Japanese government bond - primary and secondary market -

October 2023 Takeharu Tominaga, Ministry of Finance

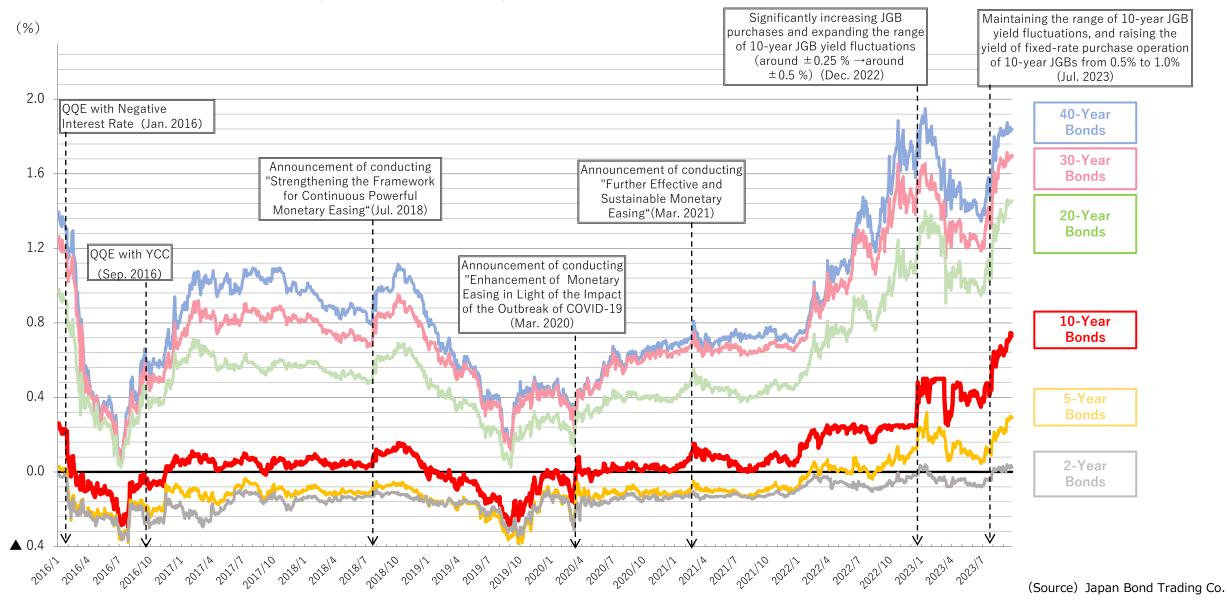
Outline

- 1. Overview of JGBs
- 2. Debt Management and JGB instruments
- 3. Liquidity of JGB market
- 4. Japan's Green Transformation (GX)
- 5. Appendix

1. Overview of JGBs

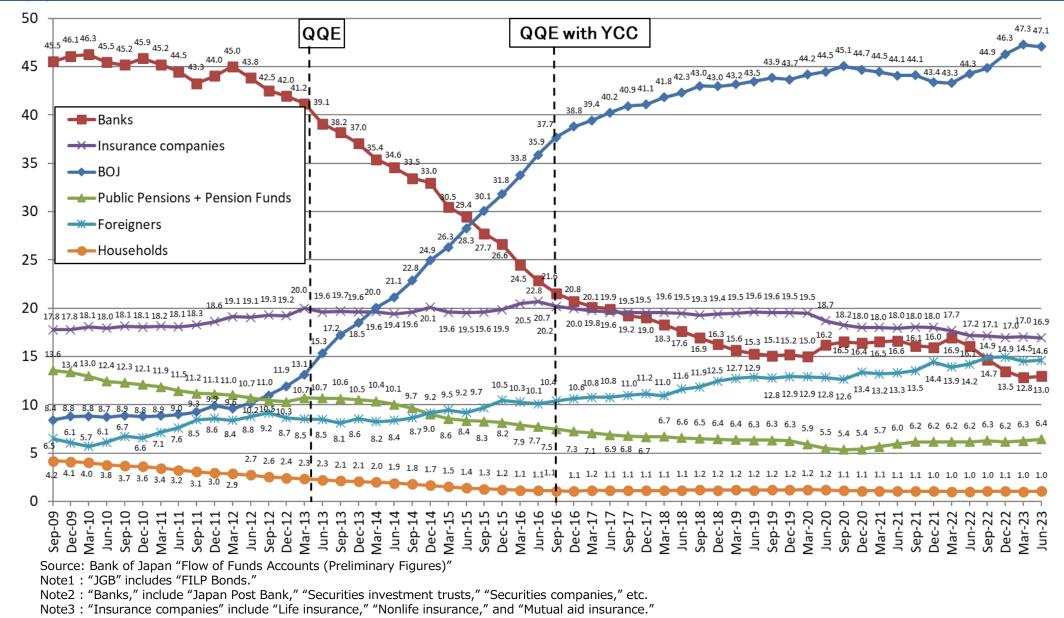
JGB Yield Trends by Maturity

The JGB interest rates across the tenors have risen to a level unseen after the adoption of QQE with a negative interest rate in 2016, while they remain relatively low compared with their peers.



Share of JGB and T-Bill –Breakdown by Holders-

Since BOJ adopted QQE in 2013, JGBs holdings by BOJ has increased while JGB holding by the banking sector has decreased.



Japan's Sovereign Rating by Major Credit Rating Agencies

CRAs have divergent views on JGBs. The government maintains close dialogue with CRAs and ensure transparency.

Moody's	S&P	Fitch	R&I	JCR
98.11.17 Aaa	AAA			00.10.31 AAA
Aa1	01.2.22 AA+	00.6.29 AA+	11.12.21 🖓 AA+	AA+
Aa2		01.11.26 AA	AA	AA
Aa3	$4 \stackrel{02.4.15}{\searrow} AA \stackrel{}{\square} \stackrel{(11.1.27)}{\square}$	^{02.11.21} AA-	AA-	AA-
02.5.31 08.6.30 14.12.1 A1	$A + 2^{3}$ 15.9.16	^{12.5.22} A+	A+	A+
A2	A	15.4.27 A	А	А
A3	A-	A-	A-	A-
Baa1	BBB+	BBB+	BBB+	BBB+
Baa2	BBB	BBB	BBB	BBB
Baa3	BBB-	BBB-	BBB-	BBB-

(Long-term debt denominated in home currency on 18 July 2023)

[Outlook]

