AMRO Country Report
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AMRO Annual Consultation Report

Japan - 2025

ASEAN+3 Macroeconomic Research Office (AMRO)

February 2026

Acknowledgments

1. This Annual Consultation Report on Japan has been prepared in accordance with the functions of AMRO to monitor and assess the macroeconomic status and financial soundness of its members; identify relevant risks and vulnerabilities; report these to member authorities; and if requested, assist them in mitigating these risks through the timely formulation of policy recommendations. This is being done in accordance with Article 3 (a) and (b) of the AMRO Agreement.
2. This Report is drafted on the basis of the Annual Consultation Visit of AMRO to Japan from October 27 – November 7, 2025 (Article 5 (b) of the AMRO Agreement). The AMRO Mission team was led by Dr. Runchana Pongsaparn, Group Head and Lead Economist. Members included Mr. Paolo Hernando, Senior Economist (Country Desk economist); Mr. Shunsuke Endo, Senior Economist (Country co-desk economist); Mr. Koon Hui Tee, Senior Economist; Mr. Prashant Pande, Senior Financial Specialist; Ms. Pim-orn Wacharaprapapong, Economist; and Dr. (Aruhan) Rui Shi, Associate Economist. AMRO Director/CEO Mr. Yasuto Watanabe and Chief Economist Dr. Dong He participated in key policy meetings and courtesy calls with the authorities. This AMRO Annual Consultation Report on Japan for 2025 was peer reviewed by a group of economists from AMRO's Country Surveillance, Financial Surveillance, and Fiscal Surveillance teams; endorsed by the Policy and Review Group; and approved by Dr. Dong He, AMRO Chief Economist.
3. The analysis in this Report is based on information available up to January 15, 2026.
4. By making any designation of or reference to a particular territory or geographical area, or by using the term "member" or "country" in this Report, AMRO does not intend to make any judgments as to the legal or other status of any territory or area.
5. On behalf of AMRO, the Mission team wishes to thank the Japanese authorities for their comments on this Report, as well as their excellent meeting arrangements and hospitality during our visit.

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Executive Summary

Theme: Beyond ultra-low interest rates – Japan's next economic chapter amid external uncertainty and high public debt

1. Japan's economy is transitioning toward a more domestically driven growth model, underpinned by strengthening private investment and consumption. Following a slight contraction in 2024, growth momentum has firmed, with business investment emerging as a key driver. Private consumption has begun to recover on the back of higher wages amid lingering cost-of-living pressures. AMRO projects GDP growth to strengthen to 1.2 percent in 2025, before easing to 0.8 percent in 2026, as the initial boost from export frontloading fades and the full-year impact of tariffs weighs on external demand. With external uncertainty going forward, growth will rely on private investment and consumption supported by positive business sentiment and rising real wages.

2. Japan's inflation momentum has strengthened, reflecting a more entrenched wage–price cycle supported by tight labor market conditions and rising inflation expectations. While the spike in inflation in 2025 was driven largely by transitory food-related supply shocks and high import costs amid a weak yen, underlying price pressures have become more broad-based, with the core-core CPI staying above 3.0 percent for much of 2025 even as headline measures eased. Medium-term inflation expectations have continued to rise, suggesting that firms and households are moving steadily towards a positive inflation environment. High nominal wage growth amid a tight labor market and government support is expected to persist into 2026, although real wages have so far remained negative as inflation has outpaced nominal earnings. Looking ahead, CPI (excluding fresh food) inflation is expected to remain elevated at 3.0 percent in 2025 and moderate to 2.2 percent in 2026, as government measures ease cost-of-living pressures, although firm wage growth continues to exert upward pressure on inflation.

3. Japan continues to run a sizable current account surplus supported by a large primary income surplus. Following the unwinding of frontloading ahead of US tariffs, export performance has softened, although the goods trade balance remained broadly stable as import growth also moderated. The current account surplus continues to be underpinned by the large and rising primary income surplus from Japanese direct investment abroad, which reached 5.1 percent of GDP in Q1–Q3 2025, up from 4.5 percent of GDP at end-2024. Looking ahead, the current account surplus is projected to remain elevated at about 4.7 percent of GDP in both 2025 and 2026, supported by strong primary income receipts.

4. Japan's monetary policy is entering a "new normal" of higher interest rates, marked by a gradual normalization following the exit from negative interest rates and yield-curve control in 2024. The policy rate has been raised to around 0.75 percent in December 2025, its fourth hike in the current cycle. Alongside these rate moves, the BOJ has continued to taper its Japanese Government Bond (JGB) purchases. The BOJ has also taken another incremental step toward balance sheet normalization by announcing plans to sell its holdings of exchanged-traded funds (ETFs) and real estate investment trusts (J-REITs). Short-term market rates and lending rates have risen broadly in line with the policy rate, though deposit rate pass-through remains more gradual.

5. The banking sector has shown improved performance during the gradual interest rate upcycle. Banks significantly improved their earnings in March 2025, supported by strong net interest income following the rise in interest rates. Meanwhile, non-performing loan

(NPL) ratios have continued to improve as economic momentum gathered strength. Banks have maintained adequate capital and liquidity buffers.

6. The fiscal deficit is projected to stabilize in FY2025, though increased spending pressures are expected to push the fiscal deficit higher in the future. AMRO projects the general government fiscal deficit at about 1.7 percent of GDP in FY2025, broadly unchanged from FY2024, with the projection reflecting economic measures announced in November 2025. It is anticipated that fiscal policy will turn expansionary from FY2026 with the launch of the government's comprehensive growth strategy. Public debt remains high but is easing from 227 percent of GDP in FY2024 to around 221 percent in FY2025.

7. Risks to Japan's growth outlook are tilted to the downside, driven mainly by external uncertainties in the short term. Despite the US–Japan trade agreement in July 2025, uncertainties over its implementation continue to cloud the outlook. Other external risks include a sharper global slowdown, renewed commodity price shocks, and tighter or more volatile global financial conditions. Meanwhile, Japan's high public debt and rising interest rates could pose fiscal risks. Over the longer term, demographic headwinds and climate-transition needs could further strain public finances and growth potential.

8. Proactive credit and interest rate risk assessment should be encouraged, at the same time, property price increases warrant close monitoring. Banks should deepen their interest rate risk management, especially for longer-tenor yen exposures. Close monitoring of foreign-currency funding positions and currency mismatches remains essential. The continued increase in property prices, particularly in the major metropolitan areas, warrants close monitoring. Information sharing and close coordination among relevant agencies would provide a strong foundation for formulating macroprudential and property-related policies, should the need arise.

9. Monetary policy normalization should proceed at a measured pace and remain data-driven, balancing inflation and growth risks. With a positive output gap, elevated headline inflation, and gradual increases in underlying inflation and inflation expectations, BOJ should continue to reduce the degree of monetary accommodation through gradual upward adjustments of the policy rate. Durable wage-price dynamics, the impact of US tariffs, and core inflation trends should guide the pace of further hikes. The ongoing tapering of government bond purchases, along with the announced plans to sell ETFs and J-REITs, should emphasize predictability, effective communication, and operational agility.

10. Fiscal policy should remain committed to addressing near-term risks, pursuing growth-friendly consolidation and tackling structural challenges. In the near-term, fiscal policy should be agile and targeted, supporting vulnerable groups while preserving fiscal discipline. Over the medium-term, consolidation efforts on revenue mobilization and expenditure rationalization should continue. In the long run, fiscal policy must address aging-related spending pressures as well as strengthen climate transition and growth-enhancing structural reforms. Debt consolidation can help contain debt repayment ratios through lower risk premia.

11. Structural reforms should be implemented with greater urgency to enhance growth potential. Structural reforms to raise productivity, foster innovation, and accelerate digital and green transformation are vital. Continued efforts to enhance labor-market flexibility and skills upgrading will help lift potential growth and strengthen Japan's resilience.

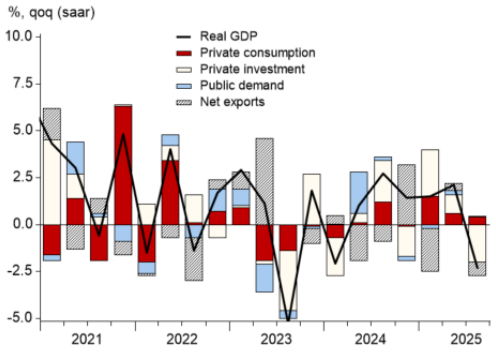
A. Recent Developments and Outlook

A.1 Real Sector Developments and Outlook

Evolving growth drivers and inflation dynamics in Japan underpin the shift to a new normal of higher interest rates.

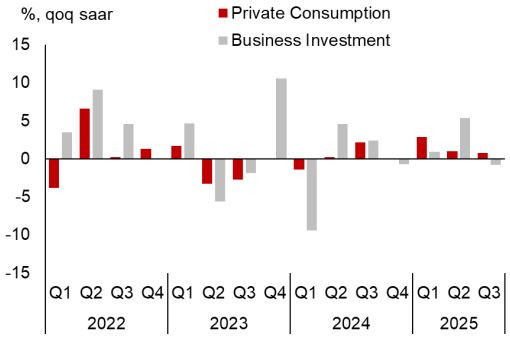
1. Japan's growth momentum has been supported by firm domestic demand with temporary push from export frontloading. After a marginal contraction of 0.2 percent in 2024 due to weak private consumption and supply chain disruptions, growth momentum started to pick up. Entering 2025 from a weak base, GDP grew by 1.5 percent (quarter-on-quarter, seasonally adjusted annualized rate) in Q1 driven largely by higher investment which more than offset the drag from net exports[1], while private consumption was resilient despite a spike in food prices. In Q2, growth was stronger at 2.1 percent and the composition of growth also improved. Private consumption provided some lift, supported by rising wages, and net exports shifted from being a drag in Q1 to making a positive contribution. However, output contracted by 2.3 percent in Q3, primarily reflecting declines in private residential investment and exports (Figure 1). Notwithstanding this slowdown, private consumption has remained in positive territory, although business investment has been volatile (Figure 2).

Figure 1. Real GDP Growth



Source: Cabinet Office; Haver Analytics

Figure 2. Private Consumption and Business Investment



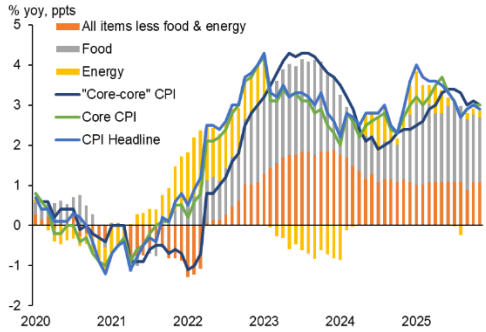
Source: Cabinet Office; Haver Analytics

2. Japan's economic outlook is anchored by the gradual recovery of private consumption and firmer business confidence, despite persistent external headwinds from tariffs. AMRO projects GDP growth to strengthen to 1.2 percent in 2025, before moderating to 0.8 percent in 2026. The growth drivers are shifting from external demand to private domestic demand, as household spending benefits from continued wage gains, while firms sustain strong investment in digitalization, IT systems, and labor-saving technologies. Looking ahead, investment is set to be propelled by strategic priorities such as artificial intelligence, semiconductors, logistics, and environmental sustainability.

[1] In 2025Q1, although goods exports rose by a solid 2.7 percent, services exports contracted by 12.7 percent, as research and development payments normalized following a sharp 24.1 percent surge in Q4 2024.

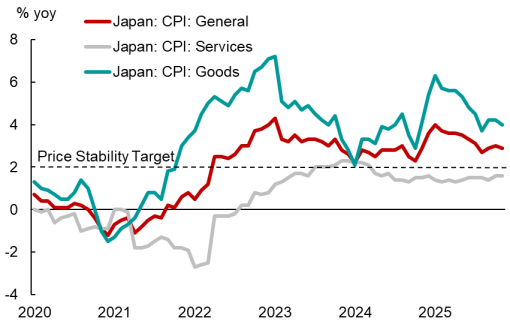
Net exports are expected to be a drag on the economy for the remainder of 2025 as earlier frontloading effects fade. In 2026, growth is expected to moderate to 0.8 percent as the effects of tariffs weigh on growth for the full year. Wages are projected to continue rising, which will help support consumption, while investment in labor-saving technologies and strategic sectors will persist.

Figure 3. CPI Inflation



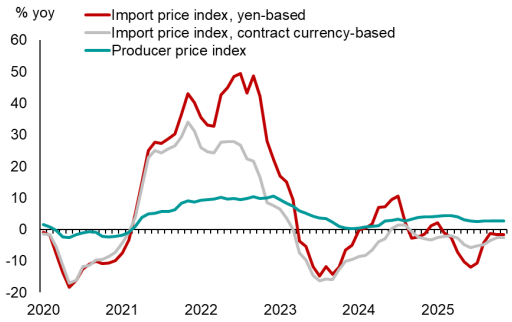
Source: Ministry of Internal Affairs and Communication; Haver Analytics

Figure 4. CPI Inflation by Goods and Services



Source: Ministry of Internal Affairs and Communication; Haver Analytics

Figure 5. Indices of Import Price and Producer Price



Source: BOJ; Ministry of Internal Affairs and Communications; Haver Analytics

Figure 6. Firms' Inflation Expectations

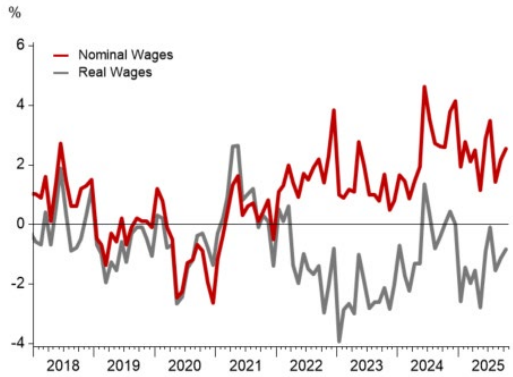
Source: BOJ; Haver Analytics

3. Inflationary pressures have remained persistent, even as food-related supply shocks that caused earlier spikes are now gradually waning. CPI (excluding fresh food) inflation eased to 3.0 percent in November from its peak at 3.7 percent in May 2025. Headline and core measures have been influenced by transitory supply shocks, particularly from food and commodity prices, with food prices contributing to more than half of the price increase during the year (Figure 3). Meanwhile, services inflation has remained stable, albeit below 2 percent, reflecting firms' improved ability to pass on costs, particularly rising wages (Figure 4). The high input costs during the first half of the year from energy and imported materials (Figure 5), partly due to the weak yen,[2] also pushed consumer prices higher. Beyond these supply factors, Japan's inflation momentum has strengthened,

[2] Staff analysis based on VAR estimates for 2021–25 suggests that exchange rate pass-through to trade prices in Japan has strengthened relative to the pre-pandemic period. A one-percent nominal effective yen depreciation raises import prices by about 0.9 percent and export prices by about 0.6 percent, implying a deterioration in the terms of trade. The empirical evidence on of exchange rate pass-through to overall consumer prices is inconclusive, though the passthrough is more pronounced for energy prices. Meanwhile, the direct impact of JPY depreciation on real consumption has so far been muted.

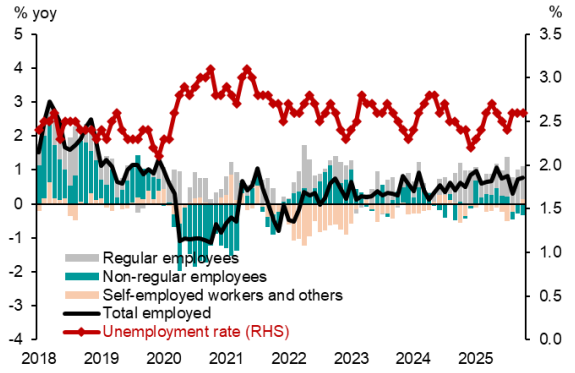
reflecting a more entrenched wage–price cycle supported by tight labor market conditions and rising inflation expectations. The "core-core" index, which is CPI excluding both fresh food and energy, has steadily increased since July 2024 and reached 3.4 percent in July 2025, before edging down to 3.0 percent in November.[3] Medium-term inflation expectations in the BOJ Tankan have been rising and reached 2.4 percent from 0.8 percent at the start of the pandemic (Figure 6). Looking ahead, as the supply shocks on food wane, CPI (excluding fresh food) is expected to decline but do so very gradually. CPI (excluding fresh food) inflation is expected to remain elevated at 3.0 percent in 2025 and moderate to 2.2 percent in 2026, as government measures ease cost-of-living pressures, although firm wage growth continues to exert upward pressure on inflation.

Figure 7. Wage Growth



Source: MHLW; Haver Analytics

Figure 8. Changes in Total Employed by Type and Unemployment Rate



Source: Ministry of Internal Affairs and Communications; Haver Analytics

4. Japan's labor market remains tight, reinforcing nominal wage gains and strengthening unions' bargaining power. Following the 2025 "Shunto" wage negotiations, agreed wage increases reached 5.25 percent overall. This is the second consecutive year in which the outcome exceeded 5 percent, broadly meeting the target, although the agreed wage growth for SMEs averaged lower at 4.65 percent. The momentum for wage growth is further reinforced by government policy as the minimum hourly wage will rise by a record 6.3 percent from October 2025. Nominal cash earnings grew by an average of 2.3 percent in 2025 up to October, but real wages remained negative as inflation continued to outstrip nominal gains (Figure 7). Labor demand remains firm, with unemployment remaining low at 2.6 percent and employment driven by rising regular employees (Figure 8) and the job-to-applicant ratio stable around 1.2 as of October. Labor supply may be approaching structural limits, with employment and participation hitting record highs in 2024, driven by sustained gains among women and seniors. Looking ahead, historically high nominal wage growth is expected to persist through 2025 on the back of the tight labor market, "Shunto" outcomes and government policy to sustain wage

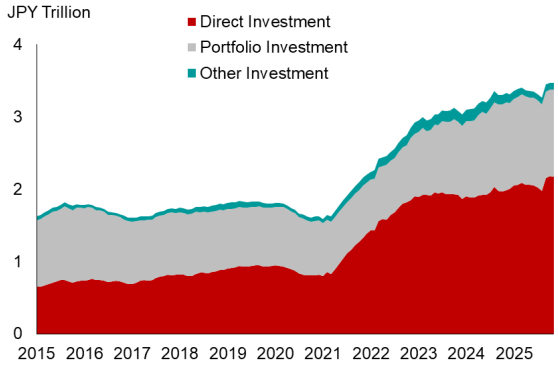
[3] Price gains have been broad-based, with the share of CPI items recording increases peaking at around 82 percent in May before easing to 78 percent in September. Distribution-based measures (trimmed mean, weighted median, mode) likewise climbed in the first half of the year before edging lower more recently.

growth. Wage gains will likely continue in 2026, although at possibly slower pace as external headwinds weigh on the economy.

A.2 External Sector and the Balance of Payments

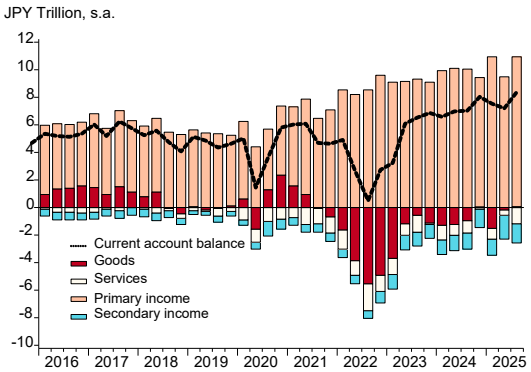
5. Japan's export performance softened in recent months following a temporary boost from frontloading activities, but the current account surplus remains substantial. Exports grew by 7.4 percent year-on-year in Q1 2025, driven primarily by accelerated shipments of transport equipment and machinery ahead of anticipated US tariffs. However, export growth moderated to -0.04 and 0.4 percent in Q2 and Q3 respectively as the frontloading effect dissipated. The deceleration was broad-based, extending beyond transport equipment, which has been subject to US auto tariffs since April,[4] to other major export categories. With import growth moderating, the goods trade balance remained stable. Meanwhile, the current account remained in substantial surplus due to a sizable and broadly stable primary income surplus from direct investment abroad (Figure 9), equivalent to 5.1 percent of GDP in Q1-Q3 of the year, higher than the 4.5 percent of GDP recorded at the end of 2024 (Figure 10). The current account surplus is projected to remain high at 4.7 percent of GDP in 2025 and 2026, supported by the persistence of a large primary income surplus.

Figure 9. Sources of Primary Income



Source: BOJ; Ministry of Finance Japan (JMOF); Haver Analytics
Note: The chart shows the 12-month moving average of Japan's primary income by major source.

Figure 10. Current Account Balance



Source: BOJ; JMOF; Haver Analytics

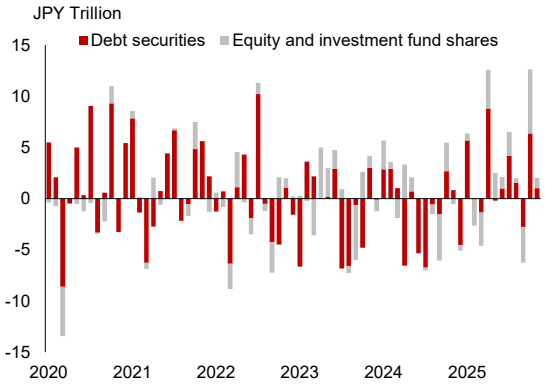
6. Net financial account outflows slowed in 2025 driven by foreign portfolio investor demand for Japanese bonds. The net outflows from financial accounts[5] slowed in 2025 by 33.8 percent in the January to November period, as compared to the same

[4] Japan faced a 10 percent US tariff from April till August 7, 2025, when the rate was raised to 15 percent under the July 22 trade deal. Although this was lower than the threatened 25 percent levy, car exports remained subject to a combined 27.5 percent tariff until September 16, when Washington signed an executive order to reduce auto duties to 15 percent. Unlike the general reciprocal tariff increase, this change was not applied retroactively to 7 August. On September 26, the US announced new tariffs on branded and patented pharmaceutical products, heavy-duty trucks, upholstered furniture, kitchen cabinets, and bathroom vanities, to take effect from October 1, 2025. The impact on Japan remains uncertain, as the specific product classifications subject to the tariffs have not yet been clarified, and it is unclear whether Japan's most-favored-nation (MFN) status under its agreement with the US can be invoked.

[5] The net outflows from financial accounts are calculated as the net (assets less liabilities) outflows from direct, portfolio, and other investments.

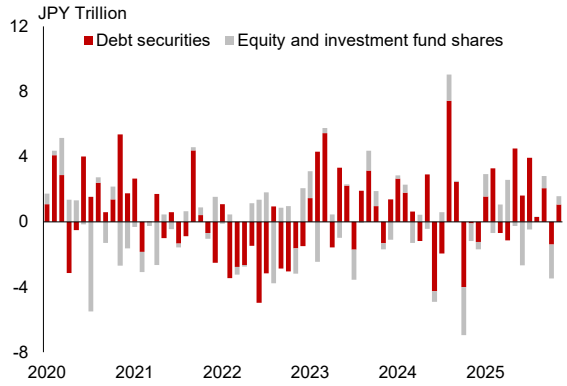
period in 2024. The slowdown was driven by a resumption in portfolio debt inflows. Japanese bonds received inflows of JPY 24.2 trillion as compared to JPY 9.7 trillion in outflows in the same period in 2024, also offsetting the outflows to foreign debt securities of JPY 15.1 trillion (January to November 2024: outflow of JPY 6.4 trillion). The rising yields in Japan[6] and major developed markets amid elevated equity market volatility may have made bond investments more attractive for both domestic and foreign investors (Figure 11 and 12). Outward FDI investments remained robust, with a 31.3 percent rise from January-November 2025 in equity FDI and remain the primary driver of the outflows from the financial account. Outward FDIs may continue to rise as Japan increases US-bound investment in accordance with the trade deal[7] while also looking for other investment avenues to build more resilient supply chains.

Figure 11. Net Purchases of Domestic Securities by Non-Residents



Source: JMOF; Haver Analytics

Figure 12. Net Purchases of Foreign Securities by Residents



Source: JMOF; Haver Analytics

A.3 Monetary Conditions and the Financial Sector

The BOJ continues to gradually reduce the degree of monetary policy accommodation.

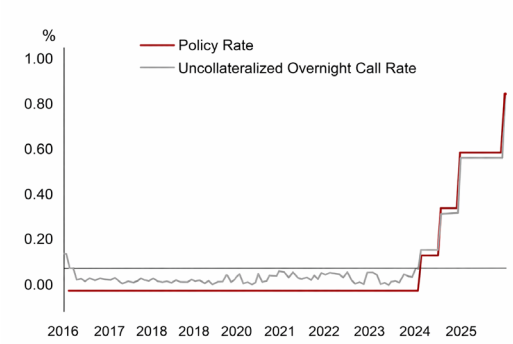
7. The BOJ raised the policy rate by around 0.5 percent in 2025, and signaled a willingness to continue the gradual normalization. The BOJ raised its policy rate from around 0.25 percent in December 2024 to around 0.5 percent in January 2025. The rate was maintained in the second and third quarters (Figure 13), reflecting a cautious stance amid elevated uncertainties, particularly surrounding US trade policy. Then, the central bank increased the policy rate again to around 0.75 percent in December 2025, as external uncertainties declined and the wage-price passthrough was assessed to persist. The BOJ

[6] Japan's 10-year and 30-year government bond yields rose by 93 bps and 109 bps respectively, in 2025.
[7] According to the trade agreement between the US and Japan, Japan will invest USD 550 billion in the US into key sectors and technologies including semiconductors, pharmaceuticals, metals, critical minerals, shipbuilding, energy, artificial intelligence and quantum computing. The time frame and precise implementation details are still pending as of 22 September 2025.

also reiterated its readiness to raise rates further should the economic outlook return to a moderate growth trajectory in line with expectations.

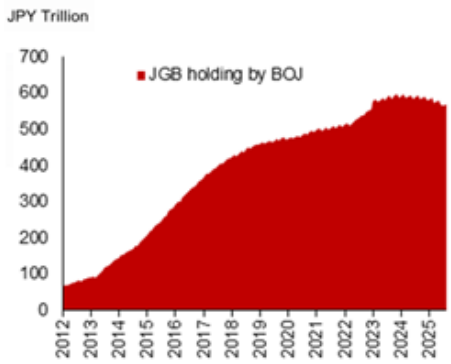
8. Meanwhile, balance sheet tapering has continued in a gradual and predictable manner. The BOJ's holdings of Japanese Government Bonds (JGBs) have declined by 7.7 percent from JPY 589.8 trillion to JPY 544.4 trillion since it started quarterly reductions in purchase volumes in Q3 2024 (Figure 14). The BOJ conducted an interim assessment of its tapering plan in June 2025 and announced a slower pace of reduction in purchases, from JPY 400 billion to JPY 200 billion yen per quarter, starting April 2026, with a follow-up assessment scheduled for June 2026. The Bank argues that a slower pace of tapering would strike a balance between improving the functioning of the JGB market and supporting market stability.

