3. Balancing Demand and Supply of Government Bonds post BOJ's Tapering[111]

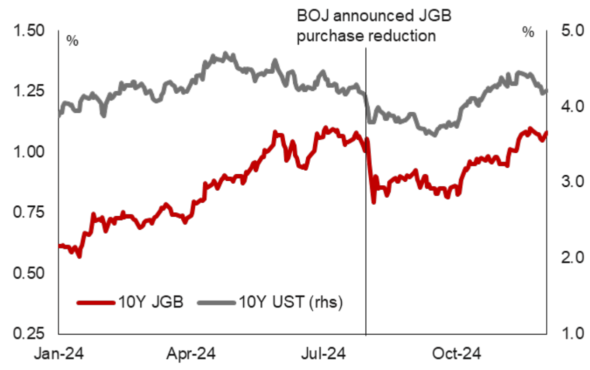
The Bank of Japan (BOJ) announced its plan to reduce the purchase amount of Japanese Government Bonds (JGBs) in July 2024. A welcome step toward promoting a more market-driven yield curve and active trading in the JGB market, this move marks the beginning of a balance sheet normalization process following the end of Yield Curve Control and Negative Interest Rate policies. Given the significant share of JGBs held by the BOJ, the tapering plan will have major implications on the JGB market, in particular on long-term bond demand and market stability. This Selected Issue examines what the BOJ's purchase reduction plan means for the supply-demand balance of JGBs, and how private investors can fill in the gap

Background

1. **The BOJ's government bond purchase reduction plan is characterized by predictability and flexibility.** In the July 2024 Statement on Monetary Policy, the BOJ announced its plan to trim the size of monthly gross JGB purchases gradually by JPY400 billion per quarter, from approximately JPY5.7 trillion each month in July 2024 to JPY3 trillion each month in Q1 2026. The pre-announced schedule allows market participants to anticipate and prepare for the change. At the same time, the BOJ emphasized flexibility in its future operations. It will conduct an interim review of the plan in June 2025 and will maintain the option to make adjustments along the way in response to significant market developments, such as a rapid rise in long-term interest rates.

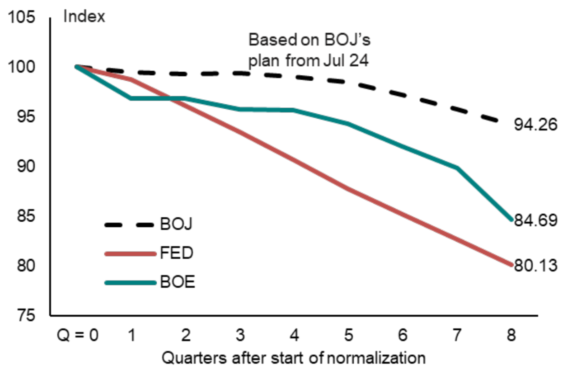
2. **The effective communication and gradual pace of tapering have led to smooth market reactions.** Following the announcement, the yields on 10Y JGBs rose only 5bps on the day, before falling thereafter (Figure A3.1). The favorable reaction was thanks to the central bank's well-planned communications. The BOJ first signalled its intention to reduce the pace of bond purchases in June 2024, before announcing the actual plan in July 2024. Moreover, prior consultation with bond market participants meant that the details of the plan came as no surprise. Some participants noted that the large stock of BOJ's existing bond holding and the gradual pace of the tapering would help maintain market stability at least for the next few years. Indeed, compared to the post-COVID asset normalization paths taken by the U.S. Federal Reserve and the Bank of England, the BOJ's plan features a slower decline in government bond holdings (Figure A3.2). Finally, market participants also welcomed BOJ's readiness to step in the market in case of sharp market disruptions.

Figure A3.1. Government Bond Yields



Source: Bloomberg

Figure A3.2. Central Bank's Securities Holding in Post-COVID Normalization Periods



Source: Federal Reserve; Bank of England; Bank of Japan; CEIC; Author's calculations
Note: Quarter Q = 0 is the peak of government bond holding. This period is normalized as 100. For BOJ, period Q = 0 corresponds to 2023 Q4. BOE and FED began post-COVID balance sheet reduction in March 2022 and June 2022, respectively.

[111] Prepared by Pim-orn Wacharaprapapong, Economist.

