2 JGB Issuance Plan for FY2020

(1) Announcement of JGB Issuance Plan for FY2020

Japan has the worst fiscal conditions among major developed countries, including outstanding general JGBs estimated at about 906.0 trillion yen for the end of FY2020 and outstanding long-term central and local government debts at 1,125 trillion yen. It is getting more important for the Japanese government to adequately implement JGB Management Policy to secure the market's stable absorption of JGBs.

On December 20, 2019, the Japanese government publicly announced the JGB Issuance Plan for FY2020 in line with a Cabinet decision on the draft FY2020 government budget.

When developing the JGB Issuance Plan for FY2020 where JGB issues including Refunding Bonds will total 153.5 trillion yen, the government held careful dialogues with market participants through the Meeting of JGB Market Special Participants and some other dialogue sessions and has formulated JGB Issuance Plans for each bond issuance method, paying attention to investors' needs and market trends.

(2) Overview of Discussions at Various Panels

The Advisory Council on Government Debt Management at its meeting in October 2019 started discussions for the development of the JGB Issuance Plan for FY2020. It then discussed the significance of JGB issuance based on a medium- to long-term demand trend and a medium- to long-term view on investors' JGB demand.

- It was pointed out that while the market's functioning has almost been lost, how to make use of the super long-term zone the market's functioning remains effective is very important.
- It was noted that with regard to the short- to medium-term zone under negative yield, the market's functioning still remains for foreign investors since JGBs for such tenors are relatively cheap for them.

At the Meeting of JGB Market Special Participants (primary dealers) and the Meeting of JGB Investors in November 2019, participants discussed details of the JGB Issuance Plan for FY2020. Main opinions were as follows:

- An increase in issuance should be considered for 40-Year Bonds. The yield curve for 40-Year Bonds for the past six to 12 months is flatter than for 10-Year Bonds, indicating stronger demand for 40-Year Bonds than indicated by their issuance amount. So, 40-Year Bonds can afford to be increased.
- Liquidity enhancement auctions are suitable for a cut in issuance. Issuance amounts for such auctions for bonds maturing in 5 to 15.5 years can afford to be reduced as needs for such auctions have been lost due to the Bank of Japan's relaxation of requirements for its Securities Lending Facility.

Based on discussions at these panels, the government has developed the JGB Issuance Plan for FY2020.

(3) Scheduled Issuance Amount of JGBs

Ref: II Chapter 1 1(1) "JGBs by Legal Grounds of Issuance" (P38)

A. Breakdown by legal grounds

Under the FY2020 budget, the MOF plans to increase the JGB issuance amount by 4.7 trillion yen from the initial level for FY2019 to a very high level of 153.5 trillion yen.

A breakdown of the FY2020 JGB issues shows that Construction Bonds and Special Deficit-Financing Bonds issues to provide revenues for the General Account Budget have been reduced by 0.1 trillion yen from the initial level for FY2019 to 32.6 trillion yen. Aiming at financing reconstruction projects for recovering from the Great East Japan Earthquake, Reconstruction Bonds are issued as bridging finance until Special Taxes for Reconstruction and other revenues are receivable to the government. In FY2020, the government is planning to issue Reconstruction Bonds worth 0.9 trillion yen, down 0.0 trillion yen from the initial level for the previous year. The FILP Bonds issuance amount is determined not only by the scale of new lending under the Fiscal Loan Program but also by the financial position of the overall Fiscal Loan Fund. The FY2020 FILP Bonds issuance amount is set at 12.0 trillion yen, unchanged from the initial level for the previous year. Refunding Bonds are issued to refund the General Bonds that were issued in the past and are due to mature, accounting for a majority of total annual JGB issues. In FY2020, the Refunding Bonds issuance amount is planned to increase by 4.8 trillion yen from the initial level of the previous year to 108.0 trillion yen.

Fig.1-6 JGB Issuance Plan for FY2020 (Breakdown by Legal Grounds)(☞①～③)

(Unit: billion yen)

