

Trading and Transactions of Bonds and Notes, and Trading Market Infrastructure

A. Participants in the Secondary Bond Market

This section provides an overview of the major participants in the secondary bond market in Japan, on the basis of the transaction statistics by type of transaction party, as detailed in Table 31. The following types of participants, listed in alphabetical order, represent the largest shares of market volume.

When measured in terms of net trading volume over the past 13 years, almost all participant categories have been net buyers of bonds, mostly JGBs and other public sector bonds.

1. Bank of Japan and Other Government Agencies

The BOJ is buying and selling a range of debt securities as part of its open market operations, including JGB and money market instruments. Government agencies buy JGBs to park or administer their liquidity. This category known as Others in Table 31 has become a consistent and substantial net seller of bonds because JGBs issued by auction in the primary market are settled via the BOJ and reported as sales by the central bank

2. Intermediaries

Trading in the secondary bond market is dominated by bond dealers, such as securities companies and banks, for both proprietary purposes and client accounts.

City banks (large commercial banks) and trust banks trade large volumes of bonds. Based on their own market view, city banks vigorously engage in bond trading in pursuit of trading profits as well as resell municipal and other bonds underwritten by them. It should also be noted that trust banks have traditionally allocated large portions of assets under management or administration, including pension assets, to bonds.

3. Investors

Nonresident investors also play an increasingly significant role in the Japanese bond market through investments in JPY-denominated government bonds and notes, in line with the flight-to-quality movement after the global financial crisis. They are also active participants in the short-term JGB market, trading T-Bill.

Table 31: Bond Market Transactions by Type and Party (JPY billion)

Participant	Activity	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
City (commercial) banks	Sell (a)	80,125	92,172	79,387	75,391	120,557	129,292	126,905	146,494	213,866	237,881	110,436	147,606	81,791
	Purchase (b)	136,553	173,056	153,964	101,749	130,459	154,818	163,965	144,559	198,905	212,185	80,380	124,789	63,195
	Net (a)-(b)	-56,428	-80,884	-74,577	-26,358	-9,902	-25,527	-37,060	1,934	14,961	25,696	30,056	22,817	18,596
Regional banks	Sell (a)	14,001	10,980	10,442	9,814	15,104	13,657	16,535	18,641	21,994	27,934	18,352	21,591	16,843
	Purchase (b)	22,420	19,385	16,967	14,375	21,141	23,678	28,251	29,938	31,852	35,037	23,343	24,737	18,120
	Net (a)-(b)	-8,419	-8,406	-6,525	-4,561	-6,037	-10,021	-11,716	-11,297	-9,858	-7,103	-4,992	-3,146	-1,277
Trust banks	Sell (a)	68,158	69,171	77,368	84,376	100,520	80,563	82,886	92,597	84,088	73,769	58,476	62,415	51,299
	Purchase (b)	102,617	117,218	119,187	128,489	141,377	120,323	158,872	156,712	164,139	155,978	127,931	80,128	61,014
	Net (a)-(b)	-34,459	-48,047	-41,819	-44,113	-40,857	-39,760	-75,986	-64,115	-80,051	-82,208	-69,455	-17,713	-9,716
Agriculture-related banking institutions	Sell (a)	8,188	8,505	7,164	12,599	8,908	6,646	7,159	4,953	6,041	4,595	5,577	4,122	3,975
	Purchase (b)	19,517	12,008	12,959	14,377	9,231	20,007	37,145	44,972	29,241	29,342	13,855	9,365	7,379
	Net (a)-(b)	-11,328	-3,503	-5,796	-1,778	-323	-13,360	-29,986	-40,019	-23,200	-24,747	-8,278	-5,243	-3,404
2nd regional banks	Sell (a)	3,833	4,057	4,104	2,628	2,571	2,910	4,716	4,899	4,976	6,969	4,636	4,144	2,758
	Purchase (b)	5,451	5,435	5,232	3,191	5,007	5,444	7,563	6,958	6,665	7,981	5,335	4,610	2,935
	Net (a)-(b)	-1,618	-1,378	-1,128	-564	-2,436	-2,534	-2,846	-2,059	-1,689	-1,012	-699	-466	-177
Shinkin banks	Sell (a)	9,086	9,157	7,002	4,571	7,170	9,997	9,963	15,361	12,847	15,095	10,310	10,464	7,445
	Purchase (b)	15,909	17,940	24,217	15,279	26,889	30,588	31,911	28,825	19,343	22,422	15,452	14,147	9,429
	Net (a)-(b)	-6,824	-8,783	-17,216	-10,708	-19,719	-20,590	-21,947	-13,464	-6,496	-7,327	-5,142	-3,684	-1,985
Other banks and financial institutions	Sell (a)	41,274	18,830	16,404	19,375	26,341	22,250	12,586	11,642	15,796	8,753	7,353	9,916	6,955
	Purchase (b)	68,761	50,153	38,933	48,635	62,832	54,833	45,359	44,382	38,650	35,911	31,232	17,124	15,801
	Net (a)-(b)	-27,487	-31,323	-22,529	-29,259	-36,491	-32,583	-32,773	-32,740	-22,854	-27,158	-23,879	-7,208	-8,846
Life and property casualty insurance companies	Sell (a)	14,807	13,802	12,556	13,684	14,076	16,805	9,539	13,642	13,034	16,043	16,461	8,808	7,802
	Purchase (b)	19,879	22,515	20,255	22,090	23,485	29,140	26,968	28,216	31,418	33,299	30,778	19,060	12,871
	Net (a)-(b)	-5,072	-8,713	-7,698	-8,405	-9,409	-12,335	-17,429	-14,574	-18,384	-17,256	-14,317	-10,252	-5,070
Investment trusts	Sell (a)	7,140	5,828	4,338	5,529	6,210	7,108	4,833	4,615	3,792	4,081	5,486	6,037	8,159
	Purchase (b)	27,766	26,171	28,313	28,238	25,992	22,088	23,730	24,216	24,047	24,146	37,971	34,364	37,832
	Net (a)-(b)	-20,626	-20,343	-23,976	-22,709	-19,782	-14,981	-18,896	-19,601	-20,256	-20,065	-32,485	-28,328	-29,673
Public employees mutual aid associations	Sell (a)	794	1,529	1,631	1,288	877	880	612	515	604	410	320	327	397
	Purchase (b)	6,535	7,235	7,542	6,930	6,983	5,469	3,065	2,596	2,286	2,391	2,154	975	732
	Net (a)-(b)	-5,741	-5,706	-5,911	-5,642	-6,107	-4,589	-2,453	-2,081	-1,682	-1,981	-1,834	-649	-335
Business corporations	Sell (a)	906	647	1,033	935	851	1,133	255	494	403	445	1,007	298	316
	Purchase (b)	7,225	8,849	8,125	11,230	10,453	9,996	12,759	13,894	9,889	11,542	11,779	7,692	4,173
	Net (a)-(b)	-6,319	-8,203	-7,092	-10,295	-9,602	-8,862	-12,504	-13,400	-9,486	-11,097	-10,772	-7,394	-3,858