Medium-term Scenario-based Projection of JGB Demand and Supply

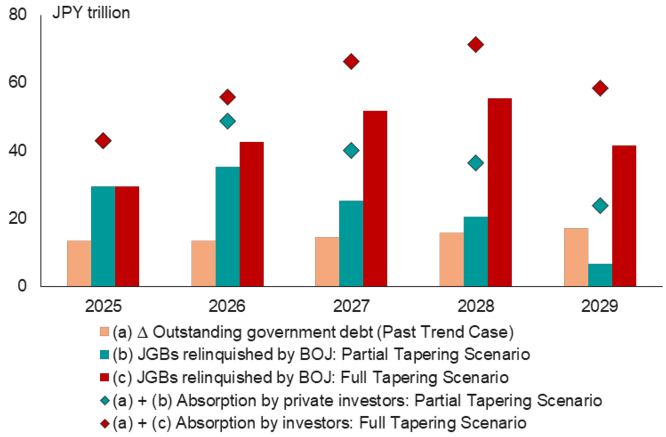
3. **Favorable market reactions so far notwithstanding, monitoring the supply-demand balance in the market remains crucial over the medium term.** To understand the scale of the impact on the supply-demand balance from BOJ's tapering, AMRO staff estimated excess JGB supply that will have to be absorbed by non-BOJ investors (referred to as private investors from hereon) over the medium term, from both flow and stock perspectives. Although the projections by AMRO include some simplifying assumptions and are subject to uncertainties regarding BOJ's actual operations, they can offer a broad picture of how demand for JGBs is set to shift in the upcoming years.

4. **Since BOJ has only announced a tapering plan for up to March 2026, two scenarios are considered to make a projection for the medium term.** First, in the **Partial Tapering Scenario**, the BOJ follows the plan announced in July 2024 through March 2026, and then maintains the same pace of purchase at JPY3 trillion each month thereafter. In the **Full Tapering Scenario**, the BOJ continues to cut its bond purchases at a steady rate of JPY400 billion per quarter beyond March 2026, until the purchase amount reaches zero.

5. **From a flow perspective, we assume the total excess JGB supply to be absorbed by private investors each year, first from the new JGBs issued to finance annual fiscal deficits, and second from the decline in BOJ's holding.** Based on the Cabinet Office's projection[112], government debt outstanding is projected to rise by JPY13–17 trillion each year for the next five years. Meanwhile, the reduction in BOJ's bond purchases means that the central bank will not fully reinvest in JGBs maturing from its portfolio. The extra supply to be released from BOJ's tapering into the market under the Partial Tapering Scenario is expected to peak at around JPY35 trillion in 2026. The extra supply will be much more significant under the Full Tapering Scenario, peaking at JPY55 trillion in 2028 (Figure A3.3).

6. **Taken together, the total excess supply to be absorbed by private investors will be substantial, especially compared to their past purchase records**. In the Partial Tapering Scenario, private investors will have to add JPY30-50 trillion of JGBs to their holding each year, with the heaviest burden expected in 2026. In the Full Tapering Scenario, the burden will increase from JPY40 trillion to JPY70 trillion by 2028. To put the figures in perspective, during 2013-2023, private investors in aggregate sold on average of JPY20 trillion JGBs each year, and were net sellers of JGBs in seven of those ten years.

Figure A3.3. Projected JGB Absorption by Private Investors (AMRO's estimates)



Source: Cabinet Office; BOJ; AMRO staff calculations
Note: Change in outstanding government debt is based on the Cabinet Office's projection in the Past Trend case.

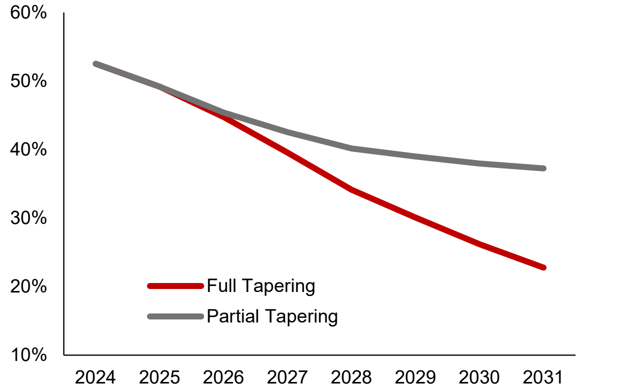
[112] Cabinet Office's Economic and Fiscal Projections for Medium to Long Term Analysis (29 July 2024). This analysis considers the government's outstanding projections under Past Trend Case as the baseline, but the figures from the Transferring to a New Economic Stage Case give similar results.

