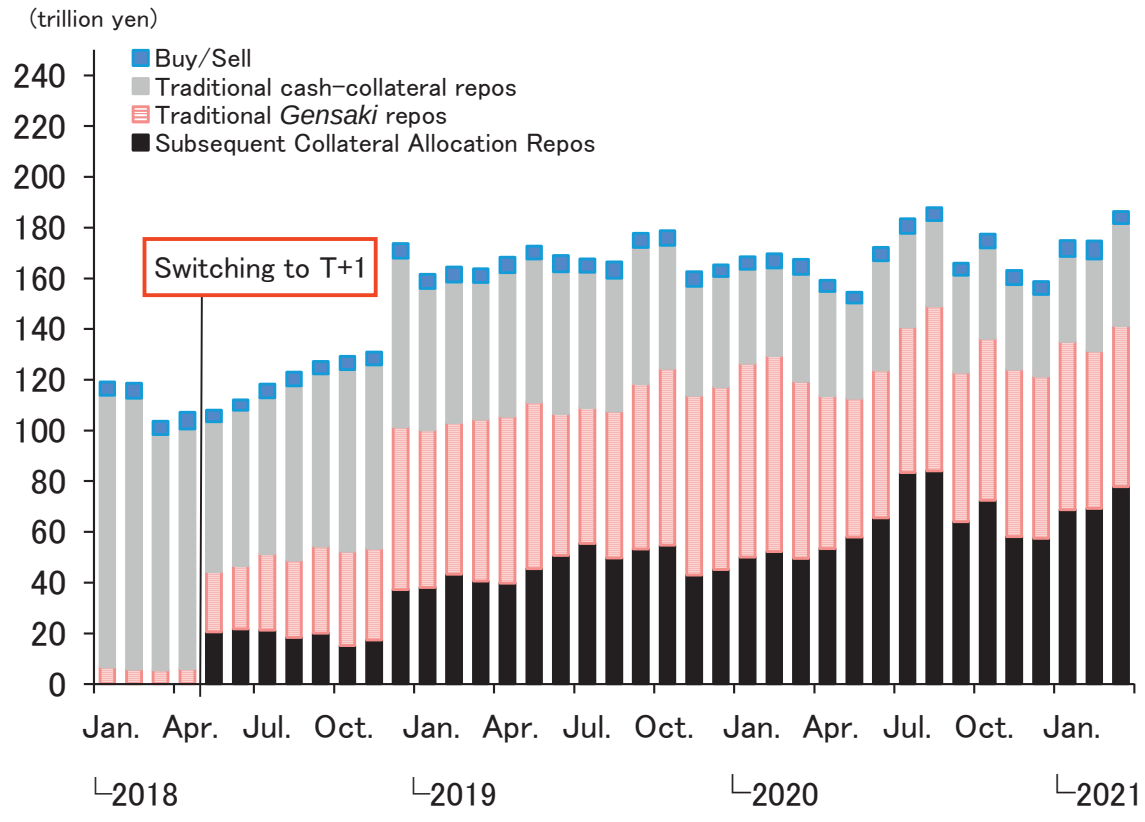
Fig. 2-14 JGB Coverage by Basket

Basket Issue Short Name	Treasury Discount Bills	Interest-bearing / Term to Maturity 10y or less	Interest-bearing / Term to Maturity more than 10y	Interest-bearing (Floating Rate)	Inflation-Indexed	STRIPS
JGBB-TDB	●					
JGBB-U10	●	●				
JGBB-Fixed	●	●	●			
JGBB-Large	●	●	●	●		
JGBB-All	●	●	●	●	●	
JGBB-Strips						●

(Source) JSCC

Transactions via JSCC since May 2018 (Fig. 2-15) indicate that Subsequent Collateral Allocation Repos have been increasingly used. Transition from lending (cash-collateral repo) transactions to the global standard of new *Gensaki* transactions (*Gensaki* repos including Subsequent Collateral Allocation Repos), as recommended upon the T+1 settlement cycle introduction, has made due progress. In the future, the globalization and vitalization of Japan's repo market, including the expansion of nonresidents' participation in the market, are expected to further improve the convenience of overall market participants.

