

Japan 2018 Article IV Consultation: Demographics Meets Abenomics

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Asia remains the world's fastest-growing region

Growth projections: Selected Asia

(Percent change from a year earlier)

	 World	 Asia	 China	 Japan	 India	 Korea	 Australia and New Zealand	 ASEAN	APD Small States
2017	3.7	5.7	6.9	1.7	6.7	3.1	2.3	5.3	2.6
2018	3.7	5.6	6.6	1.1	7.3	2.8	3.2	5.2	1.4
Revision from Apr. 2018	-0.2	0.0	0.0	-0.1	-0.1	-0.2	0.2	-0.1	-2.3
2019	3.7	5.4	6.2	0.9	7.4	2.6	2.8	5.1	4.1
Revision from Apr. 2018	-0.2	-0.2	-0.2	0.0	-0.4	-0.3	-0.3	-0.2	0.2

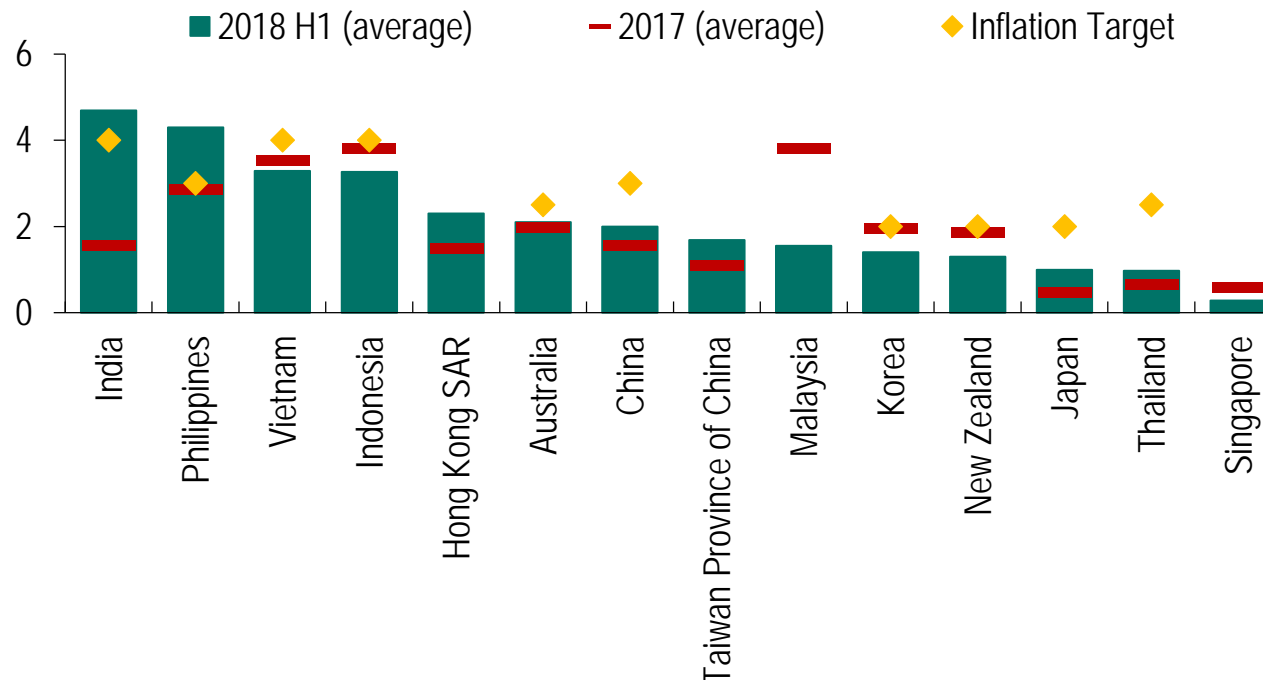
Source: October 2018 World Economic Outlook; IMF staff.

Note: Figures for India are on a fiscal year basis.



Inflation at or below target for most Asian economies

Selected Asia: Headline Inflation (Year-on-year percent change)



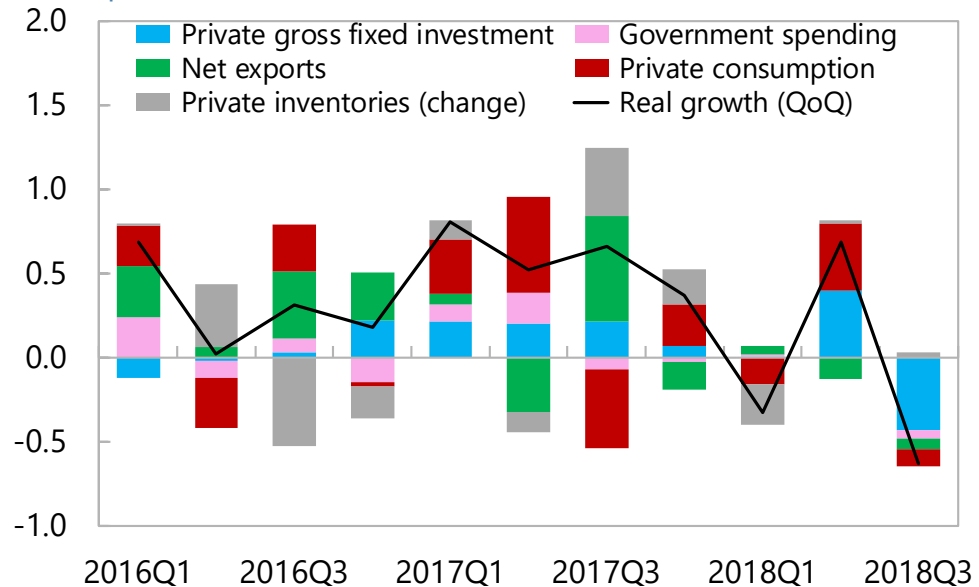
Note: Inflation targets unavailable for Hong Kong SAR, Malaysia, Taiwan Province of China, and Singapore.
Sources: CEIC; and IMF staff calculations.

Japan's economic growth is above potential...

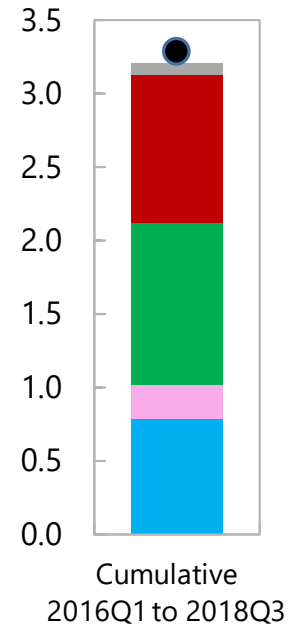
- Real GDP growth above potential for most of the past eleven quarters (Q1 and Q3 2018 were negative)
- Estimated output gap small and negative
- Very volatile growth trajectory in 2018
- Domestic demand growth positive
- External demand remains supportive
- Financial conditions have tightened slightly, but remain accommodative

Contributions to Real GDP Growth

(In percent QoQ, SA)



Source: Haver Analytics.

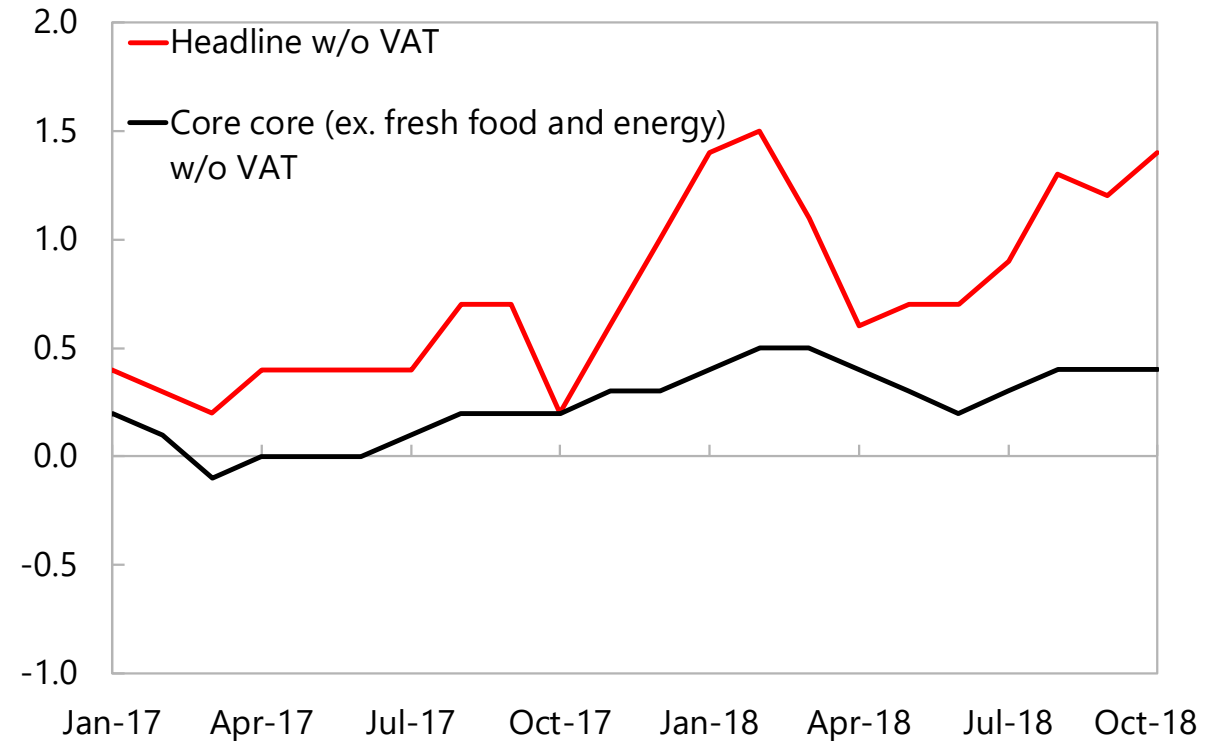


...while CPI headline and CPI core inflation remain low

- Headline and core CPI have gained momentum due to higher energy prices
- Nonetheless CPI inflation remains below Bank of Japan's 2 percent target
- Progress on structural reforms remains slow
- The monetary framework has been made more sustainable by Yield Curve Control

Inflation Indicators

(In percent YoY)

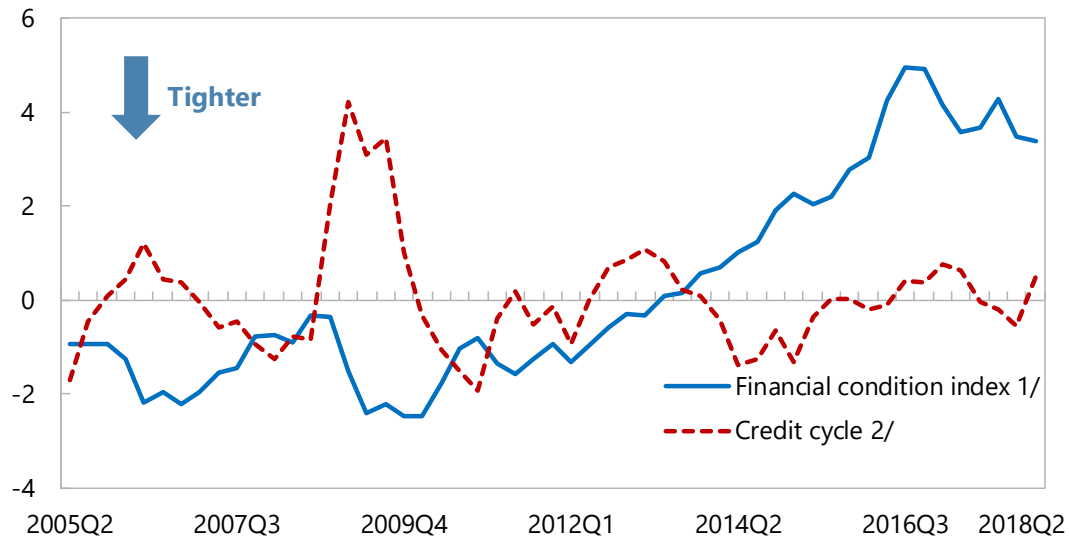


Sources: Haver Analytics; IMF staff estimates.

Rising concerns about side effects from prolonged monetary easing

Japan: Financial Conditions Index and Credit Cycle

(Index and percent)



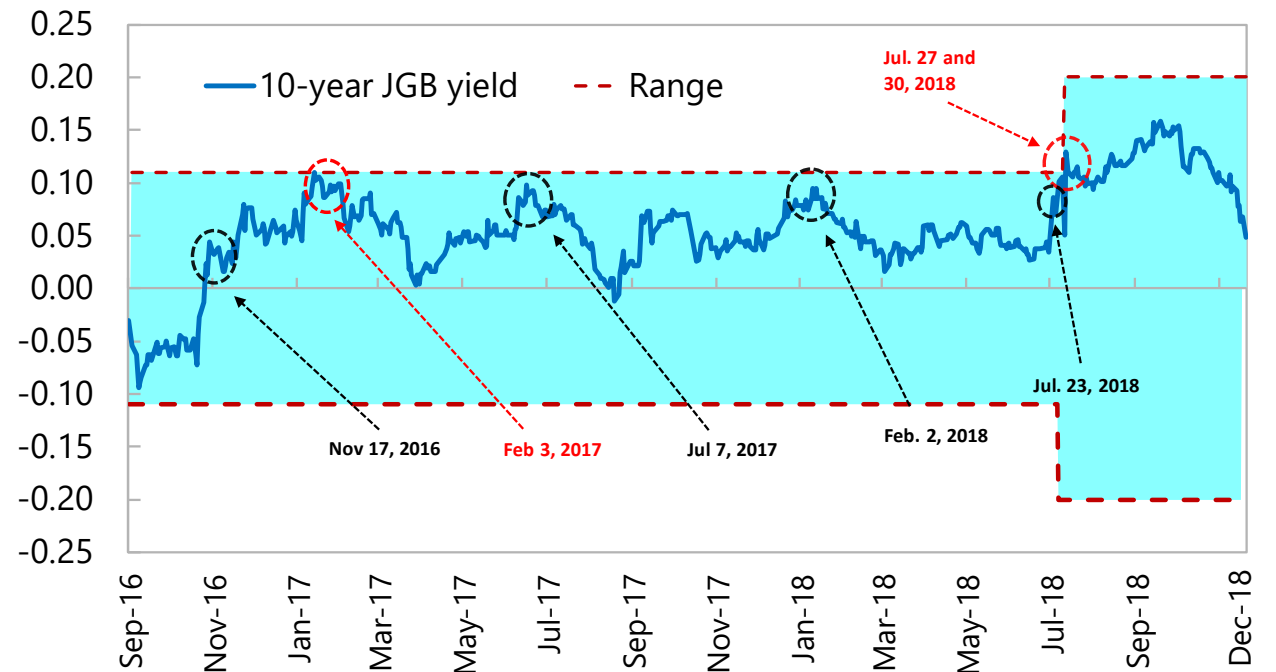
Sources: Bank of Japan; Ministry of Finance; Haver Analytics; and IMF staff estimates.