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Table 31 continued

Participant	Activity	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Other corporations	Sell (a)	1,185	1,433	1,301	982	814	927	1,034	1,870	971	794	1,146	1,129	852
	Purchase (b)	4,598	4,652	5,334	7,659	6,240	5,929	5,626	6,162	6,171	5,503	6,954	7,272	4,291
	Net (a)-(b)	-3,413	-3,220	-4,033	-6,677	-5,426	-5,002	-4,591	-4,293	-5,200	-4,709	-5,808	-6,143	-3,439
Nonresident investors	Sell (a)	58,329	71,436	86,480	99,016	122,127	103,251	91,808	99,307	106,784	98,219	93,420	79,225	74,018
	Purchase (b)	82,909	110,803	119,945	149,582	180,207	185,088	176,542	211,437	247,878	256,141	249,621	275,329	288,052
	Net (a)-(b)	-24,580	-39,367	-33,465	-50,565	-58,079	-81,836	-84,734	-112,129	-141,094	-157,922	-156,201	-196,104	-214,034
Individuals	Sell (a)	621	610	471	328	303	322	492	629	524	506	429	495	533
	Purchase (b)	1,345	1,241	936	1,008	702	632	388	283	279	326	240	160	158
	Net (a)-(b)	-724	-632	-465	-681	-399	-310	104	345	245	180	189	335	375
Others (BOJ and government sector and related agencies)	Sell (a)	291,187	357,108	313,203	334,295	334,439	358,574	437,704	403,892	399,988	450,786	443,026	427,722	439,234
	Purchase (b)	114,136	118,786	110,883	123,337	114,014	99,983	95,594	97,911	92,812	135,468	178,022	176,691	191,608
	Net (a)-(b)	177,051	238,322	202,320	210,957	220,425	258,591	342,109	305,981	307,176	315,317	265,004	251,031	247,626
Bond dealers	Sell (a)	724,262	788,988	755,991	874,516	978,710	868,471	842,434	908,691	870,027	882,695	796,726	916,036	771,626
	Purchase (b)	724,235	785,890	753,012	872,644	974,208	870,291	844,919	905,541	866,349	870,711	787,733	914,969	767,399
	Net (a)-(b)	27	3,098	2,979	1,872	4,503	-1,820	-2,485	3,150	3,678	11,984	8,993	1,067	4,227
Total	Sell (a)	1,323,896	1,454,252	1,378,873	1,539,328	1,739,578	1,622,784	1,649,462	1,728,243	1,755,734	1,828,975	1,573,162	1,700,333	1,474,000
	Purchase (b)	1,359,855	1,481,338	1,425,804	1,548,812	1,739,219	1,638,304	1,662,656	1,746,602	1,769,924	1,838,381	1,602,782	1,711,411	1,484,989
	Net (a)-(b)	-35,960	-27,086	-46,931	-9,484	359	-15,520	-13,194	-18,359	-14,189	-9,406	-29,619	-11,079	-10,989

BOJ = Bank of Japan.

Notes: Data uses calendar year basis. Figures exclude *gensaki* transactions.Source: Japan Securities Dealers Association. <http://www.jsda.or.jp/shiryō/toukei/toushika/tkb/files/koushasaiichiran.xls>

B. Trading of Bonds and Notes on Exchange

The TSE and the Nagoya Stock Exchange (NSE) have bond trading facilities but very few listings, except for JGBs and convertible bonds. The trading volume on exchange, particularly of corporate bonds, is negligible. The OSE is the exchange specializing in derivatives under JPX. The OSE provides market facilities for conducting market derivative transactions, such as JGB futures trading and JGB options trading.

In turn, the TPBM will provide bond issuers with defined disclosure and a listing place for the profile listing of bonds and MTNs, which are aimed at Professional Investors and continue to be traded OTC.

C. Over-the-Counter Trading of Bonds and Notes

The OTC market is not a trading platform but an organized market nevertheless. Trades of bonds and notes are concluded directly between institutional counterparties via phone or using the services of a voice broker or inter-dealer broker (IDB), or through the use of a PTS (see next section for more details).

The majority of bond transactions in Japan—and in other markets—take place OTC rather than on exchanges; the secondary market is a dealer-driven market instead of being order-driven like on an exchange. A number of reasons contribute to this fact:

- (i) there are so many bond and note issues that it is practically impossible to list all of them on exchanges;
- (ii) due to the wide variety of types of transactions and other deal specifications that different buyers and sellers require, it is difficult to instantly locate a matching counterparty for a particular transaction;
- (iii) the tax on bond interest varies according to the tax profiles of bondholders; and
- (iv) corporate investors, who account for the bulk of the bond trading volume, tend to trade in large lots and often carry out complex transactions involving more than one issue.

Given these reasons, bond transactions do not lend themselves to trading on exchanges where the terms of transactions need to be standardized. Bonds are rather more effectively traded in the OTC market, where trades are executed based on the terms individually negotiated between buyers and sellers.

D. Proprietary Trading System for Fixed-Income Securities

1. Overview

The revision of the Securities Exchange Law in December 1998 led to the birth of the concept of the PTS. The FSA announced the PTS Guidelines in November 2000. According to the guidelines, although PTS operators are highly regulated by the FSA and are required to obtain approval for a PTS license, some entrepreneurs and innovators have launched electronic trading systems.

Unlike stock trading, bonds are traded mostly OTC and therefore the need for improving transparency, efficiency, and accuracy in trading is strong. It became stronger in the past

several years due to the increase in compliance and/or governance requirements. The advent of PTS was supposed to be ideal to enhance trading governance. In reality, however, the use of PTS has not been very successful in Japan; it still has a long way to go.

2. Inter-Dealer Broker and Broker-to-Customer Market

There are two types of PTS operators: broker-to-broker (B-to-B, or the IDB market) and broker-to-customer (B-to-C, the institutional investor market).

(a) Inter-Dealer Broker Market

The IDB market adopted the concept of PTS promptly. The main operator of the IDB market is the broker's broker, which in this case is Nihon Sogo Shoken (日本相互証券). Totan ICAP (東短ICAP) and Central Tanshi (セントラル短資) subsequently established PTS in the IDB market.

The B-to-B market has been active in e-trading and its PTS operation, while other brokers have been lagging somewhat behind. It is estimated that the broker's broker trades comprise 80% of the trading volume handled through PTS.