Fig. 2-15 JSCC's Clearing Value (daily average)



Note: On a clearing value basis. *Gensaki* and cash collateral repos include both starts and ends.
(Source) JSCC

(6) STRIPS

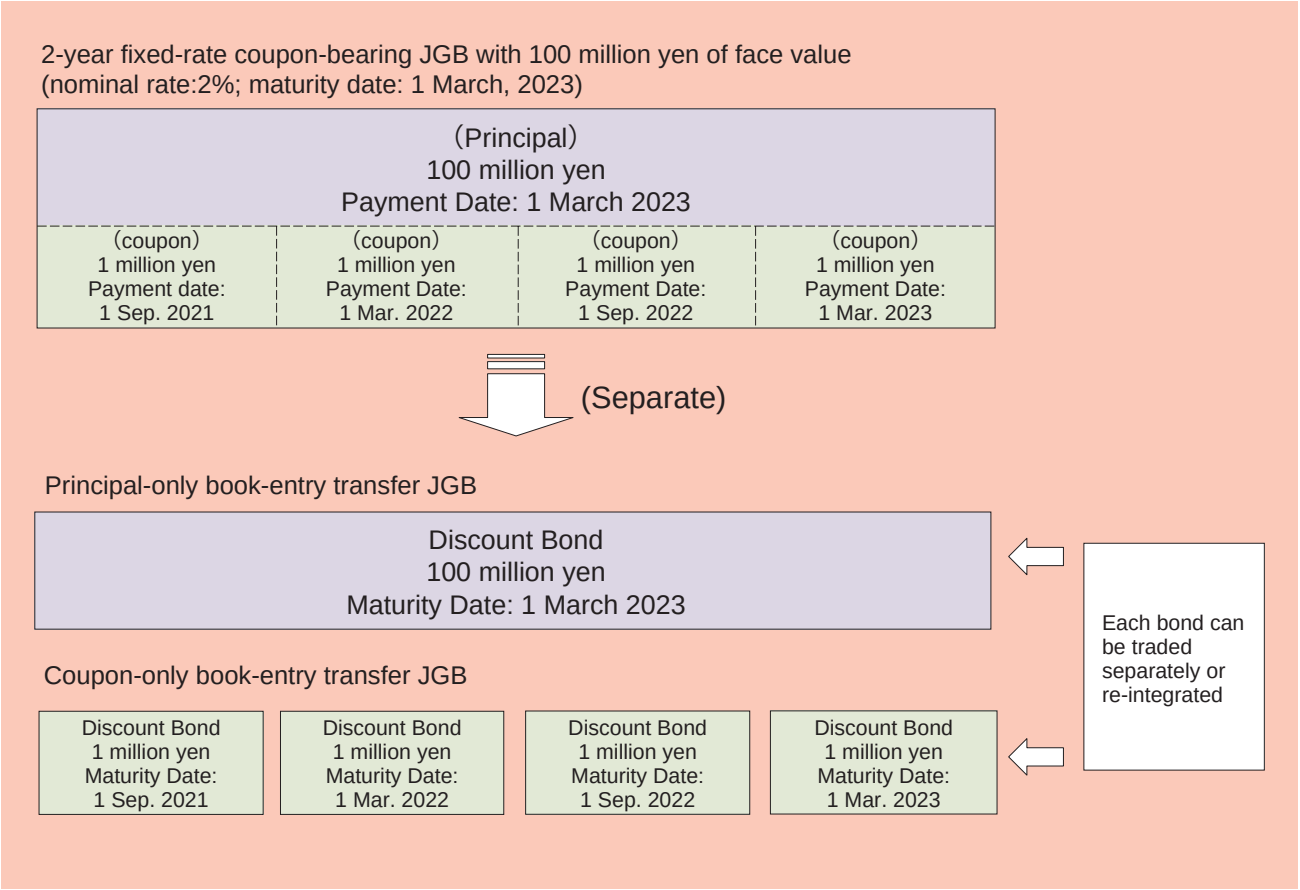
STRIPS (Separate Trading of Registered Interest and Principal of Securities) are a type of coupon-bearing government bonds of which coupons and principal can be separated and traded respectively. These separated coupons and principal can be reconstructed into a whole security.

While STRIPS have long been in place in the U.S. and some European countries, it was introduced into Japan in January 2003 to meet the needs of investors who want the separation of principal and interest components (☞). The new instrument is also expected to enhance arbitrage functions between discount bonds and coupon-bearing bonds, thus adding to the efficiency of the JGB market.