1/ Estimated as the first principal component of (standardized) JGB yield spreads, money market spreads, credit spreads of corporate bonds with different ratings, the first difference of logarithms of stock prices and nominal effective exchange rate, and credit to the corporate and household sectors. See Annex II for the detailed calculations.

2/ Estimated as the first principal component of the HP-filtered credit-to-GDP ratio and year-on-year real credit growth (deflated by CPI).

JGB 10-year Yield and Range^{1/}

(In percent)



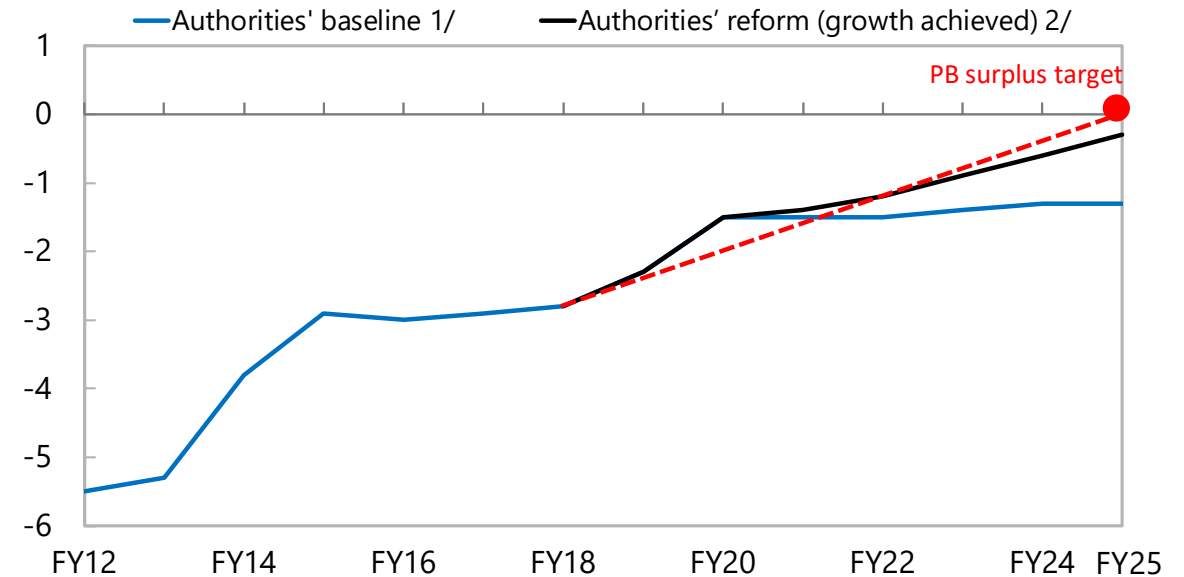
1/ Red circles represent episodes when the unlimited fixed rate facility was accessed by financial institutions. Black circles represent episodes when the facility was made available but not accessed. Source: Haver Analytics.

Fiscal consolidation was delayed and progress on structural reforms remained slow

- Government's "New Plan to Advance Economic and Fiscal Revitalization" announced in June
- Achievement of primary surplus postponed to a more realistic FY2025
- Limited progress in strengthening fiscal framework. Continued reliance on overly optimistic growth assumptions
- Labor market legislation passed by Diet in June
- Progress in enhancing labor supply, but social security and tax disincentives remain

Primary Balance Projections

(In percent of GDP. Central and local government basis)



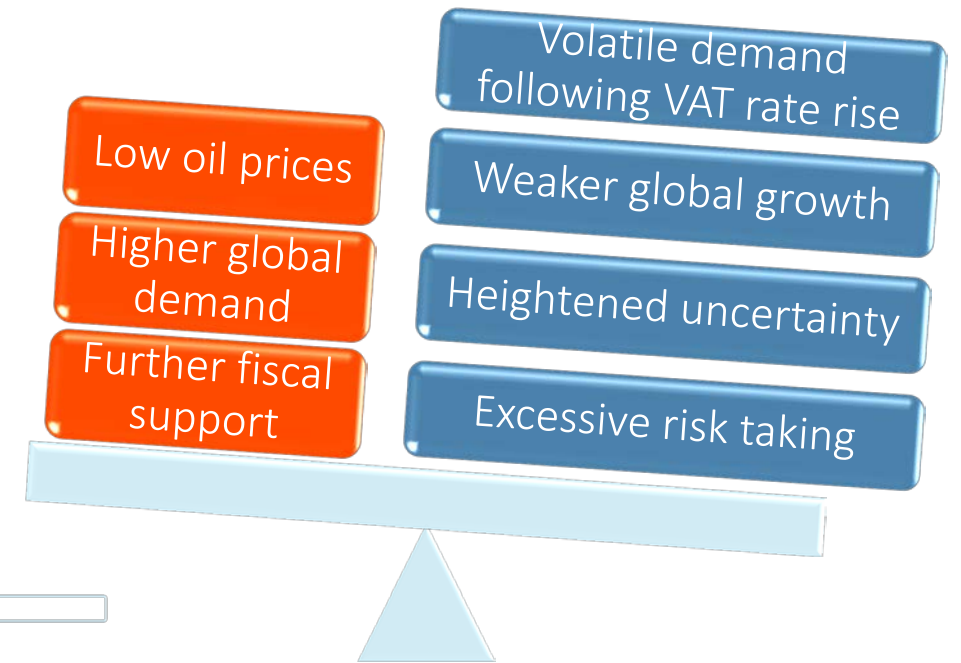
Sources: Japan Cabinet Office.

1/ Assumes 1.3 percent real and 1.8 nominal GDP growth (FY2018-FY2027 average).

2/ Assumes 1.8 percent real and 3.1 nominal GDP growth (FY2018-FY2027 average).

Downside risks have increased

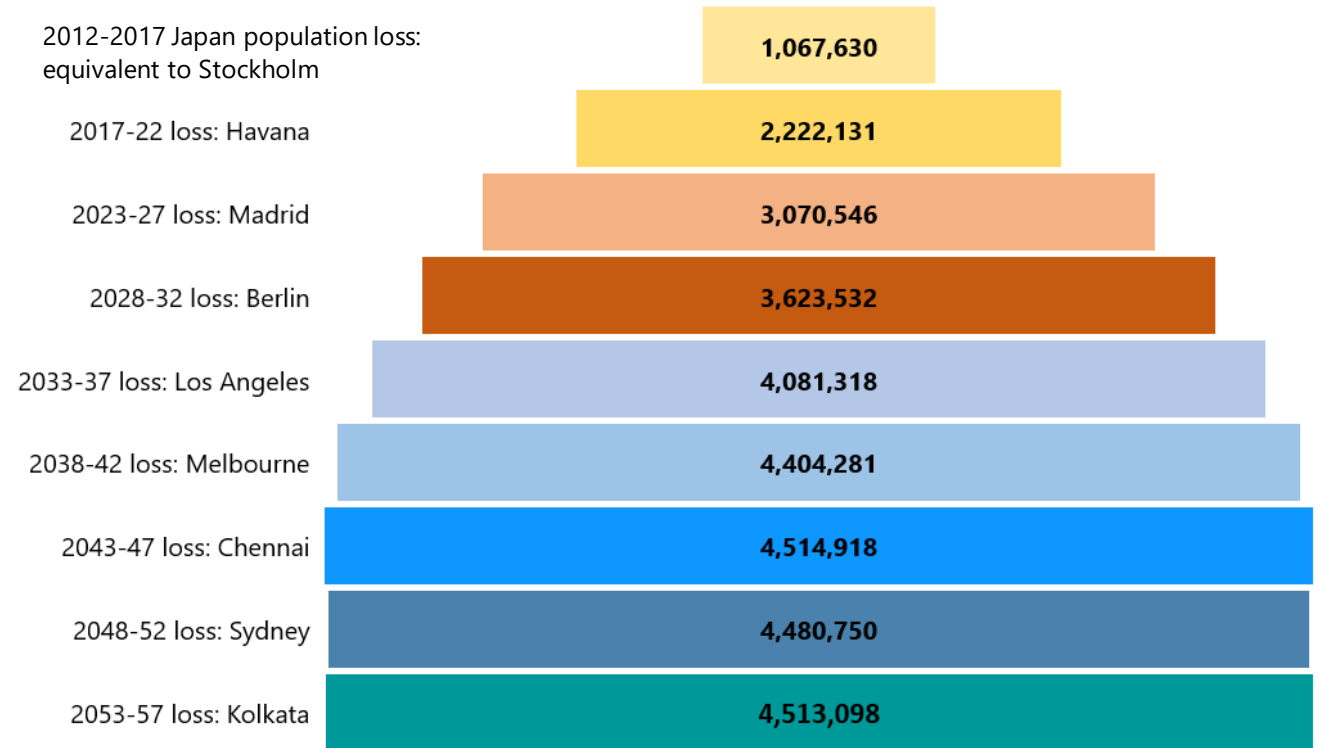
- Underlying growth at 1.1 percent in 2018 and 0.9 percent in 2019. Will revert to potential over medium term
- Effects from consumption tax rate increase will likely carry beyond 2019 into 2020, by adversely affecting domestic demand
- Japan's macro-financial vulnerabilities, fiscal consolidation needs, and limited monetary policy space make economy vulnerable to adverse shocks



Demographic headwinds (aging and shrinking population) are strong and getting stronger

- Official projections show population shrinking by 25 percent over the next 40 years
- This will depress investment and growth
- Magnify fiscal challenges of financing social security (healthcare and retirement)
- Abenomics—now six years old—has eased financial conditions, reduced fiscal imbalances, raised female and elderly labor force participation
- But achieving sustained high growth and reflation, and ensuring debt sustainability, will require strengthened policies

Japan: Population Decline 2012–57; Estimated City Size Loss

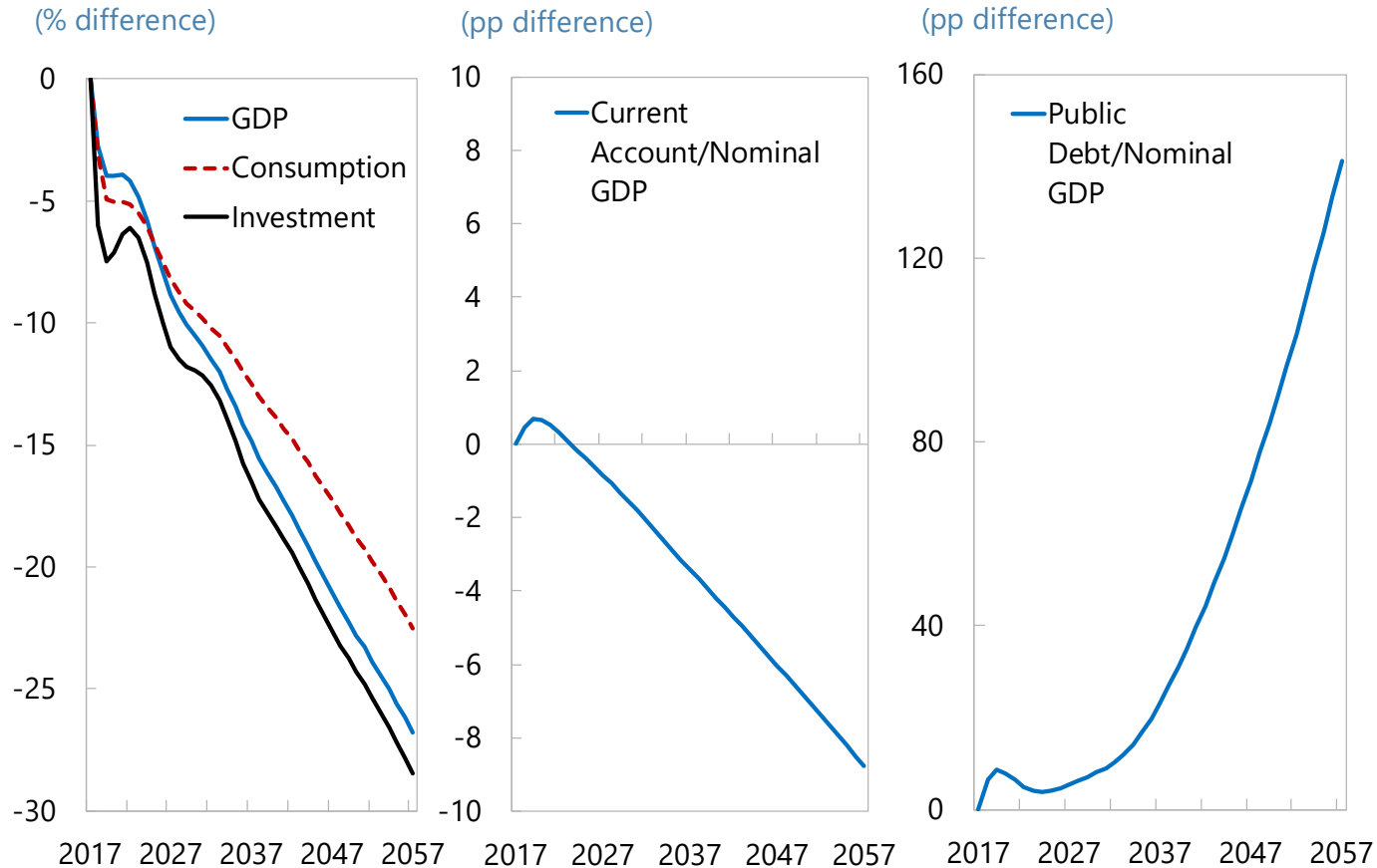


Source: Japan National Institute of Population and Social Security Research; United Nations Statistics Division, *Demographic*.