Stable(1.Dec, 2014)	Stable (9.Jun, 2020)	Stable(25.Mar, 2022)	Stable(30.Aug, 2018)	Stable (9.Aug, 2018)
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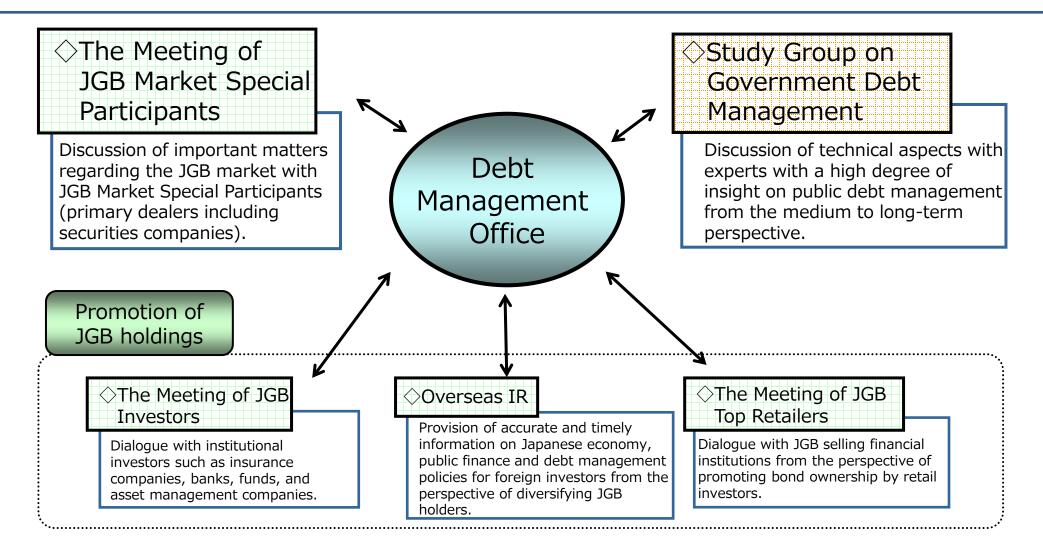
2. Debt Management and JGB instruments

[Basic Objectives]

- **1.** Implement Secure and Smooth Issuance of Japanese Government Bonds
- 2. Minimize Medium- to Long- Term Financing Costs
- O For the Basic Objectives of Debt Management Policy, JGB issuance plan should be formulated in line with market trends and needs. At the same time, <u>securing predictability and</u> <u>transparency is needed to reduce risk of JGB investment</u>.
- As for the maturity composition of the amount, the MOF promotes careful dialogues with the market through such forums as the Meeting of JGB Market Special Participants(PDs) to minimize the impact on the market.

Dialogue with Market Participants

In order to secure stable financing and implement policies to enhance JGB market liquidity, the MOF promotes the dialogue with market participants through various channels.



Primary Dealers scheme

The Minister of Finance designates entities that play an important role in the primary and secondary JGB markets, cooperate in the formulation and implementation of JGB management policies, and have responsibilities/entitlements.

Aim			
 Stable issuance of JGBs Maintaining and enhancing the liquidity ,efficiency ,competitive 	eness ,transparency, stability of the JGB markets		
Responsibility	Entitlement		
 Bidding responsibility¹ Purchasing responsibility² Responsibility in the secondary market (providing sufficient liquidity to the JGB secondary market) Provision of Information to the MOF 	 Participation in the Meeting of JGB Market Special Participants Participation in Non-Price Competitive Auctions I & II Participation in Liquidity Enhancement Auctions Participation in Auctions for Buy-backs Applying for the separating and integrating STRIPS Bonds 		

Note1: In every auction, the Special Participants shall bid for an adequate amount(at least the planned issuance amount multiplied by the rate of bidding responsibility) at reasonable prices. Rate of bidding responsibility is calculated by the formula shown below(any fraction less than one rounded up to the nearest whole number).

■ Rate of bidding responsibility (%) = 100/n %" n "is the number of the Special Participants

Note2: The Special Participants shall purchase at least a specified share of the planned total issue amount (0.5% for short-term zone; and 1% for other zones) in each of the super long term, long-term, medium-term, and short-term zones in auctions for preceding two quarters.

B The Meeting of JGB Market Special Participants

<Members>

Barclays Securities Japan Limited BNP Paribas Securities (Japan) Limited BofA Securities Japan Co., Ltd. Citigroup Global Markets Japan Inc. Credit Agricole Securities Asia B.V. Credit Suisse Securities (Japan) Limited Daiwa Securities Co. Ltd. Deutsche Securities Inc. Goldman Sachs Japan Co., Ltd. JPMorgan Securities Japan Co., Ltd. Mitsubishi UFJ Morgan Stanley Securities Co., Ltd. Mizuho Bank, Ltd. Mizuho Securities Co., Ltd. Morgan Stanley MUFG Securities Co., Ltd. Nomura Securities Co., Ltd. Okasan Securities Co., Ltd. SMBC Nikko Securities Inc. Societe Generale Securities Japan Limited Sumitomo Mitsui Banking Corporation Tokai Tokyo Securities Co., Ltd.

 I. 令和5年4月~9月における落札総額(デュレーション換算値)上位10社
 Top 10 institutions for the amount of successful bids weighted by duration from April to September 2023

1 三菱 UFJ モルガン・スタンレー証券株式会社| Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.

- 2 大和証券株式会社 | Daiwa Securities Co. Ltd.
- 3 野村證券株式会社 | Nomura Securities Co., Ltd.
- 4 シティグループ証券株式会社 | Citigroup Global Markets Japan Inc.
- 5 みずほ証券株式会社 | Mizuho Securities Co., Ltd.
- 6 JP モルガン証券株式会社 | JPMorgan Securities Japan Co., Ltd.
- 7 ドイツ証券株式会社 | Deutsche Securities Inc.
- 8 SMBC 日興証券株式会社 | SMBC Nikko Securities Inc.
- 9 ゴールドマン・サックス証券株式会社 | Goldman Sachs Japan Co., Ltd.
- 10 岡三証券株式会社 | Okasan Securities Co., Ltd.
- (注)デュレーション換算値とは、各社の各年限落札・引受総額に、財務省が2四半期ごとに公表するデュレーションを乗じて得た値をいう。(「国債市場特別参加者制度運営基本要領」第4・4(4))
 (Note) The values used for the league table above are obtained by multiplying the institutions' total purchasing amount of each bond by respective duration the MOF publishes every half year.

JGB instruments

JGB offers various instruments to cater the need of investors as well as to ensure stable financing.