State of stripping of STRIPS is published at the MOF's web site on a regular basis.

☞ All coupon-bearing bonds issued in January 2003 and thereafter except for 15-Year Floating-Rate Bonds, JGBs for Retail Investors, and 10-Year Inflation-Indexed Bonds are the "strippable book-entry securities. (Bonds issued as special bonds provided by the "Act on Book-Entry Transfer of Corporate Bonds and Shares" are excluded.)"
While no restrictions exist on holders of stripped book -entry securities, only the JGB Market Special Participants are allowed apply for the separation and reconstruction of STRIPS.

Fig. 2-16 STRIPS - Conceptual Diagram



(7) JGB Futures Trading

Futures trading means trading in specific exchange-listed products at a price set at present on a certain fixed future date.

JGB futures are used for hedging risks associated with JGB trading (☞①) and serve as a bond market trend indicator.

While there are four types of JGB futures –5-year, 10-year, 20-year and mini 10-year JGB futures (Fig. 2-17), 10-year JGB futures account for most of the JGB futures trading volume. All JGB futures contracts are listed on the Osaka Exchange. 10-year JGB futures are listed on the Singapore Exchange as well as the Osaka Exchange.

In JGB futures trading, trading instruments, trading units, the last trading day (☞②), the delivery settlement date (☞③) and other trading terms and conditions are standardized on the premise that many unspecified market participants trade in JGB futures on securities exchanges. Particularly, trading instruments are not actually issued JGBs but notional JGBs called "standardized instruments" (☞④). Only by paying margin as set by the exchange, any party can trade in JGB futures. Any party can implement a massive futures transaction by paying margin money that is far less than the full transaction value. This is a feature of futures trading.

For settling a futures transaction, a party may at any time before the last trading day make an offsetting trade (long liquidation or short covering) for net settlement or pay/receive the trading price and receive/deliver actual JGBs on the delivery settlement date. Offsetting trades are used for most of futures trading.

For delivery settlement, actual JGBs designated as delivery-qualified issues (☞⑤) will be delivered in place of notional JGBs. As a standardized instrument and a delivery-qualified issue have different coupon rates and remaining maturities, a separately computed rate is used for adjusting a delivery price. This rate is called "conversion factor." Specifically, a delivery price is computed by multiplying a futures price and a conversion factor for a delivery-qualified issue together (☞⑥).

While there are multiple delivery-qualified issues, the delivering party (or the futures seller) has the right to select an issue for delivery. An issue costing the delivering party least is called the cheapest issue (☞⑦). As the delivering party can minimize losses or maximize profits by selecting the cheapest issue for delivery, the cheapest issue is usually selected for delivery. Therefore, futures prices tend to be closely linked to prices of the cheapest issues.

☞① For instance, a dealer who bought cash long-term JGBs and sold futures can offset losses or gains on those JGBs if futures prices deviate from cash JGB prices. Investors including banks use highly liquid futures to hedge interest rate risks linked to bond investment portfolios.

☞② The "last trading day" is set to come five trading days before the delivery settlement date (Fig. 2-17).

☞③ The "delivery settlement date" is the 20th of March, June, September and December (Fig. 2-17).

☞④ "Standardized instruments" mean notional JGBs for which the stock exchange standardizes interest rates, redemption dates, and some other factors. For 10-year JGB futures trading, the standardized instrument is a notional JGB issue that carries a coupon rate of 6% and is set to mature in 10 years.

☞⑤ "Delivery-qualified issues" mean 10-Year Coupon-bearing JGBs with a remaining maturity of not less than 7 years but less than 11 years at the delivery settlement date in the case of 10-year JGB futures trading.

☞⑥ If the futures price is 150 yen and the conversion factor for the delivery-qualified issue is 0.72, the delivery price comes to 108 yen (150 yen x 0.72).

☞⑦ As of the end of March 2020, issues whose remaining maturity is shortest (approximately 7 years) are the cheapest issues.