Figure 13. Policy Rate



Source: BOJ; Haver Analytics

Figure 14. BOJ Tapering



Source: BOJ; Haver Analytics

9. In September 2025, the BOJ stepped up balance sheet normalization with a plan to sell exchange-traded funds (ETFs) and Japan real estate investment trusts (J-REITs) in addition to the ongoing tapering of government bond purchases. In December 2025, BOJ held JPY 37.2 trillion and JPY 0.7 trillion ETFs and J-REITs, respectively. The disposal plan, which followed the March 2024 decision to discontinue purchases of these assets, is guided by the following principles. First, assets should be sold at adequate prices, considering market conditions. Second, losses to the BOJ should be avoided to the extent possible. Third, the BOJ should avoid inducing instability in the market to the extent possible. Following these principles, the BOJ decided to sell ETFs and J-REITs at a pace of JPY 330 billion per year and JPY 5 billion per year (book value), respectively. The sales would amount to about 0.05 percent of the trading value in each market. Finally, the disposal will begin once the operations are ready, and the pace of sales may be changed if necessary in keeping with changes to market conditions.

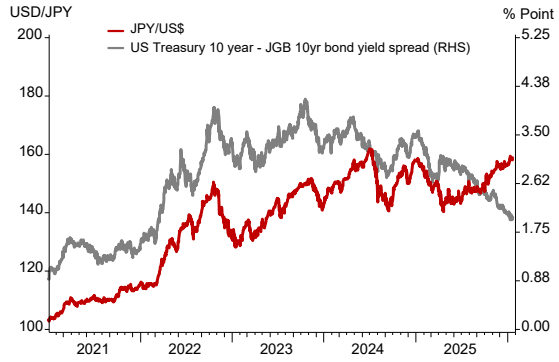
10. To date, the increase in the policy rate has been transmitted to short-term market and commercial bank interest rates. After the March 2024 MPM when the BOJ terminated the negative interest rate policy, it raised the target rate for the uncollateralized

overnight call rate from 0–0.1 percent to around 0.75 percent by December 2025, a cumulative 65-75 basis points (bps) hike. The adjustments led the overnight uncollateralized call rate to rise immediately, reaching around 0.73 percent on the day the new policy rate took effect in December 2025. Transmission to commercial bank lending rates varies across loan products. Interest rates on new loans rose by 46 bps, reflecting strong pass-through, while the weighted average rate on outstanding loans has increased by 38 bps so far,[8] as fixed-rate components are repriced gradually.[9] On the deposit side, the response has been more subdued, with ordinary deposit rates and time deposit rates (less than two years) rising by 18 bps and 39 bps, respectively.[10]

While equities surged, upward pressure on bond yields and FX shifts paint a changing landscape for Japan's financial markets.

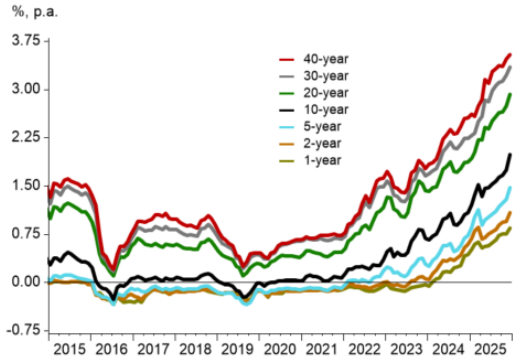
11. The yen's sensitivity to the interest rate differentials with the US has weakened. The yen's exchange rate against the US dollar has been sensitive to the interest rate differentials between the two currencies over the past few years. However, the relationship weakened after the so-called Liberation Day, when the US announced reciprocal tariffs (Figure 15)[11], indicating that other factors also influenced the bilateral exchange rate. The breakdown of sensitivity was likely driven by some degree of reevaluation of the US dollar's safe haven status and domestic situation in Japan while interest rate differentials with the US remain relevant.

Figure 15. USD/JPY and Interest Rate Differentials



Source: BOJ; Haver Analytics

Figure 16. JGB Yields



Source: JMOF; Haver Analytics

[8] Interest rates on new loans refer to the weighted average rates for new contracts of loans and discounts for the month issued by domestically licensed banks. The weighted average rates on outstanding loans refer to the average contracted interest rates on loans and discounts outstanding at the end of the month for all domestically licensed banks. Both series are reported by the Bank of Japan (BOJ). Latest data as of December 2025.
[9] Approximately 60 percent of corporate loans by megabanks are subject to floating interest rates, while close to 80 percent of housing loans have floating interest rates.
[10] Ordinary deposit rates offered by banks as reported by the BOJ. Latest data is as of November 2025. Time deposit rates refer to average interest rates on time deposits at domestically licensed banks accepted during the month. Data is also from the BOJ. Latest data as of November 2025.
[11] Since end-2024 to the "Liberation Day", JGB -UST 10-year yields widened by 82 bps while the JPY strengthened by 11.6 percent against the US dollar. However, amid the Liberation Day volatility, the yen appreciated further by 6 percent but the spread narrowed by 46 bps. Since then, the spread widened again by 110 bps but yen is weaker by 11.2 percent against the US dollar.

12. JGB yields have increased in the past few months, and the super-long-tenor yields have risen more than those in the shorter-end reflecting concerns of supply-demand imbalance (Figure 16). Super-long JGB yields tend to be more sensitive to supply-demand conditions while shorter-end yields and JPY OIS rates tend to be dependent on the monetary policy outlook. In 2025, there has been a notable steepening[12] in the yield curve as well as a widening of spread between longer-tenor JGB yields and corresponding JPY OIS rates. There are multiple drivers for this, including weaker demand for super-long JGBs from insurance companies, and spillovers from concerns over expansionary fiscal policy from other advanced economies (US, Europe) and in Japan. These factors together led to decreased liquidity and increased volatility in the JGB market. The JGB markets found some support and liquidity has improved as the government has reduced its issuance of super-long term bonds[13] and conducted liquidity enhancement auctions. At the same time, foreign investors bought JGBs at attractive valuations.

13. The equity market strengthened in 2025 largely driven by improved global risk sentiment and corporate governance reforms picking pace. The Japanese equity markets strengthened significantly after the sharp correction amid the risk-off sentiment triggered by the US announcement of reciprocal tariffs. While equity sentiment improved globally, Japanese stocks outperformed driven mainly by the implementation of governance reforms by more Japanese companies, as shown in the annual results announced in April and May. This reform progress has been instrumental in attracting foreign investors. The magnitude and consistency of the inflows suggest sustained optimism among foreign investors. Strong foreign demand overrode the negative market sentiments related to political uncertainties. In addition, the announcement of the Japan-US trade deals and recent political stability have contributed further to the strength of the equity markets.

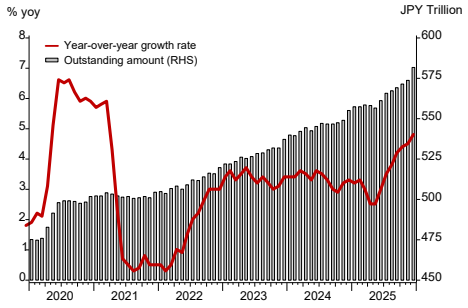
The banking sector remains sound with strong buffers and profitability. While not imminent, risks to interest rate volatility and the property sector could be more relevant over the medium term.

14. The banking sector has shown improved performance through the gradual interest rate upcycle. Banks significantly improved their earnings in March 2025, supported by strong net interest income reflecting the rise in policy rates.[14] Bank lending has continued to grow by above 3 percent on average in 2025, backed by demand for both

[12] The JGB yield curve steepened by 12 bps from end-2024 to 15-January-2026, between the 30-year and 10-year bond yields, and by 50 bps between the 10-year and 2-year bond yields.
[13] The Ministry of Finance issued an updated JGB issuance plan on 23 June 2025 and announced the reduction of bond issuance in the 20-year, 30-year, and 40-year tenors while increasing the issuance of 2-year bonds and treasury bills. The size of auctions for liquidity enhancements were also reduced for the 15.5 to 39 year bucket while that in 1 to 5 year bucket was increased.
[14] Major banks on a consolidated basis increased the profits attributable to owners of the parent by 33.3 percent in March 2025 from the previous fiscal year, while regional banks on an unconsolidated basis improved the net income by 36.6 percent, according to the FSA.

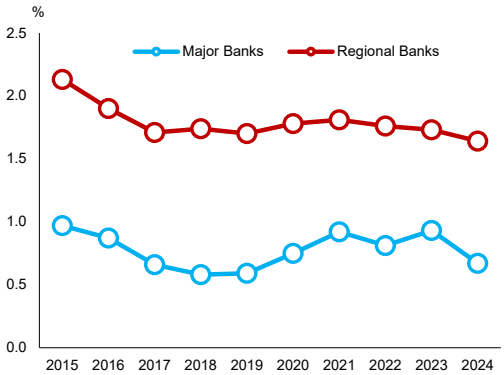
fixed investments and working capital, thereby supporting real economic activity, while accelerating recently on the back of stronger demand for property lending and M&A financing (Figure 17). Meanwhile, banks have experienced a shift from demand deposits to time and savings deposits.[15] NPL ratios have continued to improve in Japan as economic momentum has picked up (Figure 18)[16] and key indicators of borrowers' debt service capacity have remained sound, even after policy rate hikes.[17] Banks maintain adequate capital buffers, with capital adequacy ratios consistently exceeding regulatory minimums (Figure 19).[18] The liquidity coverage ratios (LCRs) at Japanese megabanks are also well above the minimum requirement of 100 percent, ranging between 125 and 164 percent as of March 2025.

Figure 17. Domestic Banks' Lending



Source: BOJ; Haver Analytics

Figure 18. Banks' NPLs



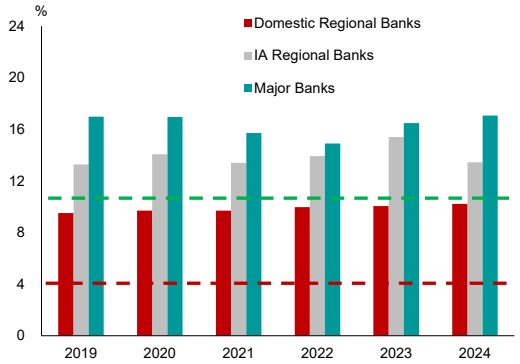
Source: FSA

15. Banks continue to factor the recent rise in interest rate volatility into their risk management strategies. In anticipation of monetary policy normalization, banks reduced yen interest rate risk in the banking book by cutting yen bond holdings and shortening their duration after 2022. Such risk reduction actions have been continuing mainly for regional and shinkin banks.[19] Interest rates in longer tenors have been more volatile, but the impact of rising interest rates on the banking side as a whole has been mitigated over the past few years. At a more disaggregated level, some small banks could still be relatively vulnerable. While large unrealized gains on equities could also serve as a buffer against potential adverse shocks, banks have continued to further strengthen their

[15] Private and public deposits increased by 2.0 percent on average from April to November 2025, while demand deposits declined by 0.7 percent and time and savings deposits increased by 10.1 percent during the same period. Demand deposits consist of current deposits, ordinary deposits, saving deposits, deposits at notice, special deposits, and deposits for tax payments. Time and savings deposits are composed of time deposits, fixed savings, and installment savings.
[16] The NPL ratio of major banks on a consolidated basis declined from 0.9 percent in March 2024 to 0.7 percent in March 2025, while that of regional banks fell from 1.7 to 1.6 percent over the same period.
[17] The Interest Coverage Ratio (ICR) as well as the Debt Service Ratio (DSR) as a whole improved for the corporate sector in 2024 and 2025, according to Orbis and ARTEMIS database, suggesting continued resilience among borrowers despite higher policy rates. The debt payment to disposable income ratio for households also continued to improve. Going forward, the financial health of relatively vulnerable corporates and households would need to be monitored amid gradually increasing interest rates.
[18] The average CARs for internationally active major banks, internationally active regional banks, and domestic regional banks, stood at 17.1 percent, 13.5 percent and 10.2 percent, respectively, as of March 2025, according to the FSA, implying a strong capital position in the sector.
[19] See BOJ 2025.

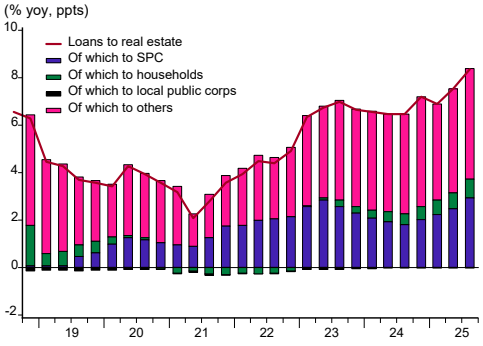
preparedness against interest rate risk shocks.[20] Even as the aggregated yen interest rate risk on bank balance sheets (i.e. yen interest rate risk on loans, security holdings and deposits) has reduced, the interest rate risk specific to the securities portfolio needs to be evaluated to understand the valuation impact of rising interest rates. The total holdings of JGBs by banks are still sizeable. Other securities, such as local government bonds, corporate bonds, and stocks, are also sensitive to interest rate changes and the policy outlook.

Figure 19. Banks' CARs



Source: FSA
Note: Major banks refer to internationally active major banks defined in the FSA's "Overview of Major Banks' Financial Results". IA Regional Bank stands for Internationally Active Regional Banks. The red dotted line represents the minimum regulatory CAR of 4 percent for domestic banks. The green dotted line represents the minimum regulatory CAR of 10.5 percent for internationally active banks.

Figure 20. Banks' Lending to the Real Estate Sector



Source: BOJ; Haver Analytics

16. Nonbank financial institutions (NBFIs) have also adjusted their balance sheet structure to the new interest rate environment. In 2020, JFSA announced the Economic Value-Based Solvency Regulatory Framework to strengthen risk management for insurance companies, resulting in smaller maturity mismatches. In the past few years, life insurance companies reduced their holdings of debt securities on a mark-to-market accounting basis while carefully managing their balance sheets.[21] At the same time, non-residents have become more active on both sides of repo transactions, borrowing bonds to invest yen funds and lending bonds to obtain yen funding against the backdrop of expanding arbitrage opportunities associated with changes in monetary policy. Among NBFIs[22], life insurance companies, which accounted for around 20 percent of total NBFI assets in March 2025, recorded higher net income in March 2025 compared to the

[20] Regional banks established a Balance Sheet Management Consortium in May 2025 to enhance their analysis of core deposits to improve interest rate risk management. See Shizuoka Financial Group 2025.
[21] Flow of funds statistics indicate that debt securities holdings declined from JPY 2.0 trillion in March 2022 to JPY 1.7 trillion in March 2025. As the statistics apply mark-to-market valuation to financial assets, the decline may reflect the impact of rising interest rates.
[22] Comprising securities investment trusts, insurance and pension funds, and other financial intermediaries, NBFIs have consistently accounted for around 35 percent of total financial institution assets since 2014, according to the flow of funds statistics.

previous year, benefitting from higher interest and dividend income on domestic and foreign equities.[23]

17. Property prices have continued to rise,[24] driven by both demand and supply factors. On the demand side, positive momentum in corporate earnings and household income amid accommodative financial conditions has supported real demand. In addition, real estate has become more attractive as a real asset hedge against inflation. The weaker yen has provided a sense of undervaluation of urban properties in Japan, especially for non-resident investors. On the supply side, constraints stemming from labor shortages, along with rising construction, material, and labor costs, have contributed to the increase in property prices. Loans to the real estate sector have continued to grow at around 6-8 percent, partly driven by loans to special purpose companies for real estate (Figure 20), while the interest coverage ratios in the property and construction sector improved in 2024,[25] suggesting the sector maintained sound debt servicing capacity at the initial stage of the monetary policy normalization.

A.4. Fiscal Sector

The fiscal position has steadily improved since the COVID-19 pandemic, but further consolidation could be delayed by spending pressures and uncertainty.

18. Japan's fiscal position improved modestly in FY2024 as expenditure normalization and buoyant tax revenues helped narrow the deficit. According to AMRO's estimate, the general government fiscal deficit is estimated to have narrowed slightly to 1.7 percent of GDP in FY2024 from 1.8 percent of GDP in FY2023[26] as the government further scaled back expenses such as subsidies designed to support the economic recovery, particularly to SMEs.[27] Ongoing expenditure reform and efficiency

[23] Major life insurance companies recorded higher net income compared to the previous year, mainly due to increased interest and dividend income stemming from higher dividends on both domestic and overseas equity holdings, according to the FSA. Their solvency margin ratio stood at 871.6 percent as of March 2025, well above the regulatory threshold of 200 percent.
[24] The Residential Property Price Index recorded an average annual growth rate of 3.3 percent from January 2023 to September 2025, according to the Ministry of Land, Infrastructure, Transport and Tourism. Notably, the price of condominiums showed a stronger increase of 6.1 percent in the same period. In the major cities, the pace of price hikes is reportedly higher. The Commercial Property Price Index, covering Q1 2023 to Q3 2025, recorded an average annual growth rate of 3.7 percent.
[25] With Debt-at-Risk defined as an interest coverage ratio below 1.25, the share of debt in property and construction sector firms with ICR of below 1.25 declined slightly from 7.9 percent in 2023 to 6.4 percent in 2024 and 2025, according to Orbis and ARTEMIS database. Without setting a specific threshold, the number of firms with higher ICRs is larger than that the number with lower ICRs in the sector in 2024 and 2025, suggesting that the improved repayment capacity was observed on a broad basis across firms.
[26] For the purposes of this analysis, general government follows the institutional coverage defined in the Government Finance Statistics Manual 2014 (GFSM 2014), which is consistent with the System of National Accounts (SNA) framework adopted by Japan for international comparison. This comprises the central government, local governments, and social security funds.
[27] Broad extraordinary support programs for SMEs related to the pandemic and in response to acute price shocks were discontinued, as the government introduced more focused measures to support wage increases and subsidize investments aimed at productivity improvements.

measures[28] also contained spending in FY2024. Meanwhile, tax revenue was robust, driven by strong corporate profits and higher consumption tax receipts reflecting rising prices, more than offsetting the decline in personal income tax linked to the one-time cut implemented in June 2024.

19. Looking ahead, the fiscal deficit is projected to stabilize in FY2025, though higher spending pressures are expected to push the fiscal deficit to higher levels in the future. AMRO projects the general government fiscal deficit at about 1.7 percent of GDP in FY2025, broadly unchanged from FY2024, with the projection reflecting economic measures announced in November 2025 (Figure 21).[29] While the government remains committed to a gradual reduction in the public debt-to-GDP ratio, it has adjusted the timeline for achieving a primary balance surplus for the central and local government .[30] The output gap is expected to close this year, making the current neutral fiscal stance appropriate (Figure 22). As the economy is projected to continue expanding and the output gap turns slightly positive, maintaining this neutral stance will help prevent overheating. However, it is anticipated that fiscal policy will turn expansionary from FY2026 with the launch of the government's comprehensive growth strategy.[31] Public debt stood at 233 percent of GDP in FY2023 (down from 254 percent in FY2020). AMRO projects further declines to an estimated 227 percent in FY2024 and 221 percent in FY2025, largely due to favorable debt dynamics from negative real interest rates and higher GDP growth. Nonetheless, the very high debt level and the risk of rising term premia lifting debt-service costs underscore the need for stronger commitment to medium-term consolidation which will enhance the credibility of fiscal consolidation plan.

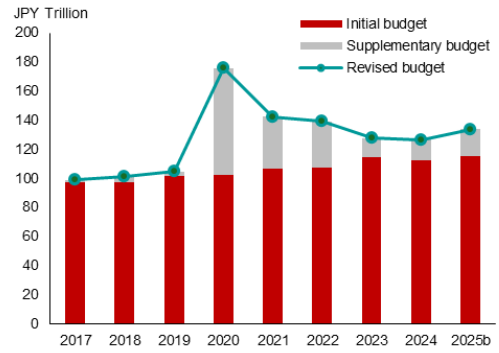
[28] As part of the three-year expenditure reform plan (FY2022–FY2024), measures included: (i) digital reforms—promoting digitalization, administrative streamlining, and shared infrastructure to reduce inefficiencies; (ii) social security—limiting expenditure growth to demographic factors; (iii) general expenditures—continuing reforms through EBPM, stricter prioritization, use of existing budgets, curbs on non-essential spending, fund reviews, and more efficient infrastructure investment; (iv) local government finances—maintaining general revenue at FY2021 plan levels; and (v) healthcare—revising official fees and drug prices to contain costs.

[29] The Takaichi administration announced an economic stimulus package amounting to JPY 21.3 trillion, of which JPY 18.3 trillion is envisaged to be financed through the General Account. The package comprises four pillars: (i) measures to cushion households and firms from elevated prices and support for SME wage increases and productivity-enhancing investments; (ii) growth-oriented investment in strategic fields related to economic, food, and energy security; (iii) front-loaded defense expenditure; and (iv) contingency buffers to address potential natural disasters, renewed price shocks, and other unforeseen risks.

[30] Under the Takaichi administration, the authorities continue to stress their commitment to placing the public debt-to-GDP ratio on a downward path over the medium-term. While recent statements seemed to suggest a planned shift toward a more flexible, multi-year framework that places greater emphasis on debt dynamics and broader sustainability indicators, the administration remains committed to fiscal consolidation over the medium-term and bolstering potential growth. That said, achieving a primary surplus in FY2026 appears increasingly unlikely given the current preference for expansionary fiscal policy, as reflected in the FY2025 supplementary budget..

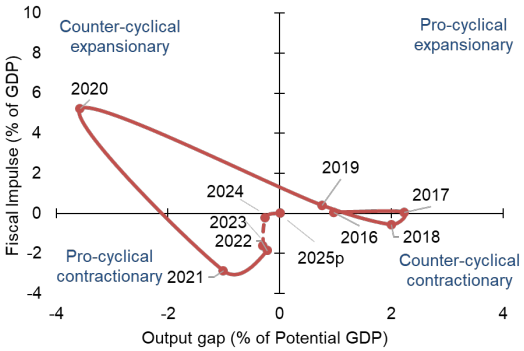
[31] The Council for Japan's Growth Strategy is a new cabinet-level advisory body established by Prime Minister Sanae Takaichi. It is tasked with formulating a comprehensive growth strategy and public–private investment roadmaps for 17 priority sectors (including artificial intelligence, semiconductors, shipbuilding and food tech), with the government aiming to finalize the strategy by around June 2026.

Figure 21. Initial and Supplementary Budgets



Source: JMOF
Note: FY2025 figures are based on the supplementary budget proposal.

Figure 22. Fiscal Stance and Output Gap



Source: JMOF; Cabinet Office; AMRO staff projections
Note: FY2025 figures are based on AMRO staff projections.

20. Policies that balance needed economic dynamism with continued commitment to fiscal consolidation over the medium-term are the main focus for government policies in 2025. The 2025 Basic Policy on Economic and Fiscal Management and Reform reaffirms Japan's commitment to fiscal discipline. It places wage growth at the center of strategy, aiming to lift household income and consumption. The reform of social security spending and medical benefit system remains a major focus, as the government seeks to enhance efficiency and streamline costs by reforming pharmaceutical value assessments and ensuring innovation in healthcare. Government policy also targets reforms in the financial sector, including strengthening investment channels like pensions and Nippon Individual Savings Account (NISA)[32] to shift household savings into productive investment. Regulatory reforms and productivity improvements are likewise emphasized to underpin economic growth.[33]

While the authorities are proactively managing cyclical conditions, they are also advancing structural reforms to reshape Japan's economy toward greater innovation, resilience, and sustainability.

21. Japan in 2025 has launched new digital transformation (DX) initiatives centered on public sector modernization and industry innovation. The Cabinet's Priority Plan for the Advancement of a Digital Society strengthens administrative DX, cybersecurity, and digital literacy. Industry efforts include the Mobility DX Strategy, targeting a 30 percent global share of Software-Defined Vehicles by 2030 - 35, and

[32] NISA is a tax-advantaged account that can help Japanese residents acquire wealth. Unlike a regular investment account, capital gains and dividends from investments held in a NISA are tax-exempt.
[33] Planned regulatory reforms and productivity measures include: (i) strengthening Japan's role as a global financial center by streamlining licensing and registration, broadening product availability, enhancing governance, and easing tax frictions; (ii) labor market reforms to facilitate mobility, reskilling, and job-based wage setting; (iii) regulatory support for public-private collaboration in space industry R&D; and (iv) broader structural reforms to spur innovation—particularly through digital transformation and automation—while ensuring regulatory frameworks enable rather than constrain investment.

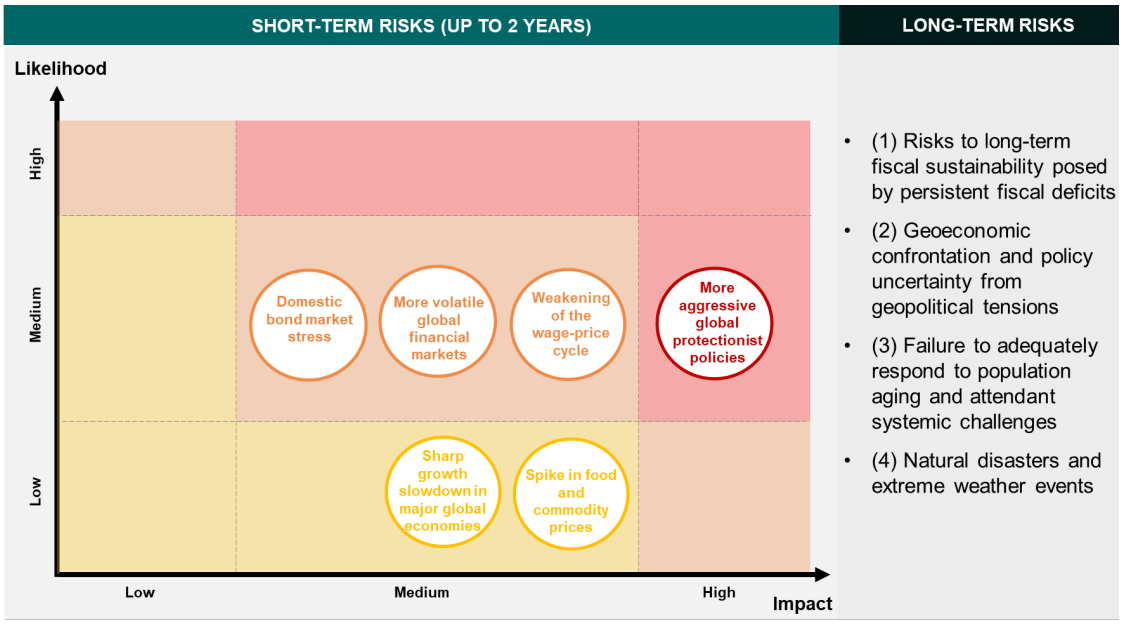
expanded use of digital tools in healthcare and disaster management.[34] The government is promoting frontrunner firms through its DX Stock and Noteworthy DX Companies program. Nonetheless, progress remains uneven, as many SMEs lag in DX adoption, and gaps in digital skills, data governance, and technology integration persist.[35]

22. Japan continues to advance its green transformation (GX) under the 7th Strategic Energy Plan[36]. The plan supports the green transition by aiming to raise the share of renewables to 36–38 percent and reduce fossil fuel dependence by 2030, while enhancing energy efficiency and promoting hydrogen, ammonia, and nuclear as transitional energy sources. These measures are designed to spur green investment, support innovation, and gradually lower reliance on imported fossil fuels, strengthening energy security and productivity over the medium term.

B. Risks, Vulnerabilities and Challenges

Key risks to Japan's economy in the short-term arise from external factors, while structural challenges, particularly aging population, can hinder growth over the long term.