Structural reforms are essential to offset demographic effects

Japan: Impact of Demographic Projections

(Baseline Simulations; Difference Relative to 2017)

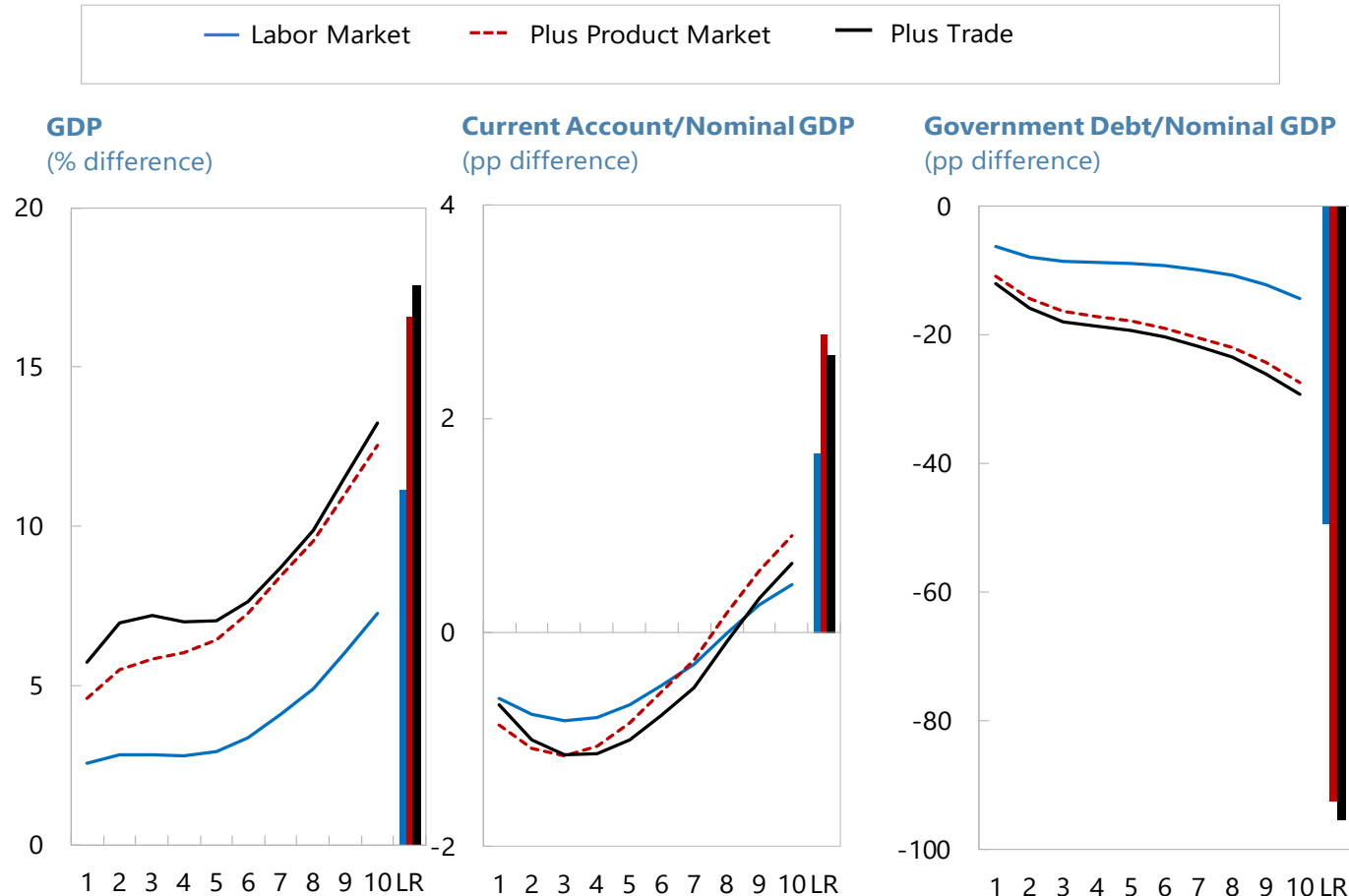


- Aging and depopulation will depress productivity and growth under the baseline scenario
- Staff analysis finds that real GDP will decline by over 25 percent in 40 years (relative to current policies scenario) due to demographics
- Government has properly identified areas for reform, but gaps remain and implementation has been slow

Sources: GIMF simulations and authors' calculations.

Impact of credible structural reforms could be large

Japan: Impact of Credible Reforms



Note: Reported effects are changes relative to the baseline reported in the previous figure. x-axis denotes years, LR= Long-run/steady-state (40 + years).

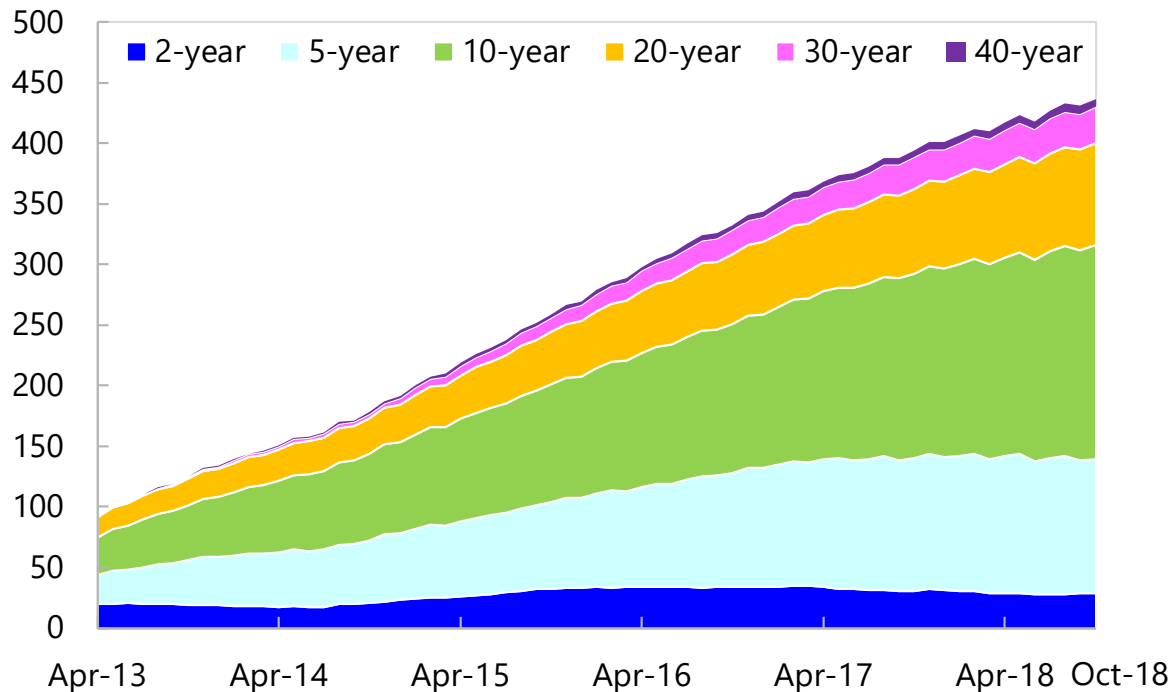
Source: GIMF simulations and authors' calculations.

- Real GDP could be given a significant boost by credible implementation of all reforms
- Real GDP could be as much as 15 percent larger in 40 years relative to the baseline scenario
- Reforms would also help reflation if contemporaneous demand boost exceeds supply boost
- Reforms can be ranked by GDP and inflation impacts:
 - Labor market reforms (top tier)
 - Product market and corporate reforms (second tier)
 - Trade liberalization (third tier)

Monetary policy should remain accommodative, while initiatives can be taken to strengthen the policy framework

BoJ JGB Holdings by Maturity, 2013-2018

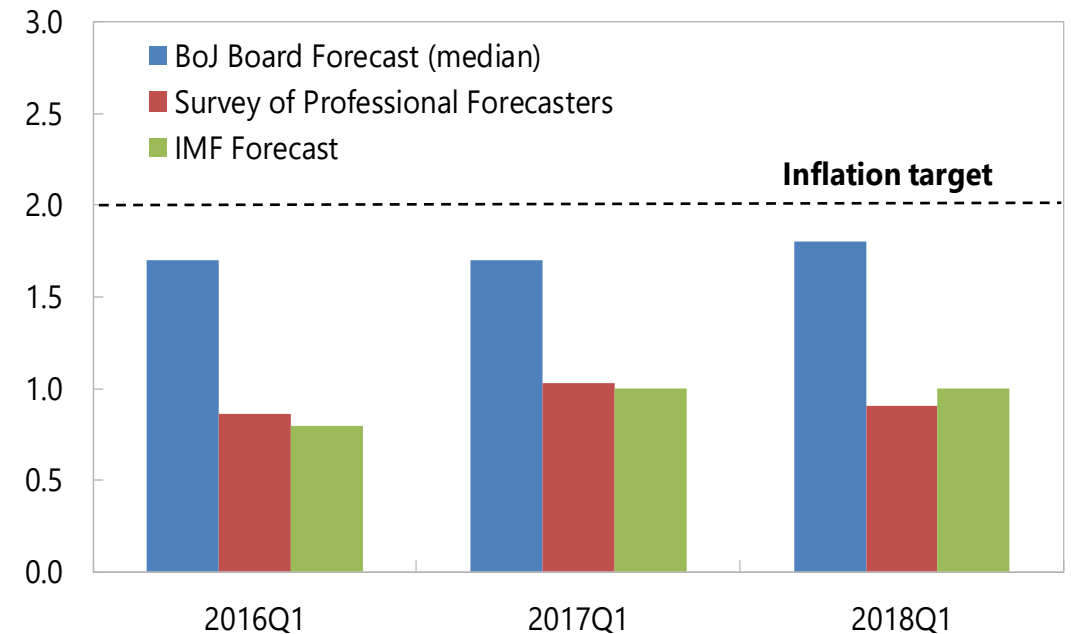
(In trillions JPY)



Source: Haver Analytics.

Two-Year Inflation Forecast, 2016-18^{1/}

(In percent)

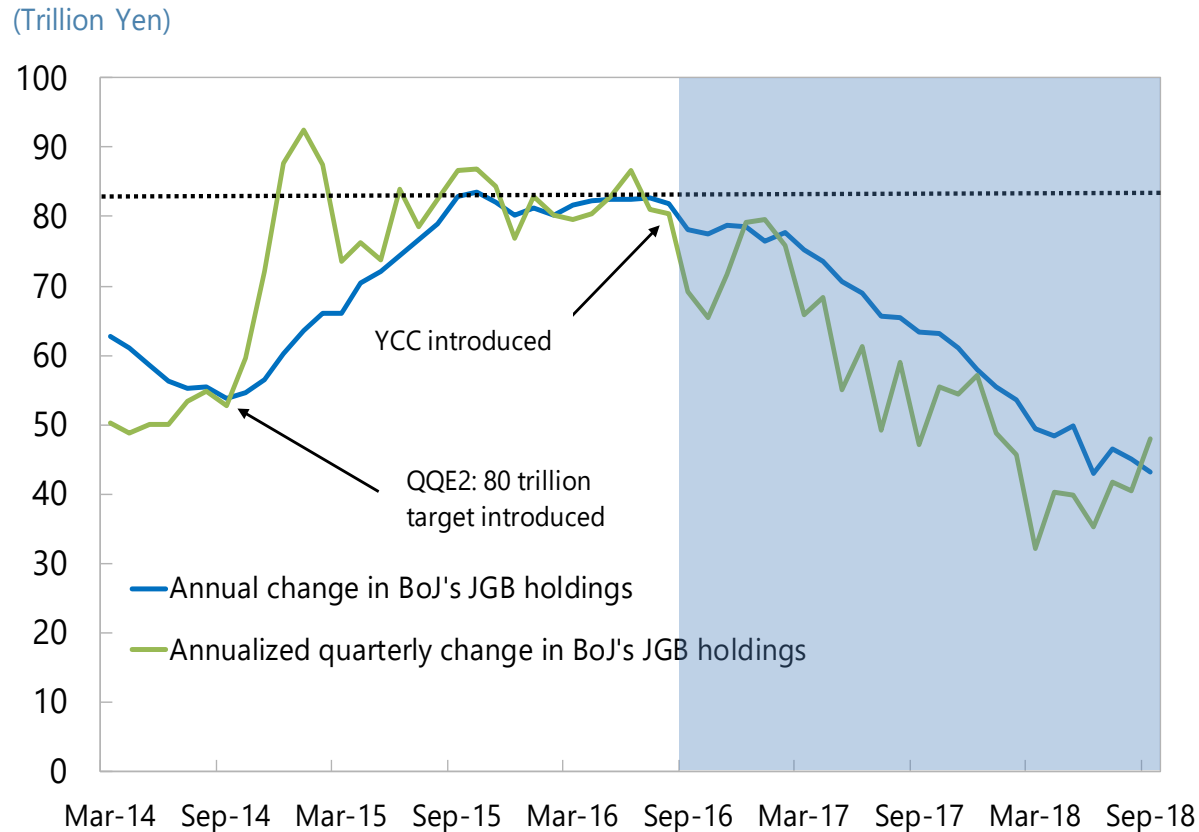


Sources: Bank of Japan, JCER, and IMF staff estimates.

^{1/} Dates refer to the time at which the forecast was made. Inflation forecasts exclude fresh food items and VAT impact.

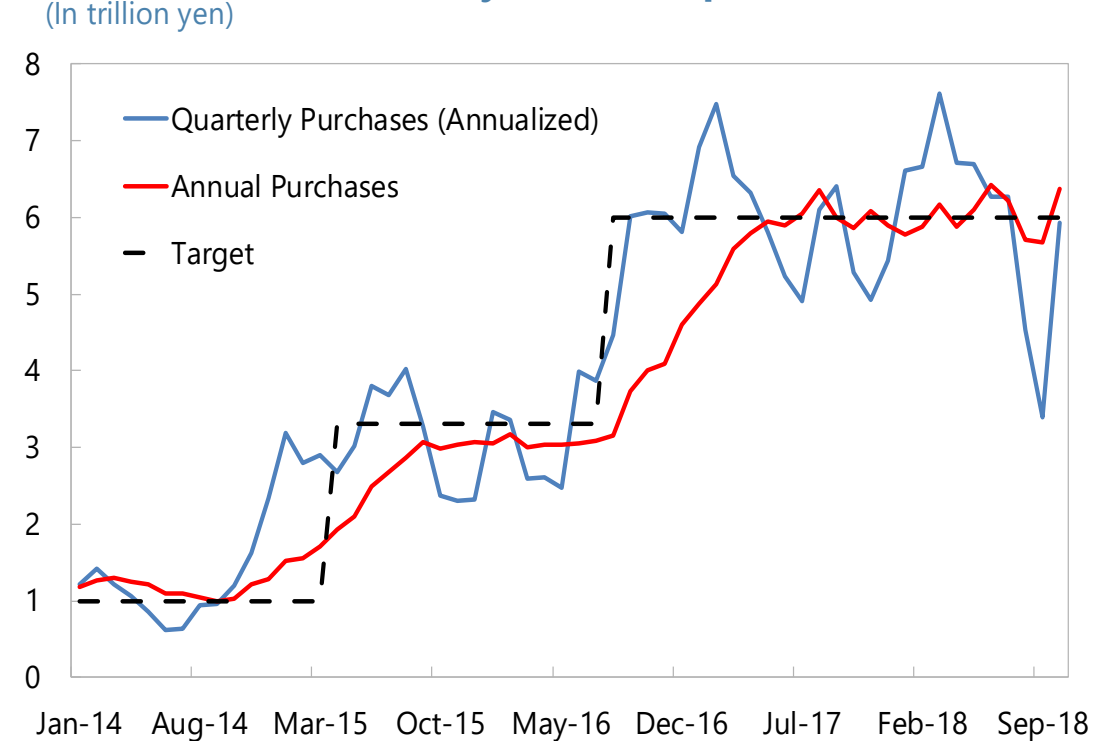
Financial sector side-effects, including JGB functioning and potential distortions from ETF purchases, warrant monitoring

Annual Change in Outstanding JGBs and BoJ Holdings, 2014–18
(Trillion Yen)



Source: Haver Analytics.