(b) Institutional Investor Market

The B-to-C market has developed in a very different manner from the IDB market. There have been two main facilitators in this market: JBOND (ジェイ・ボンド東短証券) and Yensai.com (エンサイドットコム証券). Please see section 4 for more details on these facilitators.

The FSA has encouraged asset management companies to adopt a trader system, in which dealers concentrate on dealing and fund managers focus on portfolio management. These FSA guidelines encourage dealers to use electronic trading (e-trading) more often. At the same time, due to increased compliance needs, investment management companies with fiduciary responsibility have been required to obtain several quotes before a trade is completed to ensure the best executions.

Investors have gradually shown increased interest in PTS platforms. Still, the combined share of all the PTS facilitators is estimated to be less than 5% of the JGB wholesale market. The JGB PTS market is still negligible in terms of trade volume.

(c) Inter-Dealer Broker versus Broker-to-Customer Market

As mentioned above, e-trading has grown in the IDB market in a short period of time, while the B-to-C market has demonstrated very slow growth. The reason for this is not clear, but it has been attributed to differences in trading attitude. Market makers want to know why investors are selling or buying in order to see where the market is heading. One of the important responsibilities of bond sellers is to find out investors' thinking and behavior. Thus, they call investors incessantly and provide the information back to dealers, which will be the basis for dealers in building up their positions. On the other hand, the IDB market is the place for squaring positions. The brokers' task is to match the trades. Therefore, telephone conversations are not very important in the IDB market. As brokers do not lose much by switching to e-trading, they did not resist the change much.

3. Pricing Method

The FSA's guidance provides four pricing methods:

- (i) **Market price-trading method** uses current prices and quotes on the stock exchanges.
- (ii) **Direct-negotiation method** uses a price negotiated between customers. It is often called negotiation method as sellers and buyers negotiate the price, volume, settlement date, and other conditions. As this method is similar to the way bonds are traded over the phone, all PTS operators in the B-to-C market have adopted this method.
- (iii) **Order-matching method** under the order-matching method orders from customers are matched with each other. A trade is done when an order from a buyer and a seller is matched. PTS operators provide the screen where buyers and sellers put in their orders. Counterparties who wish to trade will click orders and trades are done. As the monitor screens are similar to the ones that IDBs use, IDB PTS operators use this method. The JBOND Repo System also adopted this method.
- (iv) **Quote-driven method** market makers show their quotes and stand ready to trade with customers. It is often called the market-making method. Market makers show their bids and offers for bonds they wish to trade. They are not obliged to show the quotes for all the bonds and, in the case of Yensai.com, securities dealers must confirm the trade before it is done. Therefore, this click-and-trade quote-driven method is not popular among institutional investors.

For bonds traded via PTS, only the pricing methods (ii)–(iv) are applicable.

4. Facilitators

(a) *Yensai.com* (エンサイドットコム証券)

Yensai.com was founded by seven major securities dealers in January 2001, following the business model of TradeWeb (トレードウェブ・ヨーロッパ証券), and started its PTS operations upon receipt of its PTS license in March 2002. It is differentiated from other PTS facilitators among major Japanese market makers. It provides two types of trading methods: a real-time order system (quote-driven system) and an inquiry system (order-driven system). The real-time order system shows all the bids and offers for JGBs with tradable amounts on the side. This click-and-trade system looked handy and attractive, but in reality, the usage has been pretty limited. Most users look at the monitor screen to find out the current yield curve, and not to do trades. As securities dealers did not feed the best prices, investors used the bid-offer prices as indication.

The order-driven system, on the other hand, has been relatively successful. Currently, there are 13 securities dealers who participate as market makers for all interest-bearing JGBs.

(b) *JBOND* (ジェイ・ボンド東短証券)

JBOND was founded in April 2000. It started operation in June 2001 as a quotes comparison site. JBOND became a securities company in September 2002, received its PTS license in October 2002, and began PTS operations in November 2002. It

started its repo PTS in October 2009. Its participating market makers were mainly foreign banks.

JBOND shifted its focus from outright JGB trades to the JGB repo market in June 2010. It is the first and only PTS player for repo e-trading. Its users are limited to the Japan Government Bond Clearing Corporation members. It is still too early to determine if it will take off in Japan. The broker's broker runs a similar system but it does not operate as a PTS.

(c) *TradeWeb* (トレードウェブ・ヨーロッパ証券)

TradeWeb, a dominant player in Europe and the US, was slow to enter the Japanese market. It was founded in 2004, received its PTS license in 2005 to trade foreign bonds, and started trading Japanese bonds in 2008. About 10 broker-dealers are participating but their activities are rather limited.

(d) *Bloomberg*

Bloomberg also has a PTS license but its system is a gateway to lead an inquiry into a certain broker-dealer and is not regarded as a fully-fledged multi-dealer system provider and does not have significant influence in the market.

E. Publication of Reference Statistical Prices for Over-the-Counter Bond Trading

1. Historical Background

With a view to providing investors, securities companies, and other stakeholders in Japanese bond markets with updated bond market price information, the JSDA instituted the system for publishing the Reference Statistical Prices (Yields) for OTC Bond Transactions. Under this system, the JSDA receives the quotation information from a certain number of designated reporting members (securities companies and banks) and publishes the average price, median price, and highest and lowest prices (each price representing the midpoint of ask and bid prices that the designated reporting members intend to quote) in each issue of publicly offered public sector and corporate bonds that meet certain criteria.

The program was originally instituted in August 1965 by the Bond Underwriters Association of Japan for publishing OTC Quotes for Industrial Debentures and was succeeded by the Tokyo Securities Dealers Association, the predecessor of the JSDA, which began the publication of OTC Quotes for Public and Corporate Bonds in March 1966. The initiatives were implemented with a backdrop of social necessity to promote the formation of fair prices and efficient and orderly trading of JGBs, issuance of which had been resumed after World War II. The program has since undergone many changes and improvements in response to the changing environment surrounding the bond market. During that period, the number of published issues has ballooned from about 300 when the system was introduced, to approximately 8,200 as of December 2015.

In August 2002, the JSDA changed the name of the data to “reference prices (yields)” from “standard quotes” with the intent to clearly indicate that it was for reference purposes only. At the same time, the program was enhanced by publishing, as mentioned above, “high, low,

and median values of surveyed quotes” in addition to their averages, which were the only data previously published. That system continues today.

The program started publishing bond quotes nearly 50 years ago, and it is fair to say that it has since made measurable contributions by providing benchmark prices for OTC bond trading in Japan. The use of data is no longer limited to price references for trading bonds but serves a wide variety of public purposes, including mark-to-market valuation for financial reporting and tax accounting purposes, and the valuation of collateral for different types of transactions.

