AMRO Annual Consultation Report

Japan - 2018

The ASEAN+3 Macroeconomic Research Office (AMRO)

February 2019

Acknowledgments

1. This Annual Consultation Report on Japan has been prepared in accordance with the functions of AMRO to monitor, assess and report its members' macroeconomic status and financial soundness and to identify the relevant risks and vulnerabilities, and assist them in the timely formulation of policy recommendation to mitigate such risks (Article 3(a) and (b) of AMRO Agreement).

2. This Report is drafted on the basis of the Annual Consultation Visit of AMRO to Japan from 31 October to 9 November 2018 (Article 5 (b) of AMRO Agreement). The AMRO Mission team was headed by Dr. Jae Young Lee, Group Head and Lead Economist. Members include Dr. Jinho Choi (Senior Specialist and Country Economist for Japan), Dr. Xianguo (Jerry) Huang (Back-up Economist), Dr. Wei Sun (Financial Specialist), Ms. Diana del Rosario (Economist), Mr. Kazuo Kobayashi (Technical Assistance Specialist) and Mr. Sophak Duong (Associate). AMRO Director Dr. Junhong Chang and Chief Economist Dr. Hoe Ee Khor also participated in key policy meetings with the authorities. This AMRO Annual Consultation Report on Japan for 2018 was peer reviewed by Dr. Sumio Ishikawa (Group Head and Lead Economist) and Dr. Wenlong Li (Senior Economist); and approved by Dr. Hoe Ee Khor, AMRO Chief Economist.

3. The analysis in this Report is based on information available up to 28 December 2018.

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 judgements as to the legal or other status of any territory or area.

5. No part of this material may be disclosed unless so approved under the AMRO Agreement.

6. 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.

Table of Contents

Executive Summary

1. **The Japanese economy continues to grow above its potential, while quarterly GDP fluctuated widely in the first three quarters of 2018.** Last year's highly volatile GDP growth trajectory has been largely driven by one-off factors, such as bad weather and natural disasters. That said, by and large, the economy continues to grow around its potential. Private consumption is picking up, albeit with volatility, supported by increases in household income amid a tight labor market. Business fixed investment remains on a rising trend, backed by strong demand for labor saving types of investment. Exports growth remained positive, while imports continued to see moderate growth. Looking ahead, real GDP is expected to maintain moderate growth of 0.8 percent in FY2018, before easing to 0.7 percent in FY2019.[1]

2. **Consumer price inflation has continued to rise steadily to 1 percent, broadly approaching the medium-term inflation expectations of households and corporates.** However, despite tighter labor market conditions and a positive output gap, core inflation (excluding fresh food and energy) stayed within the 0.2-0.5 percent range during the year. Medium-term inflation expectations hovered around 1 percent. Going forward, consumer price inflation is expected to rise moderately to 0.9 percent in FY2018 and 1 percent (excluding the effects of the consumption tax hike) in FY2019. Given lagged adjustments in wages and goods prices amid low inflation expectations of around 1 percent, it is unlikely that inflation will reach the BOJ's 2 percent target in the near- to medium-term.

3. **The external position remains strong given the significant current account surplus, supported by large primary income inflows.** The current account surplus stayed at between 3 and 4 percent of GDP in the first three quarters of 2018. The goods trade balance remained in surplus but narrowed as imports continued to grow faster than exports amid strong business investment and strengthening private consumption. Capital outflows continued to be driven by residents' outward investments in search of higher returns amid the sizable current account surplus.

4. **The overall financial condition remains accommodative amid very low interest rates, while financial institutions' core profitability is trending lower.** Bank loan growth remained robust at around 3 percent in the second half of 2018. The private non-financial credit-to-GDP ratio stays above its trend. Meanwhile, banks have sufficient capital buffers, while non-performing loan ratios have remained low at around 1 percent. However, the prolonged low interest rate environment and intensified competition among financial institutions continue to depress net interest margins, thereby exerting downward pressure on the banking sector's core profitability, especially in the case of regional banks, which depend mostly on the domestic lending business.

5. **Fiscal consolidation has lagged behind the schedule and fiscal policy has remained expansionary.** The overall fiscal deficit has been reduced, largely driven by strong tax revenue collection owing to robust economic growth and declining interest expense on JGB bonds. Amid continued expansionary fiscal policy, however, the primary deficit of the central and local governments has remained significantly wider than the one in "The Plan to Advance

[1] In the baseline projection, the effect of temporary offsetting measures including temporary fiscal stimulus (worth JPY2 trillion) is not considered. If these measures are successfully implemented, they may pose upside risks to the growth outlook in FY2019.