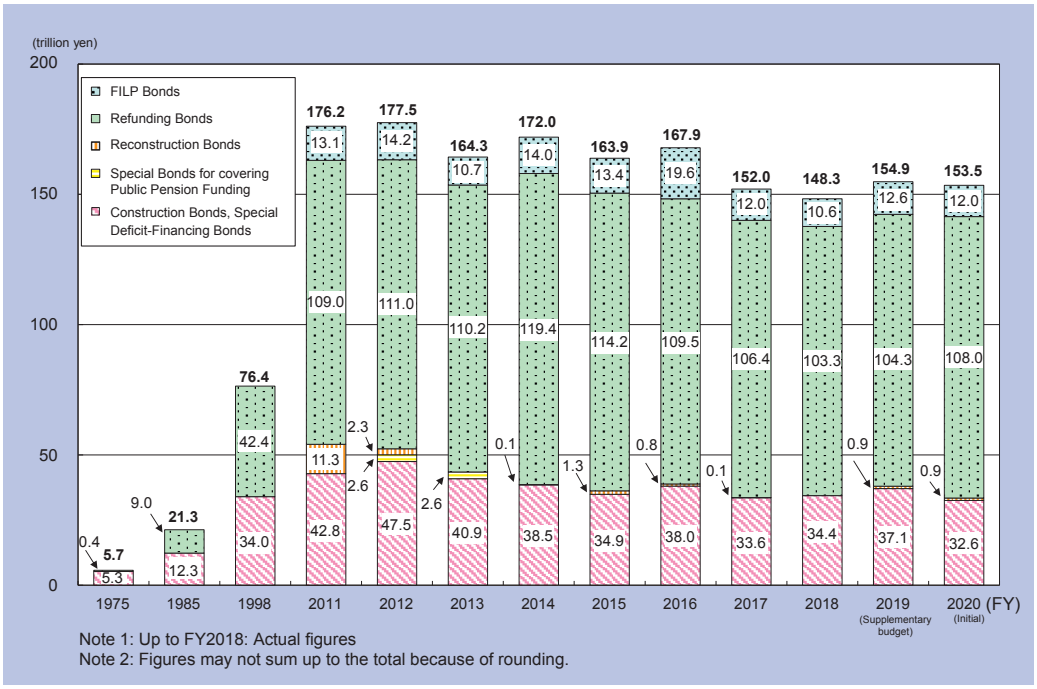
	FY2019 (Initial)	FY2020 (Initial)	
	(a)	(b)	(b) - (a)
Newly-issued Bonds	32,660.5	32,556.2	▲104.3
Construction Bonds	6,952.0	7,110.0	158.0
Special Deficit-Financing Bonds	25,708.5	25,446.2	▲262.3
Reconstruction Bonds	928.4	924.1	▲4.3
FILP Bonds	12,000.0	12,000.0	—
Refunding Bonds	103,140.4	107,981.8	4,841.4
For matured Reconstruction Bonds	1,808.0	1,693.2	▲114.8
Total	148,729.3	153,462.1	4,732.8

☞① Figures may not sum up to total because of rounding.

☞② Buy-backs from the market in FY2020 will be determined based on the MOF's discussion with market participants and market conditions.

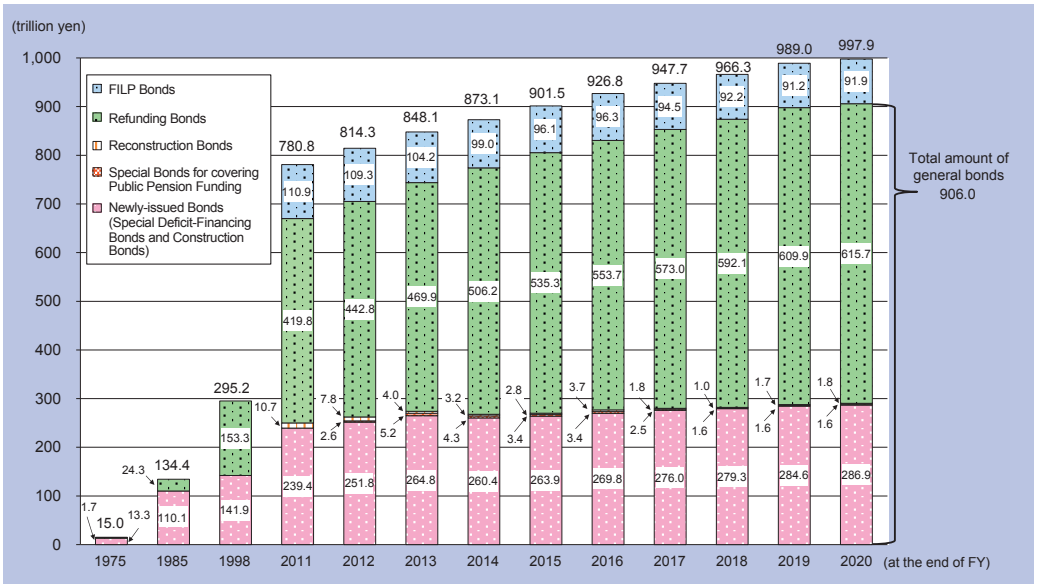
☞③ The maximum amount of front-loading issuance of Refunding Bonds in FY2020 is 43 trillion yen.