Short-term to long-term JGBs

Super long-term JGBs and Inflation-Indexed

Maturity	Short-term		Medium-term	Long-term		Super long-term			Inflation-Indexed Bonds
Maturity	6-Month	1-Year	2-Year, 5-Year	10-Year	Maturity	20.14	20.14	10.34	40.37
Type of issue	Discoun	t bonds	Coupon-bearing bonds			20-Year	30-Year	40-Year	10-Year
Min. face value unit	50,000 yen		50,00	50,000 yen				Coupon-b	earing bonds
Issuance	Public offering BOJ Rollover		Public offering OTC sales (making offerings and accepting subscriptions)		Min. face value unit	50,000 yen		100,000 yen	
method					Issuance	Public offering		Public offering	
Auction method	Price-compet Conventional		Price-competitive auction/ Conventional-style auction		method				- upilo chorning
Non-price Competitive Auction	Non-Price Comp		Non-Competitive Auction Non-Price Competitive Auction I Non-Price Competitive Auction II		Auction method		titive auction/ I-style auction	Yield- competitive auction/ Dutch-style	Price-competitive auction/ Dutch-style auction
Transfer restrictions	Unrest	tricted	Unrestricted		Non-price	Nee Drive Com	Million Assertion 1	auction Non-Price	-
					Competitive Auction	Non-Price Com Non-Price Com	petitive Auction I petitive Auction II	Competitive Auction II	(Note 1)
					Transfer restrictions		Unrestricted		Unrestricted

Futures (listed at Osaka Stock Exchange)

	5-year JGB Futures	10-year JGB Futures	mini 20-year JGB Futures	mini 10-year JGB Futures (Cash-Settled)
Opening Date	Feb. 16, 1996	Oct. 19, 1985	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	Interest-bearing 5-year JGBs with 4 years or more but less than 5.25 years.	Interest-bearing 10-year JGBs with 7 years or more but less than 11 years.	Interest-bearing 20-year JGBs with 19 years 3 months or more but less than 21 years.	—

Inflation-indexed Bonds

JGBi's principal would be recalculated in line with the change in core consumer price index. Following the suspension of their issuance in October 2008 due to a sharp demand decline, the government resumed JGBi issuance with the principal guarantee upon maturity in October 2013.

Fig. 2-4 Conceptual Scheme of Inflation-Indexed Bonds

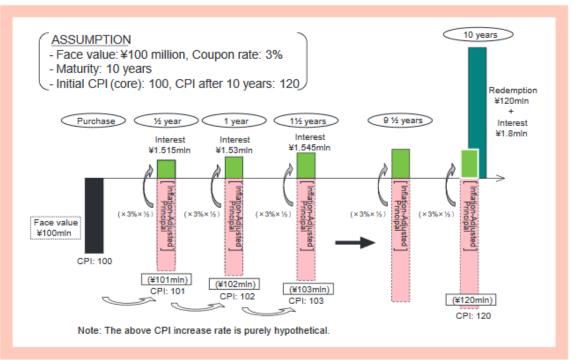
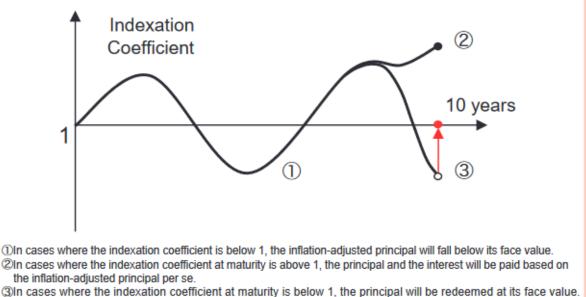


Fig. 2-5 Deflation Floor (Conceptual Diagram)



③In cases where the indexation coefficient at maturity is below 1, the principal will be redeemed at its face value. Note: The deflation floor has no effect on interests during the maturing period or at maturity.

JGB for retail investors

In March 2003, issuance was started on 10-Year FRN for Retail Investors, which are designed not to lose principal, in order to promote JGB holdings among individuals. Subsequently, the government has introduced 5-Year and 3-Year Fixed-Rate Bonds.

	JGBs for Retail Investors				
	10-Year Floating-Rate	5-Year Fixed-Rate	3-Year Fixed-Rate		
Maturity	10-year	5-year	3-year		
Frequency of issuance	Monthly (12 times per year)				
Purchase units/purchase value limits	Minimum purchase of 10 thousand yen in 10 thousand yen units/No upper limit				
Sales price	100 yen per 100 yen of face value (the same as the redemption)				
Purchasers	Limited to retail investors				
Interest rate	Floating-rate Fixed-rate				
Minimum interest rate	Present (0.05%)				
Redemption before maturity	Once one year has elapsed since issuance, redemption before maturity due to government buy-back shall be possible at any time (there is no principal loss risk). The two interest payments are deducted immediately preceding redemption (pre- tax) x0.79685.				
Introduction (1st issuance)	March, 2003	January, 2006 July, 2010			

Fig. 1-22 Issuance and Redemption of JGBs for Retail Investors

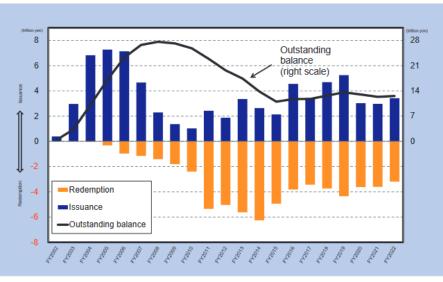
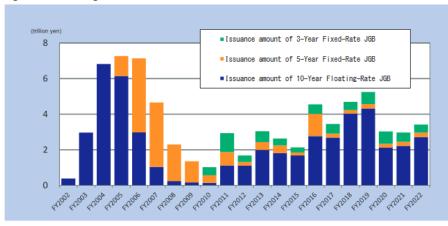


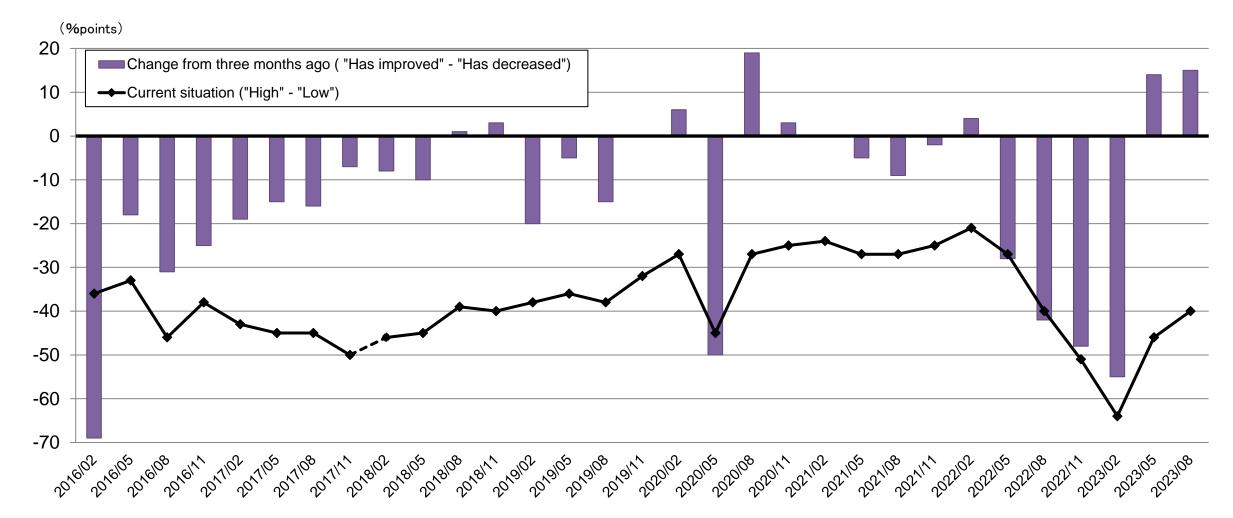
Fig. 1-23 Outstanding JGBs for Retail Investors



3. Liquidity of JGB market

Market participants' perception of JGB market functionality

According to BOJ's survey, market participants' perception of JGB market functionality marked its worst record in February 2023, but since then it has been gradually improving.