2. Challenges of the Past Dissemination System for Bond Price Information and Necessity for Further Improvement of its Infrastructure

As mentioned earlier, the JSDA manages the system of Reference Statistical Prices (Yields) for OTC Bond Transactions (hereinafter referred to as Reference Prices) as an infrastructure for public and corporate bond pricing information. The Reference Prices system is widely used by investors and market participants, and is indispensable infrastructure in the financial and securities markets. For example, Reference Prices are used as a reference purchase or sell price of a bond, for the fair value appraisal as a pledge, for the calculation of a base price of investment trusts, and as a reference price and indicator at the time of pricing of bonds to be newly issued.

However, as the Reference Prices sometimes diverges from the actual price, such as the execution price and the bid offer, and there is a time lag, the system needs to be reviewed and improved.

The JSDA and market participants have been improving the current system based on the cases witnessed in the Republic of Korea, United Kingdom, and US to improve the transparency of bond price information and build up the credibility of the information.

The JSDA did not have access to actual price data information on a daily basis at the time. However, in the deliberations of the Study Group to Vitalize the Corporate Bond Market it was judged that, in light of practices conducted in many other markets in ASEAN+3, actual traded price information would be more useful as a source of bond price dissemination.

3. Introduction of New Measures since January 2014

Following the conclusions of the deliberations of the above-stated study group and its succeeding Working Group,⁴⁹ the JSDA decided to introduce two fundamental measures to improve its pricing concept:

(a) *Improvement of Credibility and Accuracy of the Reference Price*

As implemented with effect from 1 January 2014

- (i) Designated reporting members shall be required not to take any action that would damage the adequacy or fairness of quotes such as making a prior exchange of information or adjustment of the level of quotes to be reported to JSDA with any other designated reporting member(s).

⁴⁹ See JSDA Working Group Discussion (in Japanese). <http://www.jsda.or.jp/katsudou/kaigi/jisyukisei/gijigaiyou/syasaiinhura.html> (in Japanese).

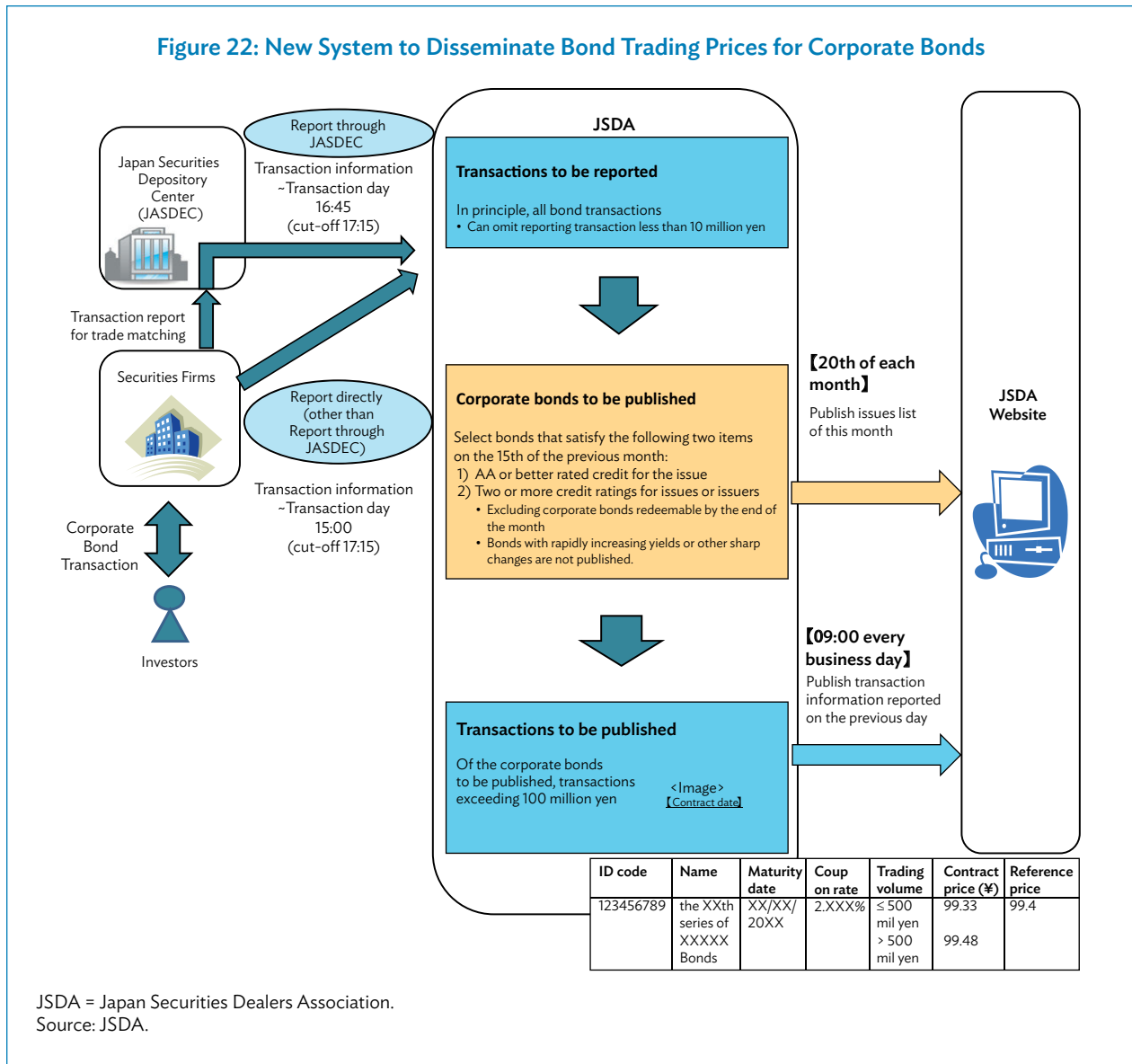
As implemented with effect from 2 November 2015

- (ii) The deadline by which designated reporting members are required to report their quotes on corporate bonds, specific corporate bonds, and Samurai Bonds (hereinafter referred to as “corporate bonds, etc.”) will be moved to 5:45 p.m. from 4:30 p.m. previously, while the deadline for other bonds will remain the same (4:30 p.m.). It is also expected that the JSDA’s publication timing for quotes of corporate bonds, etc. will be moved to 6:30 p.m. from 5:30 p.m., while that of other bonds will remain unchanged. This measure was introduced for the purpose of facilitating participation of Association Members (e.g., Association Members with a high share of trading turnover, lead-managing firms) that are able to report appropriate quotes regarding a wide range of issues.
- (iii) The standards for becoming and remaining a designated reporting member were changed. Designated reporting members will now also be required to have corporate bonds, etc. trade turnover ranking among the top 20 member firms except in the case of lead-managing firms that can make quotes for their lead-managing issues.
- (iv) The JSDA will check daily reported quotes and reporting system of designated reporting firms.
- (v) Outlying figures will not be excluded in calculating Reference Prices for corporate bonds, etc. Average, median, highest, and lowest prices shall be calculated using all of the reported figures.