Figure 23. Japan: Country Risk Map



Source: AMRO staff assessment

[34] D-CERT (Digital Assistance Team for Disaster Response) was established by the Digital Agency in 2025 to provide on-site digital support to prefectures during large-scale disasters, institutionalizing the ad-hoc digital assistance seen after the 2024 Noto Peninsula Earthquake.
[35] *Independent Administrative Institution Information-technology Promotion Agency, Japan (IPA),* DX Trends 2025, June 26, 2025. Available at: https://www.ipa.go.jp/digital/chousa/dx-trend/dx-trend-2025.html
[36] For details, see: https://www.enecho.meti.go.jp/category/others/basic_plan/

B.1 Near-term Risks to the Macro Outlook

23. Japan's macroeconomic outlook faces risks from a further escalation of US protectionism. Although the July US–Japan framework agreement in July 2025 has eased fears somewhat by reducing tariff uncertainty and leading to improved sentiment among Japanese companies, risks of an escalation remain. Beyond the automotive sector, the potential expansion of US sectoral tariffs to pharmaceuticals, semiconductors, industrial machinery, robotics, and medical devices, in addition to already existing levies on automobiles, steel and aluminum, poses broader risks to Japan's export base and industrial supply chains. Moreover, a failure to faithfully implement the Japan-US Memorandum of Understanding on the US-bound investment concluded in September 2025 could trigger renewed tariff hikes, complicating Japan's external demand prospects.[37] However, given that any decision would follow discussions within the Consultation Committee and that the Memorandum provides mechanisms to compensate for any shortfall in Japan's funding obligations through adjustments to allocation amounts, the likelihood of a further increase in tariff rates would be low.

24. In addition, the economic impact of the USD 550 billion investment initiatives in the US should be carefully assessed as timelines and details become clearer. A sustained diversion of corporate investment to the US may potentially depress domestic investment, with adverse implications for domestic employment and productivity growth. However, the Japanese government is also introducing policies to boost domestic investments, which could mitigate such concerns. Moreover, investments in strategic industries in the US, such as semiconductors and energy, could help strengthen Japan's national security and critical supply chains, which will contribute to enhancing the resilience and growth potential of the Japanese economy. In terms of the financial market impacts, the funding arrangements through JBIC with supports from the Foreign Exchange Fund Special Account could help mitigate potential pressures on the foreign exchange market.[38] (see Box A on "US–Japan Strategic Investment Framework: Scope and Implications").

25. Japan's exposure to external demand leaves it vulnerable to a sharp slowdown in global growth. Exports account for about 17 percent of GDP, with the United States, China, and the European Union together absorbing nearly half of Japan's shipments. While the export base is diversified, with only vehicles exceeding a 20 percent share, much of Japan's export strength lies in industrial machinery, electronics, and other high-technology goods. As a leading exporter of capital goods, such as semiconductor manufacturing equipment, machine tools, and robotics, Japan's export performance is

[37] MOU between U.S. and Japan on the strategic investment included the following provision "In the case where Japan elects not to fund, the United States may also impose tariff rate or rates on Japanese imports into the United States at the rate determined by the President."
[38] JBIC will extend loans to companies to fund the US investment initiatives. JBIC will secures funding through instruments such as Japanese Government Guaranteed Bonds. In addition, JBIC is authorized to obtain financing from the Foreign Exchange Fund Special Account. These funding arrangements help mitigate potential adverse effects of its substantial investments on the foreign exchange market

closely tied to the global investment cycle, wherein demand expands during periods of strong global capital expenditure but contracts sharply when firms cut back investment in response to weaker growth. Similarly, exports of electronics and ICT components, which are deeply embedded in global supply chains for automobiles, semiconductors, and consumer electronics, are subject to pronounced cyclical swings. A broad slowdown in major trading partners or in the global economy would therefore weaken demand across these sectors, transmitting to Japan's domestic production, employment, and corporate profits.

26. Ongoing diplomatic disagreements between China and Japan pose a risk of large-scale cancellations by Chinese tourists, which could weigh meaningfully on Japan's near-term growth. A scenario in which arrivals from China decline by 50 percent from current levels for a full year implies a non-negligible drag of about 0.16 percentage points on annual GDP.[39] While this shock alone is unlikely to derail the recovery, it would erode the contribution of inbound tourism to growth and warrants close monitoring when assessing the short-term outlook, particularly if accompanied by broader confidence effects or spillovers to other source markets.

27. Japan remains vulnerable to global commodity price shocks due to its structural dependence on imported energy and food. Domestic resources cover only 12.6 percent of total energy needs, leaving the country reliant on external supply for oil, coal, and liquefied natural gas (LNG), which together account for 81 percent of the energy mix. Import dependence is especially acute for crude oil, of which 95.3 percent comes from the Middle East, exposing Japan to heightened geopolitical and supply-chain risks, while reliance on LNG and coal imports from Asia and Australia also leaves the economy susceptible to global price surges. A similar vulnerability exists in Japan's reliance on imports of key food commodities, such as wheat, corn, and soybeans, which together meet approximately 80 percent or more of domestic demand for these staples. Although wheat prices are stabilized through the government's state-trading mechanism, sharp and persistent increases in global prices may still give rise to broader fiscal pressures, as the authorities may need to implement temporary price-mitigation measures or complementary fiscal support to contain food inflation and protect households. Meanwhile, Japan's primary staple food, rice, is basically self-sufficient due to domestic production, and less susceptible to international price fluctuations.

28. Japan continues to be exposed to risks from more volatile global financial conditions and domestic bond market stress. Global bond yields have become increasingly sensitive to fiscal risks amid rising debt in advanced economies like US and Eurozone. The phenomenon was also seen in Japan as markets reacted to potential rise

[39] Chinese tourists accounted for around 23 percent of visitors from abroad and 24 percent of inbound travel consumption from Q1-Q3 2025, providing non-negligible impact on the economy from weaker spending on accommodation, retail, transport, and related services.

in fiscal spending around the upper house elections and announcement of the supplementary budget. In such a scenario, balancing the supply and demand of government bonds becomes extremely important. The demand for longer-tenor JGBs has been supported by large institutional investors so far but with reducing appetite, the government may need to issue bonds with lower maturities thus transmitting the higher yields from the longer-tenors to shorter-tenors.

29. The virtuous cycle between wages and prices may weaken if wage growth stalls or nominal prices accelerate sharply. Since 2022, higher inflation has led to upward wage adjustments that supported real income. If this wage-price dynamic continues, real wage growth could remain positive, reinforcing consumption and in turn lifting underlying inflation. However, the sustainability of this cycle is not guaranteed and subject to uncertainties.

- First, after two years of strong “Shunto” wage outcomes and minimum wage increases, firms may find it increasingly difficult to sustain further wage increases, particularly if profit margins are squeezed by weaker external demand. The December 2025 Tankan survey already signaled expectations of lower current profits in FY2025 compared to FY2024, with small enterprises most affected. The challenge is acute for SMEs, which generally operate with thinner margins and weaker pricing power. To remain competitive, SMEs will need to improve labor productivity to match higher wages. In the 2025 Shunto wage negotiations, SMEs agreed to average wage growth of 4.65 percent, below the overall 5.25 percent, reflecting their limited capacity to sustain large pay hikes.

- Higher costs could weigh on Japanese corporates’ competitiveness and threaten the viability of some SMEs. Firms are expected to face rising costs, not only from higher wages but also from necessary investments in productivity-enhancing technologies such as automation and AI. These pressures could erode price competitiveness and profitability relative to global peers. SMEs in particular may struggle to absorb higher costs, raising the risk of business closures, with adverse spillovers to employment and household consumption.

- Another risk stems from a surge in headline inflation, such as from spikes in food or commodity prices, which could erode real wages. This would dampen household purchasing power and constrain firms’ ability to raise prices further. Even with positive nominal wage growth, households may prefer to save rather than increase consumption, given heightened economic uncertainties.

B.2 Longer-term Challenges and Vulnerabilities

30. Japan's high public debt and rising interest rates pose growing fiscal risks. Japan's high public debt and large refinancing needs expose the fiscal position to higher funding costs in an environment of positive and rising interest rates. Although vulnerabilities are cushioned by long debt maturities and a stable domestic investor base, shifts in market sentiment or global financial conditions could still undermine fiscal sustainability. Moreover, domestic demand for JGBs could weaken amid aging population and structural shift toward investment by Japanese households with NISA.[40] With a large stock of outstanding liabilities, debt-servicing costs are increasing. Should effective interest costs exceed nominal GDP growth, debt dynamics would deteriorate even in the presence of only modest primary deficits.

31. Demographic headwinds and the climate transition will further constrain growth potential and fiscal consolidation. Population aging will drive up pension and healthcare expenditures while reducing labor supply, weighing on potential growth and complicating fiscal consolidation. A shrinking and aging workforce may also hinder innovation and productivity. Profitability pressures at regional banks may intensify as customer bases age and the population shrinks. At the same time, there would be greater spending pressures on green infrastructure investment to address climate change. The transition to a low-carbon economy also entails policy and technological adjustment risks, including potential regulatory tightening, rapid technological disruption, and stranded assets in carbon-intensive industries.

C. Policy Discussions and Recommendations

C.3 Monetary Policy Guiding a Path to Price Stability

32. Monetary policy normalization should proceed at a measured pace to balance the risks to growth and inflation. With a positive output gap, elevated headline inflation, and gradual increases in underlying inflation and inflation expectations, the BOJ should continue to reduce the degree of monetary accommodation through gradual upward adjustments of the policy rate. At the current rate of around 0.75 percent, the real policy rate remains negative—estimated at around -0.5 to -2.5 percent—well below the natural rate of approximately 0 percent, based on AMRO's estimates.[41] This suggests scope for further normalization before the policy stance becomes restrictive. That said, given risks from heightened trade tensions, slower external demand, and uncertainties

[40] See Selected Issue Paper "Balancing Demand and Supply of Government Bonds post BOJ's Tapering" in AMRO (2024).
[41] In April 2024, BOJ staff estimated the natural rate to be in a range between around -1 and 0.5 percent. However, the BOJ also stresses that estimates are subject to estimation error and it should be interpreted with considerable latitude.

around wage-price dynamics, any further tightening should be data-dependent, and take into account the impact of US tariffs on the corporate sector, wage developments, and underlying inflation trends. Finally, regular communications by the Policy Board members should continue as they help market analysts better understand the BOJ's considerations and form expectations of future policy directions.

33. Importantly, a stable regime of positive inflation and higher interest rates can unlock positive behavioral changes across households, firms, labor markets, and finance. Households are less inclined to hoard cash, gradually shifting savings into risk-bearing assets and smoothing consumption as real wages rise. Firms, facing a positive cost of capital, become more disciplined in investment decisions, deploying their large cash reserves toward productive ends or returning them to shareholders. In labor markets, steady nominal wage growth and a tighter labor environment incentivize mobility, skills investment, and more competitive job matching. For the financial system, positive rates restore bank margins, and may encourage risk-based lending. Collectively, these shifts can re-anchor expectations away from deflation, foster productivity, and raise potential growth.

34. Supply-side measures should complement monetary policy in addressing cost-push shocks, thereby reducing the need for aggressive rate hikes. Rice inflation has surged since mid-2024, peaking at 101.7 percent in May 2025 and contributing significantly to headline inflation. The sharp price increase was driven by a supply–demand mismatch. Effective supply declined due to extreme heat conditions that resulted in the deterioration of rice milling yields, while demand increased owing to strong inbound tourism and higher household purchases. As such, the government's deployment of supply-side interventions is commendable. These include the release of rice from government stockpiles in March 2025, additional release of stockpiled rice at low prices from May 2025, and the acceleration of rice import schedules, which contributed to a subsequent moderation in retail prices. For longer-term measures, reducing reliance on imported fossil fuel may decrease domestic price sensitivity to global energy price shocks. Such measures should help alleviate inflationary pressures and reduce the burden on monetary policy, minimizing the risk of overtightening and its adverse impact on the broader economy.

35. The tapering of the BOJ's government bond purchases and disposals of ETFs and J-REITs should continue with a strong emphasis on predictability, effective communication, and operational agility.

- As of June 2025, the BOJ's holdings of JGBs remain elevated at 50.9 percent of market outstanding, underscoring the importance of further reduction of the balance sheet to restore market functioning. The BOJ's transparent and well-communicated tapering strategy must continue in order to ensure orderly

market functioning, given potential volatility in the global bond market, shifting demand-supply dynamics in the super-long JGBs, and larger net JGB redemptions from BOJ's holdings in 2026 compared to 2024-2025. As such, regular BOJ communications, including with the public and between the BOJ and bond market participants are welcome and should continue. The BOJ's flexibility to adjust its operations in response to evolving market conditions is also prudent.

- The BOJ's plan for the disposal of ETFs and J-REITs is a welcome next-step in balance-sheet normalization. Although these holdings comprise only about 5 percent of total assets, they are risk assets outside normal-time central bank operations. Therefore, gradually scaling back the holding would reinforce market-based price discovery. The BOJ's emphasis on minimizing market disruption is welcome, since its holdings form a sizable share of market outstanding. The initially modest sales pace is appropriate to limit market disruptions and allow time for market participants to adjust. Yet, there may be scope to speed up the pace in the future if conditions permit.[42] Thanks to clear, forward-looking communication and the gradual pace of liquidation, the Japanese stock market did not react significantly to the news. Such an approach should continue, providing early notice of any changes and close consultation with market participants to ensure an orderly normalization.

Authorities' Views

36. The BOJ emphasizes that the current phase marks a gradual and data-dependent transition. The BOJ stresses that the probability of achieving the 2 percent price stability target in a sustainable and stable manner has risen. At the same time, BOJ officials underline that Japan remains in a delicate transition period as underlying inflation has moved closer to 2 percent while risks to the economy may stem from global economic developments and trade policies, wage-price setting dynamics of firms, and developments in financial markets. In April 2024, BOJ staff estimated the natural real rate likely to be in a range between around –1 and 0.5 percent. Given the current short-term policy rate of around 0.75 percent and inflation expectations around the 2 percent target, for example, BOJ officials judge that the real policy rate remains negative, implying that the stance of policy is still accommodative. This configuration supports a gradual normalization path in accordance with improvement in economic activity and prices while avoiding an abrupt tightening that could jeopardize the achievement of the inflation target.

[42] At the announced pace of sales, it would take more than 100 years to bring BOJ's holdings of ETFs and J-REITs to zero.

C.4 Resilient Financial System for a Higher-rate Era

37. While the financial system's performance has improved, proactive risk assessment should be encouraged, especially to manage credit and interest rate risks. Financial institutions have continued to adjust to the new growth-inflation equilibrium with higher interest rates. Potential risks could emerge from the credit side given the continued uncertainty, primarily driven by external factors such as tariffs. Banks should continue to be vigilant against credit risk in a forward-looking manner to prepare for a deterioration of debt repayment capacity of vulnerable borrowers. To guard against greater yen interest rate volatility, in particular at longer tenors, more emphasis could be placed on interest rate risk management (See Annex 1 "Rising Yield Curve Pressures and Banks' Resilience: A Disclosure-based IRRBB Stress Test for Japan"). While the stress testing results indicate that Japanese banks have strengthened their resilience to interest rate risks under a bear-steepening scenario over time, financial institutions, in a proportionate manner, need to regularly assess maturity mismatches through measures such as stress tests and scenario-based analysis, review internal exposure limits, and ensure management-level oversight. Challenges in managing credit and interest rate risks also include model risk, requiring regular reviews of model assumptions and structures. Finally, while the loan-to-funding gap indicator for major banks to gauge foreign currency funding risk suggests that relatively stable sources of funding exceed their loans,[43] foreign currency mismatches could also adversely affect their financial position and should continue to be monitored.

38. Continued rises in property prices warrant closer monitoring. At the macro level, there are no strong indications of a significant deterioration in banks' property loan quality or in developers' debt servicing capacity despite property prices continuing to climb. Moreover, the price-to-income ratio suggests that the decline in housing affordability in Japan has remained broadly consistent with the OECD average. That said, a continued increase in property prices, particularly in the major metropolitan areas warrants closer monitoring as a potentially significant correction in property prices could undermine households and corporates' balance sheets.

39. Close coordination among relevant agencies could be helpful to ensure a sustainable property market. The housing market faces idiosyncratic challenges. On the demand side, greater economic opportunities in the major metropolitan areas resulted in influx of migration and regional disparities in housing demand. On the supply side, a shrinking population has resulted in labor shortage in the construction sector and higher construction costs, while there is an increasing number of vacant and aging properties in regional areas. Against this complex backdrop, ensuring both financial stability and household affordability in the metropolitan areas could become a key policy challenge.

[43] See BOJ 2025.

Information sharing and close coordination among relevant agencies would provide a strong foundation for formulating macroprudential and property-related policies, should the need arise. (see Annex 2 "Ensuring a Sustainable Property Market: Tailoring International Experience to the Local Context")

40. Higher bond market volatility could have an important financial stability implication and needs to be addressed. The recent rise in bond yields make valuations attractive for Japanese bonds but in an environment of higher volatility, may not be able to see sustained investor interest. Therefore, authorities should be proactive in managing bond market volatility. Active dialogue with major institutional investors has been helpful for the authorities to understand their demand and adjust supply of bonds (with regards to tenor, time of issuance, size of auctions, buybacks) accordingly. Over the medium term, the authorities may try to consolidate the tradable bonds which will allow for larger outstanding amounts for a few bonds, thus improving liquidity of the overall bond markets.

Authorities' Views

41. The financial system has remained stable on the whole. While financial intermediation has continued to function smoothly, no major financial imbalances have been observed. Japanese banks have sufficient capital buffers and stable funding bases to withstand significant stresses, including those equivalent to the global financial crisis. The quality of loan portfolios remains sound even with heightened uncertainties regarding trade and other policies in each jurisdiction. Meanwhile, overall interest rate risk has generally been well-contained, as reflected in low yen interest rate risk in the banking book relative to banks' capital. Authorities acknowledge that a continued rise in real estate prices, particularly in major metropolitan areas, warrants closer monitoring and that coordination across relevant agencies will be important to help sustain the property market. Authorities continue to safeguard financial stability through supervisory and prudential measures.

C.5 Fiscal Consolidation Aligned with Japan's Growth Agenda

42. Fiscal policy must balance near-term support with medium-term consolidation and long-term structural priorities. In the short term, Japan faces multi-faceted fiscal challenges. On the external front, US tariffs could weigh on externally-oriented sectors and pressure for stronger fiscal support measures. Domestically, fiscal support could be needed to cushion rising cost of living pressures.[44] In this context, fiscal support measures should be targeted and reinforce fiscal consolidation efforts and

[44] The new administration has launched measures to address rising cost-of-living pressures, including abolishment of the provisional tax rates for gasoline and diesel. However, such energy measures are not environmentally friendly and untargeted. Over the medium-term, the government should enhance the social safety net for better targeting of vulnerable households to address cost-of-living pressures. Additionally, to cushion the impact of US tariffs on Japanese businesses, the government will prepare support measures, including cash flow measures for small and medium enterprises, tailored to business specific context and needs.

credibility. Relatedly, long-term JGB yields have risen to levels higher than in 2008, suggesting that markets are gradually repricing Japan's interest rate reflecting economic fundamentals and further policy normalization by the BOJ. Japan's fiscal policy should remain agile and targeted, cushioning the economy against external headwinds while avoiding broad-based demand stimulus that could worsen fiscal position.[45] Clear communication of the government's commitment to fiscal discipline is essential to anchor investor confidence and prevent sharp increases in bond yields.

43. Over the medium-term, a stronger commitment to the fiscal consolidation strategy is needed.[46] Persistent fiscal deficits and the frequent use of supplementary budgets have weakened fiscal discipline and credibility of fiscal consolidation plan. Leveraging Japan's long JGB maturity profile, fiscal consolidation plan over the medium-term should entail a mix of structural fiscal reforms to enhance revenue mobilization and expenditure rationalization, ensuring that consolidation efforts are sustainable and supportive of economic activity. Revenue mobilization measures could include gradual increase in VAT rate while cushioning the impact on lower-income households,[47] corporate tax reforms, strengthening environmental tax as well as leveraging digitalization to improve revenue administration efficiency.[48] Wider implementation of evidence-based policy making (EBPM),[49] coupled with use of spending reviews, could improve spending efficiency. Moreover, broad-based subsidies to households and firms, such as those for utilities and petroleum, should be phased out and replaced with more targeted support for vulnerable households and firms. Notably, without fiscal reforms to bolster fiscal consolidation, a high real GDP growth of 2.0 percent per annum beyond 2033 is required to stabilize the debt ratio (see Annex 3 "Debt Sustainability with an Asset-Pricing Extension for Japan").

44. Looking further ahead, fiscal policy must address structural challenges from an aging population and climate change through a multi-dimensional approach. Amid longer healthy life expectancy, social security reforms are crucial, including raising

[45] For businesses in the export-oriented sectors affected by US tariffs, targeted measures could include support to encourage expansion and diversification of export markets and supply-chains. For households, social safety nets could be strengthened (see footnote 34).
[46] As mentioned in the 2024 Annual Consultation Report, establishment of a medium-term fiscal framework (MTFF) would help to provide a top-down limit on total government expenditure, which would be used to guide the preparation of the annual budget for each year of the MTFF. Moreover, fiscal discipline could be enhanced with binding medium-term expenditure ceiling.
[47] Reform option could include exploring the feasibility of implementing Earned Income Tax Credit scheme in Japan. While this could strengthen social safety net, there are challenges to overcome including information sharing across ministries and local governments, income tax filing, and delivery of payment (IMF, 2023).
[48] See AMRO (2024) for tax reform options.
[49] As noted in AMRO (2024, Box B), Japan has made steady progress in the implementation of EBPM. However, for EBPM to permeate across government ministries and agencies and various fields, more could be done to enhance the research capacity of think tanks and their collaboration with government ministries and agencies, as well as developing capacity-building programs for government officials to strengthen their knowledge in statistics and analytical tools.

the retirement and pension payout ages.[50] Moreover, healthcare reforms, including long-term care reforms, are needed to contain rising pressure on healthcare (see Box B on "Measures to Contain Health Care Costs in Japan"). Promoting growth-enhancing structural reforms, including active labor market policies such as upskilling initiatives and workforce re-training, would support technology adoption, particularly in artificial intelligence (AI), thereby boosting productivity and competitiveness.[51] Targeted green investments and carbon pricing can support consolidation while fostering structural transition. Notably, structural reforms would not only improve debt dynamics but also bolster long-term growth potential.

Japan must sustain its growth momentum through continued productivity growth, by deploying well calibrated policies that mitigate near-term external shocks while reinforcing long-term resilience.

45. Given long-term fiscal spending pressures, persistent inflation, and heightened external uncertainties, credible fiscal consolidation and gradual monetary normalization are essential to help anchor inflation and stabilize debt. Clear fiscal commitments, such as targeted cash transfers to alleviate cost-of-living pressures, when accompanied by credible fiscal consolidation over the medium-term, help contain inflationary pressures, reduce risk premia and support more favorable debt dynamics. Without consolidation, transfers may temporarily boost output but risk raising term premiums, and worsening debt outcomes over time. Meanwhile, monetary policy should continue to be guided by domestic price and wage developments and medium- to long-term inflation expectations. Together, these policies help ensure macroeconomic stability, preserves policy space, and enhance resilience against future shocks.[52]

Authorities' Views

46. Based on the principle that economic performance is the foundation of public finance, the government aims to foster a robust and resilient economy through the strategic use of fiscal policy. In line with its approach of responsible and proactive public financial management, policy measures will focus on supporting income growth, encouraging private consumption, and strengthening revenue generation through

[50] Japan has the longest healthy life expectancy at birth (73.4 years old), compared to global average (61.9 years old) and high-income economies (68.1 years old). While the pension system allows elderly individuals to choose when to start receiving their pension benefits between aged 60 to 75 years old, majority of the pension drawdown occurs at the eligibility age of 65 years old. Additionally, the Employment Security Act for the Elderly requires companies to secure employment for workers until 65 years old in line with the pension eligibility age. While nearly all companies secure employment for elderly workers up to 65 years old, only 30 percent provide employment opportunities for elderly workers up to 70 years old.

[51] According to IMF (2024) study, amongst ASEAN+3 economies, Japan ranked second highest in the preparedness of AI adoption, after Singapore.

[52] Model simulations suggest that credible fiscal consolidation dampens inflationary pressures, thereby reducing the extent of monetary tightening required under rule-based frameworks to keep inflation expectations well anchored. These results are based on simulations from a medium-scale open-economy DSGE model calibrated to Japan.

improved economic performance and higher business earnings, while enhancing spending efficiency. These efforts are intended to realize this economic virtuous cycle. Following this path, the government will manage public finances with discipline by containing the growth of Japan's outstanding debt balance so as not to exceed the rate of economic growth and thereby lower Japan's ratio of outstanding government debt to GDP. This approach is expected to support the sustainability of public finances and maintain market confidence.

C.6 Productivity Enhancing Structural Reforms

The authorities should continue efforts to revitalize Japan's growth model by fostering sustained productivity gains and real wage growth, driving innovation, and investing in human capital.

47. Enhanced labor market flexibility and more competitive wage-setting mechanisms are essential to Japan's strategy for addressing labor shortages. Structural factors have played a central role in suppressing wage growth and constraining labor productivity in Japan.[53] In this regard, greater labor market flexibility, including enhanced willingness to change jobs, merit-based remuneration systems, mid-career hiring practices, and more competitive wage-setting mechanisms, together with policies that promote continuous upskilling and reskilling, are critical for alleviating labor shortages and boosting productivity. Japan's economic recovery strategy hinges on achieving sustained real wage growth accompanied by productivity improvements so as not to rekindle deflationary expectations that previously hampered economic vitality.

48. Despite substantial nominal wage growth, real wages remain under pressure from elevated inflation, highlighting the necessity of productivity-enhancing reforms to sustain wage increases. Prolonged deflation and low inflation in Japan have negatively impacted productivity by suppressing capital investment and innovation.[54] On the other hand, stable and positive inflation expectations can reinforce productivity enhancements by anchoring continued wage increases that serve as an effective signal for reallocating labor toward more productive sectors and firms, thereby supporting job-to-job transitions, reducing labor market rigidities, and sustaining real income gains. These changes encourage firms to invest more in training and retention, further deepening human capital.

49. Japan's growth revitalization hinges on a decisive shift to productivity-led expansion anchored in innovation and human capital. Japan enters the next decade as a late-stage economy with projected potential growth around 0.5 percent, reflecting

[53] Xu, R., & Chahande, K. (2023). Structural barriers to wage income growth in Japan (IMF Selected Issues Paper 2023/031). International Monetary Fund.
[54] Fukunaga, I., Hogen, Y., Ito, Y., Kanai, K., & Tsuchida, S. (2024, December 13). Potential growth in Japan: Issues on its relationship with prices and wages (Bank of Japan Working Paper Series No. 24-E-16). Bank of Japan.

persistent demographic headwinds and diminishing returns from capital deepening.[55] In this setting, total factor productivity (TFP) becomes the main differentiator of long-run performance.

- Japan can raise TFP by fostering a more conducive business environment—encouraging mid-career mobility and reskilling in the labor market, supporting public-private collaboration in emerging industries such as semiconductor and space industry, streamlining licensing and registration processes in the financial sector, and broadly promoting digital transformation and automation to facilitate investment and innovation.[56]

- The normalization of interest rates further enhances this productivity-led strategy by screening out low-return projects and channeling capital toward sectors where total factor productivity gains are highest. By raising the hurdle rate for investment, resources are reallocated more efficiently, strengthening long-term growth dynamics.

50. Harnessing general-purpose technologies, especially AI, will only pay off with a parallel surge in human-capital investment. AI and related technologies can offset demographic headwinds and reconfigure production and service delivery, but only if firms and workers can adopt them at scale. This calls for scaling up lifelong reskilling in data/AI and digital management, expanding STEM pathways, and funding firm-based training consortia to translate innovation into adoption on factory floors and across service sectors. Clear standards and effective program evaluation can help channel resources toward approaches that measurably raise productivity.