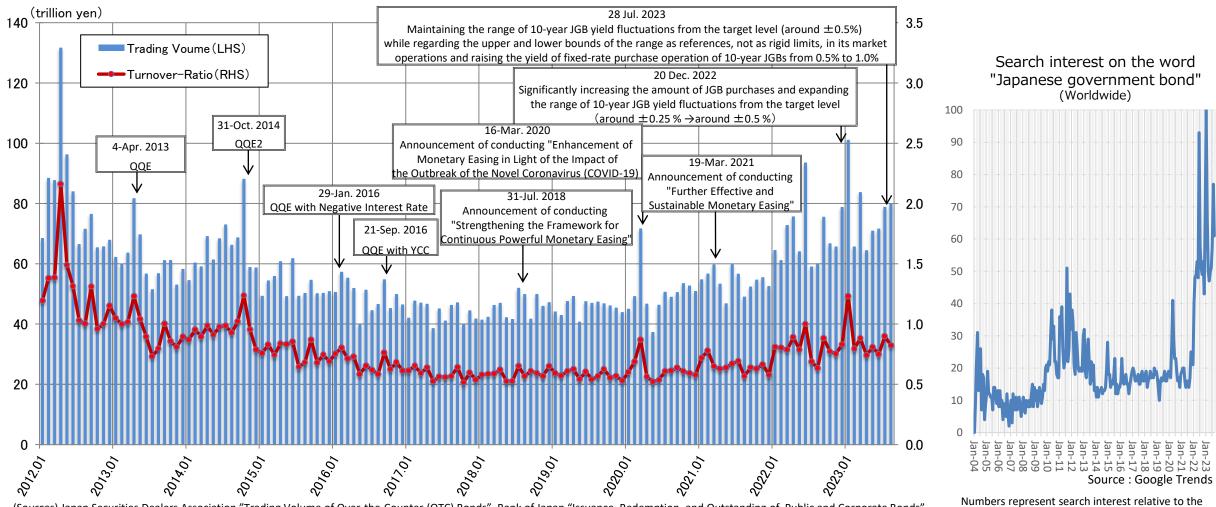


(Source)Bank of Japan "Bond Market Survey"

(Note) The survey from February 2018 onward includes responses from major insurance companies, asset management companies, etc., in addition to those from eligible institutions for the Bank's outright purchases and sales of JGBs.

Trading Volume and Turnover Ratio

In the past 1-2 years, the trading volume and turnover ratio of JGB have reverted back to the level seen in the pre-QQE2 period.



(Sources) Japan Securities Dealers Association "Trading Volume of Over-the-Counter (OTC) Bonds", Bank of Japan "Issuance, Redemption, and Outstanding of Public and Corporate Bonds" (Note 1) JGB does not include T-Bills.

(Note 2) "Trading Volume" is the total of "Outright Transactions" excluding those of bond dealers. "Turnover Ratio" is the annualized figure calculated by dividing the monthly "Trading Volume" by the outstanding JGBs at the end of the month.

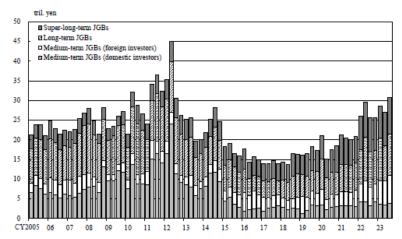
highest point on the chart for the given region and

term.

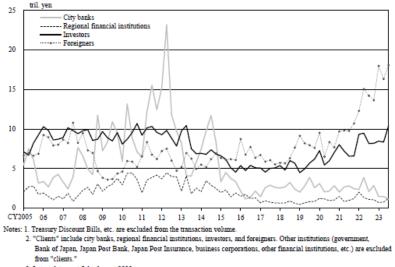
JGB market liquidity indicators (1)

JGB Cash Market: Dealer-to-client Transaction Volume

(1) Monthly Transaction Volume (Gross Amount Purchased by Clients)



(2) Monthly Transaction Volume by Clients (Gross Amount Purchased by Clients)

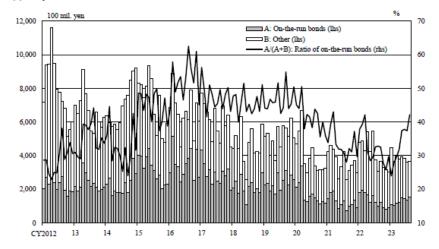


3. Latest data as at July-August 2023.

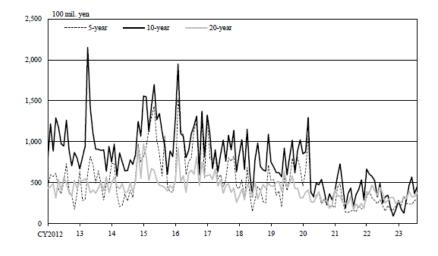
Source: Japan Securities Dealers Association.