(b) Introduction of Reporting and Publication System for Traded Prices of Corporate Bonds, with Effect from 2 November 2015

Based on the thought that enhancing transparency and maintaining credibility of bond price information by publishing actual traded corporate bonds prices is crucial to activating the corporate bond market, the JSDA has created a reporting and publication system for actual traded prices of corporate bonds that satisfy the rating criteria (AA rated or more) with trading size exceeding JPY100 million. Under this system, which is illustrated in Figure 22, the transaction information will be reported to the JSDA through its member firms, the JASDEC, within the transaction day and the executed prices and other related information—contract dates, ISIN codes, names of bond issues, maturity dates, coupon rates, and trading volumes—will be publicly disseminated on the JSDA website at 9 a.m. on the following business day.

Figure 22: New System to Disseminate Bond Trading Prices for Corporate Bonds

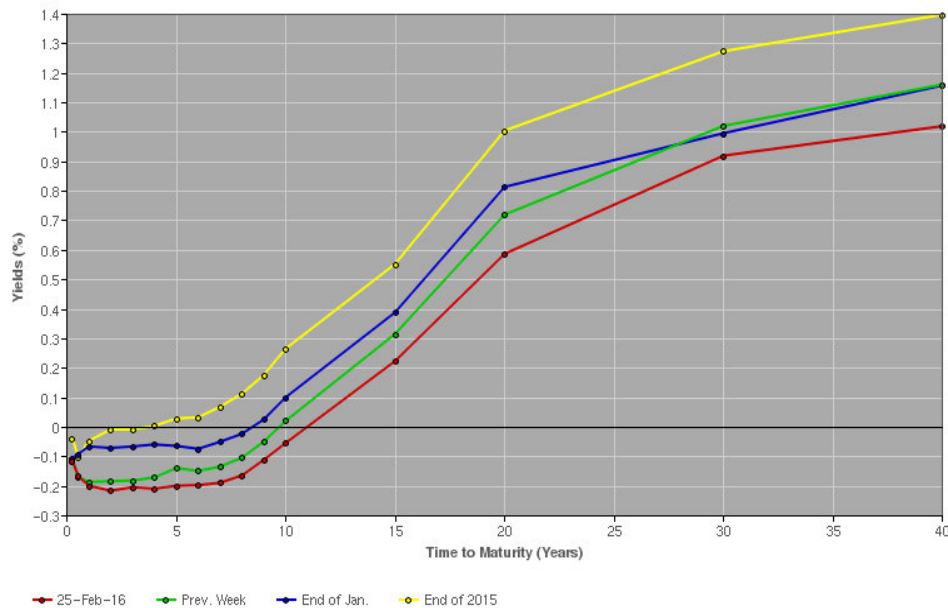


F. Secondary Market Yields and Bond Indexes

1. Secondary Market Yield Curves

Since bond yield information is a significant piece of information for secondary market trading, government bond and corporate bond yields are not displayed on the websites of the regulatory authorities in Japan. Instead, information on JGB yields and corporate bond yields is widely available from securities firms and commercial data providers such as Bloomberg. At the same time, JGB yields are provided as part of a larger offering of Japanese bond market statistics by *AsianBondsOnline*, an initiative of ADB under ASEAN+3. Figure 23 gives an example of a recent image from *AsianBondsOnline* of yield curves for a selected period.

Figure 23: Japanese Government Bond Yield Curve for Selected Periods on AsianBondsOnline



Source: *AsianBondsOnline*. https://asianbondsonline.adb.org/japan/data/marketwatch.php?code=government_bond_yields

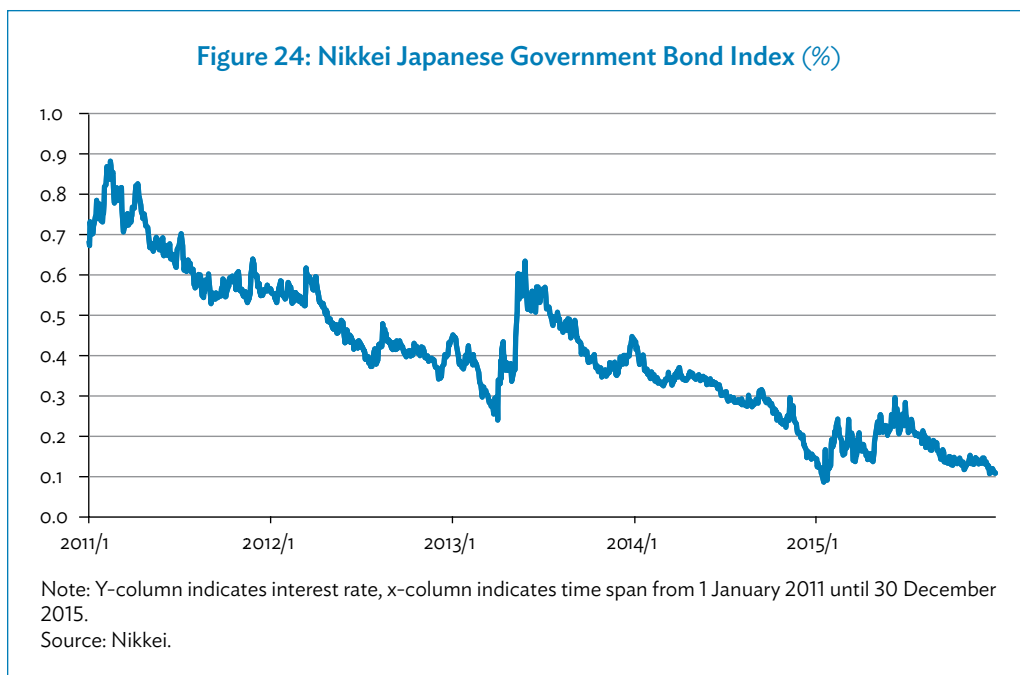
2. Bond Indexes

Nikkei has been providing the Nikkei JGB Index since October 1995 and publishes the index in the morning edition of the Nikkei daily newspaper.⁵⁰ Figure 24 gives an illustration of the yield tracking available in the Nikkei JGB Index.