Annual ETF Purchases by Bank of Japan, 2014-18
(In trillion yen)

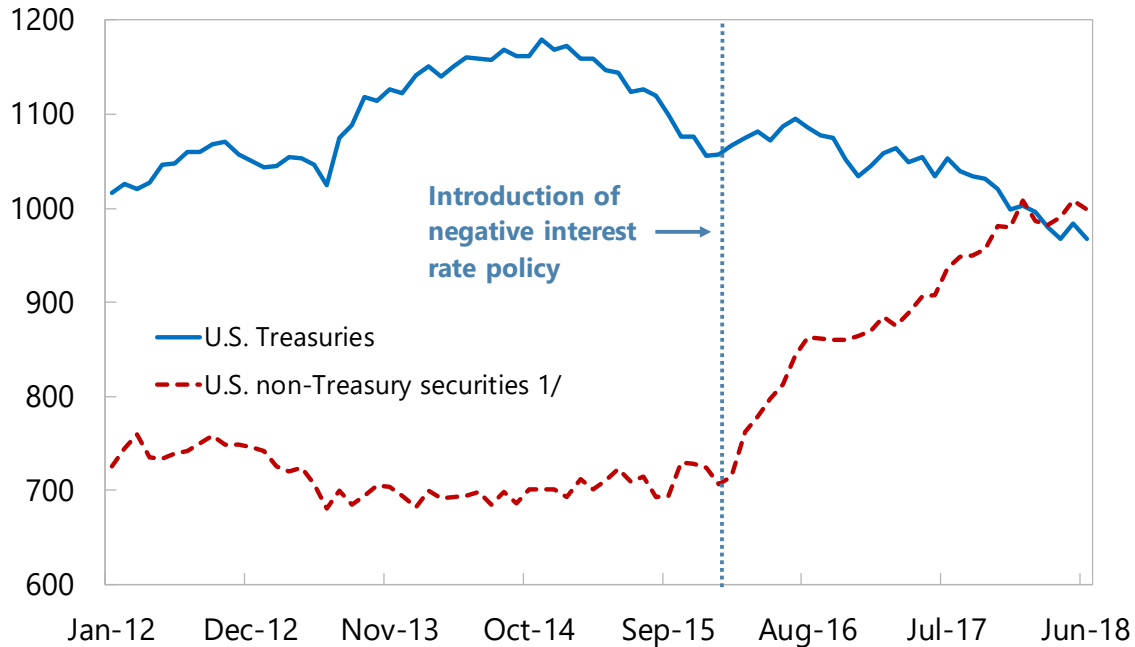


Source: Bank of Japan.

Japan's financial sector remains stable, but low interest rates and adverse demographics are encouraging risk taking

Japan: Investments in Long-Term U.S. Securities

(In billions of U.S. dollars)

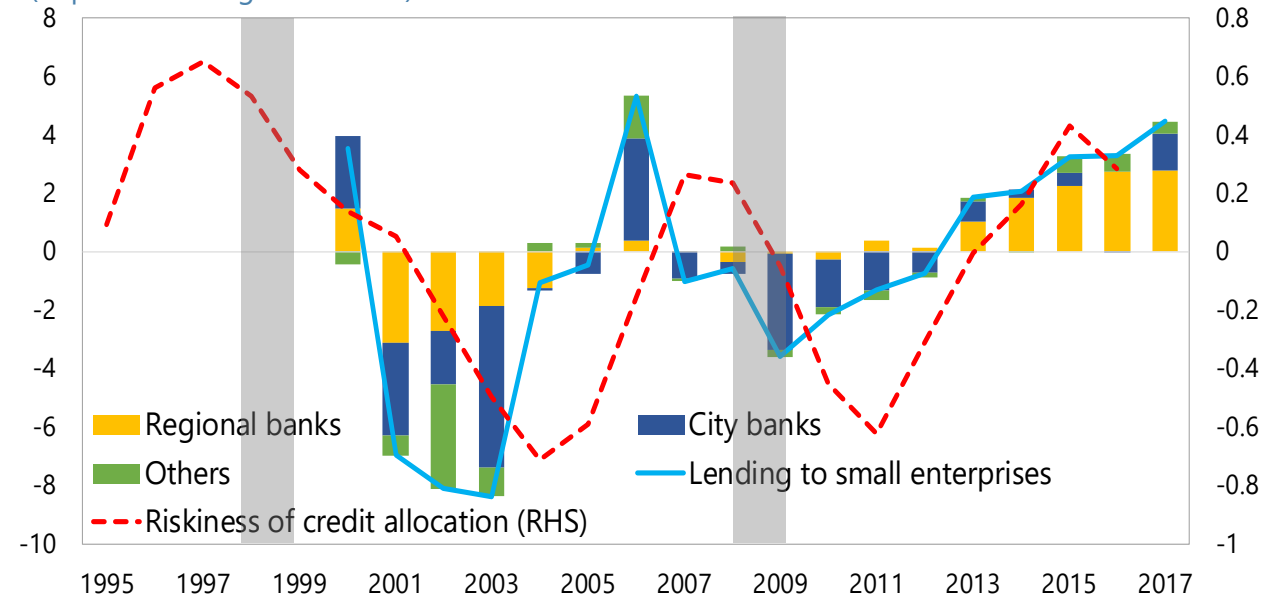


Sources: U.S. Department of Treasury; and IMF staff calculations.

1/ Including U.S. agency bonds, corporate and other bonds, and corporate stocks.

Lending to Small Enterprises and Riskiness of Credit Allocation^{1/}

(In percent change and index)

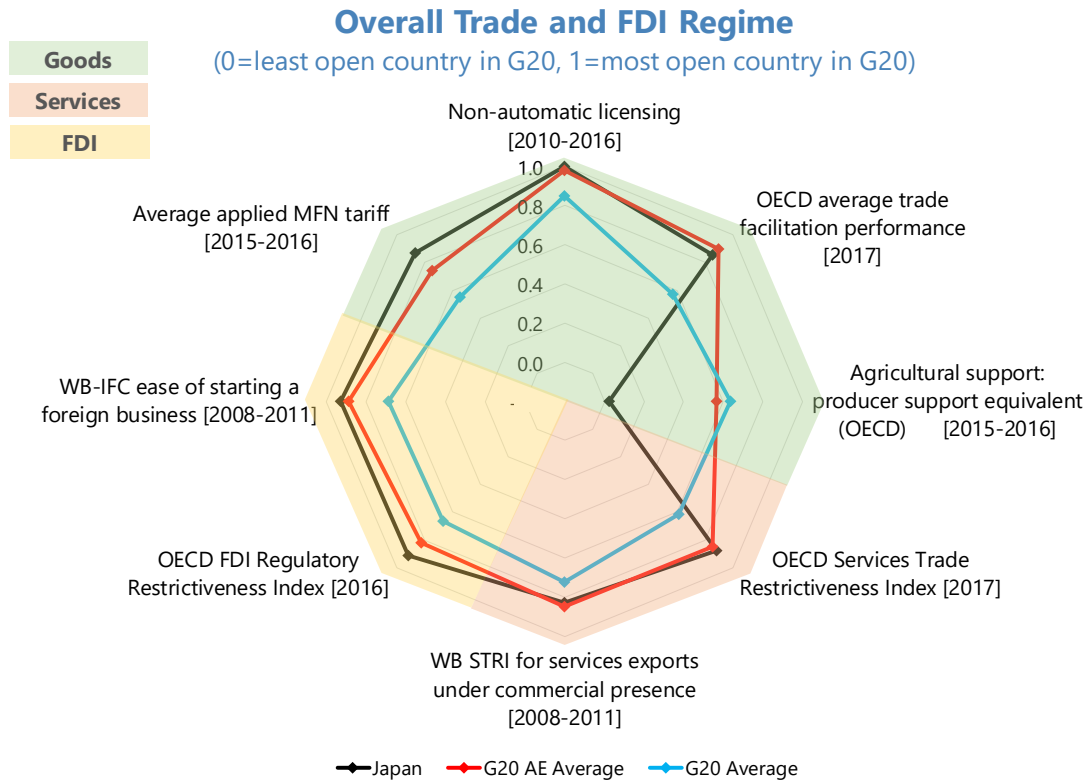


Source: IMF, April 2018 Global Financial Stability Report (GFSR).

^{1/} The riskiness of credit allocation is an index constructed using firm-level data that measures the extent to which riskier firms receive credit relative to less risky ones (IMF, April 2018 GFSR). The index can be calculated based on different measures of firms' riskiness, including leverage, interest coverage ratio, debt overhang, and expected default frequency. The index presented in this chart is a simple average of all these indices after taking two-year moving averages. Shaded areas indicate periods of negative annual real GDP growth for two consecutive years.

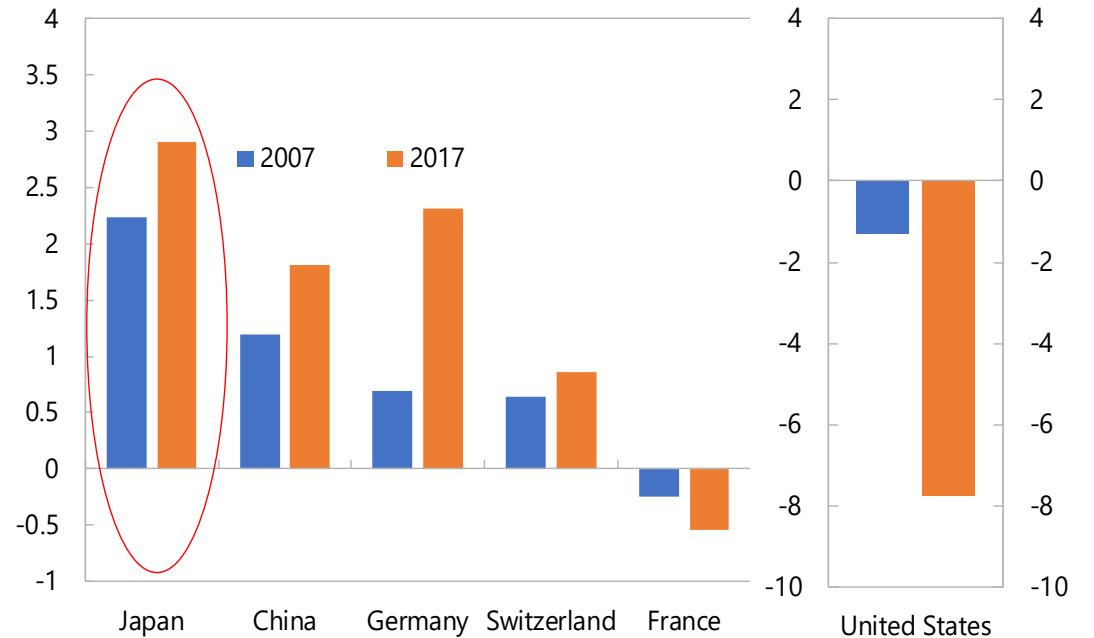


Japan has the world's largest NFA position. Continued monetary easing supports FDI outflows and potentially offsets tighter global financial conditions



Net International Investment Position

(In trillions USD)



Sources: Tariff data are from the WTO, World Tariff Profiles; the import licensing measure is based on UNCTAD TRAINS and COMTRADE data; the average trade facilitation performance, agricultural support measure, Services Trade Restrictiveness Index (STRI), and FDI Restrictiveness Index are from the OECD; WB STRI is from the World Bank; the post-GFC indicators are from Global Trade Alert.

Source: IMF, *World Economic Outlook October 2018*.



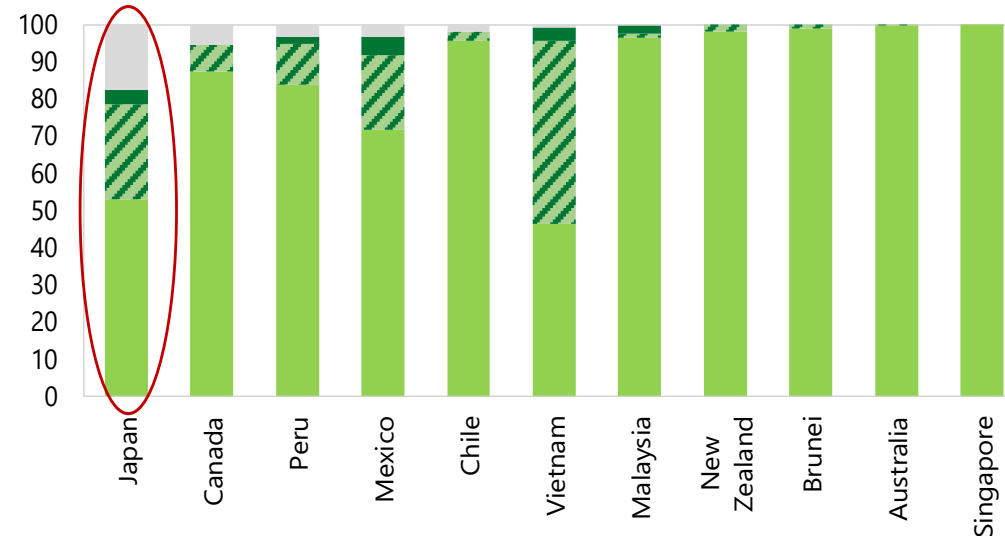
Japan's leadership in advancing multilateralism can help mitigate spillovers from rise in protectionism

- Japan's trade and foreign direct investment regimes show relative openness, with agriculture the exception
- Any retreat from cross-border integration would likely reduce Japan's net exports, investment and growth
- IMF *World Economic Outlook* simulations indicate that if the U.S. imposes 25 percent tariff on cars and car parts in 2019, Japan's long-run output growth rate would decline by 0.2 percent
- Japan's Diet approved the Japan-EU trade agreement; and the CPTPP agreement will go into effect at end-December

Tariff Elimination Schedule in Agriculture, Fishing, and Livestock Goods under CPTPP Agreement

(In percent)

■ Exclusion Rate (Tariff-rate quota, tariff reduction) ■ After 12 years of TPP coming into effect
■ 2 to 11 years after TPP coming into effect ■ Immediately



Source: Cabinet Secretariat.

Note: Elimination schedule shown as percent of tariff categories.