JGB Cash Market: Inter-dealer Transaction Volume



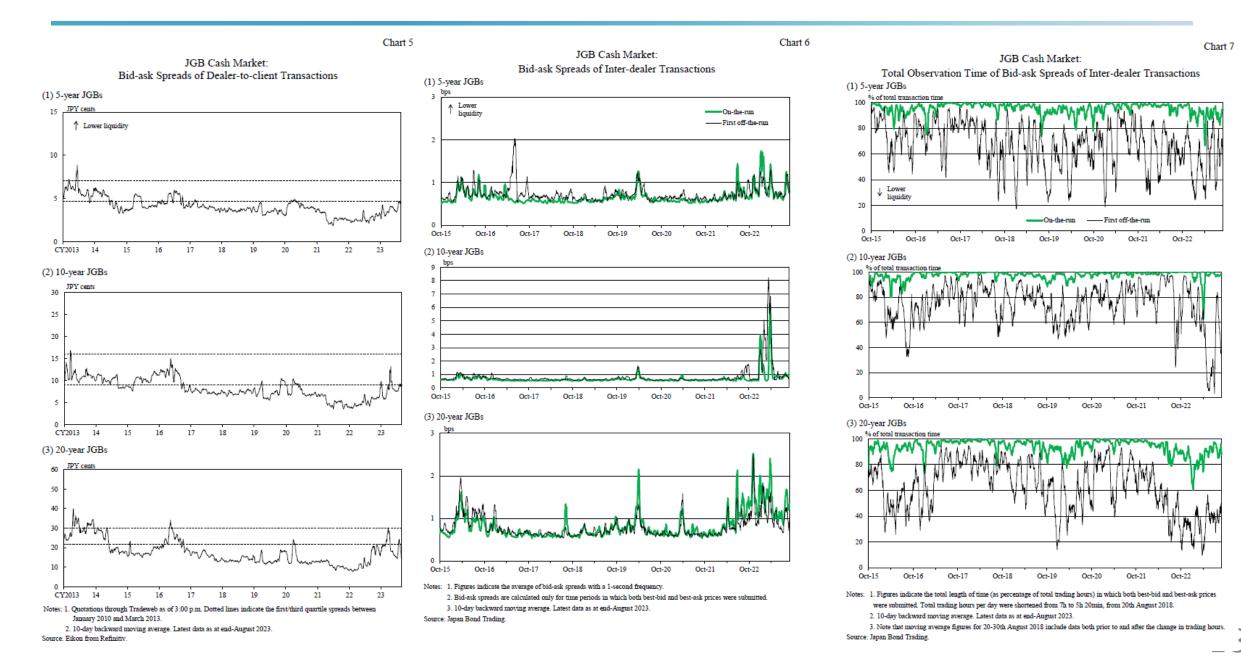


(2) Daily Transaction Volume of On-the-run Bonds by Maturity



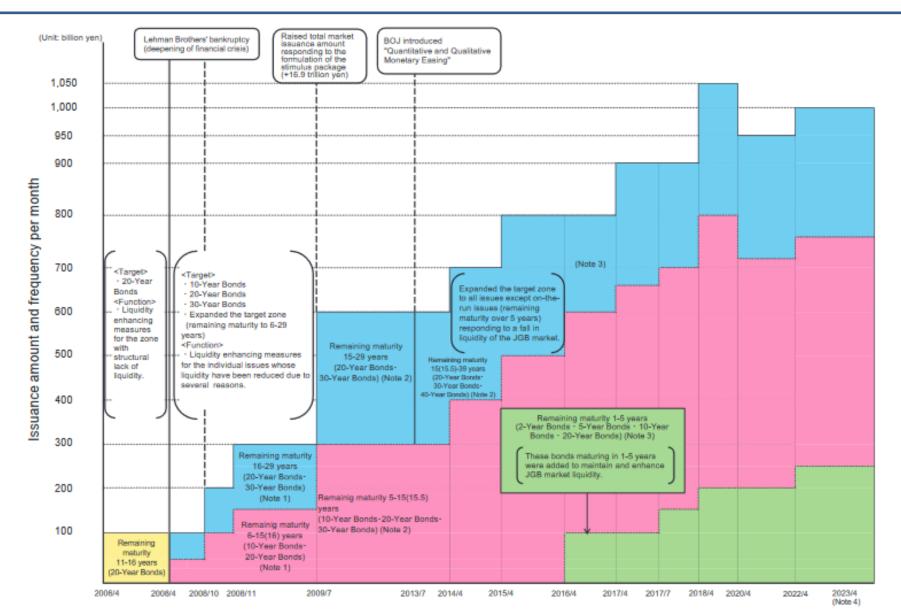
Notes: 1. Daily transaction volume in (1) is the sum of 2-year, 5-year, 10-year, 20-year, 30-year, and 40-year JGBs via Japan Bond Trading. 2. Latest data as at August 2023. Sources: OUICK; Japan Bond Trading.

JGB market liquidity indicators (2)



Liquidity Enhancement Auctions

Tap issuance of JGBs, which have structural liquidity shortages or temporary liquidity shortages due to expanding demand.



19

Buy-back Program

A scheme for the government as the issuer of JGBs to retire debt by purchasing existing bonds.

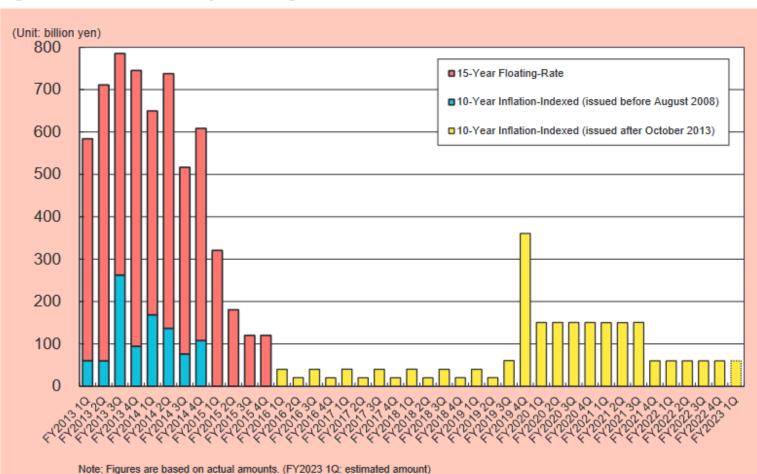
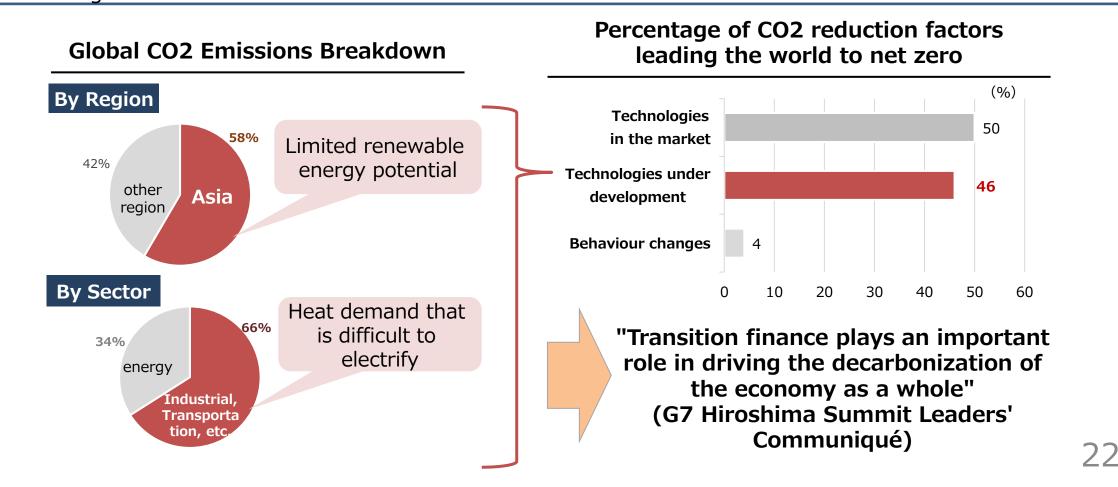


Fig. 2-25 Transition of the Buy-back Program

4. Japan's Green Transformation (GX)

The Importance of Transition Finance

- Green finance covers initiatives such as renewable energy and electrification, which are currently emitting zero and low emissions. In addition to them, transition finance also targets efforts to promote gradual emission reductions through the development of new technologies.
- Emissions in Asia, where the potential for introducing renewable energy is limited, account for the majority of the world's total, and electrification is difficult by sector. While emissions from the industrial and transportation sectors account for the majority, transition finance is attracting renewed attention.