7. **The implications of BOJ's tapering plan can also be viewed through changes in the JGB's holder base.** Over the next five years, BOJ's share of JGB holdings (excluding T-bills) is projected to decline from 54 percent in 2024 to approximately 39 percent under the **Partial Tapering Scenario** and to around 30 percent under the **Full Tapering Scenario** (Figure A3.4). Such reduction in BOJ holdings of the JGBs will have to be substituted by private investors, another reminder of the challenges ahead.

Filling the Gap—the Role of Private Investors

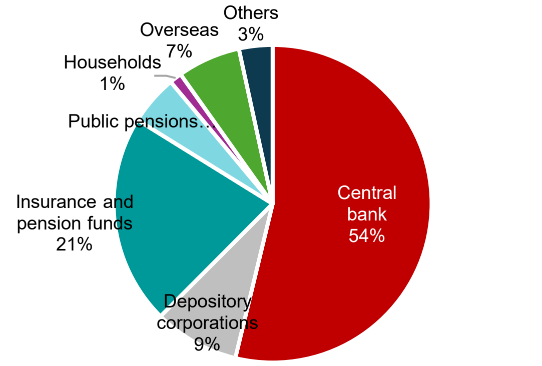
8. **Higher yields are expected to draw more private investor interest; however, the transition will not be without its challenges**. Japan has a well-developed domestic investor base, with the private sector—banks, households, and corporates—holding substantial liquidity. However, the low yields and poor market liquidity of JGBs after a decade of Quantitative and Qualitative Monetary Easing (QQE) and Yield Curve Control (YCC), introduced in 2013 and 2016, respectively, have undermined the attractiveness of JGBs among private investors. The share of private investors' holdings of JGBs has fallen from 89 percent in December 2012 to 46 percent in December 2023, as well as in absolute terms (Figure A3.6). As the normalization of ultra-easy monetary policy drives government bond yields higher, these investors are likely to buy more JGBs. The challenge, however, lies in how smoothly they can absorb the bonds and at what price. A thorough understanding of investors' capacity and preferences will be essential for debt managers in shaping an effective debt management strategy. The following discussion concentrates on domestic investors, the major group of private investors whose behaviors are closely linked to domestic conditions.

Figure A3.4. Share of BOJ's JGB Holdings (AMRO's estimates)



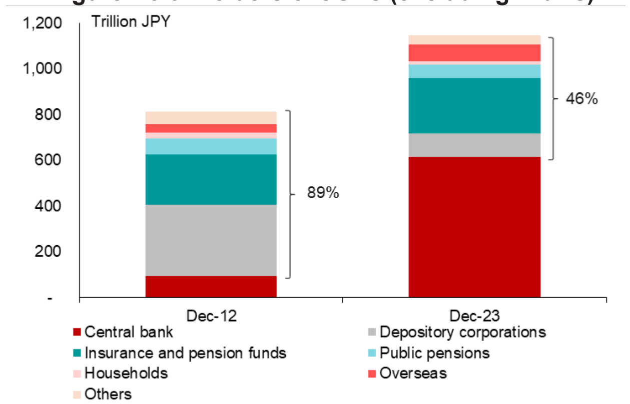
Source: Cabinet Office; BOJ; Haver Analytics; AMRO staff's calculations
Note: Figures exclude BOJ's holding of T-bills. Bond maturity and purchase are based on AMRO's estimates.

Figure A3.5 JGB holders profile as of Dec 2023



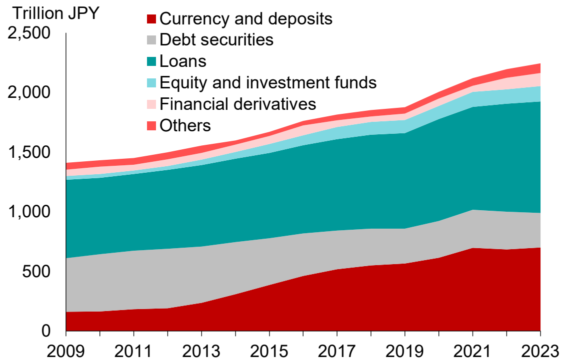
Source: BOJ, CEIC, AMRO staff calculations
Note: Excludes holdings of T-bills.