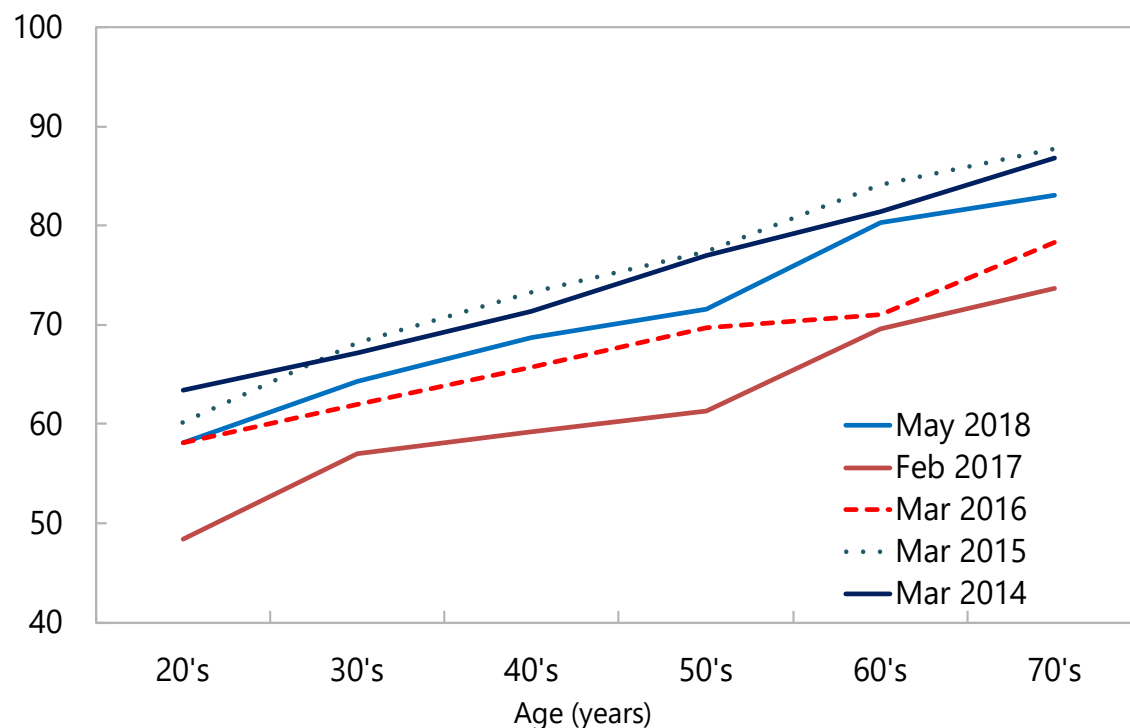
2018 Japan Article IV consultation: IMF research highlights



Japan has stubbornly-low inflation expectations

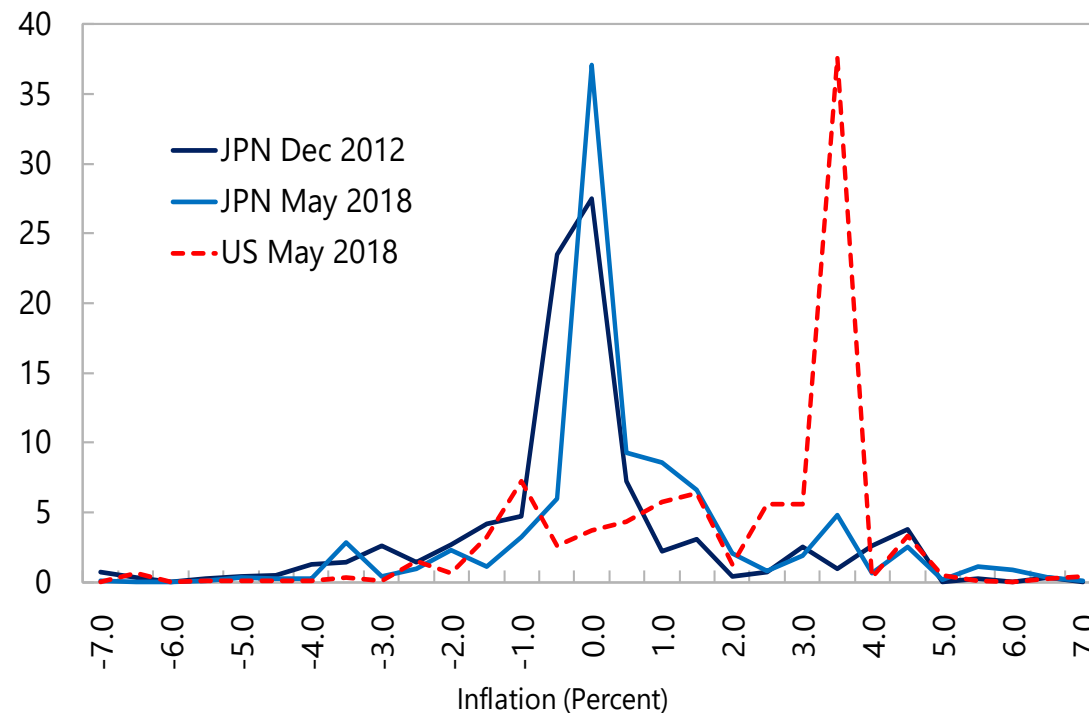
Japan: Age Profile of Inflation Expectations

(Percent of respondents who think that price will rise in the next 12 months)



Sources: Diamond, Watanabe and Watanabe (2018); University of Tokyo.

Japan vs. United States: Distribution of Item-by-Item Rates of Inflation

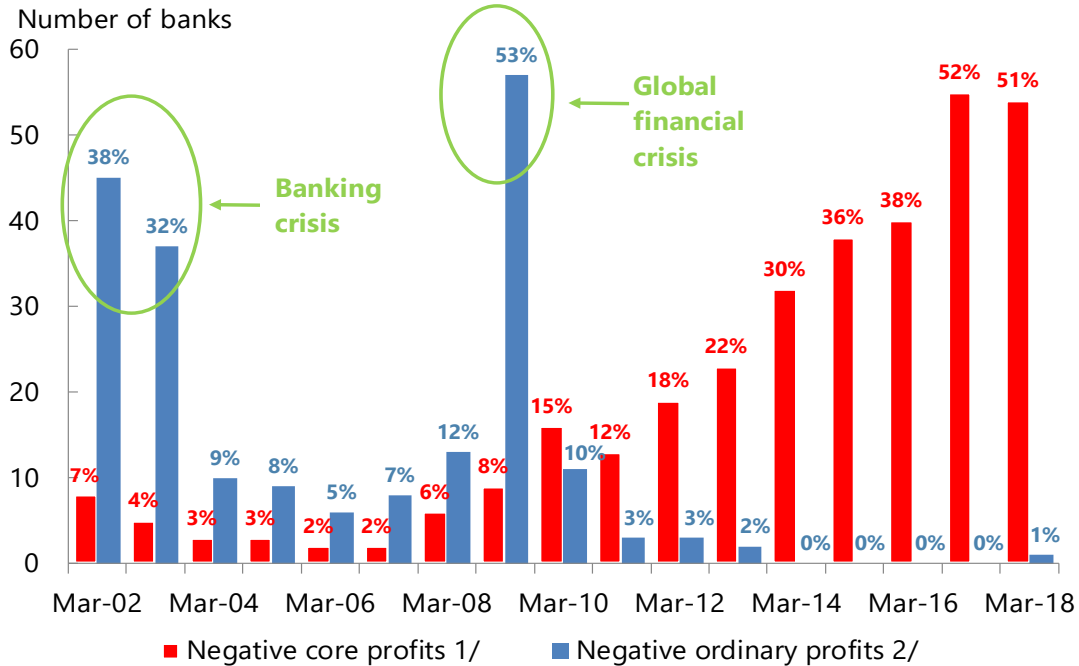


Sources: Watanabe and Watanabe (2018).



Japan's regional banks challenged by adverse demographic trends; demographics also lower the natural rate of interest

Japan: Number of Regional Banks with Negative Profits



Sources: Japanese Bankers Association; and IMF staff calculations.

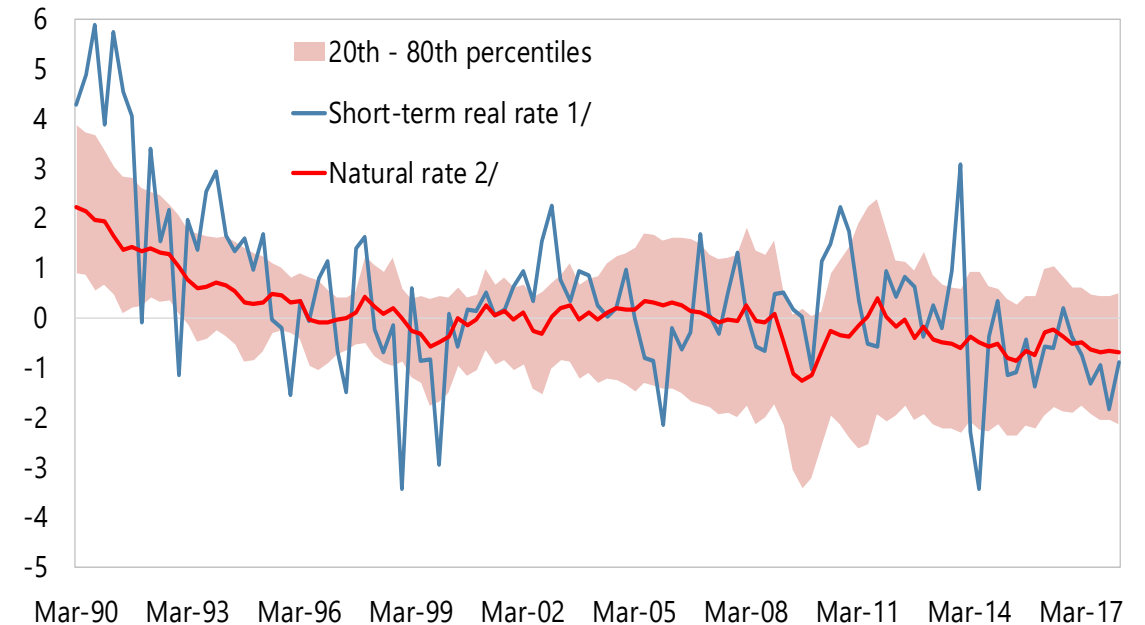
Note: The percentages above the red (or blue) bars represent the share of regional banks that have negative core (or ordinary) profits.

1/ Includes profits from lending operations and net fee income. Interest expenses from lending operations estimated as interest expenses on deposits multiplied by share of loans in total loans and securities.

2/ Ordinary profits include core profits, net trading income, and net other income.

Japan: Natural Rate of Interest

(In percent)



Sources: Consensus Economics, Inc.; IMF World Economic Outlook; Haver Analytics; United Nations World Population Prospects; and IMF staff estimates.

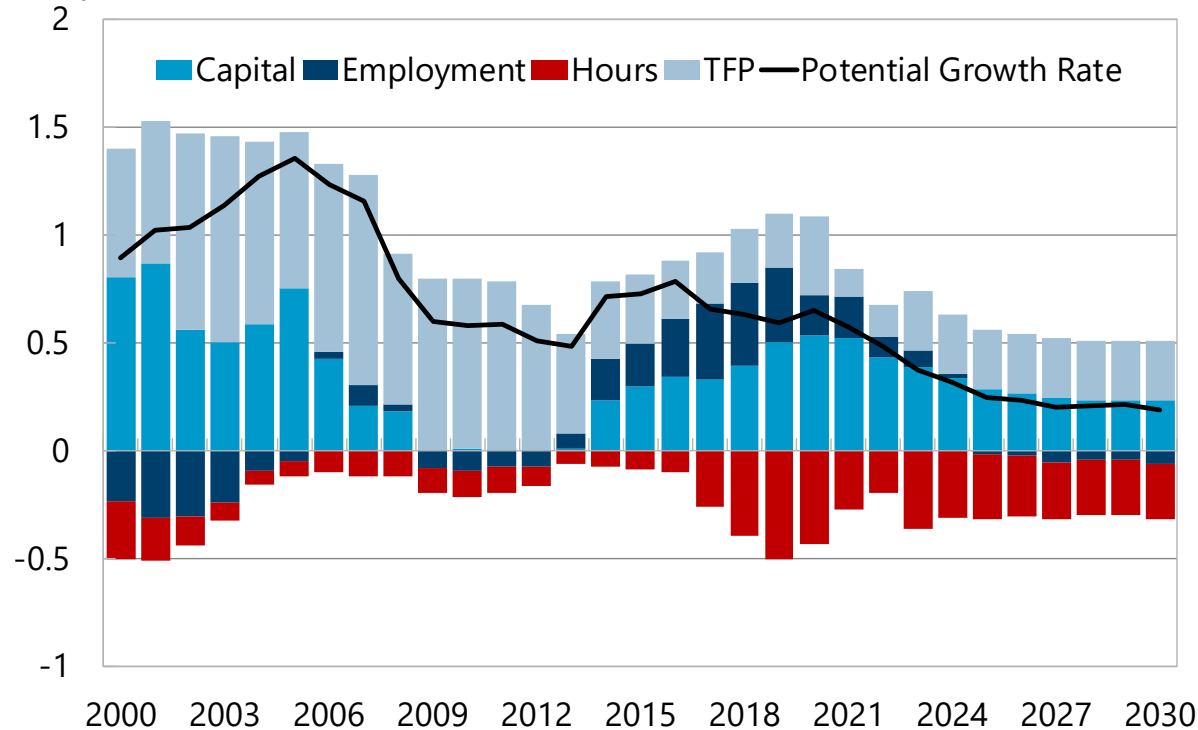
1/ *Ex ante* short-term real interest rate (= uncollateralized overnight call rate - inflation expectations).

2/ Bayesian medians estimated from a semi-structural model (using priors from regressions and literature) and sampled using two chains of 250,000 draws generated with an MCMC algorithm. See the forthcoming WP "Demographics and the Natural Rate in Japan" for details.

Estimating Japan's potential output

Japan: Potential Growth, 2000–30

(In percent)

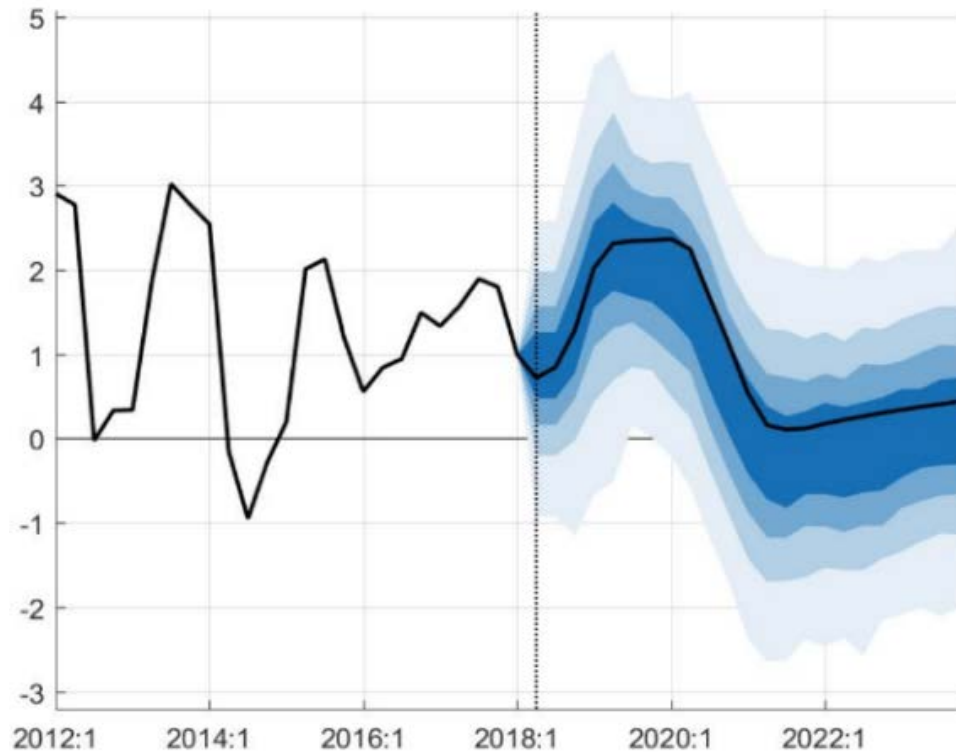


Source: IMF staff calculations.