51. A dual focus on advanced manufacturing and high-value services can lift value added per worker and broaden Japan's growth engine. Embedding design, software, finance, and professional services into export value chains will deepen "servicification" and support higher productivity.[57] Effective instruments include targeted R&D and diffusion incentives for general-purpose technologies (e.g., AI), university–industry platforms, and mission-oriented initiatives in strategic technologies such as semiconductors—while avoiding incumbent protection that blunts dynamism. Public investment should prioritize digital and green enablers—secure data infrastructure, advanced connectivity, and energy-transition assets—recognizing that late-stage

[55] Fei, H. (2019, February). Demographics and the natural rate of interest in Japan (IMF Working Paper No. 19/031). International Monetary Fund.
[56] Cabinet Office, Government of Japan, *Basic Policy on Economic and Fiscal Management and Reform 2025* (Tokyo: Cabinet Office, June 2025), available at https://www5.cao.go.jp/keizai-shimon/kaigi/cabinet/honebuto/2025/2025_basicpolicies_ja.pdf; OECD (2024), *OECD Economic Surveys: Japan 2024*, OECD Publishing, Paris, available at: https://www.oecd.org/en/publications/serials/oecd-economic-surveys-japan_g1gha3b0.html
[57] ASEAN+3 Macroeconomic Research Office (AMRO). *ASEAN+3 Regional Economic Outlook 2025: Long-term Growth of ASEAN+3—Prospects and Policies*, Chapter 3 (Singapore: AMRO, April 2025). Available at: https://amro-asia.org/asean3-regional-economic-outlook-2025

economies reap larger returns from human-capital and TFP gains than from additional capital accumulation.

52. Policy execution will benefit from stronger state capacity and cross-ministerial coordination, alongside continued openness and regional cooperation to mitigate geoeconomic fragmentation that would otherwise slow technology diffusion. Moreover, Japan should execute a focused strategy to expand exports of intellectual property and "soft content" that would complement Japan's broader "servicification" agenda by exporting design, narratives, and rights-based income streams with large spillovers to tourism, fashion, and consumer brands.[58]

[58] Ministry of Economy, Trade and Industry (METI), *Report on Expanding Exports of Intellectual Property and Soft Content: Toward Overseas Expansion 2.0*, Tokyo: METI, March 2024

Box A. US–Japan Strategic Investment Framework: Scope and Implications [59]

The US–Japan framework agreement[60] *, which lowered the baseline tariff on Japan's exports to the US to 15 percent, also included a major commitment for Japan to invest in the US. The investment package has generated significant public attention. This Box outlines the investment framework and its macroeconomic and financial implications for Japan.*

A Memorandum of Understanding (MOU) signed in September 2025 outlines the strategic investment framework. It states that Japan will invest USD 550 billion in the US between now and January 19, 2029—the end of President Trump's second term. With the goal of advancing economic and national security interests, the investment will span a wide range of sectors, including but not limited to semiconductors, pharmaceuticals, metals, critical minerals, shipbuilding, energy, and artificial intelligence/quantum computing.

The MOU specifies important implementation arrangements. A Consultation Committee, comprising designees from both nations, should, inter alia, provide input to the Investment Committee as to each nation's relevant strategic and legal considerations. Following such consultations, an Investment Committee chaired by the US Secretary of Commerce will recommend projects to the President, who will make the final selections. Japan will be required to fund those projects that receive approval no less than 45 business days. If Japan declines, the US can increase tariffs on Japanese imports. However, given that any decision would follow discussions within the Consultation Committee and that the Memorandum provides mechanisms to compensate for any shortfall in Japan's funding obligations through adjustments to allocation amounts, the likelihood of a further increase in tariff rates would be low. Regarding profit distributions, Japan receives 50 percent of cashflows from the projects until its investment is recovered, then 10 percent thereafter, with the remainder going to the US.

The US was already Japan's top outward direct investment destination prior to this commitment. As of 2024, Japan's direct investment position in the US was USD 819.3 billion, or 35 percent of its total outward position (Figure A1). Moreover, investment position has grown 6.8 percent annually over the past decade, slightly faster than Japan's overall outward investment growth (Figure A2).

Japan's investment portfolio in the US could become more diverse thanks to the new projects. A joint fact sheet[61] lists potential Japanese investments in Energy (up to USD 327 billion), AI infrastructure (at least USD 60 billion), critical minerals (up to USD 6.5 billion), and power for AI. These projects would shift Japan's US investments more towards energy and advanced manufacturing, moving beyond current dominance in services like finance and retail (Figure A3).

The scale of the commitment underscores its potentially significant impact on Japan's outward investment structure. The USD 550 billion package equals to about 14 percent of Japan's 2024 GDP and 24 percent of its outward investment position, nearly three times its average annual outward flows in 2015–2024. Once completed, Japan's US investment position would grow by 67 percent. As such, this could potentially reduce investment in regions like ASEAN and the EU, raising concentration risk. Hence, despite the strategic benefits that Japanese corporates may gain from US-bound investments, Japan should maintain diversified supply chains and markets elsewhere to preserve resilience in an increasingly uncertain global trade environment.

The changes in outbound investment may also impact domestic investment dynamics. At about 65 percent of Japan's 2024 private domestic investment, the package could constrain domestic private

[59] Prepared by Pim-orn Wacharaprapapong, Economist.
[60] The framework agreement is published at https://www.whitehouse.gov/presidential-actions/2025/09/implementing-the-united-states-japan-agreement/ .

[61] Details are available on https://www.meti.go.jp/press/2025/10/20251028002/20251028002-a.pdf.

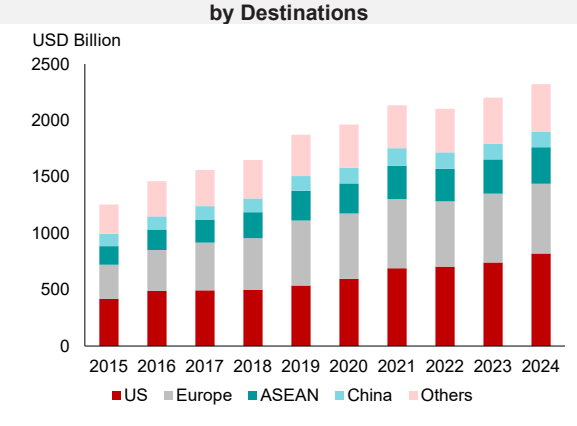
investment, especially as corporate profits are squeezed by higher labor costs and tariffs. While the package may generate positive effects through deeper US–Japan supply chain links and potentially higher returns, the long-term impact will depend on whether US investments complement, rather than replace, investment at home.

Project financing will be supported through government-linked financial institutions, including loans from the Japan Bank for International Cooperation (JBIC) and loan guarantees by Nippon Export and Investment Insurance (NEXI). JBIC can raise USD via government-guaranteed bonds, borrowing from foreign reserves, or swapping JPY borrowings into USD.

A careful mix of funding sources is needed to minimize the impact on the foreign exchange market, given the large scale of total financing needs. First, direct USD borrowing should be prioritized to limit JPY selling and downward pressure on the currency. Second, JBIC should balance USD bond issuance and foreign reserves borrowing to maintain favorable market funding conditions without straining reserves, which totals approximately twice the needed funding. A prudent bond issuance strategy by JBIC will also be key as its USD bond issuance in the global market averaged only USD 7 billion per year during 2015-2024, and the maximum annual issuance stood at USD 14.5 billion (Figure A4), both small compared to the future funding needs. Finally, public-sector financing should be supplemented by corporates' own USD funding when available, backed by NEXI guarantees.

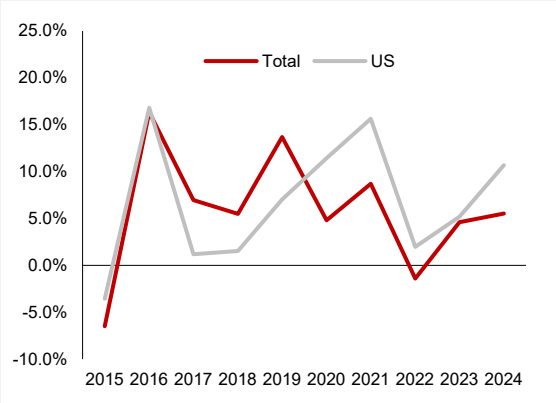
To conclude, the strategic investment framework presents opportunities for Japan to deepen economic ties with the US and strengthen its presence in critical industries. However, careful calibration is needed to realize these benefits while preserving economic stability. Authorities must ensure large US investments do not crowd out that in other regions or essential domestic investment, and design prudent funding strategies to avoid excessive pressure on the currency.

Figure A1. Japan's Outward Direct Investment Position by Destinations



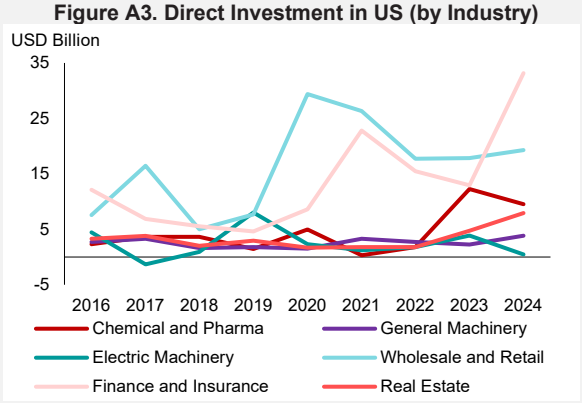
Source: BOJ; Haver Analytics; AMRO staff calculations

Figure A2. YoY Growth of Japan's Outward Investment Position



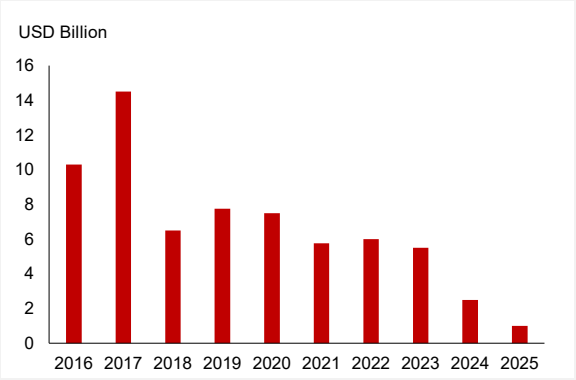
Source: BOJ; Haver Analytics; AMRO staff calculations

Figure A3. Direct Investment in US (by Industry)



Source: BOJ, Haver Analytics, AMRO staff calculations

Figure A4. JBIC's USD Bond Issuance in Global Markets



Source: JBIC; AMRO staff calculations

Box B. Measures to Contain Health Care Costs in Japan [62]

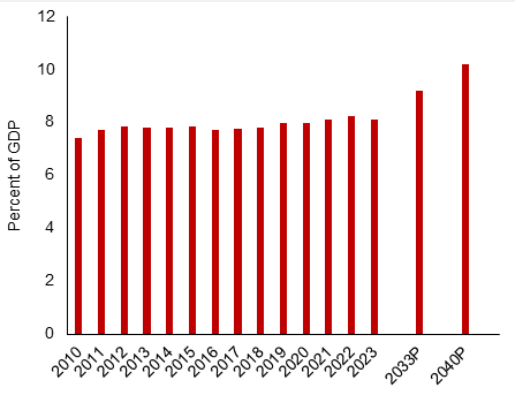
This box aims to discuss the key drivers of rising health care expenditure in Japan and highlight the package of supply and demand-side policy measures undertaken by the government to contain health care costs.

Overview

Expenditure on health care has grown at around 1.9 percent per annum since 2010. Going forward, it is projected to grow from 8.1 percent of GDP in 2023 to reach 10.2 percent by 2040 (Figure B1). Specifically, growth in health care spending has been shaped by three main factors (Figure B2).

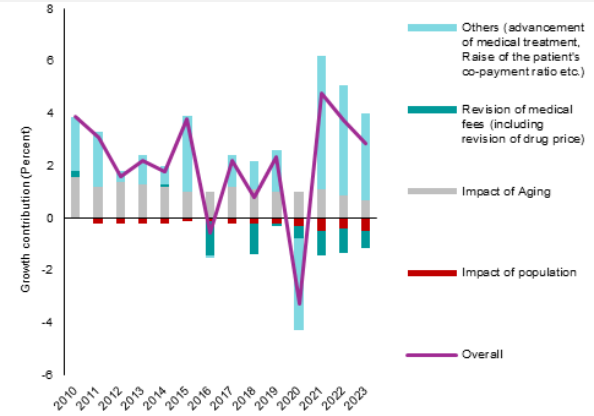
- Aging population. Elderly individuals are more likely to have more health complications, which require greater medical care and longer hospitalization stays.
- Advancement of medical care and changing treatment behavior. Increased health screening leading to earlier diagnoses and greater access to quality health care services could lead to higher usage rates in health care. Additionally, while medical advancements improve life expectancy, it could cost more per treatment.
- Revision of medical fees. By contrast, revision of medical fees (including revision of drug prices) helped to lower health care costs.

Figure B1. Health care spending



Source: MHLW, Cabinet Office, AMRO staff estimates

Figure B2. Drivers of growth in health care spending



Source: MHLW, Cabinet Office

To contain rising healthcare cost pressures, the government has proactively introduced package of supply and demand-side policy measures[63] to contain costs.

i. Supply-side measures. These included: (i) harness health care digital transformation (DX) to strengthen efficiency and quality[64]; (ii) further reforms to medical service delivery systems, such as regional medical care vision and promotion of primary care; (iii) policies to address

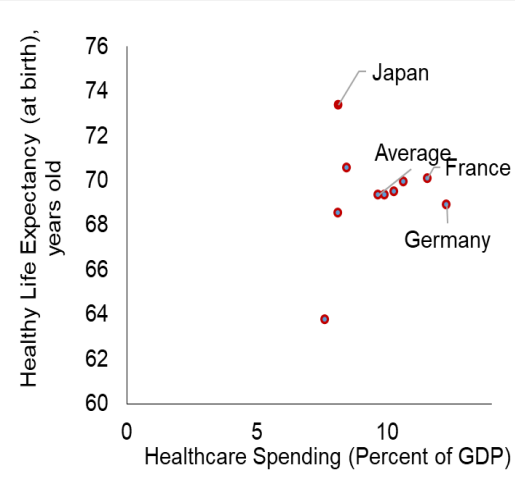
[62] Prepared by Koon Hui Tee, Senior Economist.
[63] Mitsubishi Research Institute (2025).
[64] Specifically, the health care DX roadmap aims to aim the following goals by FY2030: (i) further promotion of the nation's health; (ii) seamless and efficient provision of higher-quality healthcare; (iii) improve work efficiency at medical facilities; (iv) effective utilization of system operating manpower; and (v) establishing environments for secondary use of healthcare information.

uneven distribution of medical service capacity; and (iv) enhancing the efficiency and quality of long-term care, such as greater utilization of robots, scaling up facilities and increased provider coordination.

ii. Demand-side measures. These included: (i) reassessment of patient copayment standards, considering financial means and income of patients[65]; (ii) rebalancing of benefits, such as exploring changes to insurance coverage for pharmaceuticals; and (iii) preventive care, including the implementation of the "**Health Japan 21**" to establish a sustainable society where all citizens can lead healthy and fulfilling lives, and to promote health through socially inclusive policies that are effectively implemented. By promoting healthy lifestyles, early disease detection and timely treatment, the number of people with these chronic conditions could be reduced, and thus alleviating healthcare spending over the long-term.

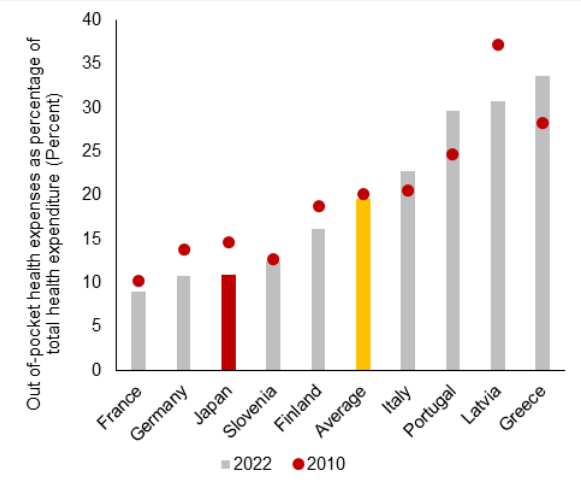
iii. Outcomes. Compared to other OECD countries with super-aged population[66], Japan has achieved better health outcomes at below average health care expenditure (Figure B3). Moreover, out-of-pocket expenditure in Japan has declined since 2010.

Figure B3. Comparison of Health Outcome and Healthcare Expenditure Between Japan and OECD Countries with Super-Aged Population[67]



Source: OECD, World Health Organization, MHLW, AMRO staff estimates.

Figure B4. Out-of-Pocket Expenditure, OECD Countries with Super-Aged Population



Source: OECD, WHO, MHLW

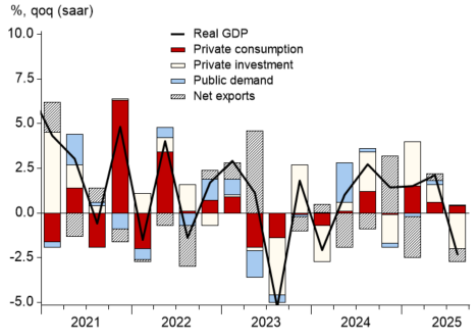
[65] Notably, the increase in out-of-pocket co-payment rate for higher-income seniors (aged 75 and over) from 10 percent to 20 percent in 2022 is estimated to have generated fiscal savings of JPY 114 billion (about 2 percent of GDP) in 2024 (source: MHLW).
[66] 21 per cent or more of the population is aged 65 and older.
[67] Similar outcomes are observed in 2017.

Appendices

Appendix 1. Selected Figures for Major Economic Indicators

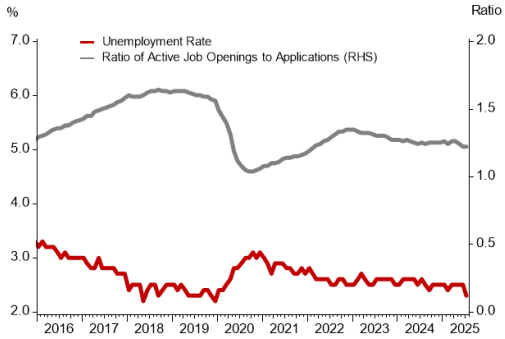
Figure 1.1. Real Sector

Growth outlook moderates but remains supported by domestic demand.



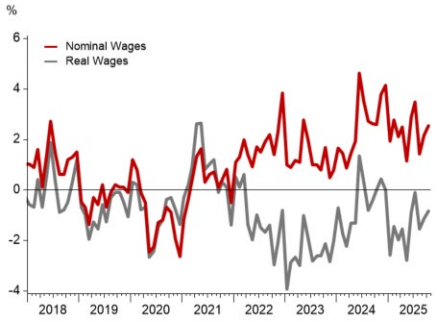
Source: Cabinet Office; Haver Analytics

Labor market remains tight.



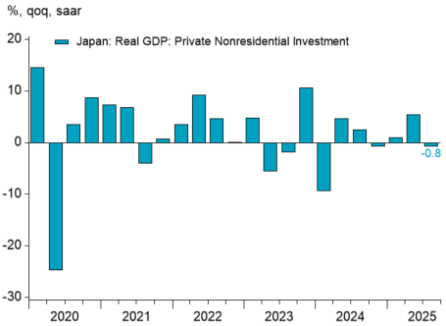
Source: Ministry of Health, Labour and Welfare (MHLW); Ministry of Internal Affairs and Communications; Haver Analytics

Nominal wages climbing but real wages remain under pressure.



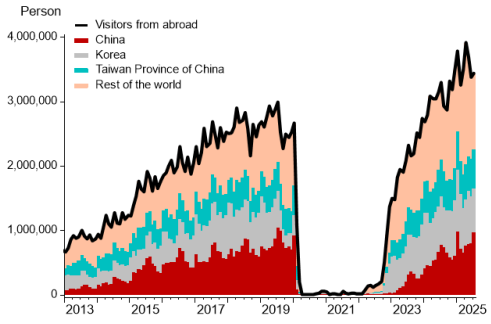
Source: MHLW; Haver Analytics

Business investment has been volatile and contracted in Q3 2025.



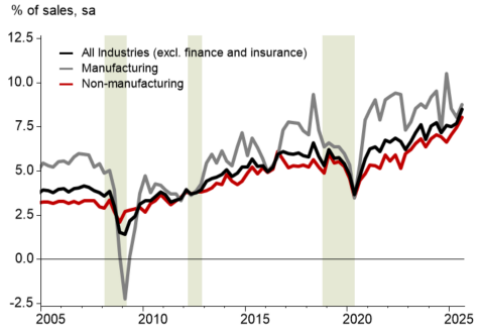
Source: Cabinet Office; Haver Analytics

Strong tourist arrivals have surged to all-time highs.



Source: Japan National Tourism Organization; Haver Analytics

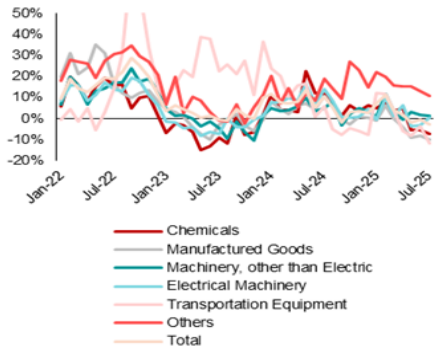
The normalization of economic activity and the depreciation of the yen have boosted corporate profits.



Source: Ministry of Economy, Trade and Industry; Haver Analytics

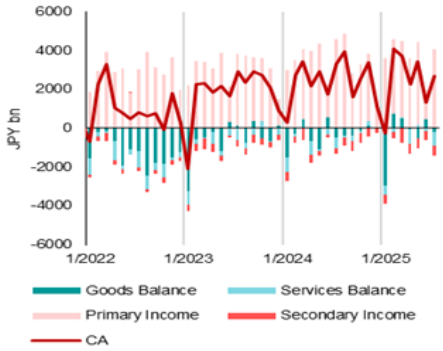
Figure 1.2. External Sector

Exports have been volatile amid tariff pressures.



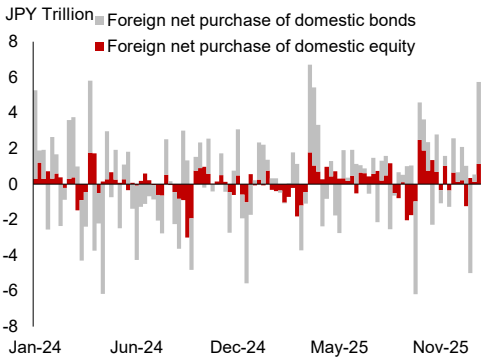
Source: JMOF; Haver Analytics

Current account was bolstered by record primary income surplus.



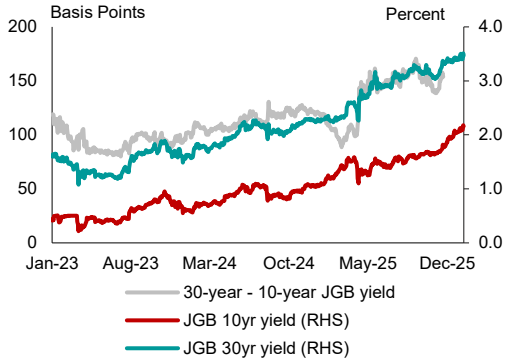
Source: BOJ; JMOF; Haver Analytics

Portfolio flows reflect foreign interest in equities.



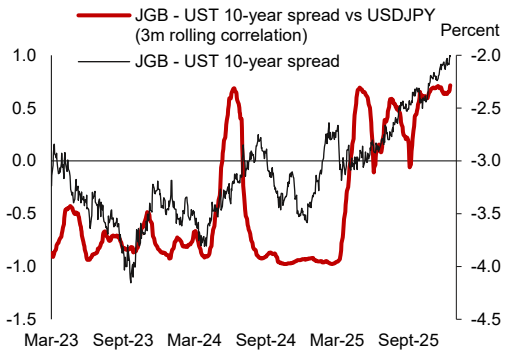
Source: BOJ; JMOF; Haver Analytics

Bond market experiences yield pressures.



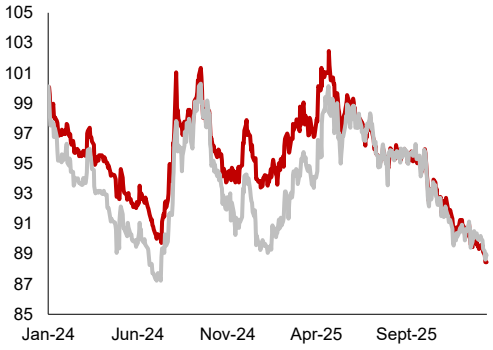
Source: BOJ; JMOF; Haver Analytics

Other than the relationship between interest-rate differential, other factors have also affected the USD/JPY recently.



Source: BOJ; Federal Reserve Board; Haver Analytics

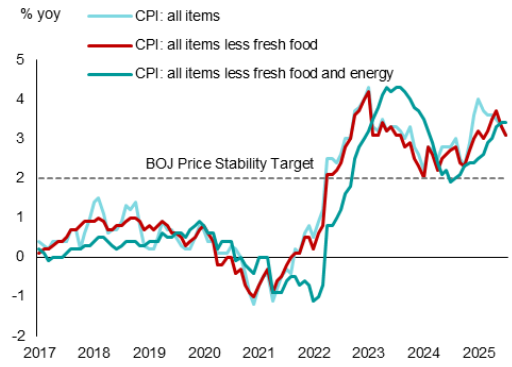
The yen has depreciated since April 2025.



Source: BOJ; BIS; Haver Analytics

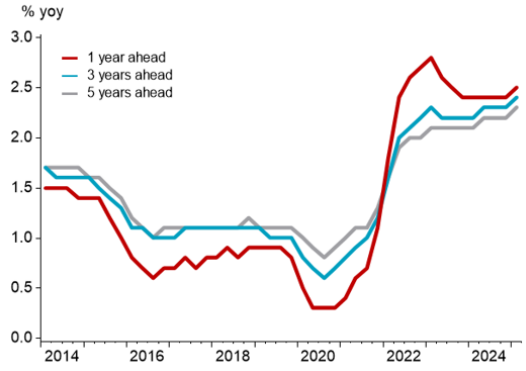
Figure 1.3. Monetary and Financial Sector

Although inflation has moderated, it has exceeded BOJ's 2 percent target since April 2022.



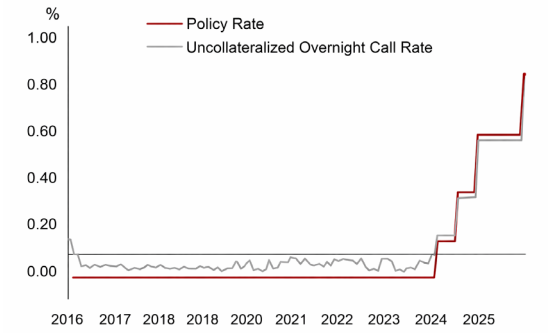
Source: Ministry of Internal Affairs and Communications; Haver Analytics

Firms' medium-term inflation expectations have steadily risen since the pandemic.