Fig. 2-17 Overview of JGB Futures Trading

	5-year JGB Futures	10-year JGB Futures	20-year JGB Futures	Mini 10-year JGB Futures
Date launched	Feb. 16, 1996	Oct. 19, 1985	Jul. 8, 1988 (Closed from Sep. 10, 2002 to Apr. 4, 2014) Resumed trading on Apr. 7, 2014	Mar. 23, 2009
Contract	Standardized 3%, 5-year JGB	Standardized 6%, 10-year JGB	Standardized 3%, 20-year JGB	Price of standardized 6%, 10-year JGB
Deliverable grade	5-year coupon-bearing JGBs with remaining maturity of 4 years or more but less than 5.25 years	10-year coupon-bearing JGBs with remaining maturity of 7 years or more but less than 11 years	20-year coupon-bearing JGBs with remaining maturity of 19 years 3 months or more but less than 21 years	—
Trading hours	<Morning session> Opening: 8:45 Regular session: 8:45-11:00 Closing: 11:02 <Afternoon session> Opening: 12:30 Regular session: 12:30-15:00 Closing: 15:02 <Night session> Opening: 15:30 Regular session: 15:30-5:25 (next day) Closing: 5:30 (next day) *1: If no trade is made at the opening, a shift to the regular session will be made. *2: If no trade is made at the closing, trading session moves to Zaraba.			
Contract month	March, June, September, December cycle (three contract months traded at any one time)			
Last trading day	5th business day prior to each delivery date *Each delivery date is 20th of each contract month.			*6th business day prior to each delivery date of the 10-year JGB Futures for the same contract month. Trading for the new contract month begins on the business day following the last trading day of 10-year JGB Futures. *Final settlement day is 2nd business day following the last trading day.
Contract unit	100 million yen face value			Multiply 100 thousand yen by the price of 10-year JGB Futures
Tick Size	0.01 yen			0.005 yen
Daily price limit	(1) The price limit range shall be the following: Normal price limit: ± 2.00 yen (5-year, 10-year JGB Futures); ± 4.00 yen (20-year JGB Futures); ± 2.00 yen (Mini 10-year JGB Futures) Maximum price limit: ± 3.00 yen (5-year, 10-year JGB Futures); ± 6.00 yen (20-year JGB Futures); ± 3.00 yen (Mini 10-year JGB Futures) * The price limits will be expanded to the expansion of price limits (Only price limits in one direction, up or down, will be expanded.) (2) Immediately Executable Price Range (Dynamic Circuit Breaker (DCB)) (☞①): LTP or BBO (☞②) mid price ± following ticks 5-year JGB Futures: 10 ticks; 10-year JGB Futures: 10 ticks; 20-year JGB Futures: 30 ticks; Mini 10-year JGB Futures: 10 ticks			
Circuit breaker	In the case where a buy (sell) order is placed (or executed) at the upper (lower) price limit for the central contract month (excluding mini 10-Year JGB Futures), and no subsequent trades are executed outside the dynamic circuit breaker range from the said price in the next minute, the trading (including mini 10-Year JGB Futures) will be suspended and the upper (lower) daily price limit range will be expanded. (☞③)			
Strategy trading	The calendar spread trading is available. (☞④)			
J-NET trading (☞⑤)	Available (Tick size: 0.0001 yen, Minimum trading unit: 1 unit)			
Clearing value	Last traded price			Clearing value of the 10-year JGB Futures (Large) for the same contract month.
Margin	Calculated by using SPAN®(☞⑥)			
Settlement method	1. Long liquidation or short covering 2. Final settlement (delivery settlement)			1. Long liquidation or short covering 2. Final settlement (cash settlement)
Delivery of bonds	The delivery of issues is at the discretion of the seller of the futures contract.			—
Give-up (☞⑦)	Available			
Position transfer (☞⑧)	Available			

(☞①) From the viewpoint of preventing sudden price fluctuations, such as caused by erroneous orders, a rule is established to temporarily halt trading, when an order placed will trade beyond a set price range from the immediate reference price. This is called the Immediately Executable Price Range Rule.
(☞②) The BBO mid-price refers to the mid price of the immediate best offer and best bid.
(☞③) Exceptional cases
1. In the case where the above criteria is met within 20 minutes before the end of the regular session of the day (afternoon) or night session.
2. In the case where the circuit breaker criteria is triggered again after the price limit of a bid or offer has been expanded to the maximum range.
3. In cases where the Osaka Exchange deems that a trading suspension would not be appropriate in consideration of the trading conditions, etc.