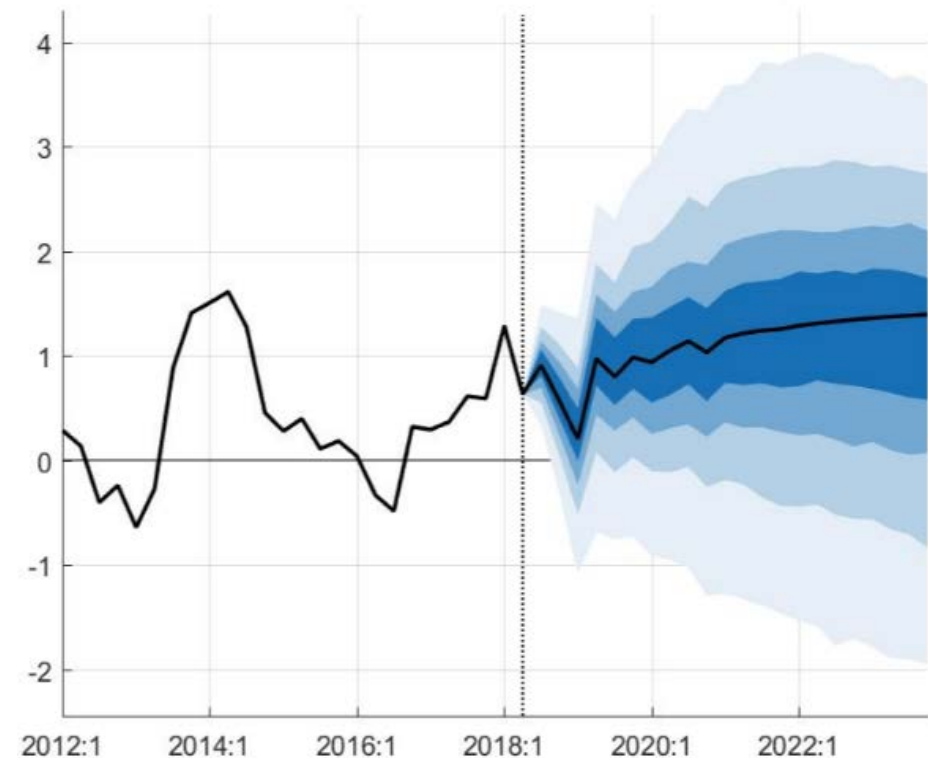
- IMF estimates Japan's potential growth is currently around 0.8 percent
- Potential growth expected to stabilize at about 0.6 percent over medium term
- IMF estimates the output gap is small and negative in 2018, and will close in 2019
- IMF estimate of potential output is higher, and estimated output gap more negative, than Cabinet Office and BoJ

Model-based growth and inflation projections for Japan: GDP growth will stabilize at potential growth rate, while inflation will rise

Japan: Real GDP Growth (%YoY)

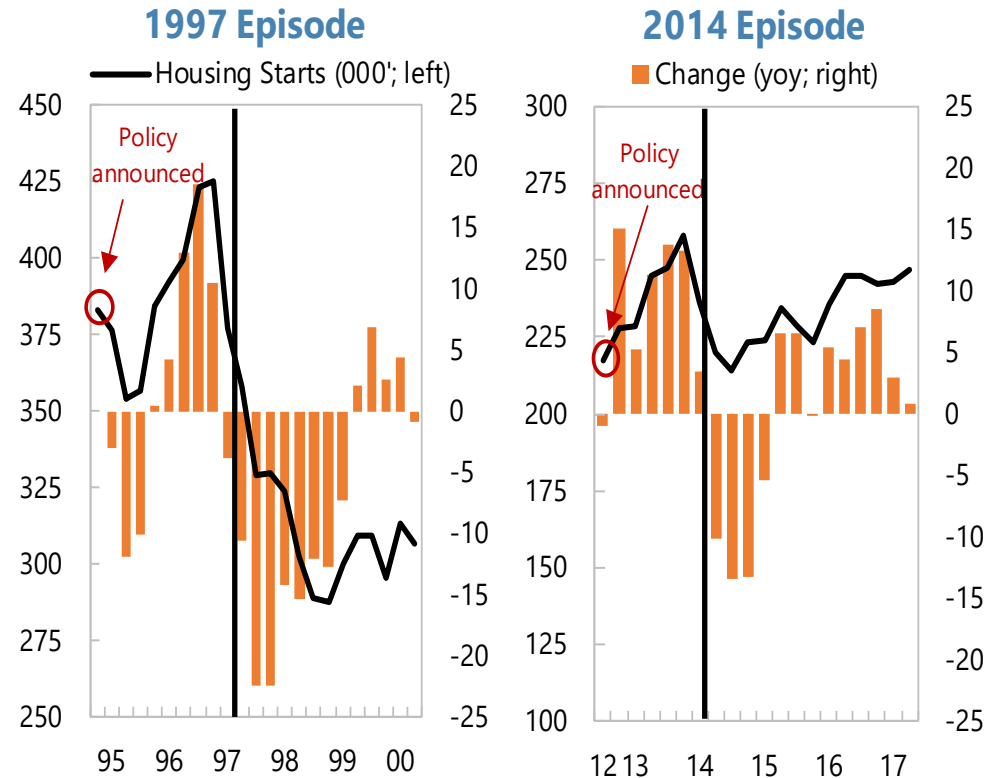


Japan: Headline CPI Inflation (%YoY)



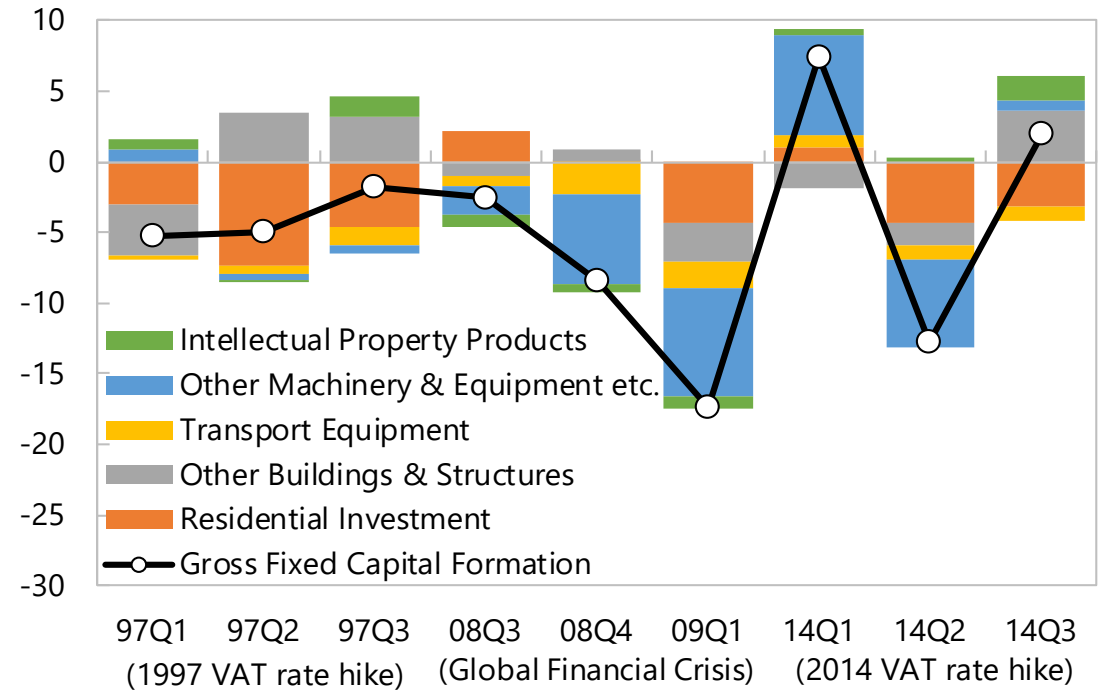
Previous VAT rate increases adversely affected investment, durables consumption and housing starts; need clear communication on mitigating measures

Housing Starts



Growth in Gross Fixed Capital Formation

(Percent; q/q; annualized, sa)



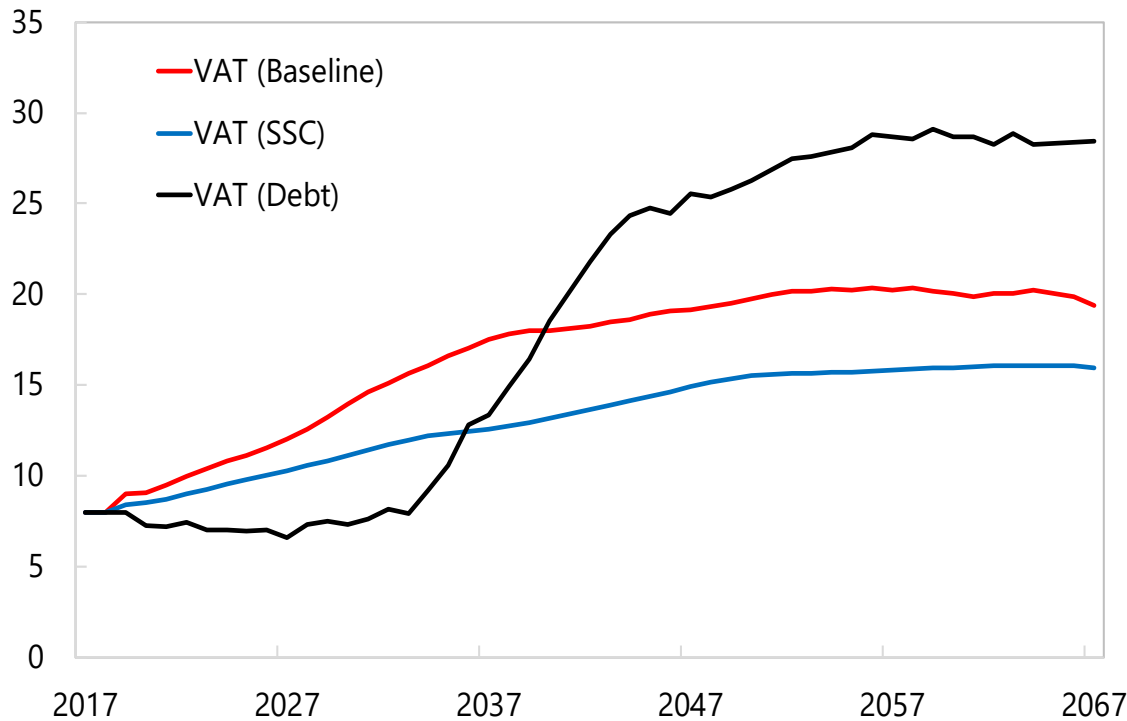
Sources: Cabinet Office, Japan; IMF staff calculation.



Demographics will raise age-related costs: VAT rate needs rise gradually to 15 percent by 2030. VAT is the least distortive mode of finance

Consumption Taxes Under Different Scenarios

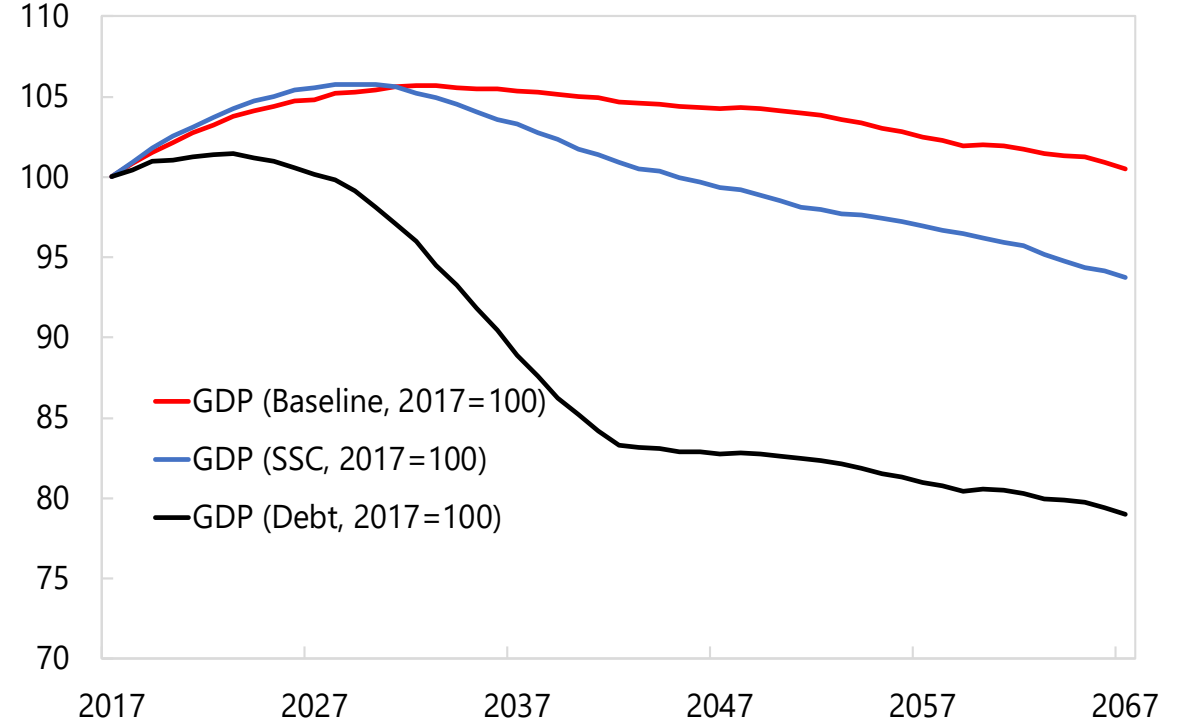
(In percent)



Source: IMF staff simulations.

GDP Under Different Scenarios

(Index, 2017=100)



Source: IMF staff simulations.