Nikkei also provides the Nikkei Bond Index, which represents the overall bond market movement (compound average yield), broken down into three subindexes classified according to the remaining period to maturity: (i) long-term (maturity equal to or more than 7 years), (ii) medium-term (maturity equal to or more than 3 years but less than 7 years), and (iii) short-term (maturity less than 3 years). The prices used for the index calculation are taken from the Reference Statistical Prices (Yields) for OTC Bond Transactions provided by the JSDA. The Nikkei Bond Index has been calculated since January 1979 and also appears in the morning edition of the Nikkei daily newspaper.⁵¹

⁵⁰ Nikkei JGB Index Fact Sheet. http://indexes.nikkei.co.jp/nkave/archives/file/nikkei_jgb_index_factsheet_en.pdf

⁵¹ Nikkei Bond Index Fact Sheet. http://indexes.nikkei.co.jp/nkave/archives/file/nikkei_bond_index_factsheet_en.pdf



G. Repurchase (*Gensaki*) Market for Bonds

Japan's repo market consists of (i) bond borrowing and lending transaction, which is the borrowing and lending of bonds with cash as collateral; usually known as the repo market in Japan; and (ii) *gensaki* transactions, which are the combination of sale and purchase transactions for bonds; in effect, the equivalent of the more typical repo transactions practiced in the US and other ASEAN+3 markets.

Historically, *gensaki* transactions were subject to a securities transaction tax; however, this has since been abolished. In order to avoid such taxation, the cash collateralized bond borrowing and lending transaction was conceived as an alternative and has become known as Japan's repo, or cash collateralized repo, transaction.

Japan's repo transactions expanded after the turmoil in Japanese financial markets surrounding the Asian financial crisis because of its suitability for risk management and adoption of new means of financial adjustment by the BOJ in 1997. The replacement of the conventional *gensaki* market as a means of fundraising (mainly for securities companies) has been recognized by investors as a safer means of fund management.

The features of the cash collateralized repo in the form of bond borrowing and lending transactions are unique to Japan. In April 2001, the new *gensaki* transactions that utilize a form of the sale and purchase transaction method based on the global standard were introduced. However, these transactions are not currently popular because the cash collateralized repo market had already established a solid position in the money market before the new *gensaki* market started. Currently, *gensaki* transaction volume is significantly less than that for cash collateralized repo transactions. As of now, the overall market size remains at JPY20 trillion (Figure 25) and the expected shift from the cash collateralized repo market has been limited.

For the purpose of describing the traditional repo business as it is conducted in Japan, this section will focus on the *gensaki* transaction and the market it occupies.

1. Overview of *Gensaki* Market

Repurchase transactions, also called “conditional sale and purchase of bonds, etc.,” or more customarily referred to as *gensaki* transactions in the Japanese market, are bond transactions where the parties agree at the time of trading to execute offsetting trades of the same type and volume of bonds at a predetermined date and price. In *gensaki* transactions, there are brokered *gensaki*, in which a Financial Instruments Business Operator acts as broker between a seller that wants to raise funds and a purchaser that wants to invest funds, and there are dealer *gensaki*, in which the Financial Instruments Business Operator itself becomes the seller or the purchaser. Normally, purchases conditioned on their sellback are called a *gensaki* buy transaction (*kai gensaki*) and sales conditioned on their buyback are called a *gensaki* sell transaction (*uri gensaki*).

Gensaki transactions are bond transactions in which the seller and purchaser mutually agree to fix the yield for the period in a way that is completely unrelated to market fluctuations. While they assume the form of bond trades, *gensaki* are actually a system to fix the yield for a certain period through a combination of interest and the difference between the initial trading price and the offsetting trading price. *Gensaki* transactions also possess the characteristics of financing transactions with bonds as collateral.

In the past, the majority of *gensaki* transactions were for short-term government securities (Treasury Bills and Financing Bills). Despite intensifying competition with other increasingly diversified money market instruments, these government bills have dominated the *gensaki* market, as the bills, which have maturities and credit quality more suitable for *gensaki* transactions, are being increasingly issued to the public.

Although the *gensaki* market developed against the backdrop of this expansion of the short-term government securities market, interest-bearing JGBs have taken center stage since late 1990s, partially because of the massive overall issuance of government bonds. In an effort to modernize and strengthen the international competitiveness of Japan’s money market, the *gensaki* market underwent reforms to improve its functions as a repo market that meets the needs for both short-term financing and bond borrowing, and thus were called “new *gensaki* transactions” starting from April 2001. Up to that point, *gensaki* transactions were bought and sold much like the transactions commonly known as repo trades in Europe and the US but had various shortcomings that necessitated reform. In particular, the *gensaki* market did not have functional risk management facilities or standard rules for dealing with counterparty default. Through these reforms, new measures were instituted and existing provisions were enhanced for risk management and other purposes, establishing the *gensaki* market in accordance with global standards. The newly introduced provisions for risk management and other purposes (clauses in the repo agreement) can be summed up as follows:

(a) Risk Control Clause

The amount of collateral (bonds) shall be adjusted flexibly so as not to cause a shortage of collaterals on account of a fall in the price of bonds submitted as collateral.

- (i) **Application of the Ratio for Computing the Purchase or Sale Value of Bonds (Haircut Clause).** Under this clause, the unit price of bonds (collateral) on the basis of which a repurchase agreement is concluded

is fixed at a level that is a certain percentage point lower than the price prevailing at the time the repurchase agreement is concluded. This is done so that the value of the collateral will not be affected even when the market price of the underlying bonds falls.

- (ii) **Introduction of Management of Collateral (Margin Call Clause).** Under this clause, when the market value of the underlying bonds changes during the period of the repurchase agreement, the amount of credit extended to a party to the repurchase agreement is maintained by adjusting the collateral.
- (iii) **Introduction of the Re-pricing System.** In instances when the market price of the underlying bonds falls sharply from the prevailing market price at the time of the repurchase agreement, the parties to the agreement agree to cancel the agreement and renegotiate a new agreement on the basis of a price then prevailing, on terms and conditions identical to those of the agreement thus canceled.

(b) *Substitution of Underlying Bonds*

Under this clause, the seller of bonds can replace the underlying bonds with other bonds with the consent of the buyer, allowing the seller to use the underlying bonds, if necessary.

(c) *Institution of Netting-Out System*

If the other party goes into default for any reason, such as through bankruptcy, the value of all transactions covered by the agreement will be reassessed based on market prices, and the difference between claims and obligations will be settled.

Gensaki agreements can also be concluded for commercial paper, certificates of deposit, and commercial paper issued overseas. As *gensaki* transactions conveniently meet the short-term funding and cash management needs of investors, their trading volume increased steadily, thanks particularly to the adoption of the new *gensaki* regime by the BOJ for its money market operations. However, recently, the *gensaki* transaction volume has remained stagnant due to the wider use of the cash collateralized repo transaction type that developed historically in Japan.

2. Acceptance of Standards

Under the *gensaki* regime, participants may rely, as an option, on the Global Master Repurchase Agreement provided by the International Capital Market Association.