(☞④) Calendar spread trading means a form of trading conducted by placing bids/offers based on the price difference (spread) between two different contract months (specifically, a nearer contract month and a farther contract month; for example, March and June) to establish opposite positions by making one sale and one purchase at the same time for the two contract months.
(☞⑤) J-NET trading means the trading of futures and options without sessions at the J-NET Market that is independent from competitive trading markets.
(☞⑥) The SPAN® (Standard Portfolio Analysis of Risk) system is a methodology that calculates the margin developed by the Chicago Mercantile Exchange (CME).
(☞⑦) A give-up system enables a customer to entrust order-execution to a transaction participant and to entrust its settlement-related operations (payment/receipt of the difference at the time of settlement for futures trading, payment/receipt of options premium and margins, etc.) to other transaction participants.
(☞⑧) A position transfer system allows a transferring clearing participant (a transaction clearing participant who transfers unsettled positions) to transfer futures/options unsettled positions to a transferee clearing participant (a transaction clearing participant who takes over unsettled positions from the transferring clearing participant), with prior JSCC approval.
(Sources) Japan Exchange Group, JSCC

Column 6 Investors in JGB futures

JGB futures play a key role in allowing the primary and secondary JGB markets to function smoothly. Primary dealers that play a central role in the two markets use futures to hedge interest rate risks for JGBs that they purchase in the primary and secondary markets (Note).

JGB futures are also a convenient tool for investors seeking to earn trading gains through short-term buying and selling. An advantage of JGB futures is that futures trading is almost free from counterparty risks because trading counterparties are creditworthy exchanges and clearing institutions. Another advantage is that investment positions can be leveraged (Note). In recent years, pension funds and other investors that hold bonds over a long term have increasingly used bond futures to leverage their investment positions.

Among investors conducting short-term buying and selling, commodity trading advisors (CTAs) feature an especially great presence in the futures market. The CTA had originally meant a registered qualification required to provide advice about futures trading to clients in the United States. At present, however, the CTA refers to hedge funds investing mainly in futures or investment strategy of these funds. According to the Japan Exchange Group, foreign investors account for more than 60% of the JGB futures trading volume (Fig. c6-1). The data do not provide a breakdown of foreign investors, but CTAs are believed to have accounted for a large part of them.

It is known that CTAs adopt an investment approach called “trend following”. The approach represents an investment strategy that follows an uptrend or downtrend of asset prices. If CTAs identify an uptrend in Japan’s bond market based on their standards or algorithms, for instance, they may buy long-term JGB futures. They may continue buying as far as the uptrend is sustained. When the uptrend is identified as ending, they may sell their holdings to lock in profits. This approach is one of the most prominent examples of market following strategy.

In this way, CTAs base their investment not on absolute yield levels but on a bond price fluctuation trend. Even under the BOJ’s Quantitative and Qualitative Monetary Easing with Yield Curve Control, they may conduct active trading without considering yield levels once a trend is identified.

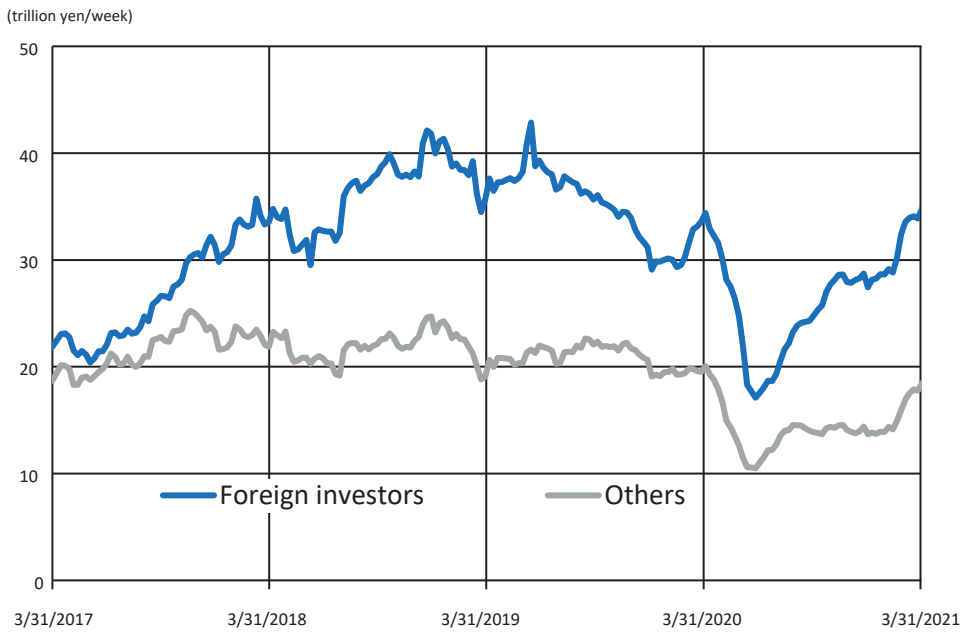
CTAs and other investors employing the trend following strategy activated trading between autumn 2016 and early 2017 when the U.S. presidential election results and other factors triggered a global rise in long-term interest rates and between the autumn and end of 2018 when monetary tightening by the U.S. Federal Reserve Board triggered a rapid fall in U.S. stock prices and a subsequent global decline in long-term interest rates. This is indicated by the fact JGBs maturing in seven years were then overvalued or undervalued on the yield curve.