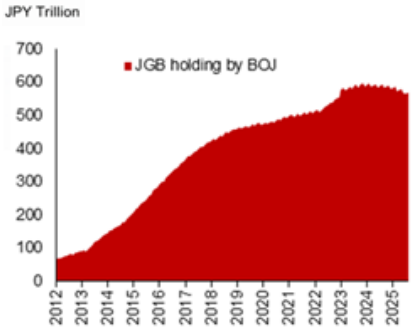
Source: BOJ; Haver Analytics
Note: Based on the BOJ's quarterly Tankan survey for all enterprises

Policy rate was raised to around 0.75 percent in December 2025.



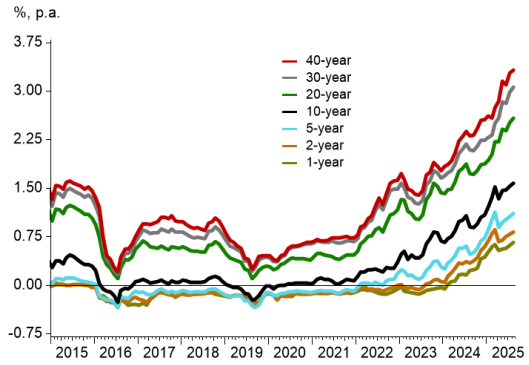
Source: BOJ

BOJ's JGB purchase tapering continues.



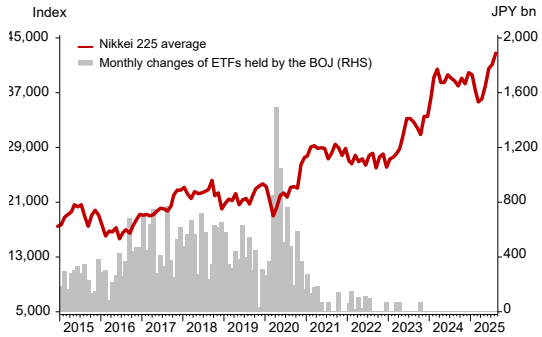
Source: BOJ; JMOF; Haver Analytics

Surging longer-term yields amid tapering pressures and market volatility.



Source: BOJ; Haver Analytics

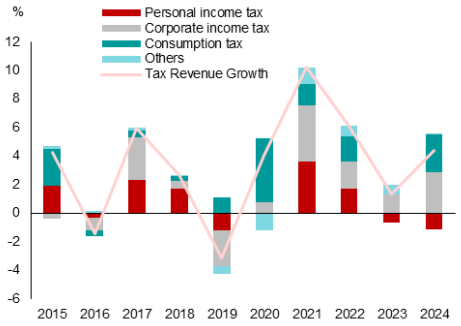
Stock market rally fueled by foreign inflows and governance reforms.



Source: Tokyo Stock Exchange; BOJ; Haver Analytics

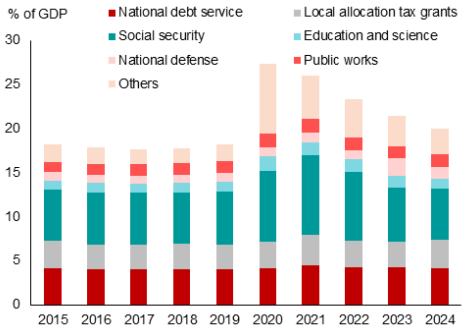
Figure 1.4. Fiscal Sector

Robust tax revenue growth in FY2024 was driven by strong corporate profits and higher consumption tax receipts.



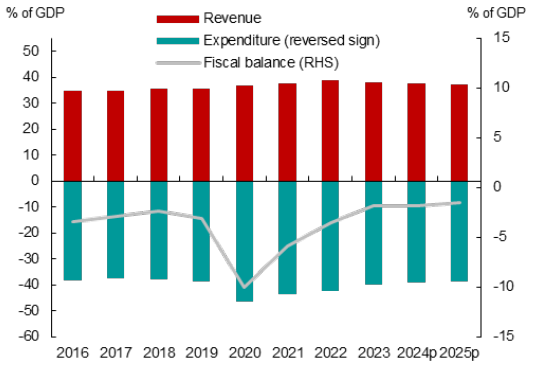
Source: JMOF
Note: Figures are for central government.

The government scaled back extraordinary spending intended to sustain the recovery and mitigate inflation pressures.



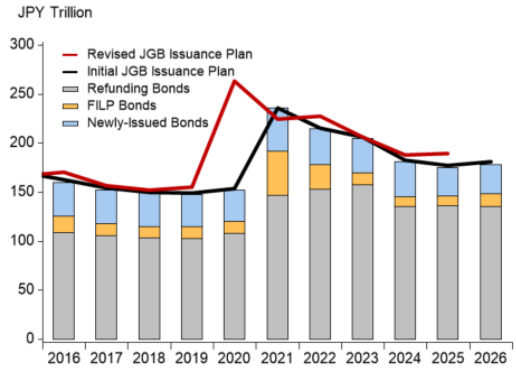
Source: JMOF
Note: Figures are for central government.

The fiscal deficit for FY2024 is estimated to have fallen to 1.7 percent of GDP from 1.8 percent of GDP in FY2023.



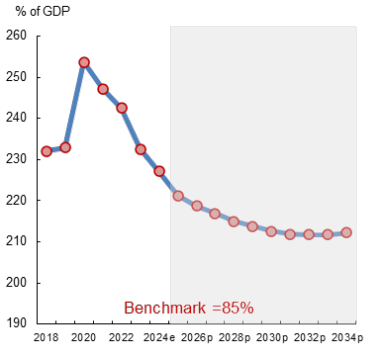
Source: Cabinet Office; AMRO staff estimates
Note: Figures are for general government which consists of central and local government, and social security.

Government bond issuances remain elevated compared to the pre-pandemic level.



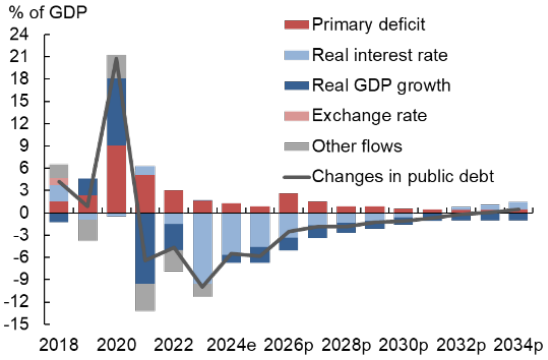
Source: JMOF; Haver Analytics

Japan's public debt is projected to decline until 2032 and then begin to rise.



Source: AMRO staff estimates

The rise in debt is due to widening primary deficits from rising social security spending and higher interest rates.



Source: AMRO staff estimates

Appendix 2. Selected Economic Indicators for Japan

	2022	2023	2024	Projection				
				2025	2026	2027	2028	2029
Real Sector and Prices	(Annualized percent change, unless otherwise specified)							
GDP growth (CY)	1.3	0.7	-0.2	1.2	0.8	0.8	0.7	0.6
Private consumption	2.3	0.1	-0.6	1.3	1.0	0.9	0.7	0.5
Private non-residential investment	3.1	1.7	-0.1	1.8	1.8	1.0	1.1	0.9
Private residential investment	0.4	2.1	-1.0	-3.3	0.5	1.0	0.3	0.4
Government consumption	1.6	-0.2	1.6	0.6	0.7	0.6	0.5	0.3
Public investment	-8.1	2.3	-1.8	-0.4	-0.3	0.8	0.4	0.1
Net exports (contribution to growth, ppt)	-0.5	0.7	-0.0	-0.1	-0.3	0.0	0.0	0.0
Exports of goods and services	5.3	3.1	0.9	2.9	0.7	2.0	2.3	2.3
Imports of goods and services	8.0	-0.4	0.9	3.8	2.3	2.3	2.1	2.2
GDP growth (FY)	1.4	-0.0	0.5	1.0	0.8	0.8	0.6	0.5
Labor market (CY)	(Average of monthly data)							
Unemployment rate (%, sa)	2.6	2.6	2.5	2.5	2.5	2.4	2.4	2.4
Job openings-to-applicants ratio (sa)	1.28	1.31	1.25	1.24	1.24	1.22	1.22	1.22
Prices (CY)	(Average of monthly data)							
Headline CPI (all items)	2.5	3.3	2.7	3.1	2.2	2.0	2.0	2.0
Core CPI (less fresh food)	2.3	3.1	2.6	3.0	2.2	2.0	2.0	2.0
Core-core CPI (less fresh food and energy)	1.1	4.0	2.5	3.1	1.9	2.0	2.0	2.0
External Sector 1/	(USD billion unless otherwise specified)							
Current account balance	89.9	156.3	189.2	209.9	219.8	223.7	228.4	230.7
Percent of GDP	2.0	3.6	4.5	4.7	4.7	4.7	4.7	4.6
Trade balance	-115.8	-49.0	-24.5	-36.9	-46.0	-45.2	-45.2	-45.2
Exports, f.o.b.	752.4	714.8	693.9	733.9	739.8	755.1	772.1	790.0
Imports, f.o.b.	868.2	763.8	718.4	770.7	785.8	800.3	817.3	835.2
Service balance	-42.5	-24.4	-18.4	-14.7	-12.7	-10.3	-8.8	-8.3
Primary income balance	267.6	259.4	262.7	302.2	303.7	307.0	311.0	313.0
Secondary income balance	-19.5	-29.7	-30.6	-40.8	-25.1	-27.8	-28.6	-28.8
Financial account balance	53.1	174.7	166.2	156.9	123.2	145.0	143.5	140.6
International reserves (end of period)	1,227.6	1,294.6	1,230.7	1,202.4	1,239.7	1,236.0	1,245.9	1,255.8
Fiscal Sector (FY, General Government) 2/	(In percent of GDP)							
Revenue	37.1	36.4	35.5	35.3	35.1	35.0	34.5	34.2
Expenditure	40.5	38.2	37.2	37.0	38.8	37.9	37.1	37.0
Fiscal balance	-3.4	-1.8	-1.7	-1.7	-3.6	-2.9	-2.6	-2.8
Primary balance	-3.1	-1.6	-1.3	-0.9	-2.6	-1.6	-0.9	-0.8
Outstanding debt	242.6	232.6	227.1	221.2	218.8	216.9	215.0	213.7
Monetary Sector	(In annual percent change, unless otherwise specified)							
Monetary base	1.5	1.6	1.0	1.0	1.0	1.0	1.0	1.0
Uncollateralized overnight call rate (%, eop)	-0.02	-0.04	0.23	…	…			
Memorandum Items								
Trade balance, customs cleared (USD bn)	-154.7	-67.8	-37.2	-49.5	-58.6	-57.9	-57.8	-57.8
Exports of goods, customs (USD bn)	747.3	717.9	706.9	746.8	752.7	768.0	785.0	802.9
Imports of goods, customs (USD bn)	902.1	785.7	744.0	796.3	811.3	825.9	842.8	860.7
Exchange rate (USD/JPY, period average)	131.4	140.5	151.5	…	…	…	…	…
Exchange rate (USD/JPY, end of period)	132.1	141.4	157.9	…	…	…	…	…
Nikkei 225 (JPY, end of period)	26,095	33,464	39,895	…	…	…	…	…
JGB 10 year yield (%, end of period)	0.45	0.65	1.11	…	…	…	…	…
NPL ratio (%, end of FY, All banks)	1.2	1.3	1.2	…	…	…	…	…
Nominal GDP (JPY tn, CY)	584.9	616.0	634.2	661.7	685.3	702.9	720.9	738.0

Note: 1/ The BOP data in the external sector follows the IMF BPM6 standard.
2/ Based on fiscal year from April 1 to March 31.

Source: Japanese authorities; AMRO staff estimates and projections.

Appendix 3. Balance of Payments

	2020	2021	2022	2023	2024	2025[2/]
	(JPY trillion unless otherwise specified)					
Current account balance (I)	16.0	21.5	11.4	22.3	28.7	30.4
Trade balance	2.8	1.8	-15.5	-6.6	-3.7	-5.2
Exports, f.o.b.	67.3	82.4	98.9	100.5	105.1	108.2
Imports, f.o.b.	64.5	80.6	114.4	107.1	108.8	113.4
Services, net	-3.7	-4.2	-5.6	-3.3	-2.8	-2.3
Receipts	17.5	18.7	22.4	29.4	34.5	35.8
Payments	21.2	23.0	28.0	32.7	37.3	38.2
Primary income, net	19.4	26.3	35.0	36.4	39.7	43.9
Secondary income, net	-2.6	-2.4	-2.5	-4.1	-4.6	-6.0
Capital account (II)	-0.2	-0.4	-0.1	-0.4	-0.2	-0.2
Financial account (III) (+ indicates net outflows) 1/	12.9	9.9	13.5	20.1	35.3	35.4
Direct investment (net)	9.4	19.2	16.8	24.8	28.2	25.5
Portfolio investment (net)	4.4	-21.9	-19.2	27.5	13.8	-0.3
Financial derivatives (net)	0.8	2.2	5.1	6.5	4.7	2.7
Other investment (net)	-1.7	10.5	10.8	-38.6	-11.4	7.7
Errors and omissions (IV)	-1.7	-4.3	-4.9	2.3	-1.7	0.9
Overall balance (= I + II - III + IV)	1.2	6.9	-7.1	4.1	-8.5	-4.3
Reserve assets (+ indicates increases)	1.2	6.9	-7.1	4.1	-8.5	-4.3
Memorandum items:						
Current account balance (In percent of GDP)	2.9	3.7	2.0	3.6	4.5	4.7
Gross reserves (USD billion, end of period)	1,394.7	1,405.8	1,227.6	1,294.6	1,230.7	1,202.4
(In months of imports of goods and services)	19.4	18.0	13.3	15.4	14.1	13.4
Changes in gross reserves (USD billion)	70.9	11.1	-178.2	67.1	-63.9	-28.3

Note: 1/ Excludes changes in reserve assets.
2/ 2025 are based on AMRO staff estimates.
Source: Japanese authorities; AMRO staff projections.

Appendix 4. Statement of Government Operations

	FY2020	FY2021	FY2022	FY2023	FY2024e	FY2025 Projection
General Government 1/	(in percent of GDP)					
Revenue (I)	35.7	36.3	37.1	36.4	35.5	35.3
Taxes	19.4	20.2	20.8	20.1	19.9	19.8
Personal Income Tax	5.3	5.4	5.4	5.1	5.1	5.1
Corporate Income Tax	4.5	5.1	5.5	5.5	5.4	5.4
Consumption Tax	7.0	7.1	7.2	6.8	6.8	6.7
Others	2.7	2.6	2.7	2.7	2.7	2.7
Social Contributions	13.3	13.2	13.1	12.9	12.5	12.4
Other revenues	3.0	2.9	3.2	3.4	3.1	3.1
(o/w interest income)	1.0	0.9	1.1	1.2	1.2	1.0
Expenditure (II)	45.4	41.9	40.5	38.2	37.2	37.0
Expense (III)	44.5	41.3	40.2	37.8	36.9	36.7
Compensation of employees	5.2	5.0	4.9	4.6	4.5	4.4
Use of goods and services	3.9	4.1	4.2	3.9	4.2	4.4
Consumption of fixed capital	3.4	3.4	3.5	3.4	3.2	3.1
Social benefits	21.4	21.5	20.9	20.2	19.3	19.8
Interest	1.6	1.5	1.4	1.4	1.6	1.6
Subsidies	0.6	0.6	1.2	1.3	0.9	1.2
Grants	0.1	0.1	0.1	0.1	0.1	0.1
Other expense	8.3	5.0	4.0	3.0	2.4	2.6
Net Acquisition of Nonfinancial Assets (IV)	0.9	0.6	0.3	0.3	0.3	0.3
Net Operating Balance (= I - III)	-8.8	-5.0	-3.1	-1.5	-1.4	-1.4
Net Lending/borrowing (Overall Balance) (= I - II)	-9.7	-5.6	-3.4	-1.8	-1.7	-1.7
Primary Balance	-9.1	-5.1	-3.1	-1.6	-1.3	-0.9
Gross Debt	253.7	247.3	242.6	232.6	227.1	221.2

Note: 1/Based on the Government Finance Standard Manual (GFSM) 2014 standard; FY2024-2025 figures are based on AMRO staff estimates.
Source: Japanese authorities; AMRO staff estimates and projections

Appendix 5. Data Adequacy for Surveillance Purposes: A Preliminary Assessment

Criteria/Key Indicators for Surveillance	Data Availability[(i)]	Reporting Frequency/Timeliness[(ii)]	Data Quality[(iii)]	Consistency[(iv)]	Others, if Any[(v)]
National Account	Yearly and quarterly data is available (for expenditure, production, and income approach).	Quarterly data is released within two months of the end of the reference quarter (for first preliminary estimate)	-	-	-
Balance of Payments (BOP) and External Position	Monthly BOP data is available in detail.	Monthly BOP data is released on the sixth business day of the second month after the reference period, while quarterly IIP data is released on the sixth business day of the third month after the end of the reference period.	-	-	-
Central Government Budget/External Debt	Monthly data on central government public finances is available, while quarterly external debt data is available in detail.	Monthly data on central government public finances is released within two months of the end of the reference period, while quarterly data on external debt is released within two months of the end of the reference period.	-	-	-
Inflation, Money Supply and Credit Growth	Monthly data on inflation, money supply and credit growth is available.	Monthly inflation data is released within one month of the reference period, while data on money supply and credit growth is released within two months of the end of the reference period.	-	-	-
Financial Sector Soundness Indicators	Available	Monthly data is released within one to two months after the end of the reference period, while quarterly data is available three months after the end of the reference period. However, as of 9 December 2022, Japan's Financial Soundness Indicators (FSI) data has been updated only up to Q1 2021.	-	-	-
Housing Market Indicators	Available	Monthly data is released within one month after the end of the reference period.	-	-	-

Notes:
(i) Data availability refers to whether the official data is available for public access by any means.
(ii) Reporting frequency refers to the periodicity with which the available data is published. Timeliness refers to how up to date the published data is relative to the publication date.
(iii) Data quality refers to the accuracy and reliability of the available data taking into account the data methodologies.
(iv) Consistency refers to both internal consistency within the data series itself and its horizontal consistency with other data series of either the same or different categories.
(v) Other criteria might also apply, if relevant. Examples include but are not limited to potential areas of improvement for data adequacy.

Source: AMRO staff compilation. This preliminary assessment will form the "Supplementary Data Adequacy Assessment" in the EPRD Matrix.

Appendix 6. Climate Clipboard—Risks, Responses, and Opportunities [68]

A. Physical risks

Exposure/ Sources of risk	Potential macro-financial impact
• Floods (chronic) • Tropical typhoons (acute, chronic) • Sea level rise (chronic)	• According to an empirical study conducted by the BOJ in 2022, floods have a negative effect on the GDP of the manufacturing, wholesale, and retail sectors, while they tend to have a positive effect on the GDP of the construction sector. For instance, if the magnitude of flood damage to household assets is 1 percent of GDP, it is estimated that the GDP for the manufacturing sector would decrease by 1.2 percent, while that for the construction sector would increase by 1.8 percent. • Although the trend for the number of tropical typhoons is uncertain, climate projections suggest that their intensity around Japan may increase in the future. Additionally, human-induced climate change is increasing the frequency and intensity of extreme events such as heatwaves and heavy precipitation (Japan Meteorological Agency). A trend of sea level rise has been observed in Japanese coastal areas since the 1980s, but no long-term trend of rise is seen in the period from 1906 to 2022 (Japan Meteorological Agency).

B. Transition risks

Sources of risk	Potential macro-financial impact
• Forced GHG emission reductions by corporates • Reducing the share of coal-fired power plants by shifting to cleaner energy sources • Market risk in relation to electric vehicles (EVs) • Establishment of domestic carbon pricing instruments	• Cost increases to reduce GHG emissions will negatively impact the corporate sector. • Increased electricity charges due to expensive cleaner energy, such as renewable energy and co-firing coal generation, will affect inflation and GDP growth. • The manufacturing sector, particularly Japanese automakers, may experience a decline in market share globally due to the transition to EVs, leading to a slowdown in export growth. • Rising energy prices due to carbon pricing will negatively affect private consumption, particularly among low-income households. • There is a risk that the new GX transition bonds could have an additional negative impact on government debt for years, further exacerbating the overall fiscal stance.

C. Adaptation response framework and strategies

Adaptation framework	Key initiatives/ strategies	Estimated financing need and sources	
Climate Change Adaptation Plan (Approved by Cabinet, Oct 2021)	• Climate change adaptation in Japan focuses on the following seven areas: i) agriculture; forestry, and fisheries; ii) water environment and water resources; iii) natural ecosystems; iv) natural disasters and coastal areas; v) human health; vi) industrial and economic activities; and vii) life of the citizens and urban life. Latest initiatives: • JPY 792 million for the adaptation plan in FY2023 (MOE).	• USD 16.47 billion between 2020 and 2059 under a 2.0-degree increase scenario (ESCAP).	
		Domestic	**External**
		Annual budgets	-

D. Mitigation response framework and strategies

Nationally Determined Contribution (NDC)	National framework/ Strategies	Estimated financing and sources

[68] Updated by Aruhan Rui Shi, Associate Economist.

- Reduce GHG emissions by 60 percent by FY2035, and 73 percent in FY2040 relative to the FY2013 level (Feb 2025). (the FY ends on March 31 of the following calendar year).
- Continue efforts to meet the goal of reducing GHG emissions by 50 percent.
- The above GHGs include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbon (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3).

Long-term commitment

- Achieve net zero emissions by 2050 (METI)

Sources of GHG emissions (Unit: Million t-CO2)

Sector	FY2030	2013
Energy-related CO2	677	1,235
Industry	289	463
Commercial and others	116	238
Residential	70	208
Transport	146	224
Energy conversion	56	106
Non-energy related CO2	70	82.3
Other GHGs	66.3	90.5
GHG removals	-47.7	-
Joint Crediting Mechanism (JCM)	Counted on GHG emissions reduction	
Total	**760**	**1,408**

Source: Japan's NDC (October 2021)

Key sectoral strategies and initiatives

- Updated Green Growth Strategy (Jun 2021)
  - The strategy identifies 14 priority areas to develop and explore, indicating sector-specific action plans for 2050 in the R&D, demonstration, scale-up and commercial phases.
- Long-Term Strategy under the Paris Agreement (Oct 2021)
  - This is formulated as a long-term low GHG emission development strategy in accordance with the Paris Agreement.
- 7th Strategic Energy Plan (Feb 2025)
  - The Strategic Energy Plan is to show the path of the energy policy to achieve carbon neutrality by 2050 and reduction of GHG emissions by 46 percent in FY2030 from FY2013 levels.
  - It targets reducing the share of coal in the power supply to 19 percent by 2030.
  - The government decided to restart the nuclear power fleet (Dec 2022)
- GX Basic Plan (Feb 2023) The plan describes a 10-year roadmap to achieve the green transformation from a coal-fired to a clean energy society.
- GX 2040 Vision (Feb 2025)

- USD 10 trillion in investments between 2020-2050. Of that investment, USD 8 trillion would come from redirecting funds that would have been invested in incumbent technologies. The remainder would be needed to cover the higher net cost of the decarbonizing technologies and infrastructure (McKinsey).
- USD 2.0-2.7 trillion of energy system investments between 2020-2050 (AIGCC).
- METI established the Green Innovation Fund amounting to JPY 2 trillion for the next 10 years.

E. Enabling regulations for climate resilience

E.1. Legal framework

- Act on Promotion of Global Warming Countermeasures
  - The law was enacted in 1998 and has undergone eight revisions.
  - The most recent amendment to the law established the target of achieving net-zero emissions by 2050 as a basic principle.

E.2. GHG accounting framework

- An introduction to Japan's mandatory GHG accounting and reporting system (December 2021).

E.3. Carbon pricing frameworks

- The GX Promotion Law, enacted in May 2023, legally mandated the introduction of the GX Emissions Trading System (GX-ETS). However, the GX-ETS, introduced in FY2023, emphasizes corporate autonomy without the previously discussed caps or allocation limits. The GX-ETS is an emissions trading system conducted within the GX League, where companies participate voluntarily.
- A new surcharge scheme has been approved for industries emitting a significant amount of GHG, set to be enforced in 2028.
- Revenue generated from the surcharge will be used to retire the debt incurred by GX transition bonds, implying that the new surcharge is set to be an earmarked tax.
- Tokyo and Saitama prefectures are currently implementing ETS at a regional level.

E.4. Sustainable finance frameworks

- Japan Climate Transition Bond Framework (November 2023; revised June 2025): The authorities start issuing climate transition bonds. Between FY2023 and FY2025, Japan has issued or planned to issue a total of JPY 3.67 trillion in GX transition bonds.
- Green Bond and Sustainability-Linked Bond Guidelines (Jul 2022): The guideline was developed to align with international developments in the green bond market, enhance domestic awareness of green bonds, and foster increased green bond issuance and investment in the country.
- Basic Guidelines on Climate Transition Finance (May 2021):
  - The primary objective of basic guidelines is to contribute to Japan's goal of achieving carbon neutrality by 2050, aligning with the objectives of the Paris Agreement.
  - The guidelines introduce a new category, termed "transition finance", designed to encourage increased investment in sectors where achieving emission reductions is particularly challenging.

E.5. Financial system		
Initiatives	**Guidelines**	**Status**
1. Taxonomy	• No guidelines have been established yet.	-
2. Risk management assessments	• Supervisory Guidance on Climate-related Risk Management and Client Engagement (Jul 2022, FSA).	• FSA and the BOJ published Climate Related Scenario Analysis – Next Step in the Banking Sector in May 2024. • A pilot analysis was conducted following the guidance. ➢ Pilot Scenario Analysis Exercise on Climate-related Risks Based on Common Scenarios (Aug 2022, FSA, BOJ) ➢ The Second Scenario Analysis on Climate-Related Risks: banking sector and insurance sector (Jun 2025).
3. Climate-related financial disclosures	• TCFD Guidance 3.0 (Jan 2023) • Basic Guidelines for Disclosure and Evaluation of Climate-Related Opportunities (Mar 2023).	• The BOJ has published "Climate Change Initiatives: Disclosure Based on TCFD Recommendations" in May 2024. • The TCFD consortium was established in 2019 with the aim of promoting effective and efficient disclosure of climate-related information by companies.
4. Data availability	• No specific data set is available for the impact of climate change on the financial system.	-
5. Capacity building	• Various initiatives being led by BOJ and FSA.	• The BOJ has organized workshops about the relationship between ESG and the financial system.
F. Potential opportunities from the low-carbon transition		
• CCS and CCUS (METI)	• Basic Hydrogen Strategy	• Investment in renewable energy • Investment in EV value chain

Source: National authorities; media reports; AMRO staff

Annexes: Selected Issues

1. Rising Yield Curve Pressures and Banks' Resilience: A Disclosure-based IRRBB Stress Test for Japan [69]

The Japanese economy has been shifting toward a new normal of higher interest rates. While rising interest rates may help increase interest rate margin and improve banks' bottom-line profits in the short-run, upward movements in yield curves can also pose risks to bank balance sheets through mark-to-market losses on assets, which highlights the need to assess the banking sector's resilience to such interest rate risks. This Selected Issue examines how interest rate risks have evolved in recent years and the strategies employed by banks to mitigate these risks arising from their debt security holdings. A stress-testing exercise is conducted to quantify potential losses under adverse scenarios, drawing policy insights.