As the SRO for securities market participants, the JSDA prescribes the rules for the short selling and borrowing and lending transactions of bonds, conclusion of borrowing and lending the transactions of bonds, scope of eligible bonds, and trading method with regard to OTC repo. JSDA also provides sample formats for the Master Agreement of Borrowing and Lending Transactions of Bonds and the consent letter to the Master Agreement of Borrowing and Lending Transactions of Bonds.

The Master Agreement must be executed in advance with the counterparty and the following items must be included: the method of concluding an individual agreement of borrowing and lending of bonds; the payment method for the borrowing fee; the delivery method for the bonds; receipt for collateral money; payment method in the case of foreign

currency; transfer of rights and its pledging; treatment of interests of bonds subject to borrowing and lending transactions; and, lastly, measures for dealing with insolvency.

3. Specific Repo Practices

This section summarizes a number of relevant practices in the repo market in Japan.

The JSDA provides the basic trading framework, rules, and other market practices with the consensus of market participants. In addition, the BOJ regulates the market to a certain extent, being the settlement organization for JGBs.

(a) Types of Repo

In Japan, there are different types of repo transactions within *gensaki*, namely the Special Collateral transactions, which target a specific bond issue, focusing on the borrowing and lending transaction rather than on the financial transaction. The General Collateral transactions do not specify a bond issue and focus on the financial transaction, actually functioning as fundraising tools using the bonds as collateral.

The BOJ is also conducting repo transactions as part of its open market operations.

The introduction of tri-party repo in the context of *gensaki* transactions is presently being discussed in the market, with the idea of a central clearing institutions being mooted.

(b) Eligible Securities

Eligible securities for repo transactions include short-term government securities such as Treasury Discount Bills (Treasury Bills and Financing Bills, collectively T-Bill), coupon-bearing JGBs, commercial paper, certificates of deposit, and commercial paper issued overseas.

(c) Margin

In principle, initial margin and variation margin apply to repo transactions in Japan. At the same time, as most of the *gensaki* transactions involve JGBs, which are considered risk-free collateral in Japan, the haircut for JGB transactions is effectively zero.

(d) Accounting and Tax Treatment

The classic repo, such as the *gensaki* transactions, combines the spot selling and forward buying of bonds or notes, typically in a single contract. A transfer of ownership takes place through the transaction.

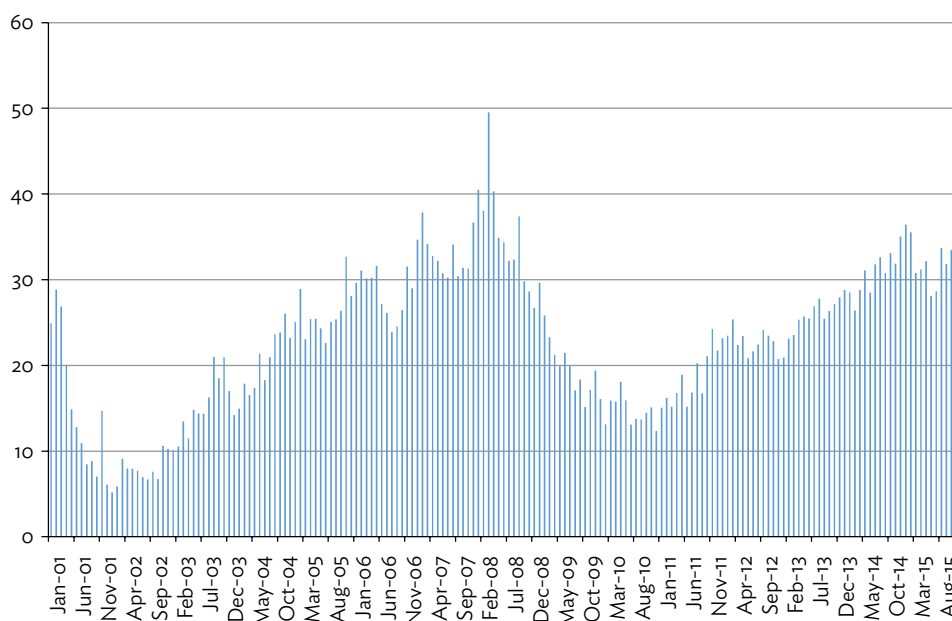
Gensaki transactions are no longer subject to transaction tax (removed in 1999), but are subject to stamp duty. The bond buyer is not subject to withholding tax, but capital gains from the resale of the bonds are subject to corporate tax. Coupon payments arising from holding bonds during a repo transaction are taxable on the basis of applicable corporate tax, but tax exempt for nonresident investors.

(e) Market Participants

Market participants include both domestic and overseas institutional investors, as well as large corporations with their own treasury operations. The main liquidity providers in the repo market are the BOJ, through its open market operations, and typically institutional investors in a surplus position who provide liquidity to investors short of funds but with eligible securities holdings.

Foreign institutional investors may participate in the repo market in Japan, but have to make use of a domestic intermediary to access the market.

Figure 25: End-of-Month Balances of Bond Transactions with Repurchase Agreements (JPY trillion)



Source: Japan Securities Dealers Association. <http://www.jsda.or.jp/shiryō/toukei/jyouken/files/gst.xls>

H. Bond Borrowing and Lending

When investors have shorted bonds (or sold bonds that they do not own) and failed to buy them back before the settlement date, they turn to bond lending services to borrow bonds to deliver. Such transactions are also known as *saiken* repo (bond repo) in Japan. For the purposes of this type of transactions, the use of bonds and notes is just referred to as bond lending.

When cash is used as collateral, bond lending is economically equivalent to *gensaki* transactions. Since market participants can obtain bonds through bond lending facilities after trades are consummated, they can sell bonds that they do not own (sell short) when

they feel that the bond market is too expensive or particular issues are overvalued. Such operations contribute to greater liquidity in the market.

Bond lending was instituted by legislation in 1989, following the lifting of the practical ban on bond short selling. In fear of potential effects on the financial health of brokers and dealers and bond pricing, market participants had previously been requested to refrain from selling bonds short. The ban, however, was lifted to help encourage active market making in cash bonds, and arbitrage between cash bonds and futures, and bond borrowing and lending was introduced as one of the means to locate bonds to deliver.

Initially, cash-collateral bond borrowing and lending was restricted in light of potential conflicts with the *gensaki* market and other considerations and, subsequently, most transactions were uncollateralized. However, with credit fears rising, the bond lending market remained stagnant, and cash collateral bond borrowing and lending transactions were effectively deregulated in 1996 to invigorate the market.

When viewed from a legal standpoint, a bond lending transaction is deemed to be a contract for a loan for consumption—a borrower borrows bonds for the purpose of consumption and, when due, the borrower has only to return bonds identical in kind and quantity to those originally borrowed.