GX Bonds (New government bonds)

- In order to achieve carbon neutrality by 2050 while strengthening industrial competitiveness and realizing economic growth, the government of Japan aims for more than 150 trillion yen of public and private investment for 10 years starting from this year.
- In order to facilitate Green Transformation (GX) investment, the government will issue GX bonds on the scale of maximum 20 trillion yen
- The government will formulate a framework that indicates use of proceeds and reporting methods, etc. and obtain a second-party opinion (SPO) from an external review provider for compliance with international standards

Green Bond Principles: Four core components

- 1. Use of proceeds
- 2. Process for evaluating and selecting projects for which funds will be used
- 3. Appropriate tracking, transparency, and internal control of proceeds
- 4. Reporting
- %In addition, external reviews are an important recommendation.

Climate Transition Finance Handbook: Four key elements

- 1. Fundraiser Climate Transition strategy and governance
- 2. Environmental Materiality (Importance) in Business Models
- 3. Science-Based Climate Transition Strategies (Goals and Pathways)
- 4. Transparency of implementation

Selection of an external review provider

2023

End of July: Request for Proposal

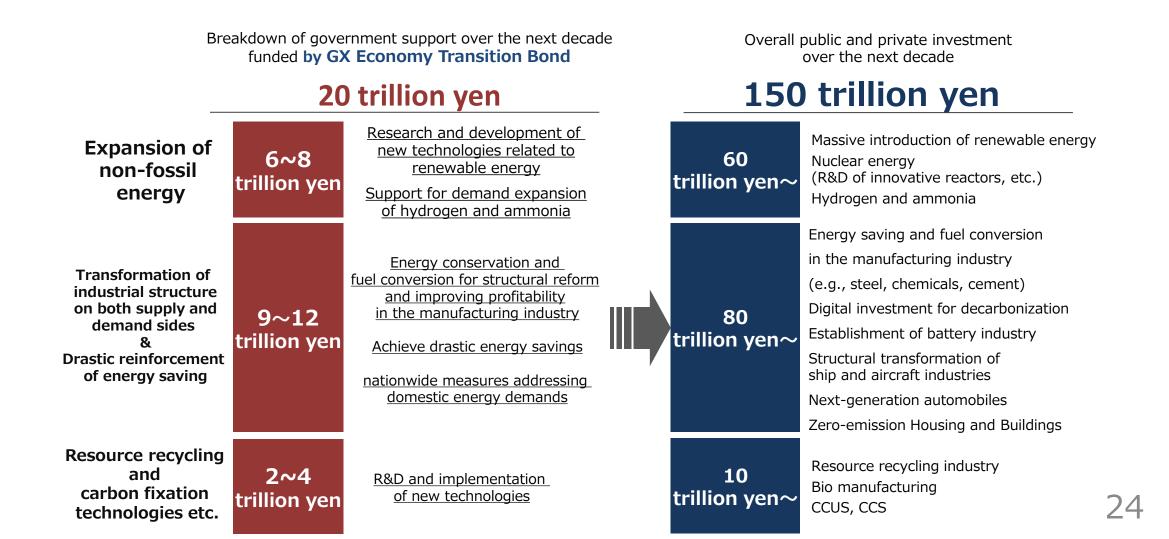
End of August: Application Deadline

Early September: Mandate

The government will issue GX bonds by the end of March 2024

Use of Proceeds: Overview

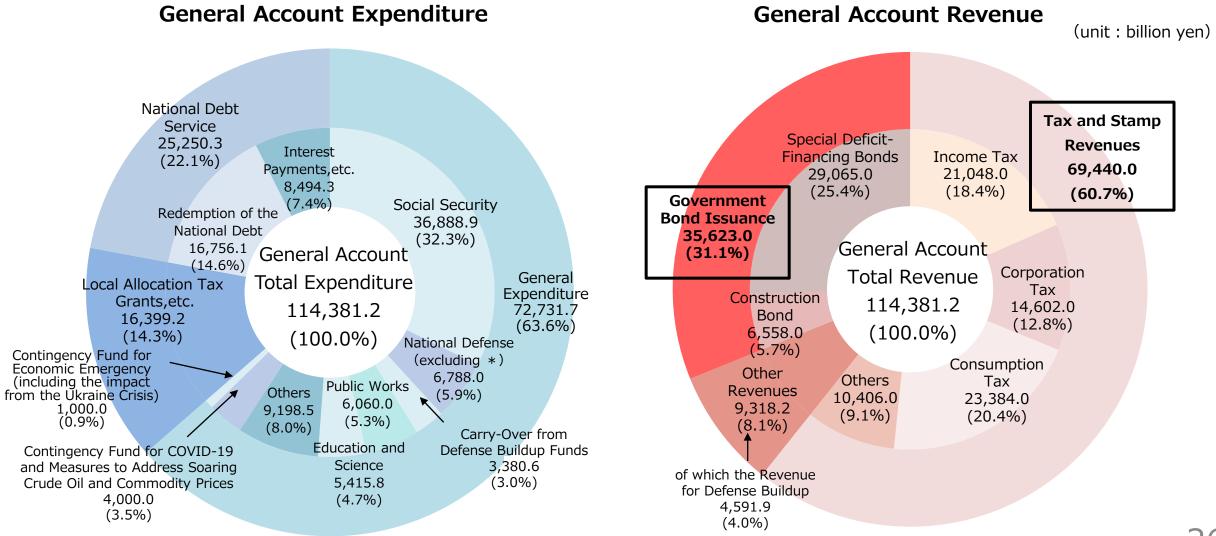
Japan will provide government support of sufficient scale and duration, taking into account trends in investment support in other countries and the results of past government support. 20 trillion yen of support will be reviewed as necessary, based on the progress and effects of projects and so on.



Appendix

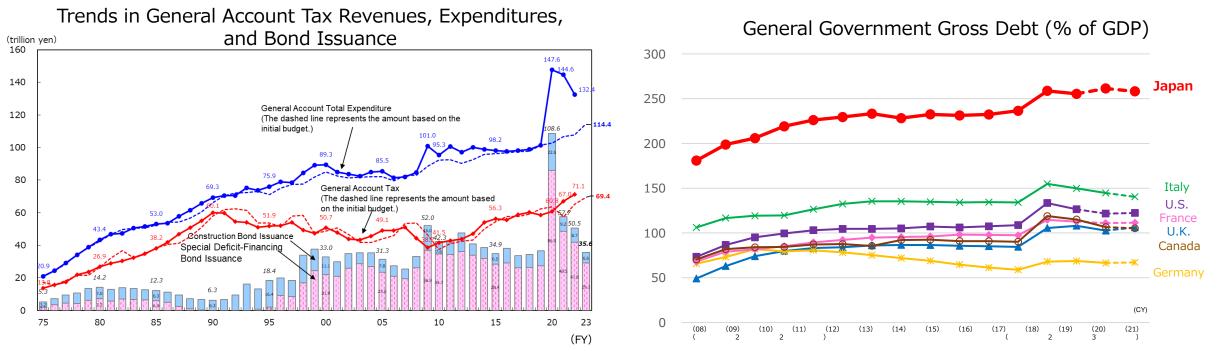
The FY2023 Budget: Expenditure and Revenue

Social security expenditures, local allocation tax grants, and debt servicing costs account for more than twothirds of the total expenditure, while tax revenue would only cover 60.7% of total expenditure in FY 2023.