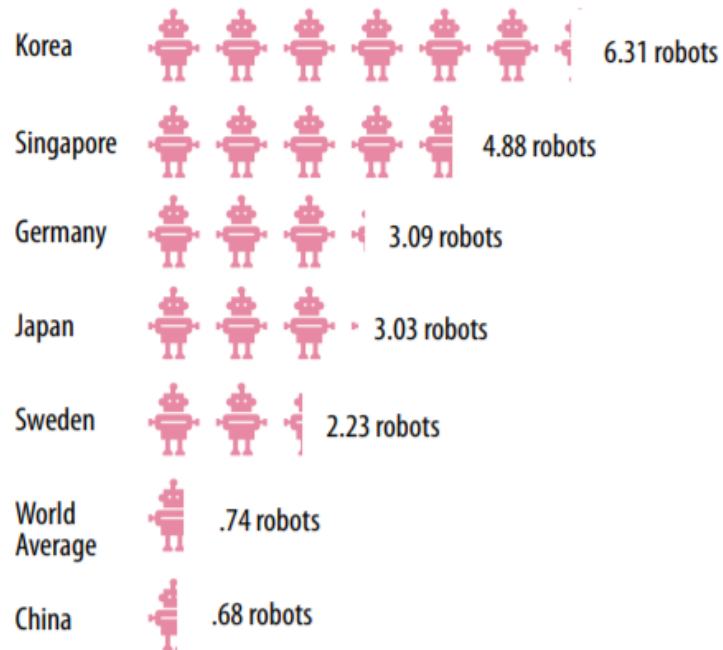


Automation can help compensate for Japan's shrinking labor force and unlock productivity, yet may adversely affect low-skilled and female workers

The robots are coming

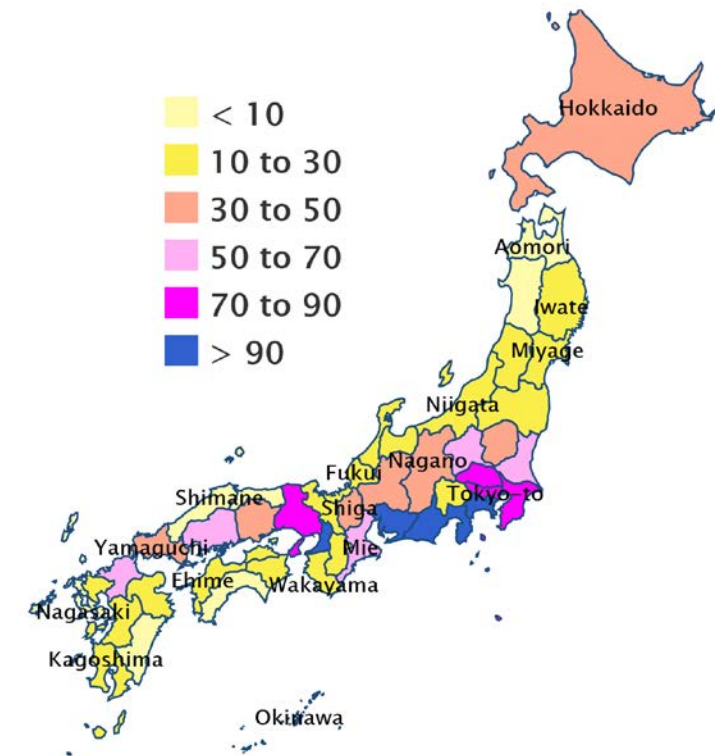
Japan's "robot density"—the number of robots relative to humans in manufacturing and industry—is one of the highest in the world.

(number of robots per 100 workers)



Source: International Federation of Robotics, *World Robotics 2017—Industrial Robots*

Manufacturing Robot Density by Prefecture (2014)



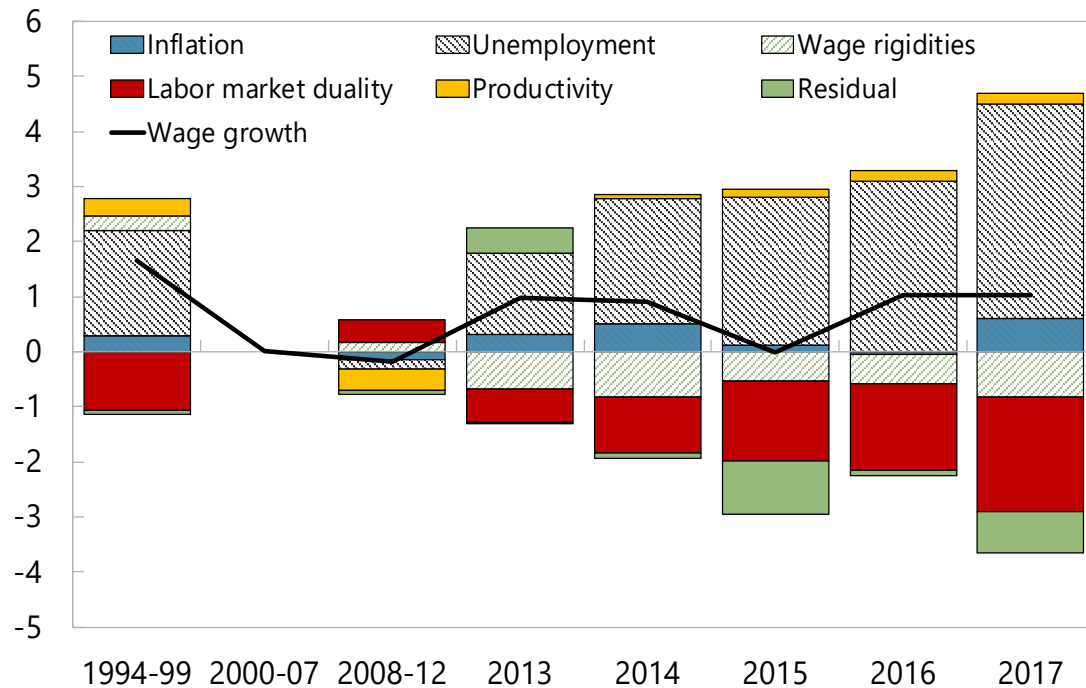
Sources: International Federation of Robotics, Japan Statistical Bureau; IMF staff calculations.



Why has wage inflation been “missing” in Japan? Dual labor market effects and low inflation expectations

Drivers of Annual Wage Growth in Japan, 1994-2017

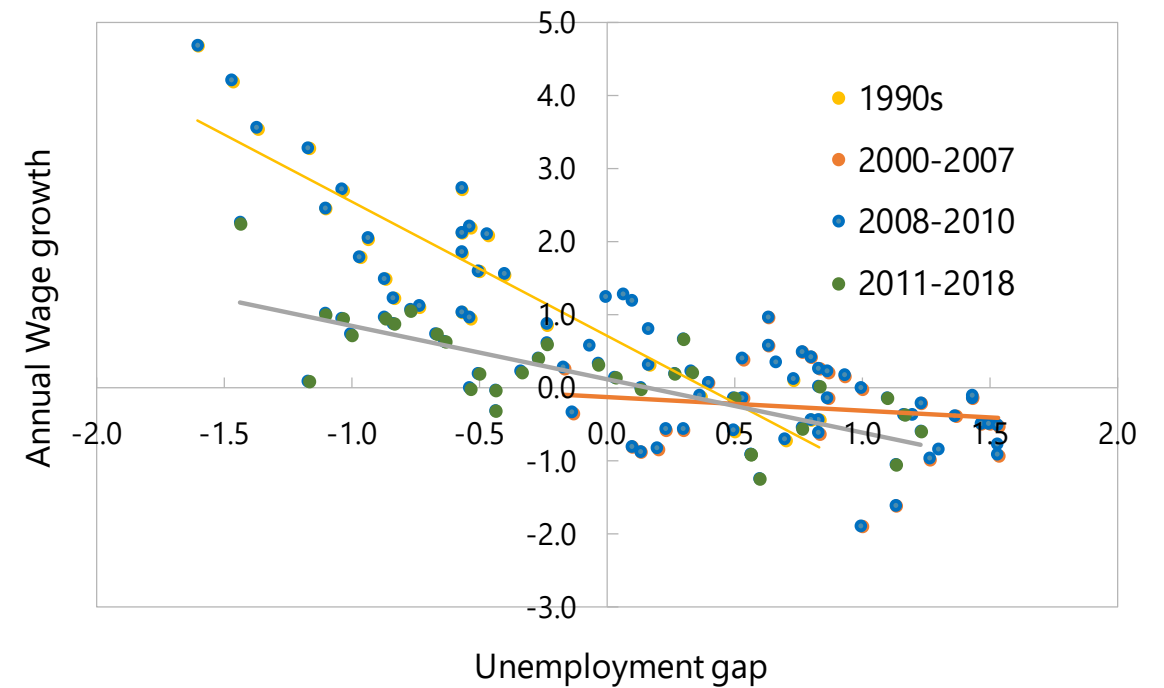
(In percent, relative to 2000-07 average)



Source: IMF Staff calculations.

Japan: Annual Wage Growth and Unemployment Gap, 1993-2018^{1/}

(In percent)



^{1/} The unemployment gap equals the demeaned unemployment rate.

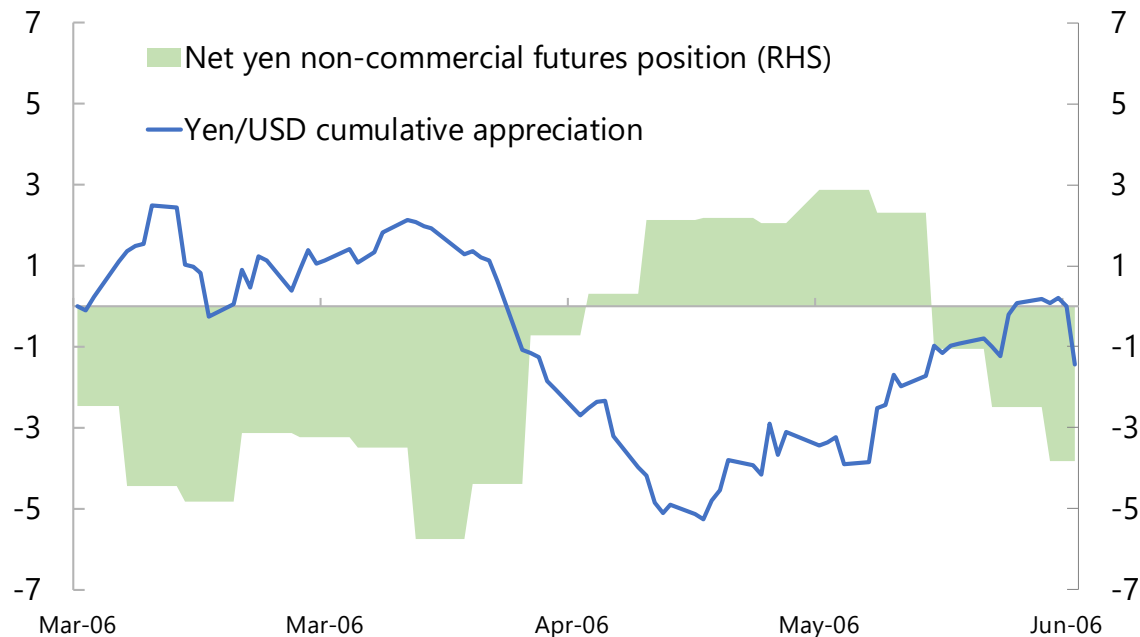
Sources: Haver Analytics and IMF staff calculations.



Rising global interest rates plus BoJ's yield curve control should help weaken the yen and raise inflation, but reversal of carry trade positions can have the opposite effect

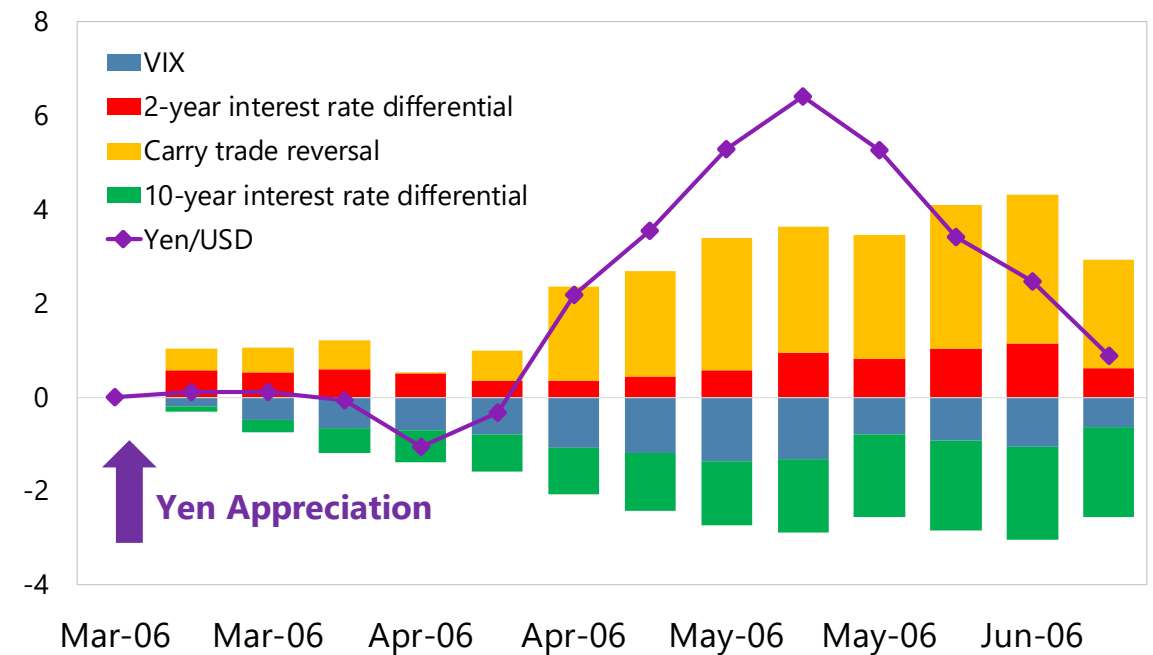
Carry Trade Reversal and Yen Appreciation- 2006

(In percent)



Yen Appreciation (2006)

(In cumulative percent change)

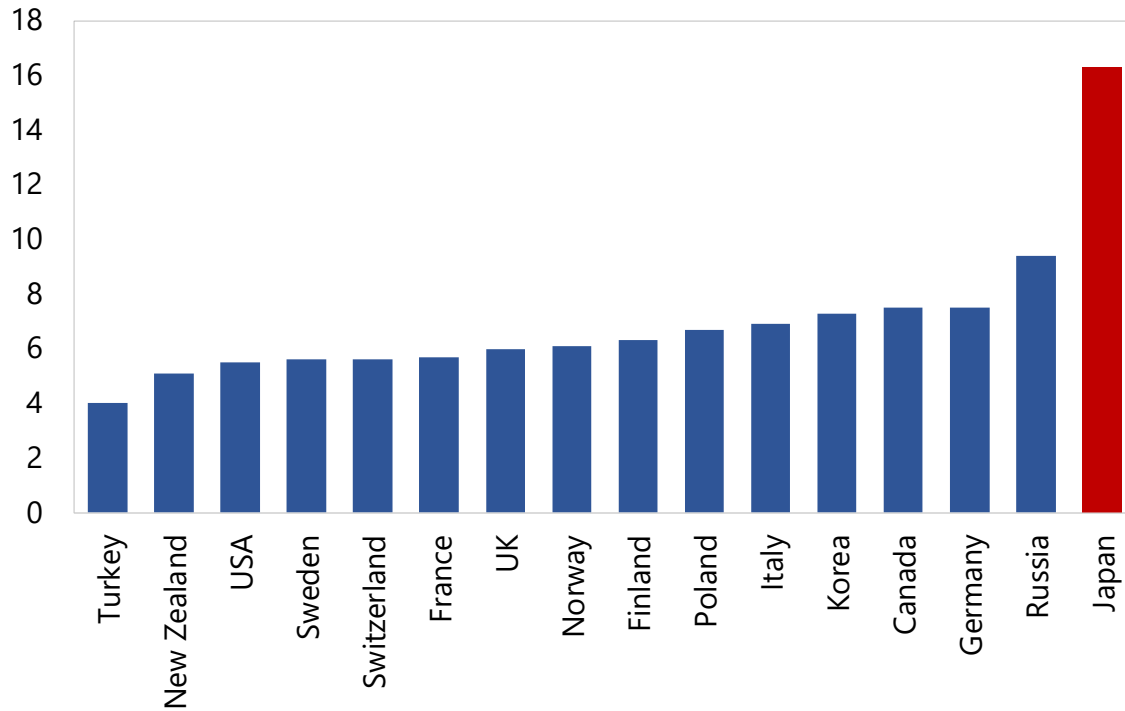


Source: Haver Analytics, Bloomberg L.P.