Bond lending transactions may be broadly classified into unsecured transactions and secured transactions depending on whether they are collateralized or not. Secured bond lending transactions may be further divided into cash-collateralized transactions and securities-collateralized transactions by the type of collateral being pledged. Cash-collateralized transactions used to borrow specific bond issues are called specified collateral *torihiki* (specified collateral trades), while those for financing and cash management without such specification are termed general collateral *torihiki* (general collateral trades).

The size of the bond lending market (in terms of the balance of outstanding loans) has generally been growing since cash-collateralized transactions were deregulated in 1996. The market has grown from approximately JPY30 trillion at the end of FY1996, including approximately JPY17 trillion in cash-collateralized transactions, to JPY106 trillion at the end of FY2008, including approximately JPY97 trillion in cash-collateralized transactions. After the global financial crisis, the balance has taken time to reach the same levels and was at JPY104 trillion at the end of May 2014, including approximately JPY101 trillion in cash-collateralized transactions. The breakdown of institutions engaged in bond lending transactions is shown in Table 32. The majority of bond lending transactions are conducted with government securities.

I. Bond Market-Related Derivatives

In Japan, investor can trade bond futures and bond options. Short-term interest rate futures were discontinued in 1998. JGB futures and options on JGB futures are currently traded on OSE under the JPX Group.

In Europe and the US, where options trading has long been conducted, investors are quite familiar with the relevant system. However, in Japan, investors utilize options trading less often than futures trading. Particularly, the amount of trading in options on 10-year JGB futures is far smaller than that of 10-year JGB futures trading.

Table 32: Bond Lending Balances (JPY billion)

Market Participants	Borrowing Balance	Lending Balance
City banks	5,900	960
Regional banks	1,082	45
Trust banks	27,772	17,612
Financial institutions for agriculture and forestry	1,222	4
Second-tier regional banks	337	0
Shinkin banks	460	100
Other financial institutions	14,994	7,706
Life and non-life insurance	4,161	491
Investment trust	0	639
Mutual aid associations of government offices	0	0
Business corporations	24	10
Other organizations	0	10
Nonresidents	167	204
Others	12,593	19,287
Bond dealers	35,410	57,054
Total	104,122	104,122
Collateralized portion	101,233	101,233

Notes:

1 Figures are as of 31 May 2014, based on reports by all members of the Japan Securities Dealers Association.

2 Trading in financial accounts is not included.

Source: Japan Securities Dealers Association. <http://www.jsda.or.jp/shiryō/toukei/taishaku/files/tst/tst.xls>

Table 33: Bond Market-Related Derivatives Products on the Osaka Exchange

Underlying JGB	Related Derivatives
Standardized 3%, 5-year JGB	5-year JGB futures
Standardized 6%, 10-year JGB	10-year JGB futures
	Options on JGB futures
Price of standardized 6%, 10-year JGB	Mini-10-year JGB futures
Standardized 3%, 20-year JGB	20-year JGB futures

JGB = Japanese Government Bond.

Source: Japan Exchange Group. <http://www.jpx.co.jp/english/derivatives/products/jgb/index.html>; <http://www.jpx.co.jp/english/derivatives/products/jgb/jgb-futures/01.html>; <http://www.jpx.co.jp/english/derivatives/products/jgb/jgbf-options/01.html>; <http://www.jpx.co.jp/english/derivatives/products/jgb/mini-jgb-futures/01.html>

This section details some of the available derivatives related to the bond market in Japan and their characteristics.

1. Japanese Government Bond Futures

Trading in 10-year JGB futures was introduced on TSE in 1985—the year in which JGBs were issued in massive amounts—representing the first financial futures trading in Japan.

In 1988, super-long 20-year JGB futures—which were discontinued in 2002 before trading resumed in 2014 on the OSE—were listed on the TSE. With the trading in 5-year JGB futures starting on the TSE in 1996, Japan had finally developed a futures product mix comparable to that of other developed economies.

The OSE still offers these three types of JGB futures contracts. In addition, the OSE also offers a contract of mini-10-year JGB futures.

2. Futures Market Characteristics

All the bond futures have been traded on the OSE since 2014.

One of the characteristics of the bond futures market of Japan is that trading is concentrated in 10-year JGB futures. This reflects the fact that the maturities of government bonds are heavily concentrated in 10-year issues, as with cash bond trading, which is not unique to the bond futures market.

Another specific feature of the bond futures trading in Japan, in particular compared to other mature markets, is that a trading unit has a par value of JPY100 million, about 10 times as large as trading units in other markets. Due to the large unit size, the number of bond future contracts traded tends to be smaller.

Since the mid-1990s, however, the concentration of cash-based JGB trading on the benchmark issue, which was a phenomenon peculiar to Japan, has eased. Since the end of March 1999, the practice of designating a certain JGB as a benchmark issue has been discontinued, with 10-year JGB futures assuming the role played by such benchmark issues.

In addition, a futures type known as contract-for-difference was introduced on mini-10-year JGB futures, which are one-tenth the amount of normal 10-year JGB futures, and have been listed on the TSE since the end of March 2009. This sought to address the original larger unit size of bond futures contracts, but its trading has remained at less than 1% of 10-year JGB futures overall.

3. Options on Japanese Government Bond Futures

In Japan, the first bond options trading was conducted on the OTC market under the name of “trading in bonds with options” in April 1989. Trading in options on 10-year JGB futures started in 1990, and trading in options on 5-year JGB futures commenced in 2000—before being discontinued in 2002—both on the TSE.

At present, the OSE, which is part of the JPX Group, only offers one option contract on 10-year JGB futures.

4. Bond Options Market Characteristics

Options on bond futures are traded on the OSE or in the OTC market.

Unlike bond futures trading, which are conducted on the basis of a benchmark issue, OTC bond options are traded on the basis of individual issues, such as JGBs, corporate bonds, or foreign bonds. Because they are traded on the OTC market, bond options agreements cannot be assigned to a third party (most of the transactions are for JGBs).

As with JGB futures trading, bond options are traded in units with a par value of JPY100 million. Because their life (from the date of contract to the date of delivery) is restricted to a maximum period of 1 year, and as they cannot be resold to a third party, contracts usually run a relatively long period—6 months or 1 year.

By contrast, options on 10-year JGBs futures are available in the form of OSE-listed American options (the option can be exercised any day during its life), and their trading mechanism is similar to that of 10-year JGB futures. While 10-year JGB futures have only three contract months with a maximum period of 9 months, options on 10-year JGB futures offer up to 4 contract months with a maximum period of 6 months. In addition, compared with OTC bond options, transactions in 10-year JGB futures and options on 10-year JGB futures are concentrated in those with a short remaining life.