Observations from Interest Rate Risk Management at Major Banks

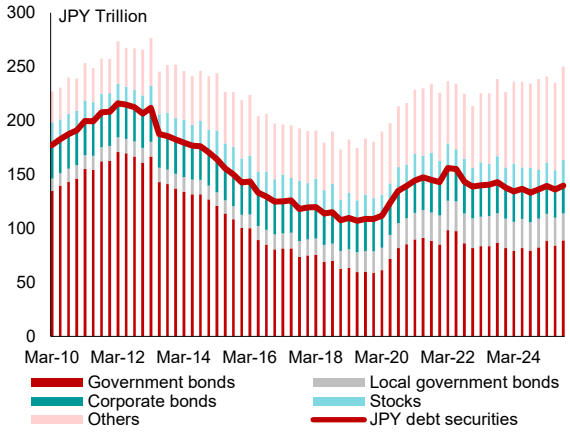
1. Banks have used multiple strategies to mitigate the impact of rising interest rates on their securities portfolio over the past few years. Major banks' capital adequacy ratio remains at a level that is well-above the required minimum ratio even when taking into account assets booked in the HTM account.[70] The healthy CAR indicates that the various strategies used by banks to manage interest rate risks have been effective. These strategies include i) reducing their holdings of debt securities, ii) moving debt securities from available-for-sale (AFS) to held-to-maturity (HTM) portfolio, iii) reducing the duration of debt security holdings, and iv) using swaps and "bear funds" to hedge losses due to rising interest rates.[71] According to BOJ (2025), the net yen interest rate risk in the banking book has declined through reductions in bond holdings and shorter portfolio durations. However, the recent volatility in markets also warrants a closer look at the debt security holdings of banks and the effect rising interest rates could have on the bank balance sheets. We use micro-level data from individual banks' financial statements to explore their strategies.

2. While the gross holdings of debt securities in major banking groups[72] have reduced marginally, there has been a clear shift of holdings from AFS to HTM

[69] Prepared by Prashant Pande, Senior Financial Specialist; and Shunsuke Endo, Senior Economist.
[70] Bank of Japan, *Financial System Report (October 2025)*, Chart VI-2-5: "Decomposition of capital adequacy ratio: Sensitivity analysis, upward shift in yen interest rates," 23 October 2025, p. 78 ("Chart VI-2-5"), Bank of Japan, https://www.boj.or.jp/en/research/brp/fsr/data/fsr251023a.pdf
[71] Bear funds are products provided by some securities companies and benefit from rising interest rates. These funds use a combination of pay positions in various tenors of interest rate swaps and short bond futures to provide the desired payout.
[72] We extract the maturity information on major asset classes from the consolidated statements of some banking groups – cumulatively referred as "major banking groups" in this selected issue. The data is available only on a consolidated basis and hence the results may include influences from non-banks which are a part of these banking groups. The major

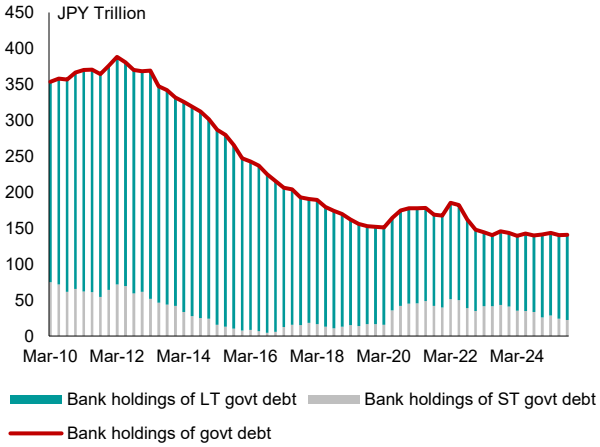
books. The bank holdings of overall investment securities and yen denominated bonds, rose during the pandemic. Since 2022, as expectations of a hiking cycle rose, the holdings of debt securities have dropped slightly. That said, debt security holdings are still higher than those seen before the pandemic. The trend is consistent across data from bank balance sheets (Figure A1.1) and the stock of debt holdings from flow of funds data (Figure A1.2). Though the reduction in yen denominated fixed income securities has not been significant when compared to pre-pandemic levels, banks have expedited the move of securities from AFS to HTM books. Considering the debt holdings of major banking groups, we find a clear shift towards the HTM holdings of yen denominated debt. The rise in the share of HTM holdings for local government bonds and JGBs (Figure A1.3) —especially in 5-to-10-year tenors (Figure A1.4) —shows that the major banking groups preemptively adjusted their positions to minimize the mark-to-market effects of rising interest rates.

Figure A1.1. Breakdown of Banks' Investment Securities



Source: Japan Bankers Association via CEIC, AMRO staff estimates.

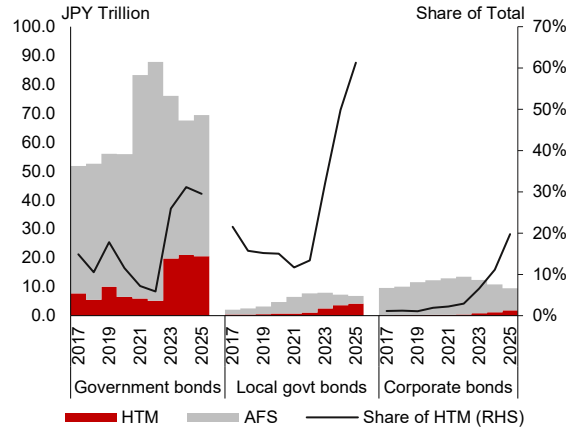
Figure A1.2. Flow of Funds Data for Bank Holdings for Government Debt Securities



Source: BOJ visa CEIC, AMRO staff estimates.
Note: LT = longer tenor debt with residual maturity greater than 1-year; ST = shorter tenor debt with residual maturity less than 1-year; govt = government

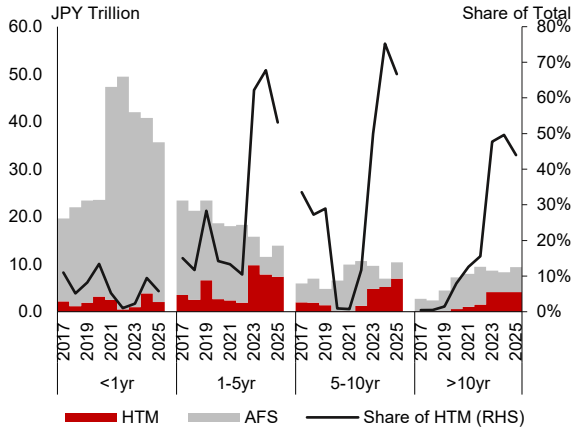
banking groups and their banking subsidiaries are MUFG Group (includes MUFG Bank, Ltd., Mitsubishi UFJ Trust and Banking Corporation, and the Master Trust Bank), Mizuho Group (includes Mizuho Bank, Ltd. and Mizuho Trust & Banking Co., Ltd.), SMBC (includes Sumitomo Mitsui Banking Corporation and SMBC Trust Bank Ltd.), Resona Holdings (Resona Bank Ltd., Saitama Resona Bank Ltd., Kansai Mirai Bank, and Minato Bank), Norinchukin Group (includes The Norinchukin Trust & Banking Co., Ltd), Fukuoka Group (includes The Bank of Fukuoka, Ltd., The Kumamoto Bank, Ltd., The Juhachi Shinwa Bank, Ltd, The Fukuoka Chuo Bank, Ltd., and Minna Bank, Ltd.), SBI Shinsei Bank Group (includes SBI Shinsei Bank and Shinsei Trust and Banking Co., Ltd.), and the Aozora Group (includes Aozora Bank Ltd, and GMO Aozora Net Bank, Ltd.). The trends discussed here are based on aggregated data for these banks.

Figure A1.3. Bank's Holdings for Yen-denominated Fixed Income Securities Classified as HTM.



Source: Public disclosures including annual reports, integrated reports, and financial results; AMRO staff calculations.
Note: The calculations are based on the data extracted from consolidated statements of major financial groups listed in footnote 72.

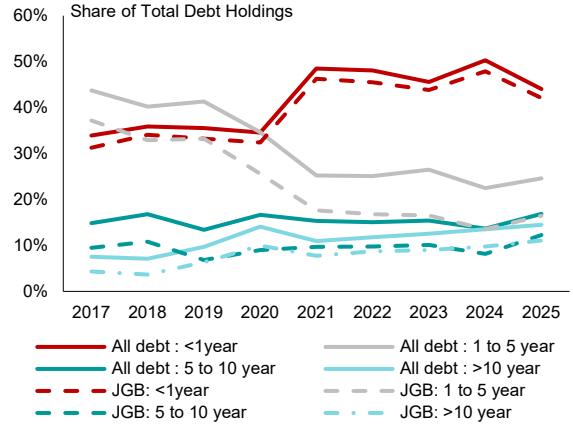
Figure A1.4. Bank's Holdings of JGBs Classified as HTM
(Trillions of yen, share of total)



Source: Public disclosures including annual reports, integrated reports, and financial results; AMRO staff calculations.
Note: The calculations are based on the data extracted from consolidated statements of major financial groups listed in footnote 72.

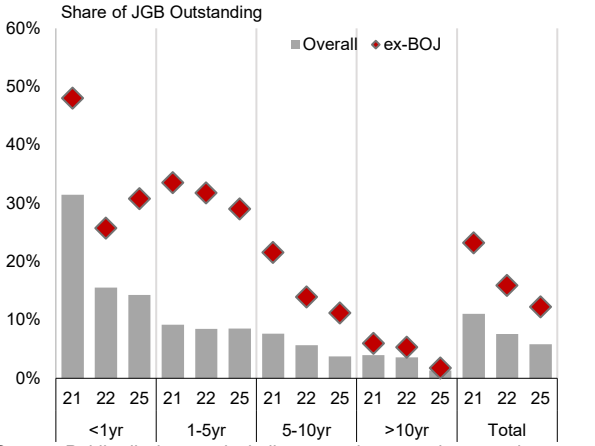
3. The major banking groups have reduced their holdings of bonds with residual maturities of between 1 to 5 years, while maintaining holdings of bonds maturing after 5 years, and increasing the share of less-than-1-year debt securities. The adjustments in maturity of bond holdings seem to have started in around 2021-2022. In addition, the major banking groups also increased their investments in bills. The share of less than 1-year maturity bills and bonds increased largely at the expense of the bonds in the 1-to-5-year tenors. Though the share of bonds in the 5-year and above segments has inched higher, the increase in holding of less than 1-year debt has effectively reduced the overall average maturity of debt holdings (Figure A1.5). Furthermore, the major banking groups have actively reduced their overall JGB holdings in 2022, which is not an outcome of the BOJ pushing banks out of these segments. This is reflected in a similar declining trend observed in the share of the major banking groups' holding of JGBs to total outstanding with and without the BOJ's holdings. (Figure A1.6).

Figure A1.5. Breakdown of Bank Holdings of Yen Denominated Debt Securities by Tenor



Source: Public disclosures including annual reports, integrated reports, and financial results; AMRO staff calculations.
Note: The calculations are based on the data extracted from consolidated statements of major financial groups listed in footnote 72.

Figure A1.6. Change in Bank's Positioning in the JGB Market (Including and Excluding BOJ's Holding)



Source: Public disclosures including annual reports, integrated reports, and financial results; AMRO staff calculations.
Note: The calculations are based on the data extracted from consolidated statements of major financial groups listed in footnote 72.

Model Setup and Key Considerations

4. To assess interest rate risks, an analytical model is designed to capture changes in interest rate risk arising from shifts in the shape of the yield curve. The analysis is carried out using publicly available data in a manner consistent with risk management practice. Japanese banks and authorities operate under the domestic application of the international framework for interest rate risk in the banking book (IRRBB).[73] Among the IRRBB metrics, a change in Economic Value of Equity (ΔEVE) measures how the economic value of a bank's balance sheet changes in response to interest rate movements and is widely used by banks and authorities as a key indicator of interest rate risk. In the following analysis, we examine the time-series behavior of observed ΔEVE and estimate the unknown system-wide key rate durations (KRDs) for Japanese banks using the model below, relying on publicly available data and necessary assumptions (see Box A1 for details).[74] While the coefficients of β_j and γ_j represent system-wide KRD and the additional sensitivity associated with specific banks, respectively, at a representative key rate maturity of bucket j ("node"), (τ_j), a positive coefficient leads to a decline in ΔEVE as the explanatory variable $X_{i,s,j}$ involves the negative sign. These estimates are then used for decomposition analysis and scenario-based stress-testing.

$$\Delta EVE_{i,s} \approx -\sum_{j=1}^{J}\left(KRD(\tau_j)\cdot NPV_i(\tau_j)\cdot \Delta r_s(\tau_j)\right)$$

$$\Delta EVE_{i,s} = \sum_{j=1}^{J}(\beta_j \cdot X_{i,s,j}) + \gamma_3 \cdot X_{i,s,3}\cdot Dummy_{i,3} + \varepsilon_{i,s},$$

$$where\ \beta_j = KRD(\tau_j)\ \text{and}\ X_{i,s,j} = -NPV_i(\tau_j)\cdot \Delta r_s(\tau_j)$$

[73] IRRBB refers to the current or prospective risk to the bank's capital (and earnings) arising from adverse movements in interest rates that affect the banks' banking book positions. When interest rates change, the present value and timing of future cash flows change. This in turn changes the underlying value of a bank's assets, liabilities and off-balance sheet items and hence its economic value. Excessive IRRBB can pose a significant threat to a bank's current capital base if not managed appropriately (BCBS 2016).
[74] The first equation in the main text is a first-order approximation, and the second equation is the empirical regression.

$\Delta EVE_{i,s}$	Change in the Economic Value of Equity (EVE) for bank i under scenario s.
j	Index of maturity buckets (nodes).
τ_j	Representative maturity (key rate) of bucket j.
$KRD(\tau_j)$	System-wide key rate duration at node j (sensitivity of EVE to a 1-unit change in the node-specific interest rate).
$NPV_i(\tau_j)$	Net present value of bank i's net cash flow (assets minus liabilities) in bucket j.
$\Delta r_s(\tau_j)$	Shock to the interest rate at node j under scenario s.
γ_3	Megabank-specific incremental KRD at node 3.
$Dummy_{i,3}$	Megabank-specific dummy variable at node 3.

5. The stress-testing framework adopts a hybrid approach that combines top-down with bottom-up approaches. As a first step, we estimate KRDs at the key rate maturity (node) level to quantify banks' sensitivity to changes in the slope and curvature of the yield curve. The subsequent system-wide IRRBB stress test applies common yield-curve shocks and common KRDs to the entire banking system in a top-down manner. The inputs to this stress test include (i) system-wide KRD estimates derived from the model; and (ii) bank-specific node-level NPVs and ΔEVE data obtained from public disclosures and discounted by market interest rates for NPVs. By integrating these elements, the analysis constitutes a hybrid framework that leverages both bottom-up exposure information and top-down shock design.[75]

6. The estimation and stress-testing exercise necessarily rely on assumptions to compensate for the limitations of publicly available data.[76] Specifically, node-level interest rate sensitivity (KRD), which is the critical parameter for evaluating ΔEVE under yield-curve shifts, must be estimated without access to banks' internal IRRBB models or currency-level breakdowns of cash flows underlying ΔEVE and NPV. Accordingly, the estimated KRDs should be interpreted as a practical system-wide measure of interest rate sensitivity rather than a precise representation of latent risk profiles. Although the model delivers intuitive estimates, it is essential to interpret the results with these caveats in mind (See Box A1 for more discussion of limitations).

Estimation Results

7. The estimation results suggest that Japanese banks bear their interest rate risk in longer tenors of the yield curve. The specification includes an interaction term for megabanks at node 3 (long-term segment) to capture structural differences in interest rate sensitivity between megabanks and the other sample banks. The system-wide short-term KRD (β1) is statistically insignificant in most years,[77] whereas the medium-, long-, and ultra-long-term KRDs (β2, β3, β4) are significantly positive except β2 in 2022 (Table A1.1). The relatively large coefficients on β3 and β4 indicate that increases in interest rates at longer tenors lead to substantial declines in the system's EVE, highlighting a

[75] See Čihák 2014 for a discussion about bottom-up and top-down approaches.
[76] 30 sample banks on a consolidated basis for which all necessary data are available (yielding roughly 100 usable bank–scenario observations per year). Sample banks in the analysis include Mitsubishi UFJ Financial Group, Sumitomo Mitsui Financial Group, and Mizuho Financial Group (megabanks); Saitama Resona Bank, Minato Bank, Iyogin Holdings, Chiba Bank, Bank of Nagoya, Hachijuni Bank, Gunma Bank, Shiga Bank, Toho Bank, North Pacific Bank, Musashino Bank, Mebuki Financial Group, Nishi-Nippon Financial Holdings, Kyushu Financial Group, Bank of Kyoto, Daishi Hokuetsu Financial Group, 77 Bank, San-in Godo Bank, and Hyakugo Bank (regional banks); Norinchukin Bank and Japan Post Bank (specialized banks); and Sumitomo Mitsui Trust Group, Resona Bank, Aozora Bank, GMO Aozora Net Bank, Master Trust Bank of Japan, and SMBC Trust Bank (other banks). The number of sample banks was determined by selecting, with reference to asset size, those banks for which the data required for the estimation were available for each target year, and then gradually increasing the number of banks until the estimation results became stable.
[77] Insignificant coefficients can be attributed to the disclosure treatment. While many banks classify demand deposits into short maturities of 1 year or less in the maturity analysis section of their disclosures, they rely on core-deposit models when measuring interest rate risk.

balance sheet structure that is particularly sensitive to longer maturities. By contrast, the megabank-specific long-term KRD (γ3) is negative and statistically significant throughout the sample years, suggesting that megabanks structurally maintain lower long-term interest rate exposure than the system average.[78]

Table A1.1. Estimated Node-level Key Rate Durations (KRDs)

	2022		2023		2024		2025	
Dependent variable: ΔEVE	**(1)**	Reference	**(2)**	Reference	**(3)**	Reference	**(4)**	Reference
c	—	-61406*	—	-53421**	—	-58906**	—	-62455***
	—	(35490)	—	(26411)	—	(25905)	—	(22891)
β1 (Short-term KRD)	**-0.225***	-0.228*	**0.061**	0.057	**0.075**	0.070	**0.054**	0.046
	(0.131)	(0.130)	(0.078)	(0.077)	(0.080)	(0.079)	(0.070)	(0.068)
β2 (Medium-term KRD)	**0.017**	-0.028	**0.684*****	0.646**	**0.927*****	0.893***	**0.751*****	0.721***
	(0.433)	(0.429)	(0.249)	(0.247)	(0.250)	(0.246)	(0.233)	(0.226)
β3 (Long-term KRD)	**5.984*****	5.902***	**3.671*****	3.605***	**4.695*****	4.607***	**3.135****	2.700*
	(0.769)	(0.763)	(0.589)	(0.582)	(0.767)	(0.754)	(1.410)	(1.379)
β4 (Ultra-long-term KRD)	**2.149****	1.994**	**2.610*****	2.466***	**2.033*****	1.904***	**2.212*****	2.177***
	(0.862)	(0.859)	(0.507)	(0.505)	(0.526)	(0.520)	(0.610)	(0.592)
γ3 (Megabank-specific incremental KRD at long-term maturity)	**-6.364*****	-6.160***	**-5.394*****	-5.214***	**-7.363*****	-7.155***	**-4.960*****	-4.537***
	(1.272)	(1.265)	(1.001)	(0.990)	(0.964)	(0.951)	(1.141)	(1.119)
Observations	108	108	113	113	115	115	112	112
R^2	0.456	0.472	0.384	0.407	0.445	0.470	0.350	0.393
Adj. R^2	0.435	0.446	0.362	0.379	0.425	0.446	0.326	0.364
Residual Std. Error (RSE)	367,503	363,997	280,581	276,650	279,313	274,164	244,243	237,205
F-statistic	—	18.212	—	14.690	—	19.365	—	13.725
Prob(F-statistic)	—	7.02×10^{-13}	—	5.92×10^{-11}	—	9.36×10^{-14}	—	2.50×10^{-10}

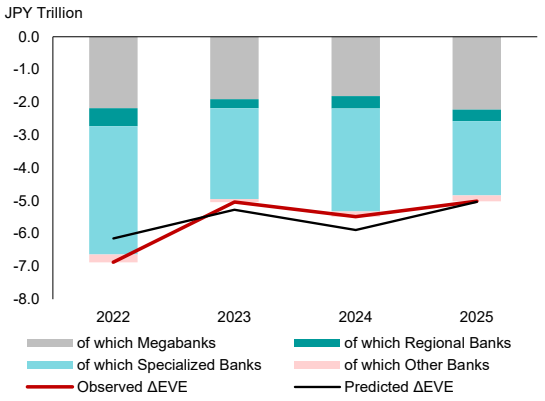
Source: Public disclosures including annual reports, integrated reports, and financial results; Bloomberg; AMRO staff calculations.
Note: SE in parentheses; * p<0.1, ** p<0.05, *** p<0.01. All regressions are estimated using ordinary least squares (OLS). In the theoretical model used in this regression, ΔEVE becomes zero when the interest-rate shock Δr is zero. Therefore, the specification is theoretically required to pass through the origin and to exclude an intercept term. Regressions with an intercept were estimated as robustness checks to confirm the stability of the coefficients. The key rate nodes are set at 0.5 <short-term>, 3 <medium-term>, 7.5 <long-term>, and 15 years <ultra-long-term>.

8. The results suggest that Japanese banks have improved their resilience to rising interest rates, presumably by proactive ALM strategies and better risk management under IRRBB. Under the parallel shock up scenario, observed ΔEVE in 2025 improved relative to 2022, indicating an improvement in resilience against interest rate shock (Figure A1.7). Across bank categories, non-megabank institutions reduced observed ΔEVE, whereas megabanks showed an increase in observed ΔEVE in 2025. While this could reflect possible differences in funding structures, business strategies, and/ or ALM strategies between megabanks and the other sample banks, one megabank points out increases in medium- to long-term positions.[79] System-wide predicted ΔEVE largely tracks these developments of observed ΔEVE. Decomposition shows that declining KRDs have been the primary driver of improvements in ΔEVE since 2022 (Figure A1.8). Net cash flows contributed to the decline in ΔEVE in 2024, reflecting purchases of JGBs by some institutions, while discount factor effects improved ΔEVE as interest rates increased during the sample period.

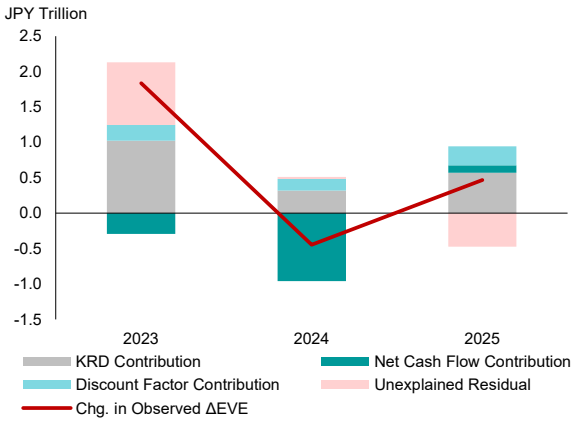
Figure A1.7. Observed and Predicted ΔEVE Under the Parallel Shock Up (PSU) Scenario

Figure A1.8. Decomposition of Changes in Observed ΔEVE over Time Under the PSU Scenario

[78] This can be interpreted as megabanks adopt more sophisticated ALM practices and hedging strategies at longer maturities.
[79] The maximum of ΔEVE increased from the previous year due largely to the composition of positions, namely the increase in medium and long-term positions and decrease in short-term positions (MUFG 2025).



Source: Public disclosures including annual reports, integrated reports, and financial results; Bloomberg; AMRO staff calculations.
Note: Negative values of ΔEVE indicate declines in the Economic Value of Equity.

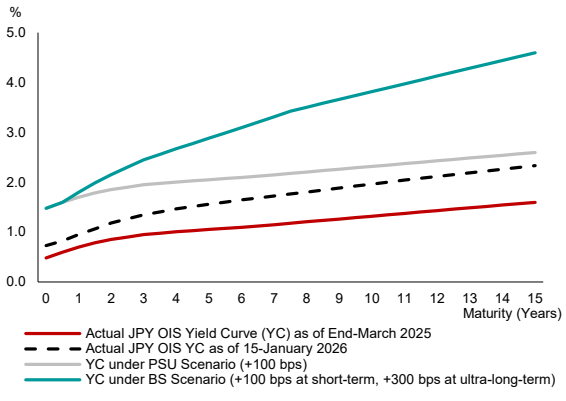


Source: Public disclosures including annual reports, integrated reports, and financial results; Bloomberg; AMRO staff calculations.
Note: Negative contribution values indicate a change that erodes the systemwide Economic Value of Equity (i.e., makes ΔEVE more negative). Unexplained residual consists of the decomposition residual and the prediction–observation gap.

Stress-testing Exercise

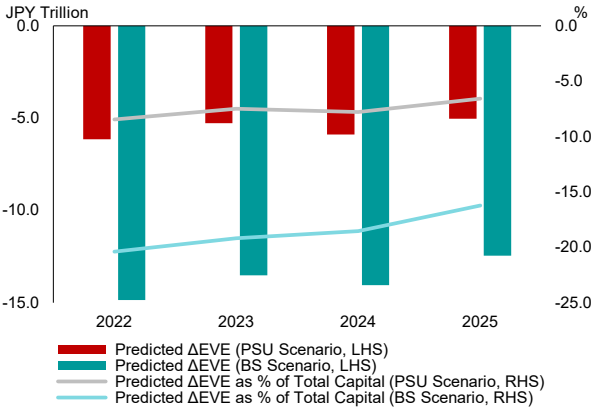
9. The stress test evaluates the resilience of the Japanese banking system under a bear-steepening scenario, applying node-level KRDs estimated earlier. The scenario assumes: (i) a +100 bps shock to short-term rates; and (ii) a more severe +300 bps shock to ultra-long-term rates, reflecting both the ongoing upward trend in short-term policy rates and the recent steepening of the yield curve relative to March 2025 data (Figure A1.9). In practice, bear-steepening scenarios are particularly suitable to assess interest rate risk when duration mismatches are present.

Figure A1.9. Yield Curves Under Stress Scenarios



Source: Public disclosures including annual reports, integrated reports, and financial results; Bloomberg; AMRO staff calculations.
Note: PSU stands for Parallel Shock Up, and BS stands for Bear-Steepening.

Figure A1.10. Stress Test Results



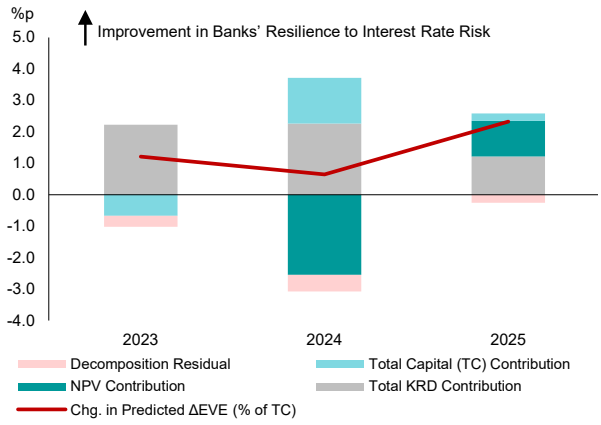
Source: Public disclosures including annual reports, integrated reports, and financial results; Bloomberg; AMRO staff calculations.
Note: PSU stands for Parallel Shock Up, and BS stands for Bear-Steepening. In estimation, discount factors are not updated under the shocked curve. This is consistent with the definition of KRD as a first-order sensitivity around the baseline term structure and ensures internal consistency of the linear ΔEVE approximation.