Source: Haver Analytics, U.S. CFTC, IMF staff estimates.

Is the current universal-coverage healthcare system fiscally sustainable? Healthcare costs will need to be managed by supply and demand measures and by additional tax revenues

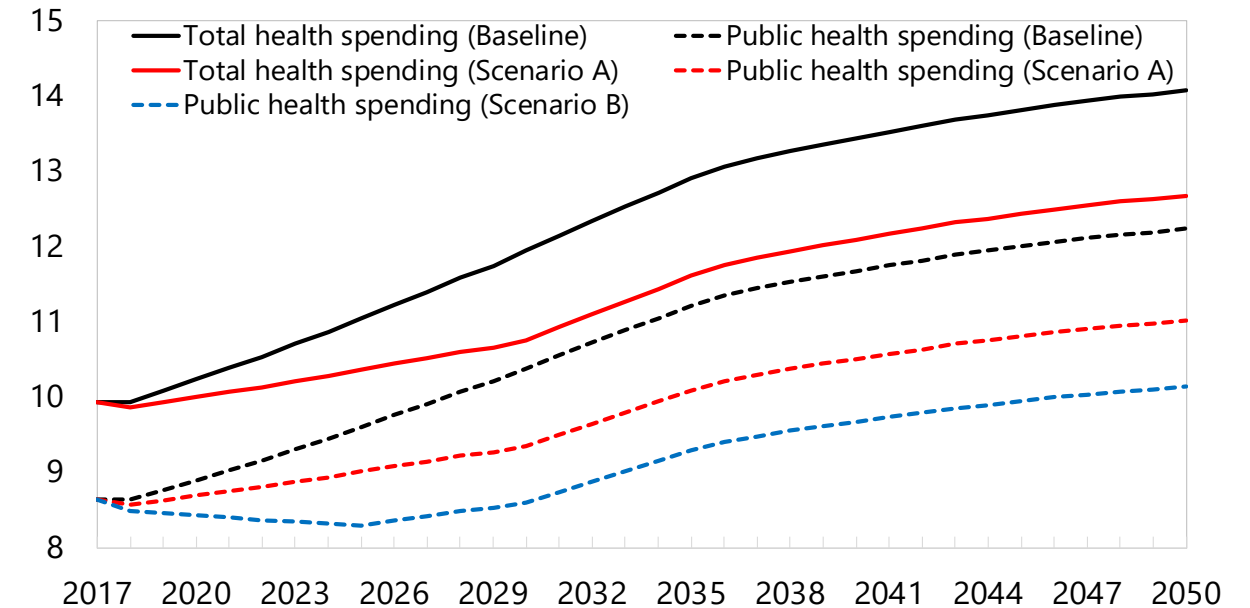
Average Length of Hospital Stay (days) - Latest Available



Source: OECD.

Japan: Health Spending under Reform Scenarios, 2017-50

(In percent of GDP)



Source: IMF staff estimates.

Total health spending = public health spending + out of pocket spending

Scenario A: rationalize total health spending by 10 percent by 2030 through cost-saving measures.

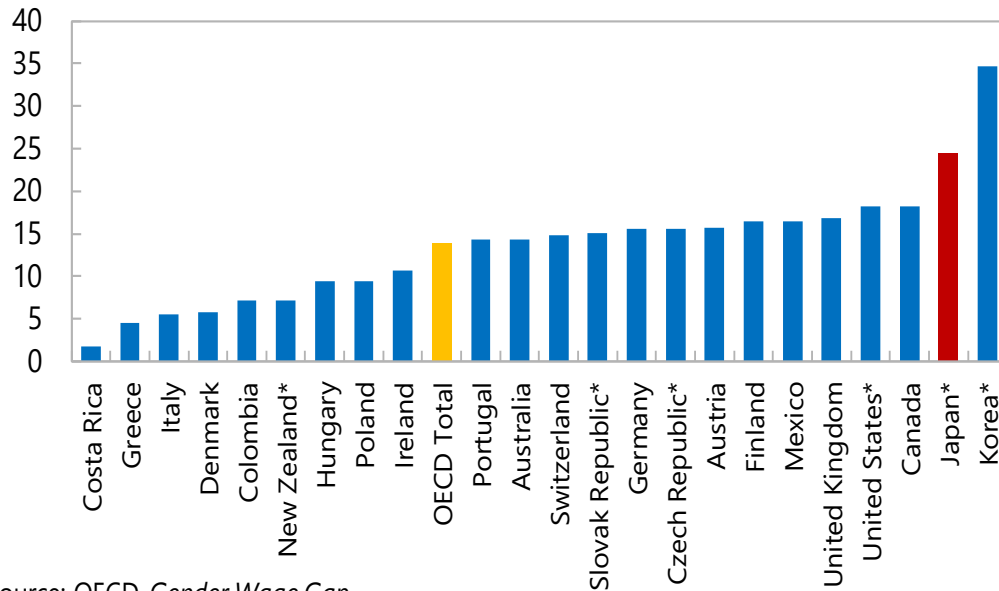
Scenario B: scenario A plus raise the share of out of pocket spending from 13.1 percent to 20 percent by 2025.



Gender wage inequality is high in Japan, as is wealth inequality. Older generations much wealthier than the young

Gender Wage Gap

(In percent of male median wage, data as of 2016)

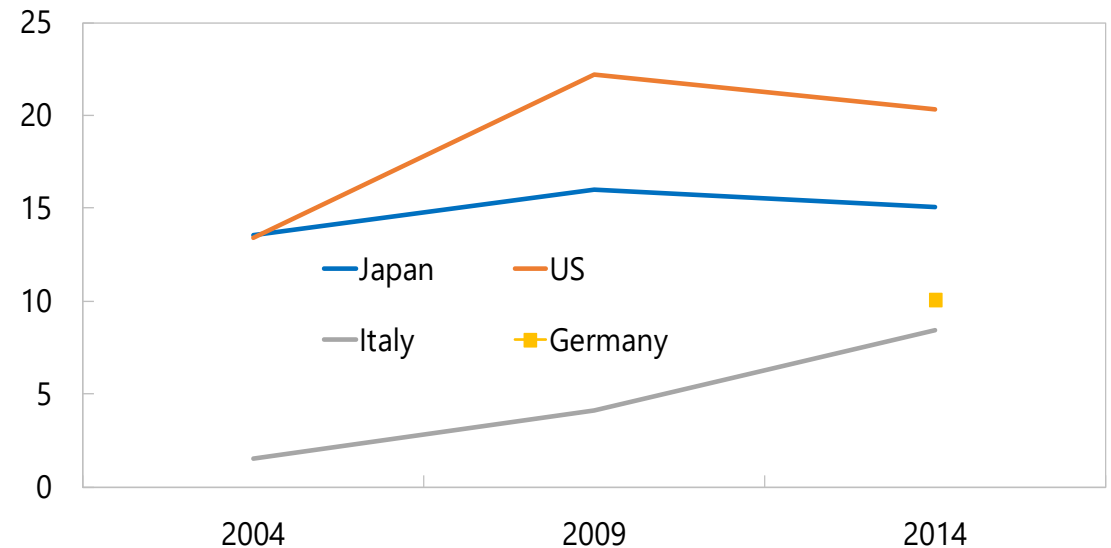


Source: OECD, *Gender Wage Gap*.

*Data as of 2017.

The gender wage gap is unadjusted and is defined as the difference between median earnings of men and women relative to median earnings of men. Data refer to full-time employees and to self-employed.

Median Net Wealth Ratio Between Household Ages Above 65 vs. Under 35



Sources: Japan Statistics Bureau, *National Survey of Family Income and Expenditure*; US Federal Reserve, *Survey of Consumer Finances*; European Central Bank, *Household Finance and Consumption Survey*; Bank of Italy, *Survey on Italian Household Income and Wealth*.

Note: Above 65 is 65-69 for Japan, 65-74 for US and Germany, over 64 for Italy. Under 35 is 25-29 for Japan, 25-34 for Germany, under 34 for Italy, and under 35 for US. Data as of 2014 for Japan, Germany, Italy. Data as of 2016 for US.

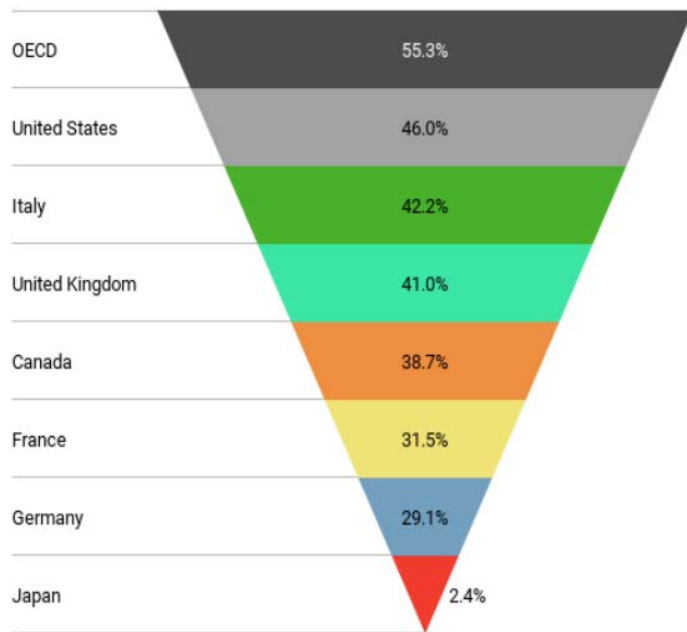


Japan in three charts: OECD-lowest, near-zero inflation; highest dependency ratio; wide gender wage gap

Long-time low

Despite monetary policy efforts, and a tight labor market, inflation remains low.

(cumulative annual CPI inflation, 1996-2016; in percent)

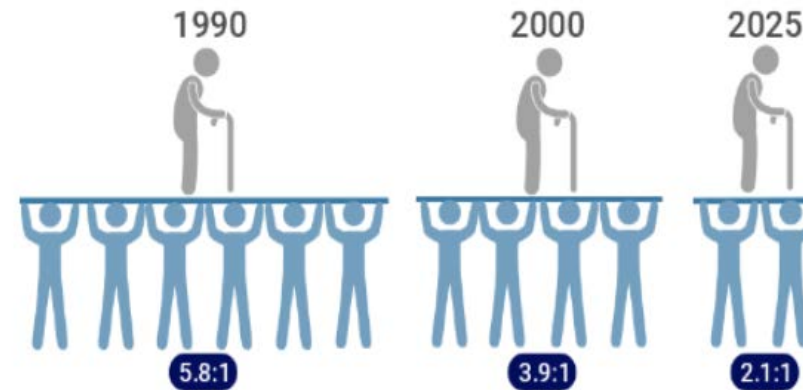


Source: IMF World Economic Outlook, October 2018.

A heavier lift

By 2050 Japan's dependency ratio—the number of aged dependents per worker—will rise to about 75 percent, by far the highest of any country.

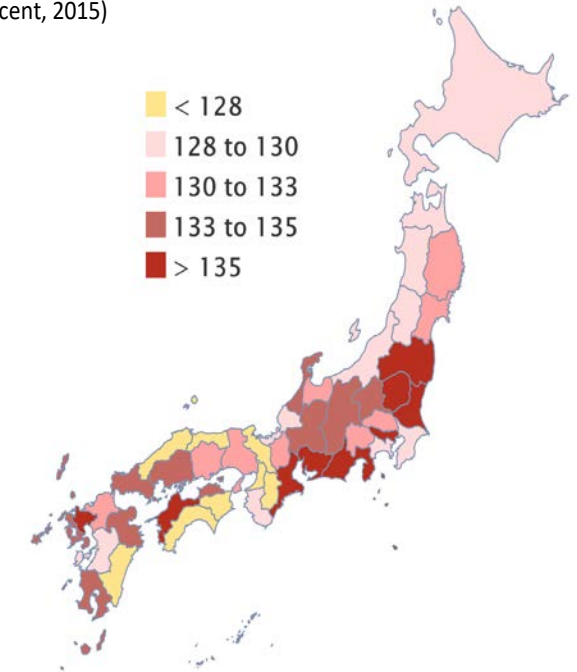
(Ratio of workers to pensioners)



Source: Japan Cabinet Office, White Paper on Aging 2017.

Japan: Monthly Wages per Hours Worked (Male vs. Female)

(In percent, 2015)



Source: Social Indicators by Prefecture (2017).

In summary: Policies (1)

The consultation centered on the macroeconomic effects of Japan's demographics—a rapidly-aging and shrinking population—impelling a fresh look at objectives and tools of Abenomics

- The **Japanese economy** continues to grow above potential, but inflation remains very low and downside risks have increased
- Mutually-supportive, reinvigorated, and credible policies are needed to **bring Abenomics to full strength**, boost productivity and raise potential growth
- **Near-term fiscal tightening** should be avoided to support reflation and growth
- **Budgetary and income policies** anchored by a well-specified and gradual medium-term fiscal consolidation plan would help support the Bank of Japan's reflation efforts, address demographic challenges, and ensure debt sustainability

In summary: Policies (2)

- **Macro-structural reforms**—with ambitious labor, product market, and corporate reforms—are imperative to unleash productivity gains, lift long-run growth, stabilize government debt, and counter deflationary effects
- The Bank of Japan's **accommodative monetary policy** should be maintained, but more can be done to further strengthen the monetary policy framework and lift inflation expectations
- **Strengthened financial sector policies** would lessen the financial risks from demographic headwinds, prolonged low interest rates, and low profitability
- Japan's **2018 external position** is projected to be broadly consistent with fundamentals and desirable policies
- Japan's leadership in **advancing multilateralism** can help mitigate inward spillovers from a rise in protectionism

Thank You!

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- Working Papers:
 - [On Financing Retirement, Health, Long-term Care in Japan](#)
 - [Macroeconomic Effects of Japan's Demographics](#)
- Press Release: [English](#) | [日本語](#)
- [Japan's Economic Outlook in Five Charts](#)
- Video: [Japan's Economic Health Check](#)
- Finance & Development Article: [Land of the Rising Robots](#)