Fig.1-7 Historical Changes in JGB Total Issuance Amount



Note 1: Up to FY2018: Actual figures
Note 2: Figures may not sum up to the total because of rounding.

Fig.1-8 Historical Changes in Outstanding Amount of JGB



Note 1: Up to FY2018: Actual figures
FY2019: Estimate based on the JGB Issuance Plan for FY2019 (supplementary budget), including 53 trillion yen of front-loading refunding bonds
FY2020: Estimate based on the JGB Issuance Plan for FY2020 (initial), including 43 trillion yen of front-loading refunding bonds
Note 2: Figures may not sum up to the total because of rounding.

B. Breakdown by Issuance Methods

The FY2020 JGB issuance amount of 153.5 trillion yen required for the budget as mentioned in the previous section is categorized by three issuance methods: "JGB market issuance," "Sales for Households" and "BOJ Rollover."

Of the "JGB market issuance" accounting for most of the total JGB issuance, the calendar-based JGB Market Issuance amount (☞①) is cut by 0.6 trillion yen from the initial level for the previous year to 128.8 trillion yen.

The JGB issuance amount for Non-Price Competitive Auction II, etc., which has included the planned amount for Non-Price Competitive Auction II (☞②,③) and the revenue from JGB issuance at prices above par value since the supplementary budget for FY2017, is put at 8.0 trillion yen for FY2020.

Sales for Households, which widely fluctuates depending on interest rate and other trends, is set at 4.8 trillion yen, up 0.1 trillion yen from the initial level for FY2019, with current sales conditions taken into account.

"BOJ Rollover" is put at 2.2 trillion yen, unchanged from the initial level for the previous year, based on the total JGB issuance amount and market conditions.

Fig.1-9 JGB Issuance Plan for FY2020 (Breakdown by Financing Methods) (☞④,⑤)

(Unit: billion yen)

	FY2019 (Initial)	FY2020 (Initial)	
	(a)	(b)	(b) - (a)
JGB Market Issuance (Calendar Base)	129,400.0	128,800.0	▲600.0
Non-Price Competitive Auction II, etc.	8,564.0	7,988.4	▲575.6
Adjustment between fiscal years	3,865.3	9,673.7	5,808.4
Subtotal (financed in the market)	141,829.3	146,462.1	4,632.8
Sales for Households	4,700.0	4,800.0	100.0
BOJ Rollover	2,200.0	2,200.0	—
Total	148,729.3	153,462.1	4,732.8

☞① The calendar-based JGB Market Issuance refers to the amount (par value) of JGBs planned to be regularly issued through scheduled auctions from April to next March.

☞② Non-Price Competitive Auction II (Ref: II Chapter 1 1 (3) "Methods of Issuance" (P43)).

☞③ The issuance amount for Non-Price Competitive Auction II is determined by deducting an amount representing the impact of a cut in the upper bid limit for Non-Price Competitive Auction II from 7% of the JGB Market Issuance amount for JGBs subject to the auction (40-Year, 30-Year, 20-Year, 10-Year, 5-Year, 2-Year Bonds and 10-Year Inflation-Indexed Bonds) (After the supplementary budget for FY2019, results will be reflected).

☞④ Figures may not sum up to total because of rounding.

☞⑤ "Adjustment between fiscal years" refers to leveling-off of issuance amount between fiscal years through front-loading issuance and deferred issuance in the accounting adjustment term. (Ref: II Chapter 1 1(1) "JGBs by Legal Grounds of Issuance" (P38)).

(4) JGB Issuance Plan Based on Market Trends and Needs

The maturity composition of the calendar-based JGB market issuance amount is determined with market needs and trends taken into account, covering maturities from the short term to the super long term, based on government debt management policy requirements.

The FY2020 JGB Issuance Plan increased the issuance amount for 40-Year Bonds while decreasing the issuance amount for bonds maturing in 5 to 15.5 years for Liquidity Enhancement Auctions, for which needs have declined, with the low interest rate environment and market needs taken into account.

As a result, the average maturity of outstanding JGBs (stock basis) at the end of FY2020 is estimated at nine years and four months.

Zones and each zone's issuance amount for Liquidity Enhancement Auctions, the issuance amount for Inflation-Indexed Bonds, etc. will be flexibly adjusted in response to the market environment and investment needs, based on discussions with market participants (Fig. 1-11).