Government expenditure, revenue and gross debt

Although tax revenue grew steadily through pandemic times, the gap between expenditure and tax revenues went wide open again after spending increased sharply after the COVID-19 pandemic.



(Note 1) FY1975 - FY2022: settled figures ; FY2023: based on the budget

(Note 2) The following bonds are excluded: Ad-hoc special deficit-financing bonds issued in FY1990 as a source of funds to support peace and reconstruction activities in the Persian Gulf region, Tax reduction-related special deficit-financing bonds issued in FY1994 - FY1996 to make up for decline in tax revenue due to a series of tax cuts preceding consumption tax hike from 3% to 5%, Reconstruction bonds issued in FY2011 as a source of funds to implement measures for the reconstruction from the Great East Japan Earthquake and Pension-related special deficit-financing bonds issued in FY2011 as a source of funds to achieve the targeted national contribution to one-half of basic pension.

(Note 3) The general account total expenditure of FY2023 includes the carry-over (3.4 trillion yen) to Defense Buildup Funds which is the resource for the national defense expenditure for FY2024 and years after.

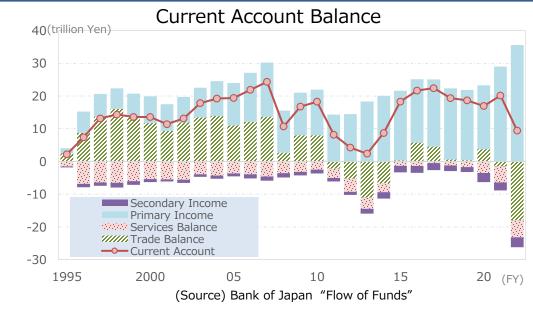
(Source) IMF "World Economic Outlook" (April 2023).

(Note1) Figures represent the general government-based data (the central/local governments and social security funds combined).

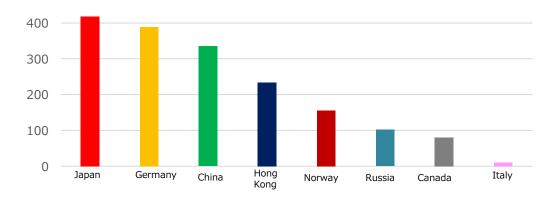
(Note2) 2022-2023 figures for Japan, U.S. and France and 2023 figures for the other countries are estimated figures.

External sector and domestic assets

Japan's external sector has strong balance mainly due to the highest net International Investment position. Abundant household's financial assets help absorb the deficits of government sector.

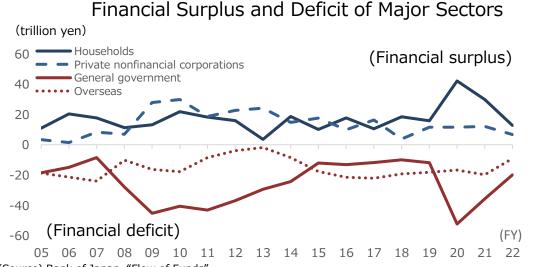


(trillion yen) Net International Investment Position (End of 2022)



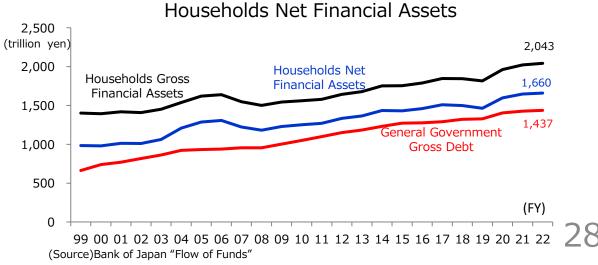
(Source) MOF(Japan), IMF(countries and regions except for Japan)

(Note1) Figures for countries and regions except for Japan are converted into yen at the year-end exchange rates published by IMF. (Note2) Figures for certain countries/regions are not disclosed.



(Source) Bank of Japan "Flow of Funds"

Note: "General government" includes "Central government", "Local governments", and "Social security funds"



BOJ's Monetary Policy

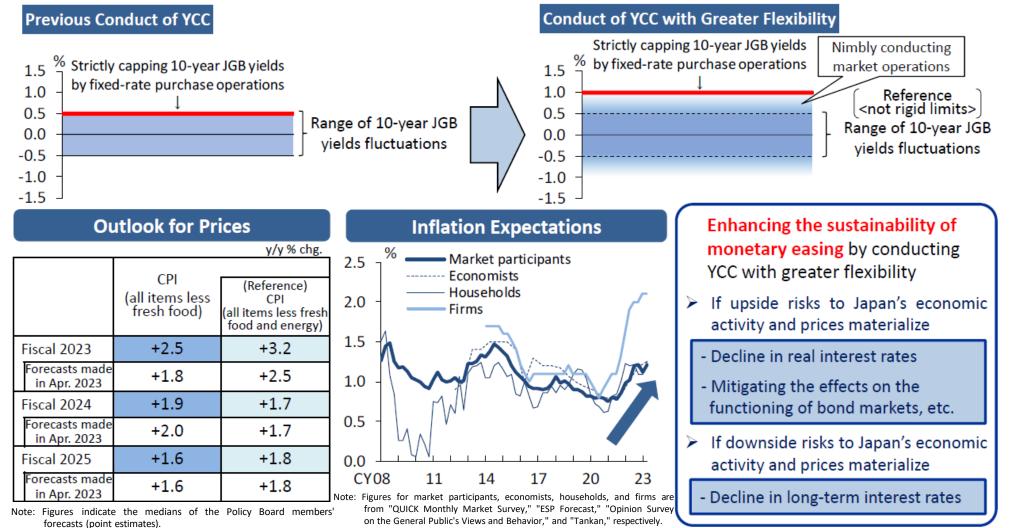
- 22 Jan. 2013 The introduction of "the price stability target at 2 percent"
- 4 Apr. 2013 Quantitative and Qualitative Monetary Easing (QQE)
- 29 Jan. 2016 The introduction of a negative interest rate -The Bank will apply <u>a negative interest rate of minus 0.1 percent</u> to current accounts that financial institutions hold at the Bank
- 21 Sep. 2016 Introduction of "Yield curve control"
- 31 Jul. 2018 Enhancing the sustainability of "QQE with YCC"
- 27 Apr. 2020 Enhancement of Monetary Easing in response to COVID-19
- **19 Mar. 2021** Assessment for Further Effective and Sustainable Monetary Easing
- **10 Feb. 2022 Announcement on the Conduct of Fixed-Rate Purchase Operations** -This is the first Fixed-Rate Purchase Operations in 2022.
- 28 Apr. 2022 Statement on Fixed-Rate Purchase Operations for Consecutive Days
- 15 Jun. 2022 Announcement on the Conduct of Fixed-Rate Purchase Operations of the Cheapest-to-Deliver Issue for Consecutive Days
- 17 Jun. 2022 Relaxation of the Terms and Conditions for the Securities Lending Facility of the Cheapest-to-Deliver Issues
- 20 Dec. 2022 Modification of the Conduct of Yield Curve Control