10. The stress test results indicate that banks have improved their resilience to bear-steepening. The projected ΔEVE-to-total-capital ratio improves steadily from

2022 to 2025 (Figure A1.10). Bear-steepening shocks typically produce larger ΔEVE losses than parallel shifts due to their heavier impact on longer-tenor exposures, underscoring the need for banks to remain particularly vigilant should such shocks materialize. That said, the system as a whole improves to the level complying with the 20 percent supervisory threshold applied individually to domestic-standard banks, even under a relatively severe +300 bps shock at the ultra-long end. While this threshold is not intended for system-wide assessment and some individual banks may remain vulnerable to interest rate shocks, it is notable that system-wide resilience to the bear-steepening scenario has been on an improving trend.[80]

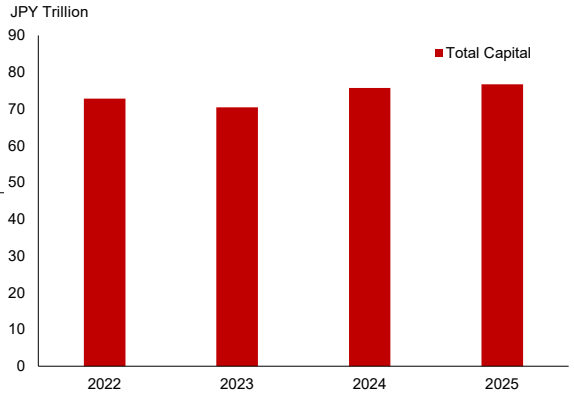
11. Improvements in system-wide resilience to bear-steepening are explained by both declining KRDs and the accumulation of capital. The decomposition of predicted ΔEVE shows that reductions in KRDs have consistently contributed to higher resilience since 2022 (Figure A1.11), especially at the long- and ultra-long-term nodes, reflecting enhanced ALM practices following the 2019 implementation of the IRRBB framework. Rising capital levels also contributed to improvements in the ΔEVE-to-capital ratio in 2024 and 2025 (Figure A1.12).

Figure A1.11. Decomposition of Stress Test Results over Time Under the Bear-Steepening Scenario



Source: Public disclosures including annual reports, integrated reports, and financial results; Bloomberg; AMRO staff calculations.

Figure A1.12. Evolution of Total Capital



Source: Public disclosures including annual reports, integrated reports, and financial results; AMRO staff calculations.

Policy Discussion

12. The results of the stress testing exercise indicate an improvement in Japanese banks' resilience to interest rate risks over time, while also underscoring the need for continued close monitoring and prudent risk management. This Selected Issue estimates system-wide durations at key rate maturities using publicly available data and evaluates banks' resilience to interest rate risks through a hybrid stress-testing framework. The adoption of a bear-steepening scenario is timely, reflecting both the realistic need to incorporate the recent rise in longer-term yields and the prospect of further gradual increases in policy rates. The analysis reveals that (i) Japanese banks' resilience to bear-steepening shocks has

[80] While internationally active banks are subject to a Tier 1-based 15 percent threshold, this analysis uses total capital for comparability across different bank categories.

improved since 2022; and (ii) this improvement has been driven by the shortening of durations at key rate maturities and the accumulation of capital. Moreover, the observed enhancement in interest rate resilience is broadly consistent with banks' management strategies, particularly the reduction of interest rate exposures along with hedging tools in the securities portfolio, discussed in the earlier section, even though such strategies cannot be explicitly captured within the model. Nevertheless, the stress-testing exercise indicates that a bear-steepening shock to the yield curve warrants close monitoring and requires banks to continue guarding against such a shock.

13. These findings suggest several policy considerations for safeguarding the resilience of the banking system against interest rate shocks:

- **Banks may need to continue strengthening their ALM practices as they adapt to a higher interest rate environment.** In particular, effective management of duration and cash-flow profiles would benefit from further improvements in modeling core-deposit behavior and prepayment risk, as well as prudent use of hedging instruments within a sound risk-management framework. Maintaining capital levels commensurate with risk profiles remains important. More broadly, after an extended period of low interest rates, banks would benefit from continued efforts to build institutional capacity suited to operating in a rising interest rate environment.

- **On securities, in particular, banks need to monitor circumstances under which the hedging tools may be less effective.** We see that the bond swap spread has widened over the past few months, i.e. bond yields rose more than the swaps. Thus, assuming equal sensitivity to interest rates at hedge initiation, the losses in bonds would likely be only partially offset by the gains in interest rate swaps. Similarly, the JGB futures implied yield and JGB yield spread has compressed, likely due to higher selling pressures in the futures— which would make the hedge less effective. Banks need to pay attention to these dynamics while managing their hedging positions.

- **Authorities should maintain close dialogue with banks on interest rate risk, considering the evolving interest rate environment.** By leveraging adequately granular information from regulated entities, it remains important to deepen analysis and monitor interest rate risk through both macro- and micro-prudential lenses. As with banks, strengthening supervisory expertise for periods of rising interest rates would also help safeguard financial stability.

Box A1. Estimation Methodology for Node-level Interest Rate Sensitivities

This box provides an overview of the estimation model used in the main text to quantify banks' interest-rate risk exposures. The model is designed to measure the Japanese banking system's resilience to interest rate shocks using limited publicly available information. The Box also highlights several important caveats underlying the approach.

1. Model Definition

For each maturity bucket j, which aggregates net cash flows (NCF) between asset and liability occurring within a specific time bucket, we define a representative key rate maturity τ_j ("node"). For bank i, the net present value (NPV) at node τ_j is computed as NCF, discounted to the present:[81]

$$NPV_i(\tau_j) = NCF_i(\tau_j) \cdot DF(\tau_j), \text{where } DF(\tau_j) = e^{-\tau_j \cdot r(\tau_j)} \text{ and } NCF_i(\tau_j) = CF_i^{Asset}(\tau_j) - CF_i^{Liability}(\tau_j)$$

The Economic Value of Equity for bank i (EVE_i) is then defined as the sum of $NPVs$ across all nodes:

$$EVE_i = \sum_{j=1}^{J} NPV_i(\tau_j) \quad \text{(A1.1.)}$$

2. Approximation

The post-shock interest rate at node τ_j under scenario s can be written as:

$$r_s(\tau_j) = r(\tau_j) + \Delta r_s(\tau_j)$$

Using a first-order Taylor expansion of ΔEVE around the baseline yield curve and equation (A1.1), ΔEVE can be approximated as:[82]

$$\Delta EVE_{i,s} \approx \sum_{j=1}^{J} \frac{\partial EVE_i}{\partial r(\tau_j)} \cdot \Delta r_s(\tau_j) = \sum_{j=1}^{J} \frac{\partial NPV_i(\tau_j)}{\partial r(\tau_j)} \cdot \Delta r_s(\tau_j) \quad \text{(A1.2.)}$$

We define the node-level interest rate sensitivity, i.e., the key rate duration (KRD), as the sensitivity of $NPV_i(\tau_j)$ to the yield at node τ_j ($r(\tau_j)$):

$$KRD_i(\tau_j) = -\frac{1}{NPV_i(\tau_j)} \cdot \frac{\partial NPV_i(\tau_j)}{\partial r(\tau_j)}$$

Substituting this definition into equation (A1.2) yields:

$$\Delta EVE_{i,s} \approx -\sum_{j=1}^{J} \left(KRD_i(\tau_j) \cdot NPV_i(\tau_j) \cdot \Delta r_s(\tau_j) \right) \quad \text{(A1.3.)}$$

3. Assumption of a System-wide KRD and Estimation Equation

The objective of this analysis is to estimate the key rate sensitivities at node τ_j ($KRD(\tau_j)$) that represent the interest rate sensitivity of the Japanese banking system as a whole. Although each bank i has its own $KRD_i(\tau_j)$, we assume that banks are effectively exposed to a common, system-wide key rate duration $KRD(\tau_j)$. Under this assumption, the approximation becomes:

$$\Delta EVE_{i,s} \approx -\sum_{j=1}^{J} \left(KRD(\tau_j) \cdot NPV_i(\tau_j) \cdot \Delta r_s(\tau_j) \right) \quad \text{(A1.4.)}$$

Let β_j denote the system-wide KRD at node τ_j ($KRD(\tau_j)$), and let γ_j capture the additional sensitivity associated with specific banks at node τ_j. Define the explanatory variable as $X_{i,s,j} = -NPV_i(\tau_j) \cdot \Delta r_s(\tau_j)$. Substituting these definitions into equation (A1.4) yields the following linear regression model:[83]

[81] Given the scope of this box, we abstract from currency-by-currency details for simplicity.
[82] For clarity, ΔEVE denotes the change in EVE, where a decline in EVE resulting from an interest rate increase is expressed as a negative value.
[83] Note that the intercept is theoretically zero, as ΔEVE must be zero when the interest rate shock is zero. Regressions including an intercept were estimated as robustness checks to verify the stability of the β coefficients.

$$\Delta EVE_{i,s} = \sum_{j=1}^{J} \left(\beta_j \cdot X_{i,s,j} + \gamma_j \cdot X_{i,s,j} \cdot Dummy_{i,j}\right) + \varepsilon_{i,s} \qquad \text{(A1.5.)}$$

4. Overview of Estimation and Data

For each target year, cross-sectional regressions based on equation (A1.5) were estimated using the following dataset:

Box Table A1.1. Overview of Data

ΔEVE	Scenario-specific losses under Interest Rate Risk in the Banking Book (IRRBB) as disclosed by each bank. Scenario observations not reported by a bank were excluded from the sample.
τ_j	Based on the common granularity available in public disclosures, maturity buckets were consolidated into four categories: (1) up to 1 year; (2) 1–5 years; (3) 5–10 years; and (4) over 10 years. The key rate nodes are defined as the midpoint of each bucket (0.5 years <short-term>, 3 years <medium-term>, 7.5 years <long-term>), with the final long-term node set at 15 years <ultra-long-term>.
NPV	For each bank, the cashflow difference between assets (sum of maturity information on major asset classes at each node) and liabilities (available time-deposit information in maturity profiles for major funding sources) was multiplied by the discount factor to obtain NPV.
DF	The JPY OIS curve is used as a proxy discount curve. Ideally, discount rates should be specified by currency of denomination, but cashflows by currency are not available in public disclosures.
Δr	The interest rate shock matrix on the right used in this analysis is assumed in accordance with Basel Committee on Banking Supervision (2016, 2024) and applied to all sample years.
$Dummy$	Since estimation results indicate that node-3 sensitivity differs substantially for megabanks, a dummy interaction term for megabanks at node 3 is included. Significant coefficients could be interpreted as reflecting factors unique to megabanks, such as advanced ALM and hedging in the long-term zone.
Sample	Banks on a consolidated basis, for which all necessary data are available in each target year.

Scenarios	node 1	node 2	node 3	node 4
Parallel shock up	0.0100	0.0100	0.0100	0.0100
Parallel shock down	-0.0075	-0.0075	-0.0075	-0.0075
Steepener shock	-0.0100	-0.0050	0.0075	0.0125
Flattener shock	0.0100	0.0040	-0.0060	-0.0120
Short rates shock up	0.0200	0.0100	0.0040	0.0010
Short rates shock down	-0.0150	-0.0070	-0.0030	-0.0010

5. Caveats

This model and the associated estimation exercise are designed to assess the resilience of the Japanese banking system to interest rate shocks using the limited publicly available information only. The estimated key rate durations (β_j) provide a practical indicator of system-wide interest rate sensitivity to changes in the shape of the yield curve. At the same time, because the analysis necessarily relies on the granularity of public disclosures and lacks certain structural information, the estimated coefficients may embody not only statistical uncertainty but also model misspecification and measurement errors arising from coarse reporting. Accordingly, the estimator of β_j should be interpreted with appropriate caution and in cognizance of several underlying assumptions and constraints, including, but not limited to, the following.

(i) Bank-specific IRRBB internal model features, such as core deposit models and hedging strategies, are unobservable and therefore omitted from the estimation model.

(ii) Currency-level detail for $\Delta EVE_{i,s}$, CF, and related items is not disclosed, so interest rate shock parameters are assumed, and the JPY OIS curve is used as a proxy discount curve.[84]

(iii) Cash-flow structures within each maturity bucket are approximated by zero-coupon equivalents, which may introduce non-negligible approximation errors, particularly for longer maturity buckets.

(iv) The reliance on a first-order approximation means that nonlinear features of balance-sheet cash flows are not modeled explicitly, and results should be viewed as indicative rather than precise point estimates, particularly when large interest-rate shocks are applied, as approximation errors can increase materially.

[84] Although JPY OIS does not perfectly represent a multi-currency portfolio, its use can be justified by: (i) the large share of yen-denominated assets and liabilities in the Japanese banking system; (ii) the fact that the yen is the base currency for IRRBB management at Japanese banks; and (iii) the presence of meaningful cross-currency correlations in OIS rates across key maturities.

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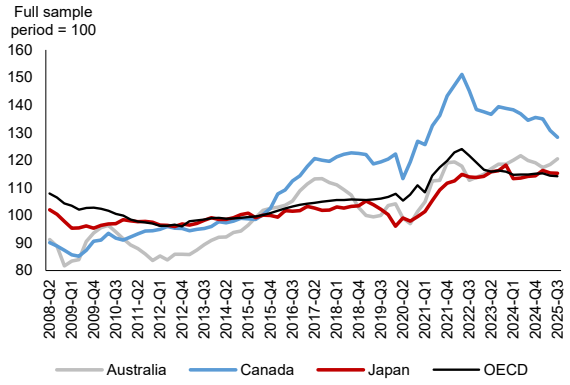
2. Ensuring a Sustainable Property Market: Tailoring International Experience to the Local Context [85]

Housing market stability directly affects both financial system soundness and household welfare. The Japanese economy has been shifting to a new normal of higher inflation, and housing prices have been rising too, particularly in metropolitan areas. Against this backdrop, this Selected Issue reviews recent developments in the local housing market and highlights the policy experiences of other advanced economies in ensuring a sustainable property market, which could provide lessons for Japan.

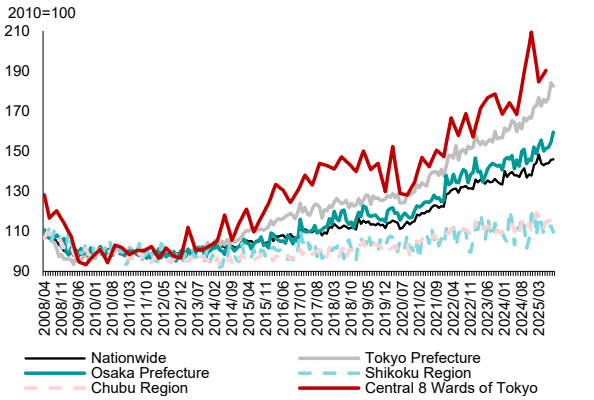
1. Despite the continued rise in housing prices, there are no significant or immediate concerns about the overall sustainability of Japan's housing market at the national level. On the financial side, while credit growth remains robust, there are no strong indications of a significant deterioration in asset quality or stress in the debt-servicing capacity of developers and households. [86] Price-to-income ratios (PIRs) suggest that housing affordability in Japan remains broadly in line with the OECD average (Figure A2.1). Furthermore, the rise in vacant homes associated with a shrinking population could continue to act as a partial stabilizing force. The upward pressure on housing prices in urban areas may be partly absorbed by neighbouring suburban areas.

Figure A2.1. PIRs Across Selected OECD Countries



Source: OECD.
Note: PIRs stands for Price-to-Income Ratios and is calculated as nominal house prices divided by nominal disposable income per head. The standardized ratio is indexed to a reference value equal to 100 over the full sample period.

Figure A2.2. Property Prices in Selected Areas in Japan



Source: Ministry of Land, Infrastructure, Transport and Tourism; AMRO staff calculations.
Note: The Central eight wards of Tokyo are Chiyoda, Chuo, Minato, Shinjuku, Bunkyo, Shibuya, Taito, and Toshima. The data represent the median prices per square meter for residential land and building.

2. The increase in housing prices has been particularly pronounced in metropolitan areas driven by both demand- and supply-side factors, reflecting uneven housing price development across nationwide. Since the early 2020s, the gap between metropolitan and regional housing prices has widened (Figure A2.2). Despite a gradual and measured pace of policy rate increases, housing demand has remained strong in metropolitan areas. Multiple factors could have contributed to rising prices in the metropolitan areas. Demand-side factors could include migration to metropolitan areas, wage growth and investment demand, including foreign investment. Supply-side factors could include lagging housing supply, labor shortages and surging

[85] Prepared by Koon Hui Tee, Senior Economist; and Shunsuke Endo, Senior Economist.
[86] Please refer to the main text in AMRO's Annual Consultation Report on Japan 2025 for further details.

construction costs.[87] By contrast, weaker housing price growth in regional areas could reflect weaker demand and more abundant housing supply amid depopulation.[88]

3. **A sharp increase in property prices in metropolitan areas could pose macro-financial risks while eroding housing affordability.** Specifically, sharp increase in housing prices , which is not supported by underlying economic fundamentals, could result in excessive consumer leverage and credit growth. As housing stock, housing wealth and real estate activities tend to be concentrated in metropolitan areas, property market developments in metropolitan areas could have spillover effects to neighboring areas and entail macro-financial implications at the country level (Lo Duca and Nicoletti-Altimari, 2019). Moreover, for the financial sector, banks' real estate exposures might become excessive in a manner that is geographically concentrated. Importantly, soaring housing prices outpacing income growth in metropolitan areas also worsens housing affordability and regional wealth inequality within the country.

4. **In this context, the policy experiences of other advanced economies could provide valuable lessons.** Notably, Canada, Korea and Singapore have implemented a suite of policy measures, covering macroprudential, fiscal and housing, to promote sustainable property markets and mitigate the risks posed by the housing market to financial stability (Table A2.1). In Canada and Korea, a targeted and differentiated approach is adopted where more stringent measures are applied in metropolitan areas, which exhibit faster growth in housing prices. Separately, Canada (Ontario and British Columbia) and Singapore imposed higher taxes on foreign buyers. Additionally, Singapore also adopted a calibrated and gradual approach to implementing policy measures which allows the government to review the policy impact and make policy refinements as appropriate, while minimizing the risk of destabilizing the market. In terms of institutional arrangements, the authorities in these countries typically establish close inter-agency policy coordination, surveillance and information sharing. While Canada adopts a more informal structure with regular informal inter-agency meetings, Korea and Singapore establish a more structured inter-agency taskforce.

5. **Japan could learn from the policy experience of other advanced economies, while tailoring them to its own context.** Japan's housing market exhibits two unique features related to demographics. The first is demographic shifts that have resulted in population growth in metropolitan areas and depopulation in regional areas. And second, supply-side constraints in the housing market could become more of an issue with increasing labor tightness in the construction sector amid an aging population. In this context, the authorities should continue deepening their surveillance of risks in the property market and potential macro-financial impacts, and carefully examine the effectiveness and lessons of policy experience in other jurisdictions. Specifically, there could be three main aspects, which international policy experiences could be useful for Japan:

- First, the government could **establish an appropriate inter-agency coordination framework** among relevant agencies, including the central and local authorities. This could result in better inter-agency coordination,

[87] The recent rise in condominium prices in Tokyo metropolitan area is mainly driven by supply factors (BOJ 2025).
[88] Barring seven prefectures (Tokyo, Kanagawa, Aichi, Saitama, Chiba, Fukuoka and Okinawa), all 47 have experienced a declining population from 2010-2023). See the AMRO 2024 for more information.

surveillance of housing market-related risks, assessment of housing affordability, and information sharing among relevant authorities. This institutional arrangement could also support the preparation of coherent policy measures as and when needed. In this regard, AMRO staff commends the initiative of Ministry of Land, Infrastructure, Transport and Tourism in the inaugural publication of survey results on short-term resale activities for newly built condominiums in selected urban areas in 2025, which facilitates a better understanding of recent property transaction trends.[89]

- Second, **a targeted and differentiated approach could be beneficial**, considering the demographic shifts with population growth in metropolitan areas and depopulation in regional areas. Notably, building a coordinated framework that also incorporates policy initiatives already underway at the local-government level would help support a sustainable property market.[90] Additionally, a calibrated and gradual approach to implementing policy measures, if needed, would allow the government to minimize the risk of destabilizing the market.

- Third, overseas jurisdictions' experience suggests that **a multi-pronged policy strategy encompassing macroprudential, fiscal and housing measures is useful.** However, in the case of Japan, structural reforms could be needed to alleviate labor tightness in the construction sector to facilitate timely housing supply to meet demand.

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[89] The Ministry of Land, Infrastructure, Transport and Tourism has stated that speculative transactions are undesirable and has expressed its commitment to curbing such activities while continuing to monitor transaction patterns.
[90] Given the continued rise in condominium prices, Chiyoda ward requested (i) a five-year resale restriction and (ii) the prohibition of multiple-unit purchases in the same building to the Real Estate Association of Japan in 2025 in order to curb speculative transactions. At the same time, it is also requesting the government and the Tokyo Metropolitan Government to take effective measures to curb resale for speculative purposes, such as raising the transfer tax in the case of short-term resale (Chiyoda Ward 2025). Moreover, the Tokyo Metropolitan Government announced its measure to launch the public-private partnership funds to supply affordable houses in 2025 (Tokyo Metropolitan Government 2025).

Table A2.1. Policy experience in Canada, Korea and Singapore

Country	Measures			Targeted and Differentiated Approach	Institutional Arrangement
	Macroprudential	Fiscal	Housing		
Canada[91]	Borrower-based instruments included loan-to-value ratio (LTV) of the mortgage at origination. For example, loans with an LTV of over 80 percent require government-guaranteed mortgage default insurance.[92]	Anti-flipping tax for housing dispositions occurring on or after January 1, 2023. The purpose of the tax is to discourage housing speculation and create more affordable housing in the process.	Budget 2022 introduced several measures to support housing supply, including (i) Housing Accelerator Fund to help municipalities speed up construction approval times; (ii) extension of Rapid Housing Initiative to create at least 6,000 new affordable housing units; and (iii) loans and funding programs for co-op housing projects to help create 6,000 co-op housing units. Imposition of a two-year ban on foreign buyers of non-recreational residential properties to curb speculation.	Local authorities in Ontario and British Columbia (BC) have used foreign buyer tax[93] and vacancy taxes to contain growth in housing prices. Moreover, to curb speculation, the government introduced a two-year ban on foreign buyers of non-recreational residential properties.	The financial sector policy and ultimately the responsibility of safeguarding the financial system rests with the Minister of Finance (MOF). However, there is no formal agency with the mandate to ensure financial stability, and the tools are dispersed across both federal and provincial agencies. The financial system committees regularly hold informal meetings to discussion systemic risk and general financial sector policy.[94]
Korea[95]	Measures to manage total household debt and curb financing for speculative purposes included tightening regulations on financial institutions	Taxation of housing investment has been strengthened, to curb demand for investment purposes, and higher transfer income tax on	Policies to curb speculative demand for new apartments and for apartments scheduled for reconstruction, included tightened criteria for top-priority subscribers for new apartment purchasing rights.	The target regions for tighter regulations are sub-divided into speculative investment zones, overheated zones and adjustment-required zones, depending upon their respective degree of housing price rises and overheating. Each zone is subject to a different level of regulation. The Gangnam	The financial stability roles are shared among the multiple agencies.[98] The authorities responsible for financial stability carry out their respective roles under their individual responsibilities, while operating the macroprudential policy framework by sharing views about financial stability conditions and responding jointly in times of crisis through various high-level channels of coordination.[99]

[91] **Peterson, B (2023)**.
[92] The Minister of Finance sets the rules for insured mortgages, which are rigid, with strict limits on maximum amortization (25 years), a ban on refinancing, and strong limits on debt servicing. Additionally, loans with an LTV of 80 percent or less fall under the Guideline B-20 for mortgage underwriting established by the Office of the Superintendent of Financial Institutions (OSFI).
[93] Ontario imposes a **non-resident speculation tax (NRST)** on the purchase or acquisition of an interest in residential property located anywhere in Ontario by individuals who are foreign nationals. In BC, foreign national, foreign corporation or taxable trustee, must pay the **additional property transfer tax** on their proportionate share of a residential property's fair market value if the property is within specified areas of BC.
[94] The primary "gathering" for addressing systemic risk and potential changes to macroprudential policy is the Senior Advisory Committee (SAC), which is chaired by the Deputy Minister of Finance and attended by representatives of various federal agencies. The Bank of Canada is generally the analytical leader and is often the largest contributor at SAC meetings in identifying financial vulnerabilities and evaluating potential policy changes.
[95] **Ho Soon Shin and Hyun Chang Yi (2019)**.
[98] **Ho Soon Shin, Jung Yeoun Lee and Jungmin Park (2019)**.
[99] The agencies responsible for financial stability policy in Korea include the Ministry of Economy and Finance (MOEF), the Bank of Korea (BOK), the Financial Services Commission (FSC), the Financial Supervisory Service (FSS), and the Korea Deposit Insurance Corporation (KDIC). The MOEF is responsible for the formulation, overall control and adjustment of

	and loans, while also developing comprehensive and systematic criteria for loan screening.	owners of multiple homes.[96]		districts in Seoul were designated as speculative investment zones, and are subject to the strongest regulations.[97]	The agencies have also expanded channels for information-sharing and opinion exchanges by, for instance, setting up a working-level Consultative Group for Managing Household Debt and a working-level stress test council.
Singapore[100]	Lending policies included LTV and debt service-to-income (DSTI) and loan term limits.	Seller's stamp duty was introduced in 2010 to discourage speculative selling of properties, followed by an Additional Buyer's Stamp Duty (ABSD) in 2011 to curb overinvestment in property.[101]	The government has increased land supply for property development to meet the demand for housing.	LTV and DSTI requirements are applied to property loans only, so as not to disrupt credit to other sectors of the economy. Within the property sector, policy measures have been targeted at customer segments that are contributing to excessive investment demand or speculation. Nonresidents pay higher stamp duties than residents, coupled with differentiated application of ABSD rates to nonresidents.	As the policy measures are under the purview of different agencies, a multi-pronged policy strategy is implemented via close inter-agency coordination. The Monetary Authority of Singapore (MAS) is in-charge of the macroprudential policies targeted at the property market (such LTV, DSTI, loan term limits). The Ministry of Finance implements fiscal measures such as stamp duties, while housing measures (such as land supply) are controlled by the Ministry of National Development. These agencies share information and analyses of the property market and coordinate policy actions through an inter-agency taskforce, with collective aim of aligning the objectives of each authority under the overarching goal of promoting a sustainable property market.[102]

economic and fiscal policies, and conducts foreign exchange-related tasks under the Government Organization Act. The MOEF has the authority to carry out real estate tax policy, which is important for financial stability. The BOK not only establishes and carries out monetary policy under the Bank of Korea Act, but also has the responsibility for taking into account financial stability in its monetary policy implementation.

[96] Temporary suspension of higher capital gains tax rates for multi-homeowners (from May 2022 to May 2026) was introduced to ease the lock-in effect, whereby multi-homeowners delay property sales to avoid higher tax burdens. **However, at this stage, the government has not yet decided whether to continue this policy measure after May 2026.**

[97] More targeted measures were introduced in October 2025 to restrict maximum mortgage limit on house purchases in Seoul Metropolitan Area (SMA). Specifically, the maximum amount of mortgage loan a borrower is eligible to take out for purchasing a house in the SMA and speculation regulated areas will be determined differentially based on the price (market value) of house. For houses with market value of up to KRW1.5 billion, the maximum amount of mortgage loan remains the same at KRW600 million. For houses priced at more than KRW1.5 billion and up to KRW2.5 billion, the maximum amount of mortgage loan is reduced to KRW400 million from the current level of KRW600 million. For houses valued at over KRW2.5 billion, the maximum amount of mortgage loan is reduced to KRW200 million from the current level of KRW600 million. Moreover, the LTV ratio on mortgage loans has been tightened to 40 percent from the previous level of 70 percent. These measures would help to control demand for housing loans in these areas more effectively (**Financial Services Commission, 2025**).