Fig.1-10 Market Issuance Plan by JGB Types for FY2020 (☞①～④)

(Unit: trillion yen)

	FY2019 (Initial)		FY2020 (Initial)		
	(per time)	(total ; a)	(per time)	(total ; b)	(b) − (a)
40-Year (☞①)	0.4 × 6times	2.4	0.5 × 6times	3.0	0.6
30-Year	0.7 × 12times	8.4	0.7 × 12times	8.4	—
20-Year	0.9 × 12times	10.8	0.9 × 12times	10.8	—
10-Year	2.1 × 12times	25.2	2.1 × 12times	25.2	—
5-Year	1.9 × 12times	22.8	1.9 × 12times	22.8	—
2-Year	2.0 × 12times	24.0	2.0 × 12times	24.0	—
TBs(1-Year) (☞②)	1.8 × 12times	21.6	1.8 × 12times	21.6	—
10-Year Inflation Indexed (☞③)	0.4 × 4times	1.6	0.4 × 4times	1.6	—
Liquidity Enhancement Auction (☞④)		12.6		11.4	▲1.2
Total		129.4		128.8	▲0.6

☞① In FY2020, 40-Year Bonds will be issued in May, July, September, November, January and March.

☞② The total issuance of T-Bills, combining Treasury Bills (TB) and Financing Bills (FB), is planned at 1.9 trillion yen per issue.

☞③ 10-Year Inflation-Indexed Bonds will be issued in May, August, November and February. The size of 10-Year Inflation-Indexed Bonds issuance will be made flexibly, based on market conditions and discussion with market participants.

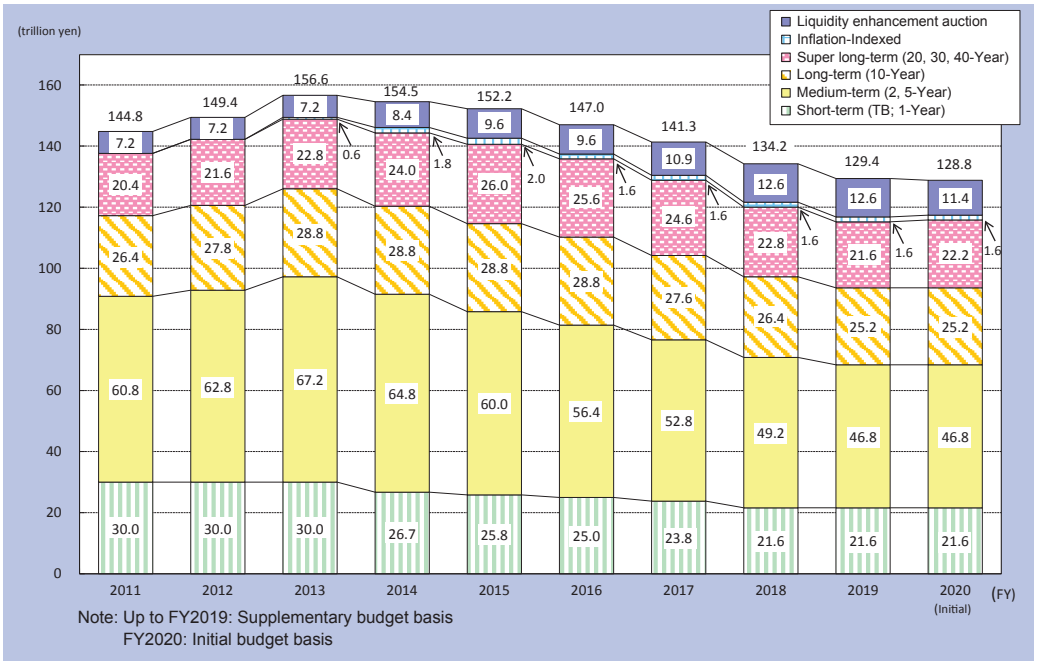
☞④ Zone-by-zone issuance amounts and other details of Liquidity Enhancement Auctions are flexibly adjusted in response to the market environment and investment needs based on discussions with market participants.