28 Jul. 2023 Conduct of Yield Curve Control (YCC) with Greater Flexibility

Conducting Yield Curve Control (YCC) with Greater Flexibility

 The Bank judges that sustainable and stable achievement of the price stability target of 2 percent has not yet come in sight, and thus patiently continues with monetary easing.

 With extremely high uncertainties for economic activity and prices, the Bank enhances the sustainability of monetary easing by conducting YCC with greater flexibility.

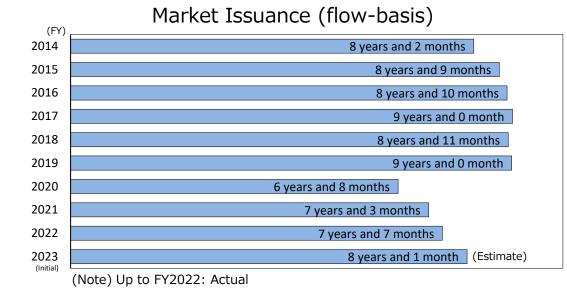


(Source)Bank of Japan

July 28, 2023

Weighted Average Maturity of JGB

Average maturity of outstanding JGB stands at 9 years and 6 months, which is longer than that of other countries such as France, Germany, and U.S.



Outstanding Amount (stock-basis)

(at the er	nd of FY)
2014	8 years and 0 month
2015	8 years and 5 months
2016	8 years and 7 months
2017	8 years and 10 months
2018	9 years and 0 month
2019	9 years and 2 months
2020	8 years and 11 months
2021	9 years and 0 month
2022	9 years and 2 months
2023 (Initial)	9 years and 6 months (Estimate)
(Initial)	

(Note) Outstanding amount of general bonds. Up to FY2022: Actual

(Year) 20 Germany U.S. Japan 18 -----France U.K. 16 91 10 8

Average maturity -International Comparison-

(Source) OECD, Relevant countries' debt management authorities

(Note1) Data for Japan represent the average weighted maturity of outstanding General Bonds including Treasury Bills and excluding Financing Bills.

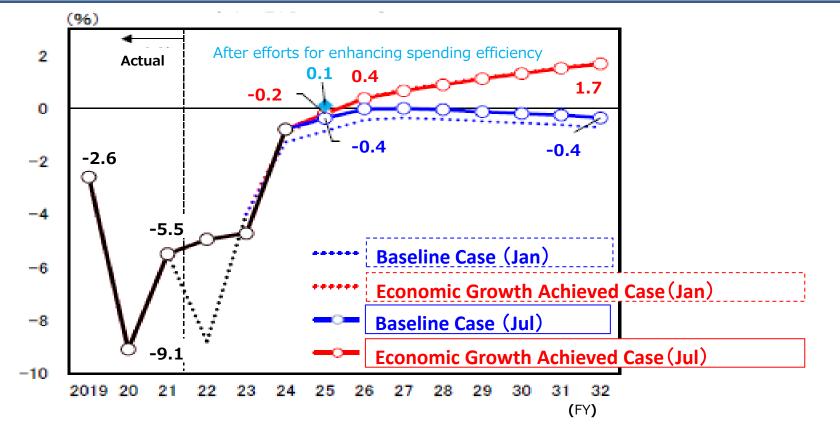
Data for other countries include short-term (one-year and shorter) bills. However, data for U.K. excludes short-term bills for cash management purposes.

(Note2) Data are calculated on a stock basis. Non-marketable bonds are excluded.

(Note3) Data for each year are as of March next year for Japan alone and as of December for other countries.

Economic and Fiscal Projections for Medium to Long Term Analysis (Cabinet Office, July 2023)

When Japanese economy achieves around 3% of nominal growth in the long term, it is estimated that the budget- balancing target in FY 2025, if combined with further spending cut measures.



•In the Economic Growth Achieved Case, without the expenditure reforms, the primary deficit is projected to be around 0.2% in FY2025, and turn to surplus in FY2026.

•If spending were to be streamlined based on the Basic Policy under this growth scenario, primary surplus will be achieved in FY2025.

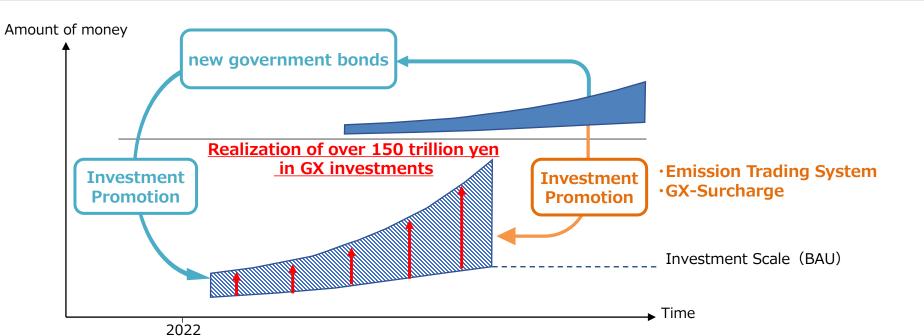
(Source) Cabinet Office

(Note1) Including the effects of measures to "the defense buildup packages", "Five-Year Acceleration Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience" (up to FY2025 execution) and excluding the effect of "the Children's Future Strategy Policy".

(Note2) Excluding the expenditures and the fiscal resources for the recovery and reconstructions measures.

Concept of Pro-growth Carbon Pricing

- In order to achieve carbon neutrality by 2050 while strengthening industrial competitiveness and realizing economic growth, the Government of Japan aims for more than 150 trillion yen of public and private investment for 10 years starting from this year.
- To promote the GX investment above, "Pro-Growth Carbon Pricing Concept" will be embodied and implemented.
 - (1) Government support for bold upfront investment by issuing new government bonds*
 - * 20 trillion yen will be issued from FY2023-2032
 - ② Introduction of carbon pricing to give incentives for GX investment
 - (1) Full-scale operation of emissions trading system in high emission industries [from FY2026].
 - + Allowance auctioning to be phased in gradually to power generation companies [from FY2033]
 - (2) Introduction of a GX-Surcharge on fossil fuel supply [from FY2028]
 - ③ Strengthen financial support through public-private partnership



33