[100] **Lim, A (2023)**.

[101] Specifically, policy measures in Singapore have historically had a significant focus on the private residential property market, given its importance for household balance sheets and banks' loan portfolios. See **MAS website** for more information on the policy measures.

[102] Furthermore, coordinated announcements by the authorities of their policy measures signals the authorities' commitment to addressing systemic risks in the property market.

3. Debt Sustainability with an Asset-Pricing Extension for Japan [103] [104]

This selected issue conducts a standard debt sustainability analysis (DSA) and extends the framework by incorporating an asset-pricing perspective. Specifically, the analysis applies a market-based risk premia to discount projected future primary balances, allowing a comparison with the current market valuation of government debt. The findings suggest that Japan's public debt dynamics is sensitive to growth and interest rate shocks, and that valuation based on fiscal projections falls well below market debt values. The vulnerability of public debt to shocks highlights the importance of fiscal consolidation and structural reforms to bolster growth potential to ensure debt sustainability, at the same time, clear communication is crucial to avoid disruptive market adjustments.

Background

1. Japan's public debt has been on a gradual downward trajectory following the sharp increase during the COVID-19 pandemic, but it remains exceptionally high by international standards. Public debt peaked at 254 percent of GDP in 2020, reflecting extensive pandemic-related support. Since then, debt has declined steadily and is projected to fall to 227 percent of GDP in 2024.

2. The improvement in the debt ratio reflects both favorable macro-fiscal dynamics and the normalization of pandemic-related spending. Real GDP growth above potential and elevated inflation have boosted nominal GDP, widening the nominal tax base and generating strong revenue through nominal buoyancy effects. In addition, the significant depreciation of the yen in recent years has raised the domestic-currency value of overseas profits, as well as import prices, thereby amplifying the increase in the nominal tax base. Rising wages and a positive GDP deflator supported nominal tax collections even without new discretionary revenue measures. As a result, the primary deficit narrowed markedly from 9.1 percent of GDP in 2020 to an estimated 1.3 percent in 2024.

3. The primary balance is expected to continue improving to a deficit of 0.9 percent of GDP in 2025. However, it is projected to widen again in 2026 due to recently announced economic measures, including energy subsidies, cash transfers to households with children, and tax cuts, which may slow or partially reverse the normalization of expenditures. Notably, the proposed economic package of JPY 17.7 trillion is the largest since the COVID-19 pandemic.

4. Japan's debt structure provides notable sources of market stability, yet recent financial indicators suggest that investor perceptions may be shifting. The maturity profile of JGBs is relatively long, with an average remaining maturity of about 9 years and 7 months, which limits rollover risks. Debt is also predominantly held by domestic investors—principally the Bank of Japan (BOJ), banks, insurers, and pension funds—while foreign investors hold only around 12 percent of outstanding government securities, reducing exposure to abrupt external shifts in sentiment. Recent market

[103] Prepared by Paolo Hernando, Senior Economist; Aruhan Rui Shi, Associate Economist and Koon Hui Tee, Senior Economist.
[104] All dates refer to Japan's fiscal year, which spans from April 1 to March 31. Public DSA for Japan covers the general government debt, which consists of central government, local government and social security. The latest actual number for general government debt is as of end- FY2023 at JPY 1.44 trillion (232.6 percent of GDP)

movements—including yen depreciation and an increase in JGB yields—have occurred alongside fiscal announcements, although the precise drivers of these adjustments are difficult to isolate.

Debt Sustainability Analysis: Baseline Scenario

5. The baseline scenario projects output remaining above potential over the next two years, before gradually converging to its long-term trend. As the recovery gains traction, real GDP growth is expected to exceed potential in 2026 and 2027, and then moderate toward its potential rate over the medium term. Inflationary pressures are projected to ease from elevated levels, with GDP-deflator inflation stabilizing at around 1.5 percent in the medium term. In this context, the effective interest rate on government debt is expected to rise gradually over the forecast horizon (Table A3.1), reflecting market expectations of gradual monetary policy normalization and the associated repricing of JGB yields, including a higher term premium, as the BOJ scales back its extraordinary easing measures. Japan's long average debt maturity will temper the speed at which higher bond yields pass through to overall debt-servicing costs, while Japan's high public debt remains a structural vulnerability.

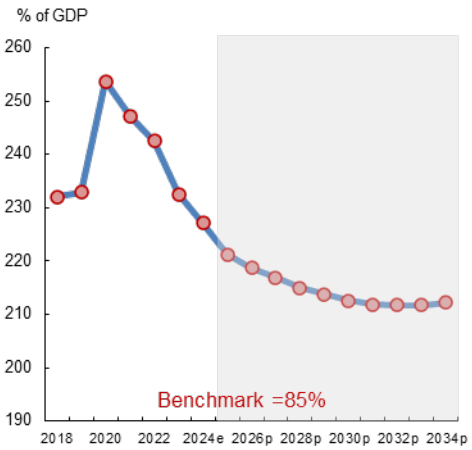
Japan's high public debt level leaves it vulnerable to economic and fiscal shocks. The public debt-to-GDP ratio remains among the highest in the world and stands well above the commonly referenced international benchmark of 85 percent (Figure A3.1). This sizeable debt burden also translates into a gross financing need (GFN) that exceeds the indicative 20 percent threshold (Figure A3.2). Although the debt ratio is projected to edge down through 2032, demographic pressures, including rising age-related spending, are expected to continue exerting upward pressure on expenditures during the projection horizon. At the same time, a gradual increase in effective interest rates, combined with a moderation in GDP-deflator inflation, will push up real interest rates. The joint effect of a persistent primary deficit and rising real interest rates is expected to outweigh the contribution of real growth, resulting in a renewed increase in the debt ratio from 2033 onwards, reaching 212.2 percent of GDP by 2034 (Figure A3.1). GFN is projected to rise in 2026 following expected fiscal stimulus measures, and over the medium term, to remain elevated due to higher interest payments.

Table A3.1. Macroeconomic and Fiscal Indicators

	2020	2021	2022	2023	2024e	2025p	2026p	2027p	2028p	2029p	2030p	2031p	2032p	2033p	2034p
Macroeconomic indicators (Percent)															
Real GDP growth (FY)	-3.8	3.9	1.4	0.0	0.5	1.0	0.8	0.8	0.6	0.5	0.5	0.5	0.5	0.5	0.5
GDP deflator (FY)	0.9	0.1	1.2	4.7	3.2	2.8	2.4	1.8	1.8	1.8	1.7	1.6	1.5	1.5	1.5
Effective interest rate (FY)	0.7	0.6	0.6	0.6	0.7	0.7	0.9	1.0	1.2	1.3	1.4	1.6	1.7	1.8	2.0
Fiscal indicators (FY, Percent of GDP)															
Revenue	35.7	36.3	37.1	36.4	35.5	35.3	35.1	35.0	34.5	34.2	34.1	33.8	33.6	33.3	33.0
Expenditure	45.4	41.9	40.5	38.2	37.2	37.0	38.8	37.9	37.1	37.0	36.8	36.7	36.7	36.7	36.7
Fiscal balance	-9.7	-5.6	-3.4	-1.8	-1.7	-1.7	-3.6	-2.9	-2.6	-2.8	-2.7	-2.9	-3.1	-3.4	-3.7
Primary balance	-9.1	-5.1	-3.1	-1.6	-1.3	-0.9	-2.6	-1.6	-0.9	-0.8	-0.5	-0.4	-0.4	-0.4	-0.5
Public debt	253.7	247.3	242.6	232.6	227.1	221.2	218.8	216.9	215.0	213.7	212.6	211.9	211.7	211.7	212.2
Gross financing needs	33.9	37.7	34.1	30.9	27.0	26.8	28.3	27.4	26.9	26.9	26.8	26.8	27.0	27.2	27.5

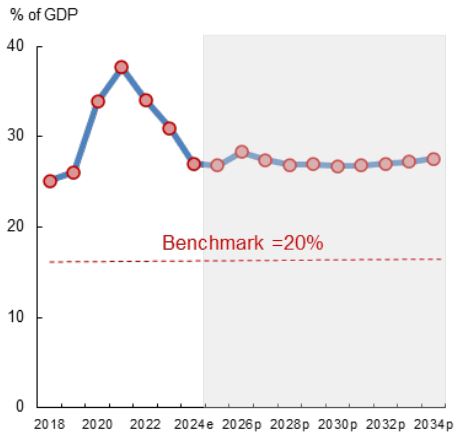
Source: MOF; CAO; AMRO staff projections (p)
Note: Figures refer to fiscal year from April 1 to March 31.

Figure A3.1. Public Debt



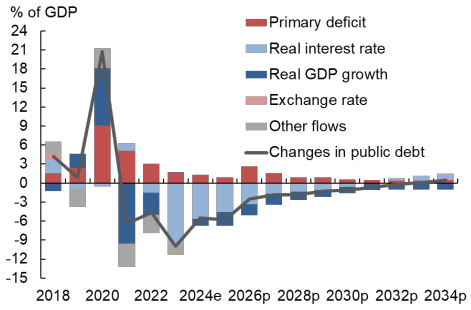
Sources: MOF; CAO; AMRO staff estimates.

Figure A3.2. Gross Financing Needs



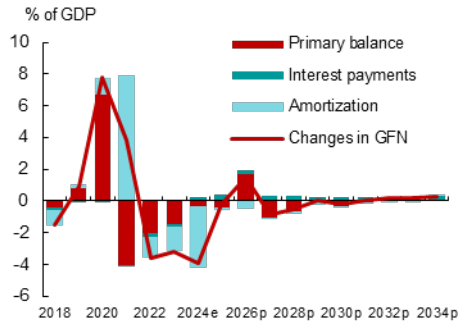
Sources: MOF; CAO; AMRO staff estimates.

Figure A3.3. Debt Dynamics



Sources: MOF; CAO; AMRO staff estimates.

Figure A3.4. Gross Financing Needs Dynamics



Sources: MOF; CAO; AMRO staff estimates.
Note: Japan does not issue public debt in foreign currency; therefore, foreign-currency amortization and interest payment are zero.

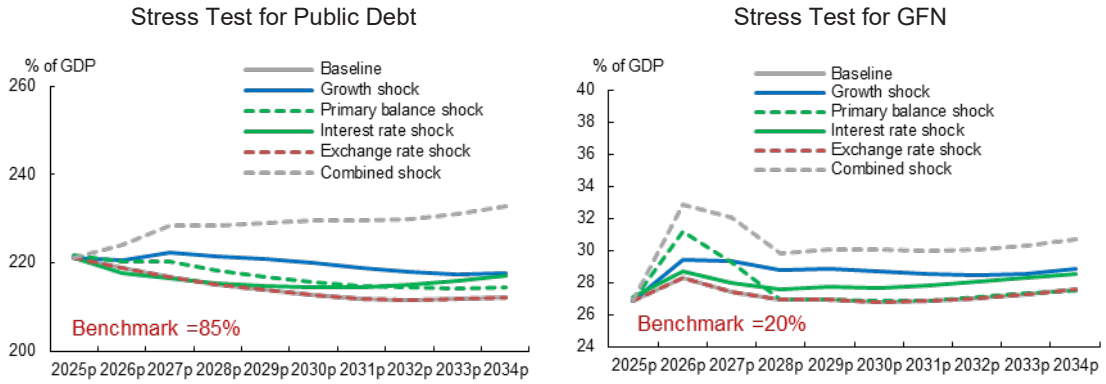
Stress Tests and Debt Profile Vulnerabilities

6. Stress test results show that Japan's public debt is particularly vulnerable to growth and interest rate shocks. Given the high debt levels and GFN, the country's fiscal and debt sustainability remains vulnerable to various shocks, which could weaken its fiscal resilience and long-term debt sustainability. Debt dynamics are most sensitive to shocks on growth and interest rates, which could potentially increase public debt to almost 217 percent of GDP (Figure A3.5). In the scenario where all shocks are combined, public debt could rise further to 233 percent of GDP. Shocks on growth and interest rates would also have the most significant impact on GFN, increasing it by an average of 1.6 and 0.8 percentage points, respectively, compared to the baseline (Figure A3.5).

7. Despite Japan's high public debt, market perception of sovereign risk remains low, supported by a broadly sound debt structure. Japan's historically low interest rate environment has resulted in a negative bond yield spread relative to the United States. Although this gap has narrowed in 2025, the negative spread is likely to persist for some time. The stability of Japan's debt structure is underpinned by a large domestic

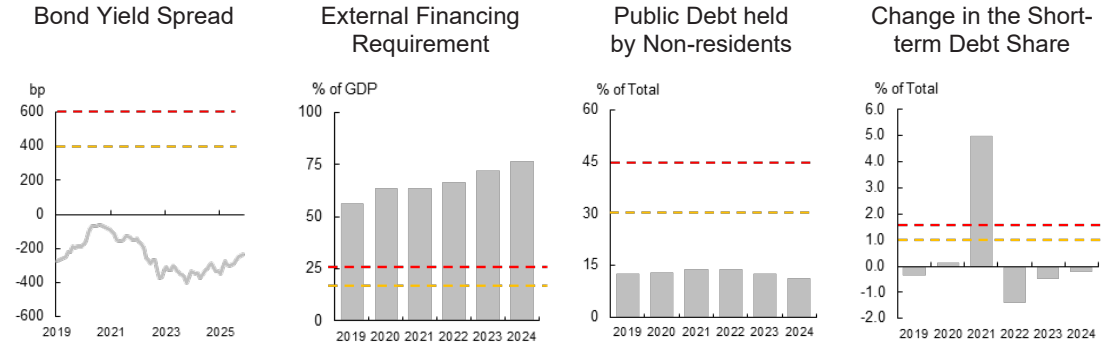
investor base, the country's large holdings of foreign assets, and Japan's status as one of the world's major reserve-currency issuers. Meanwhile, the increase in external debt primarily reflects cross-border funding activities rather than fiscal financing needs. Short-term debt levels have declined after 2021. (Figure A3.6 and A3.7).

Figure A3.5. Macro-Fiscal Stress Test



Source: MOF; AMRO staff projections (p)
Note: The scenarios for the stress test are as follows: 1) Real GDP growth shock: one standard deviation or –1.3 percentage points shock to 2026 and 2027; 2) Primary balance shock: one standard deviation or –1.5 percent of GDP shock to 2026 and 2027; 3) Interest rate shock: +1 percentage points shock from 2026; 4) Exchange rate shock: Japan has no foreign-currency-denominated public debt; therefore, the exchange-rate shock produces a zero direct valuation impact; 5) Combined shock: all of the above.

Figure A3.6. Debt Profile Vulnerabilities



Source: MOF; CAO; AMRO staff estimates
Note: 1) – – – Lower early warning (50 percent of the benchmark), – – – upper early warning (75 percent of the benchmark); 2) Bond yield spreads are computed using the difference between JGBs and U.S. Treasury notes at 10-year maturities; 3) External financing requirements = current account deficit + amortization of public external debt + amortization of private external debt, however, Japan's ratio is high primarily because global banks hold substantial short-term foreign liabilities to facilitate cross-border funding, with Japan acting as a hub for intra-regional financing. This elevated ratio does not accurately represent Japan's actual financing needs, particularly since the country's external assets exceed its external liabilities; 4) Public debt held by nonresidents is based on the jurisdiction of issuance; 4) Short-term debt is based on the original maturity.

Table A3.2. Heatmap of Public Debt Sustainability

		2019	2020	2021	2022	2023	2024e	2025p	2026p	2027p	2028p	2029p
Public Debt												
Gross Financing Needs												
Debt Profile	Market Perception of Sovereign Risk											
	External Financing Requirement											
	Public Debt Held by Non-residents											
	Change in Short-term Debt Share											

Sources: AMRO staff estimates
Note For Public Debt and Gross Financing Needs, the cell is highlighted in green if the benchmark is not exceeded under all shocks or the baseline, yellow if exceeded under any specific shock but not the baseline, and red if exceeded under the baseline; 2) For Debt Profile, the cell is highlighted in green if the country value is less than the lower early warning benchmark, red if it exceeds the upper early warning benchmark, and yellow if it lies between the lower and upper early warning benchmarks.

Asset Pricing Analysis

8. An asset-pricing approach offers a useful complement to conventional DSA by examining whether the market value of sovereign liabilities is supported by the discounted value of future fiscal surpluses. This perspective is particularly relevant for Japan, where gross public debt exceeds 200 percent of GDP but domestic financial markets have remained stable, supported by a large domestic investor base and continued monetary accommodation. As global financial conditions tighten and the Bank of Japan gradually normalises its policy rate and reduces new purchases of JGBs, market perceptions of sovereign risk may evolve. Against this backdrop, this section updates the valuation-based asset-pricing analysis of Chan-Lau and Shi (2025) using data through October 2025 and applies the framework proposed by Jiang et al. (2022; 2023; 2024) to reassess whether current JGB valuations are consistent with long-term fiscal fundamentals.

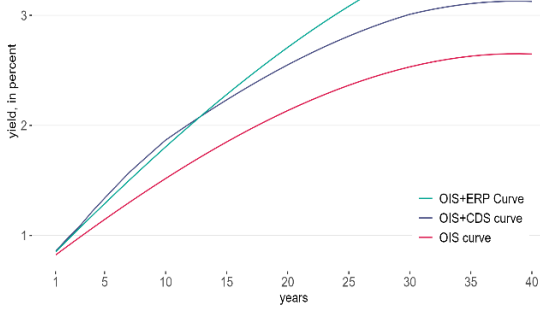
9. The asset-pricing framework conceptualizes government debt as a claim on future primary surpluses, discounted by rates that incorporate both the risk-free term structure and sovereign risk premia. Under this approach, the market value of public liabilities should equal the present value (PV) of projected primary balances plus the terminal debt stock. When the discounted value of future fiscal surpluses falls short of the market value of debt, the implication is either that future fiscal adjustment will be required or that markets currently price sovereign debt more favorably than long-run fundamentals would suggest.

10. The empirical implementation applies this framework using market-based discount curves and long-horizon fiscal projections. The discount structure is constructed from: (i) the overnight indexed swap (OIS) curve to capture the risk-free rate; (ii) the sovereign credit default swap (CDS) curve, which captures sovereign credit risk premia; and (iii) an equity-linked discount factor derived from the expected equity risk premium (ERP), which reflects compensation for bearing aggregate equity and macroeconomic risk (Figure A3.8). Projected primary balances are taken from AMRO's baseline scenario (Table A3.2) and extended beyond the official projection horizon under assumptions of steady nominal growth and stable expenditure ratios.[105] The resulting present value of fiscal flows, future primary balances plus terminal debt stock, is then compared with the market valuation of outstanding Japanese Government Bonds (JGBs) and Treasury bills over a 40-year horizon.

[105] The official projection horizon ends in 2034. Beyond that point, the analysis assumes: (1) nominal GDP grows at the same rate as in 2034; (2) the primary balance returns to 0; and (3) government debt evolves at a constant growth rate equal to the average debt growth observed during 2030–34.

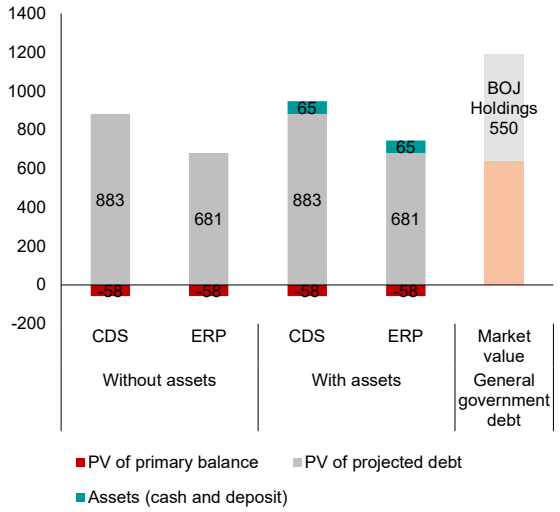
Figure A3.7. Discount Curves and Asset-Pricing Based Valuation

Discount Curves



Source: Refinitiv and Authors' calculations

Asset-pricing Valuation of Fiscal Projections



Source: Japan Ministry of Finance; Bank of Japan; Bloomberg; CEIC; Authors' calculations

11. The present value of Japan's long-term fiscal balances remains below the outstanding stock of government debt. The discounted value of projected future primary balances—combined with the terminal debt stock—amounts to roughly JPY 623 to 824 trillion under the CDS-implied and ERP-implied discount curves. Because projected primary balances are negative over much of the horizon, the positive portion of this valuation reflects primarily the discounted terminal debt stock rather than future fiscal surpluses (Figure A3.7). When compared with the JPY 1,192 trillion market value of outstanding government debt, the fiscal present value covers only about half of the liability, indicating a sizable valuation gap.

Table A3.3. Market-Based Rates of Return and the Valuation of Long-Term Fiscal Flows

	Internal rate of return, percent	Outstanding debt, market value, trillions yen	Discounted PB and debt projections, trillions yen
	(1)	(2)	(3)
OIS + CDS	2.11	1192	824
OIS + ERP	2.18	1192	623

Source: Authors' calculations
Note: Column (3) is based on AMRO projected primary balances and debt.

- **Government assets provide only a modest offset to the valuation gap, while the composition of bondholders appears closely associated with differences between market prices and fiscal present values.** Although the government holds JPY 788 trillion in assets, only a small portion of around JPY 65 trillion is liquid and incorporating

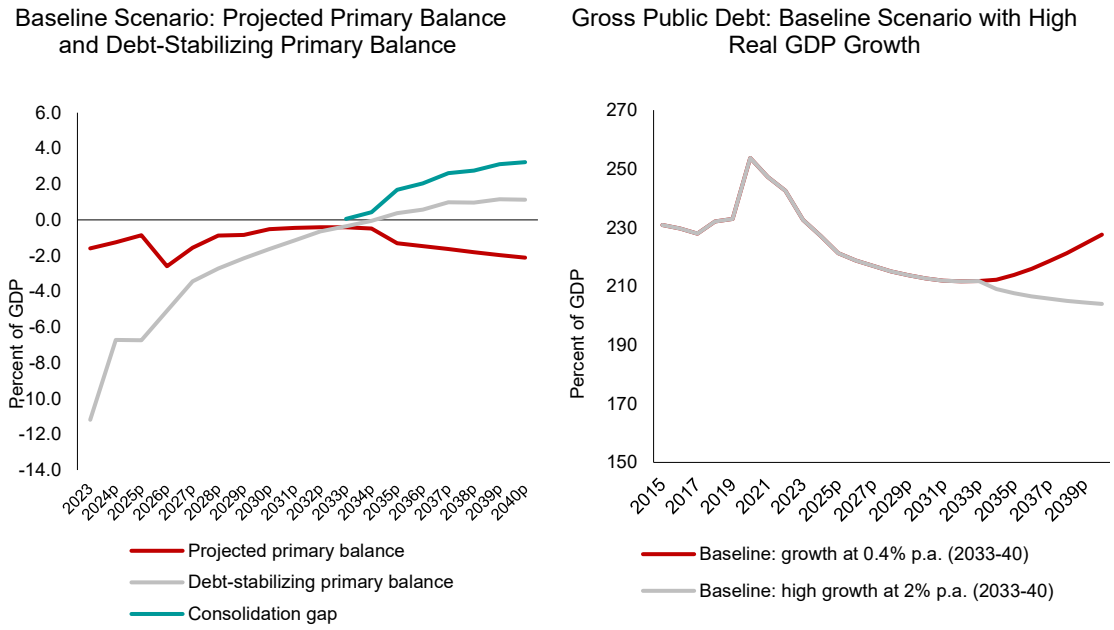
them does not materially change the valuation (Figure A3.7).[106] By contrast, the investor base plays a more prominent role. With around 40 percent of JGBs held by domestic banks, insurers, and pension funds[107], demand is driven by regulatory and balance-sheet considerations. The BoJ's holdings of roughly JPY 550 trillion[108] further anchor yields and suppress volatility. When the analysis is limited to the free-float portion of debt—about JPY 640 trillion held by non-BoJ investors—the valuation aligns more closely with discounted fiscal projections, underscoring how market structure supports yield stability despite long-term fiscal challenges.

Policy Implications

12. The DSA results underscore the need for fiscal consolidation and structural reforms to bolster growth potential to ensure debt sustainability (Figure A3.8). Without fiscal and structural reforms, debt-to-GDP ratio is projected to trend up beyond 2033 in the Baseline Scenario. Notably, under the Baseline Scenario, the debt ratio is projected to rise beyond 2033 as the projected primary balance remains below the debt-stabilizing primary balance. Specifically, without structural reforms to boost growth potential, the significant pace of consolidation gap is significant at average of 2.0 percent of GDP per annum over the period 2033-2040. On the other hand, without fiscal reforms to bolster fiscal consolidation, a high real GDP growth of 2.0 percent per annum beyond 2033 is required to stabilize the debt ratio.[109]

[106] Government asset data from Japanese Public Finance Fact Sheet (April, 2025), accessed from: https://www.mof.go.jp/english/policy/budget/budget/fy2025/02.pdf
[107] Ministry of Finance Japan, *"Outstanding Japanese Government Bonds Held by the Bank of Japan and Other Investors"*, https://www.mof.go.jp/english/policy/jgbs/reference/Others/holdings01.pdf (accessed November 19, 2025).
[108] Accessed from Bank of Japan statistics as of October 20, 2025. https://www.boj.or.jp/en/statistics/boj/other/mei/index.htm
[109] Under the baseline scenario, real GDP growth is projected to revert to around trend growth of 0.4 percent per annum during 2033-2040.

Figure A3.8 Debt Stabilizing Primary Balance and Growth



Source: AMRO staff projections

13. Moreover, the asset-pricing results reinforce the need for credible fiscal consolidation and clear policy communication to maintain market confidence. Anchoring expectations of future primary surpluses would help support current valuations as monetary conditions evolve. As the BOJ normalizes monetary and balance sheet policy, transparent guidance on liquidity and balance-sheet plans will be important for ensuring an orderly adjustment in risk premia. Strengthening disclosure on the government's balance sheet, including the liquidity of public assets, would further reinforce assessments of debt sustainability.

14. Seizing the window of opportunity to undertake fiscal reforms and structural reforms is crucial. Amid favorable debt dynamics and relatively long debt maturity, gross public ratio is expected to decline over the medium-term. However, without fiscal consolidation measures or higher trend growth, debt ratio is projected to trend up beyond 2033. Notably, debt sustainability over the long-term requires a multi-pronged approach. First, undertaking a mix of fiscal reforms over the medium-term in enhancing revenue mobilization and expenditure rationalization would support fiscal consolidation durably. Second, healthcare and pension reforms could help to alleviate spending pressures on pensions and healthcare due to aging population, and support fiscal consolidation. Importantly, fiscal consolidation should be underpinned by public financial management reforms in the establishment of the medium-term fiscal framework[110] and enhancing disclosure on the government's balance sheet. Third, in parallel, promoting growth-enhancing structural reforms, including enhancing productivity growth, is important to bolster growth potential and cushion the impact of aging population.

[110] **2024 Annual Consultation Report**.

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Address: 10 Shenton Way, #15-08
MAS Building, Singapore 079117
Website: www.amro-asia.org
Tel: +65 6323 9844
Email: enquiry@amro-asia.org
LinkedIn | **Twitter** | **Facebook** | **YouTube**