Fig.1-11 Issuance Amounts by Zones for Liquidity Enhancement Auctions

(Unit: trillion yen)

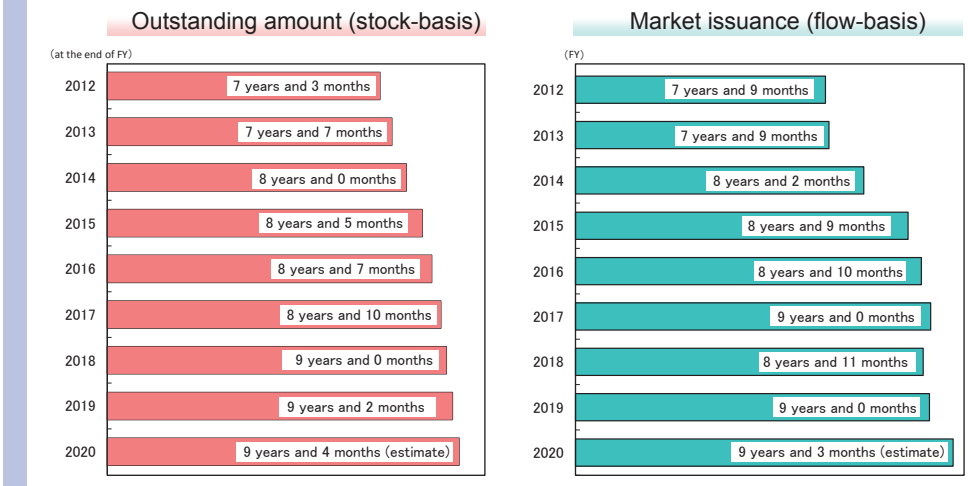
	FY2019 (Estimate)	FY2020 (Initial)	Compared to FY2019 (Estimate)
15.5-39 years	3.0	3.0	—
5-15.5 years	7.2	6.0	▲1.2
1-5 years	2.4	2.4	—
Total	12.6	11.4	▲1.2

Fig.1-12 Historical Changes in JGB Market Issuance by JGB Types



Note: Up to FY2019: Supplementary budget basis
FY2020: Initial budget basis

Fig.1-13 Average Maturity of JGBs



Note 1: Outstanding amount of general bonds
Note 2: Up to FY2019: Actual figures
FY2020: Estimate by adding calendar base issuance amount of the JGB Issuance Plan for FY2020 (Initial), including 43 trillion yen of front-loading refunding bonds

Note: Up to FY2019: Actual figures
FY2020: Estimate by adding calendar base issuance amount of the JGB Issuance Plan for FY2020 (Initial)

Column 2 "Excess Revenue from JGB Issuance at a Price above Par Value" under Negative Interest Rates

❶ Excess Revenue under Negative Interest Rates

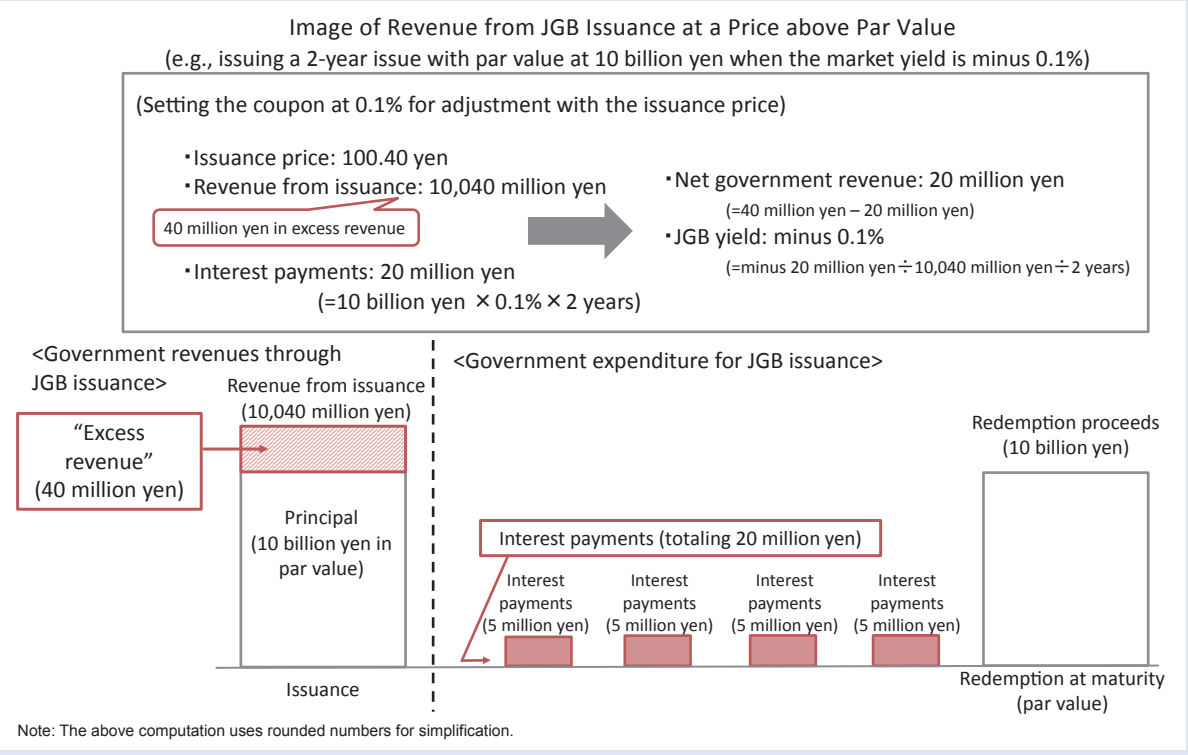
As described in Column 1 "JGB Yields," the government presets coupons and maturities before issuing JGBs.