Figure A3.6. Holders of JGBs (excluding T-bills)



Source: BOJ; MOF; AMRO staff calculations

Figure A3.7. Banks' assets



Source: BOJ, CEIC, AMRO staff calculations

Banks: Moderate Room to Grow Amid Regulatory and Market Constraints

9. Banks were the largest holders of JGBs before the QQE and YCC era and are expected to play a key role in absorbing JGBs as the BOJ scales back its purchases. However, banks' JGB holdings have declined by 68 percent between end-2012 and end-2023 (Figure A3.6)—as they shifted more assets toward deposit balances at the BOJ in response to compressed bond yields (Figure A3.7). Between 2016 and 2022 when Yield Curve Control was in place, the yield on 10Y JGBs averaged 0.04 percent, even lower than the average interest rate paid on financial institutions' deposit at BOJ, which averaged 0.05 percent.[113]

10. The Study Group on Government Debt Management, conducted by the Ministry of Finance (MOF) in June 2024, indicated that banks have some room to increase their JGB holdings, but are unlikely to fully offset the BOJ's share due to several constraints.

- **Regulatory limits on risk exposure.** Banks' capacity to absorb JGBs will be constrained by financial risk limits, particularly the Interest Rate Risk in the Banking Book (IRRBB) regulation implemented in 2018. According to analysis by MUFG presented at the study group, the banking system may absorb up to 30 percent of BOJ's current JGB holdings before hitting the IRRBB limit (MOF, 2024).
- **Preference for shorter-duration bonds.** Banks typically have preferences for short to medium-term bonds and maintain average bond duration of less than 5 years.[114] This is shorter compared to the average maturity of outstanding JGBs at 9.5 years[115], or that of BOJ's holdings of around 6 years. Therefore, for banks to purchase more JGBs, the MOF will likely need to shorten average JGB maturities, which can result in higher interest rate risks for the government.
- **Market timing considerations.** Banks are likely to delay significant JGB purchases until bond yields stabilize at more attractive levels, to minimize potential interest rate losses during periods of rising yields. Thus, demand may be particularly volatile while the BOJ is still raising the policy rate.

Life Insurers and Pension Funds: Falling Population to Limit Asset Growth

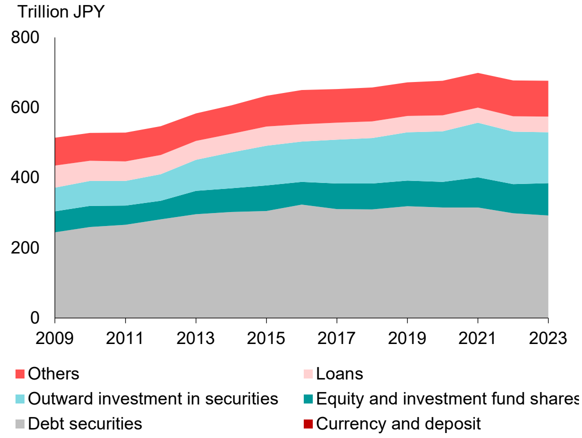
11. Life insurance companies and pension funds collectively formed the second-largest group of private investors in JGBs prior to 2013. With domestic interest rates on the rise, many life insurers have signaled an intention to increase their domestic bonds holdings opportunistically once long-term yields reach attractive levels. Meanwhile, the Government Pension Investment Fund (GPIF), the largest pension fund in the country, has reduced its allocation to domestic bonds from 67 percent in 2012 to 25 percent since 2020. A review of a new investment benchmark is underway, and should be finalized by Q1 2025. Any changes in the allocation to domestic bonds will have a major implication for long-term JGB demand in the coming years.

12. However, study group participants cautioned that the insurance and pension fund sector is unlikely to meaningfully increase their JGB investments in the long term. The key constraint is Japan's declining working age population, which slows the growth of assets under management of this segment. Over the past five years, the average growth rate of insurance and pension fund assets has moderated to just 1 percent annually (Figure A3.8).

[113] Although the short-term policy interest rate was set at -0.1 percent, BOJ used a Three-Tier System whereby interest rates of +0.1, 0, and -0.1 percent were applied to different portions of financial institutions' balances at BOJ. Most of the balances were paid interest of +0.1 percent, leading to a positive weighted average interest rate.
[114] The three megabanks have shortened average bond duration to under two years in 2024 to avoid interest rate losses.
[115] As of September 2024.