In the current low interest rate environment, because a coupon on cash JGBs is lower than 6% on long-term JGB futures, the cheapest among deliverable issues for the futures are JGBs maturing in seven years(Note); therefore, the prices of the futures and 7 year JGBs tend to move in tandem, resulting in the futures' price correlation with 7 year JGBs being higher than that with the JGBs with other maturities(Fig. c6-2).

When CTAs intensify trading in JGB futures irrespective of absolute yield levels, JGBs maturing in seven years become subject to arbitrage adjustment with futures, often resulting in being undervalued or overvalued against other JGBs. The butterfly spread, which indicates whether a yield on an issue with a certain maturity is relatively higher or lower on the yield curve, shows that JGBs maturing in seven years became undervalued (with the yield rising) between autumn 2016 and early 2017 and overvalued (with the yield falling) in late 2018 (Fig. c6-3).

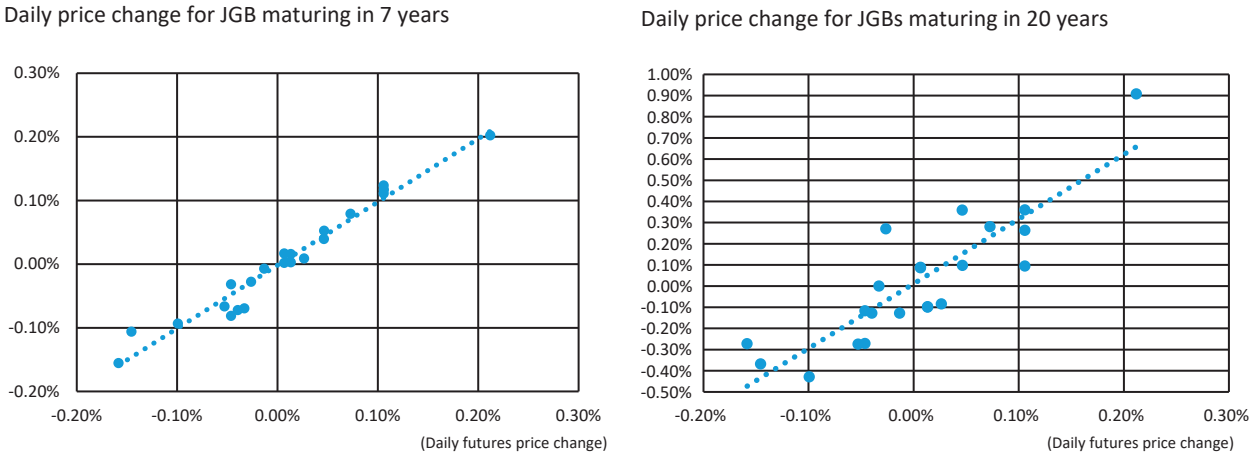
(Note) Refer to Chapter 1 2(7)JGB Futures Trading

Fig. c6-1 Long-term JGB futures trading volume



(Note) 13-week moving average of weekly data
(Source) Japan Exchange Group, Inc.

Fig. c6-2



(Note) Data between March 17 and April 15, 2021. Day-on-day changes at 3 p.m. The JGB futures price is for the June 2021 contract. JGBs maturing in 7 years are the 351st issue. Those maturing in 20 years are the 175th issue.
(Source) Bloomberg

Fig. c6-3 5-7-10-year butterfly spread and long-term JGB futures