A coupon is preset according to a market yield level upon auction. As the minimum coupon is put at 0.1%, however, a market yield upon auction frequently slips below a coupon under current negative interest rates.

If the coupon exceeds the market yield, many market participants may try to buy JGBs yielding high interest income, resulting in a higher issuance price (payments from buyers to the government) set through auction than a par value (government payments upon redemption).

When the market yield on a 2-year issue (with par value at 100 yen) is minus 0.1%, the coupon is set at 0.1% (Fig. c2-1). Then, the issuance price comes at 100.40 yen (= (100+0.1×2 years) ÷ (100+ minus 0.1×2 years) ×100). If the issue worth 10,000 million yen at par is issued, government revenue would come to 10,040 million yen, resulting in 40 million yen in "excess revenue." As government interest payments over 2 years to redemption total 20 million yen, the government's net revenue would come to 20 million yen, matching 20 million yen (= 10,040× minus 0.1%×2 years) meeting the market yield.

Fig.c2-1 Image of Revenue from JGB Issuance at a Price above Par Value



Note: The above computation uses rounded numbers for simplification.

In this way, the issuance price and revenue amount seemingly indicate "excess revenue." In exchange for the excess revenue, however, the government will have to pay a higher interest (0.1%) than the market yield (minus 0.1%). Over a long term, the "excess revenue" will be reduced, leading the government to receive revenue (or incur costs) meeting the market yield.

❷ Adequate Debt Management Promotion under Negative Interest Rates

As explained in ❶, the market yield upon auction slips below the coupon in the low interest rate environment, leading revenue from JGB issuance to exceed the par value. As a result, actual JGB issuance revenue exceeds the originally planned JGB issuance revenue amount, bringing about a deviation between planned and actual JGB issuance revenue amounts.

The MOF implements the following measures to correct any deviation between planned and actual JGB issuance revenue amounts.

① Since the FY2018 JGB Issuance Plan, the MOF has underestimated the JGB Market Issuance (Calendar Base) based on the par value, taking into account issuance prices' excess over par value in auctions.

② The MOF is going to lower the minimum coupon rate now at 0.1% to correct any deviation between the market yield and a coupon upon auction.

As the JGB issuance authority, the MOF will continue its effort to promote adequate debt management through these measures.

Column 3 Approach on Average Maturity of JGBs (Flow and Stock Basis)

In the Debt Management Policy, the basic principle is to devise an adequate maturity distribution while considering the tradeoff between fundraising costs and refunding risks. In formulating the annual JGB Issuance Plan, the Ministry of Finance had tried to lengthen the average maturity of JGBs in view of low interest rates.

What should be given priority from the viewpoint of the Debt Management Policy to address interest rate hike risks is the average maturity of the outstanding balance of JGBs (stock basis). In the past, however, the government paid attention to the average maturity of the calendar-based JGB issuance (flow basis). One of the reasons was that the flow-basis average maturity was easy to be grasped as statistics.

If the Ministry of Finance continues to draft the annual JGB Issuance Plan for the purpose of lengthening the flow-basis average maturity, however, they may not be able to make flexible responses to temporary demand trends, leading fundraising costs to increase. If market environment changes force the average maturity to be shortened rapidly, market participants may lose confidence in the Debt Management Policy.

As the outstanding balance of JGBs had increased, the influence that a change in the annual flow-basis maturity distribution exerts on the stock-basis average maturity had declined. Even if the flow-basis average maturity is kept at the present level, the stock-basis average maturity is expected to remain stable for the immediate future.