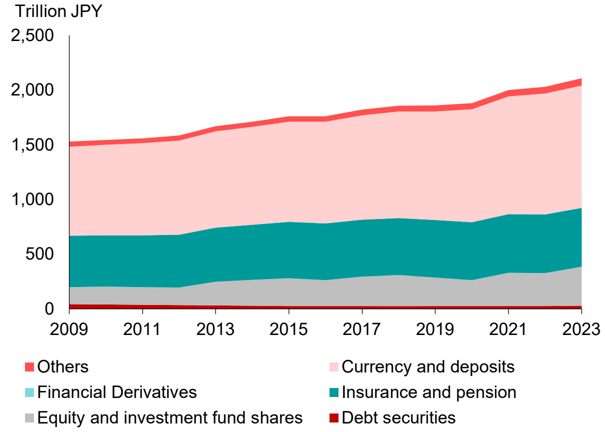
Thus, while life insurers and pension funds will remain important participants in the JGB market, their investment capacity in the long run will be limited by structural constraints.

Figure A3.8. Assets of Insurance and Pension Funds



Source: BOJ; CEIC; AMRO staff calculations

Figure A3.9. Assets of Households



Source: BOJ, CEIC, AMRO staff calculations

Domestic Retail Investors: Subdued Interest due to Relatively Low Returns

13. Retail investors make up less than 5 percent of the JGB holder base. Despite the small share, the MOF continues to encourage more retail investor participation, recognizing their potential to provide a stable source of funding for government bonds.

14. However, the introduction of the new Nippon Individual Savings Account (NISA) scheme in January 2024 presents a challenge to promoting retail interest in JGBs. NISAs are investment accounts through which households can invest in domestic and foreign stocks, investment trusts, REITs, and ETFs, free of capital gains and interest income taxes. In January 2024, the government increased the annual cap for NISA investments and made the tax exemptions permanent, leading to a surge in interest in NISA investment.[116] While the changes do encourage savers to invest in the financial market, they put JGBs at a disadvantage due to their lower returns compared to NISA-eligible investments and the lack of tax incentives.

Policy Discussions to Strengthen the Demand for JGBs

15. The government understands the need to foster and maintain a stable and diversified investor base for JGBs. In light of this, the MOF has intensified efforts to promote JGBs to private investors, both at home and overseas. While such efforts should continue, the MOF could also adjust the debt management strategy to cater to investors' evolving preferences.

16. First, the MOF can expand the supply of specific JGBs in line with investors' demand and changing macroeconomic and financial environment.

- **Floating-rate JGBs:** Floating-rate JGBs could appeal to investors, particularly banks, that want to reduce interest rate risks in a rising interest rate environment.

[116] In H1 2024 alone, after the introduction of the new NISA scheme, the number of NISA accounts rose 13 percent while total investments increased 24 percent. Media reports suggest that a significant portion of these investments has flowed into foreign equities, underscoring the growing competition JGBs face in attracting retail funds.

- **Inflation-linked JGBs:** With inflation still above the target, inflation-linked JGBs could attract investors seeking protection against inflation. Currently, inflation-linked JGBs account for only around 1 percent of JGBs outstanding.
- **Climate transition bonds:** The expansion of climate transition bonds could cater to growing investors' interest in transition finance. Notably, in 2024, the MOF issued 5-year and 10-year Japan Climate Transition Bonds —the world's first sovereign transition bonds. These auctions saw robust investor demand, with bid-to-cover ratios of 3-4.

17. Moreover, MOF could draw interest from non-competitive investor segments, such as retail investors and non-profit entities. Several measures could be considered:

- **Increase returns on retail JGBs:** The MOF could set their interest rates equal to or at a small premium above regular JGBs. Currently, retail JGBs offer lower yields compared to regular JGBs of the same maturity. [117]
- **Tax exemption for interest income on JGBs:** Introducing tax exemptions for interest income from JGBs for retail investors will help align their tax treatment with NISA-eligible investments.
- **Expand eligibility for retail JGBs:** The MOF could allow non-profit corporations to purchase retail JGBs. Many of these entities have expressed interest in JGBs but are hesitant to invest in marketable JGBs due to concerns of price volatility. Retail JGBs with guaranteed minimum interest may better fit their investment preferences.

18. Finally, a fiscal consolidation strategy is essential to maintain a stable balance between the supply and demand for government bonds. Given the already elevated level of government debt, a substantial increase in JGB issuance amid the changing demand dynamics could heighten market volatility and raise funding costs. Fiscal consolidation will not only curb the supply of new JGBs, but also reinforce investor confidence in public debt sustainability, contributing to a stronger investor base over the long term.

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[117] For example, the interest on 10-year retail JGBs is equal to the yield on 10-year JGBs multiplied by 0.66.