Therefore, the Ministry of Finance currently formulates the JGB Issuance Plan while paying attention to the market needs that have been aware of through various meetings, the structure of the JGB investor base and major investors' debt mix, and assessing a proper level for the stock-basis average maturity without necessarily sticking to lengthening the flow-basis average maturity.

(Reference) Ideas about new super long-term government bonds including 50- and 100-Year Government Bonds

As government debt issuance based on market needs and the diversification of debt issues are key matters of consideration regarding stable Debt Management Policy implementation, the government has issued government bonds with various maturities ranging from 1 to 40 years.

While new super long-term bonds including 50- and 100-Year Government Bonds have attracted attention in the recent low interest rate environment, Japan has been able to raise funds as required by issuing those existing bonds even without resorting to 50- or 100-year bonds.

In general, an increase in super long-term bonds allows the government to avoid the risk of rising interest rates at the time of short-term bond redemption and refunding. However, interest rates on super long-term bonds are higher than on shorter-term ones, leading to a rise in debt service costs. In this way, there is a tradeoff between the risk and costs regarding the issuance of super long-term bonds.

To ensure the smooth, secure issuance of Japanese Government Bonds and minimize medium- to long-term fundraising costs, including super long-term bonds, it is indispensable to issue them in a manner to meet medium- to long-term market needs.

Column 4 Cost-at-Risk Analysis

❶ Objective

In October 2019, the government convened a meeting of the Advisory Council on Government Debt Management to launch discussions for drafting the JGB Issuance Plan for FY2020.

Government debt management must deal with various future risks. It is important to properly assess and manage these risks in order to minimize the fundraising cost in the medium-to-long term.

In drafting the annual JGB issuance plan, the Ministry of Finance engages in a dialogue with market participants and additionally uses the results of the Cost-at-Risk ("CaR") analysis for quantitative examination purposes.

CaR and other quantitative analyses are not the only things used for drafting the JGB issuance plans. It is vital that the JGB issuance plan is formulated on the basis of comprehensive judgment covering investor demand based on dialogue with market participants, the need for maintaining and enhancing market liquidity, and other factors.

❷ CaR Analysis

The CaR analysis simulates future chronological interest rate fluctuations with a probabilistic interest rate model and measures and assesses the distribution of future interest payment rates arising from JGB Issuance Plans and the outstanding amount of JGBs. The analysis estimates the average of interest payment rates (cost) in the next 10 years and the degree of their fluctuations (risk).

Fig.c4-1 Framework of CaR Analysis

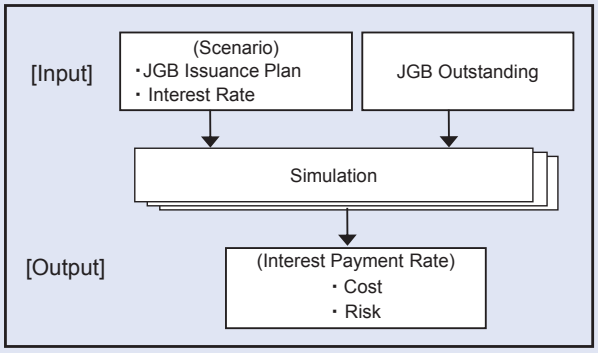
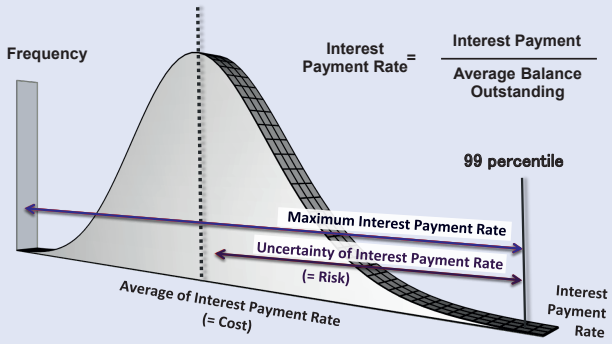


Fig.c4-2 Distribution of Interest Payment Rates (Conceptual Diagram)



❸ Cost and Risk Trend

Following is the CaR analysis at a meeting of the Advisory Council on Government Debt Management in October 2019. Fig. c4-3 shows cost and risk estimates based on "the current yield curve (blue line at the end of September 2019)" and "the past yield curve (red line at the end of December 2018)."

The cost and risk estimates based on the current yield curve are lower than those based on the past yield curve. This is attributable to an interest rate environment change in which interest rate and volatility levels generally declined (Fig. c4-4).

Fig.c4-3 Cost-risk relationship

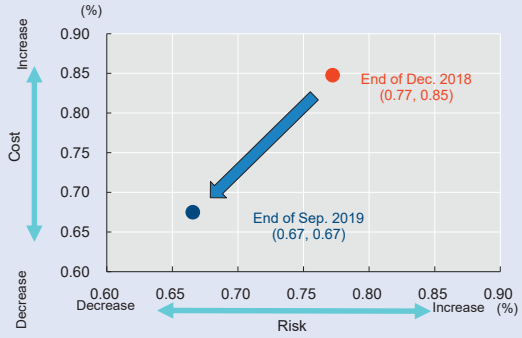
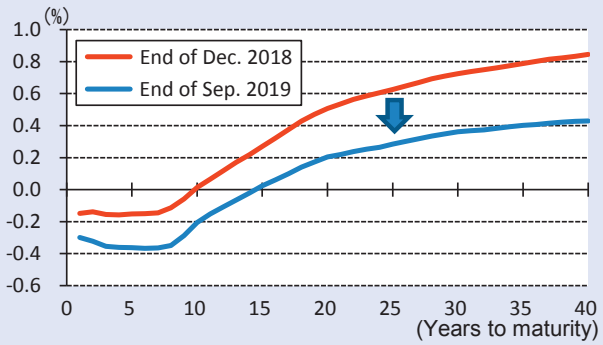


Fig.c4-4 Yield curves



[Assumptions]

- **Analysis period: 10 years ("at the end of September 2019" : from FY2019, "at the end of December 2018" : from FY2018)**
- **Interest rate: Simulated based on the level at the end of September 2019 (the end of December 2018) and the volatility over the past 20 years**
- **Target debt: General Bonds (excluding the Special Bonds for Covering Public Pension Funding and the Reconstruction Bonds)**
- **Amounts of newly issued Bonds: "Economic Growth Achieved Case" in the Cabinet Office's "Economic and Fiscal Projections for Medium to Long Term Analysis (July 2019)"**
- **Amounts of Refunding Bonds: Refunding Bonds based on redemption for each fiscal year**

Note: Excluding FILP Bonds and Liquidity Enhancement Auctions. Using the maturity mix of JGBs for Retail Investors on JGB issuance plan for FY2019.

❹ Impact of Discontinuous Interest Rate Rises on Interest Payment Rates

While the above CaR analysis is based on the current low interest rate environment (at the end of September 2019), the impact of discontinuous interest rate rises is required to be checked. The following figures (Figs. c4-5 and c4-6) compare the current interest payment rate (④) with those for the automatic extensions (① steepening, ② flattening and ③ parallel shifting) of the current yield curve.

Interest payment rates dramatically change depending on yield curve shapes. This point should be taken into account when future JGB issuance is considered.

Fig.c4-5 Changes in (Average) Interest Payment Rates

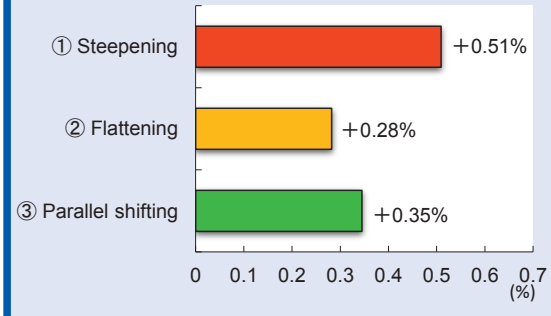
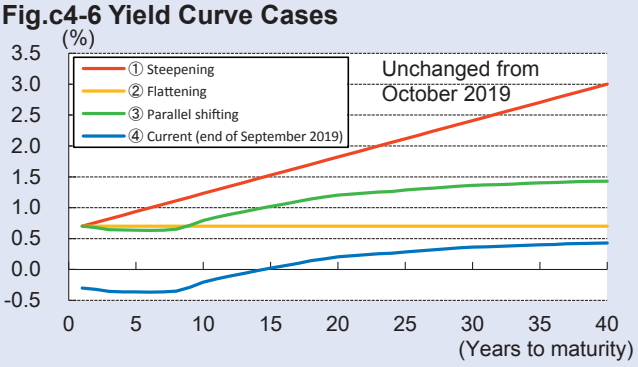


Fig.c4-6 Yield Curve Cases



Note: Interest rate assumptions: The current level plus 1% for all maturities for parallel shifting, a 1-year rate for all maturities after parallel shifting for flattening, or a linear interpolation between 1-year rate after parallel shifting and a 40-year rate around 2.3% above the 1-year rate (the historical maximum gap between 1- and 40-year rates) for steepening.