Economic and Fiscal Revitalization" announced in 2015 with the target to achieve a primary surplus by FY2020.

6. **Downside risks to the near-term outlook have intensified, mainly due to external risk factors with some tail events.** These include a further escalation of the U.S.-China trade conflicts, a sharper-than-expected economic slowdown in major trading partners, and heightened global uncertainties triggered by a crisis in some emerging markets or geopolitical tensions. Domestically, the scheduled consumption tax hike in October 2019 may cause demand fluctuation, while mitigating measures will be implemented. Structural challenges include demographic headwinds from population aging and low fertility rates, weakening of fiscal discipline, and prolonged easing of monetary policy.

7. **Abenomics should be periodically reviewed and recalibrated, considering the achievements and shortfalls thus far in order to enhance its effectiveness and sustainability in reviving the dynamism of the economy.** Abenomics has been successful in lifting the economy's growth potential, raising inflation expectations to a significantly positive level, containing a further build-up of public debt in terms of GDP, and improving the long-term prospects of the economy. However, the policies have also fallen short of achieving their targets in some areas and have had some unintended consequences on the financial markets. It is therefore a good time for the authorities to take stock of the progress made, and to recalibrate the targets and enhance the effectiveness of the policies.

8. **Fiscal policy should prioritize restoring fiscal sustainability, while effectively addressing the expected short-term negative impact from the scheduled consumption tax hike in 2019.** A comprehensive and consistent medium-term fiscal consolidation plan should be formulated, based on macroeconomic scenarios that are realistic. In the near-term, however, supplementary policy measures that have been decided to mitigate the impact of the consumption tax hike in 2019 should be implemented as intended to support consumer sentiments and spending.

9. **The current accommodative monetary policy could be maintained for an extended period, but the policy should be constantly reviewed and recalibrated to maintain its effectiveness and credibility.** In particular, a further recalibration of the quantitative and qualitative monetary easing with yield curve control, or 'QQE with YCC' policy toward more flexibility is recommended to improve market functioning in the JGB markets. The authorities should also enhance its supervision of financial institutions' risk-taking behavior and the potential build-up of credit risks in light of the continued growth in loans against a backdrop of narrowed interest margins.

10. **Structural reforms focused on tackling demographic challenges should be enhanced and implemented in a credible and bold manner.** The authorities' proactive approach toward 'Human Resource Development' and 'Supply System Innovation' is commendable. To cope with the challenges of an aging society, creating continued employment opportunities for senior citizens should be a priority, and rigid labor practices under the traditional lifetime employment system need to be changed. The implementation of free early-childcare services should be designed to promote more active labor force participation of women. Embracing foreign workers will also contribute to enhancing the growth potential of the economy and facilitate the demographic transition.

A. Recent Developments and Outlook

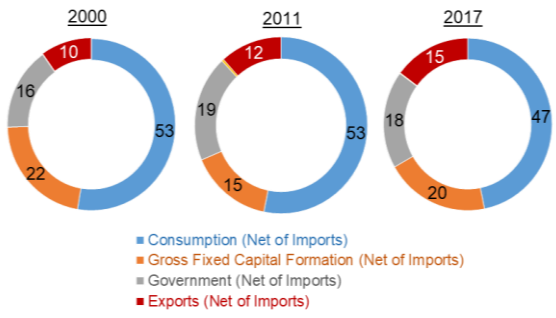
A.1 Real Sector Developments and Outlook

1. **The Japanese economy continues to grow above its potential, while quarterly GDP fluctuated widely in the first three quarters of 2018.** Real GDP declined by an annualized 1.3 percent in Q1, reflecting adverse weather conditions, but rebounded in Q2 by 2.8 percent, mainly led by strong business investment and recovering private consumption. However, Q3 GDP contracted by 2.5 percent, largely due to a series of natural disasters, which disrupted production. That said, by and large, the Japanese economy continues to grow above its potential. Private consumption is picking up, albeit with volatility, supported by increases in household income amid a tight labor market. Business fixed investment remains largely on a rising trend, backed by continued expansion in exports and strong demand in labor saving investment. Exports growth remained positive, while imports continued to see moderate growth.

2. **In terms of value-added contribution, exports have become a more important driver of economic growth while the share of consumption has declined.** The alternative GDP decomposition, using the import-adjusted method, shows that contribution of exports to value-added GDP has gradually increased from 10 percent in 2000 to 15 percent to 2017 while the contribution of consumption has fallen from 53 percent in 2000-2011 to 47 percent in 2017 (Figure 1). This suggests that exports could remain one of the main drivers of growth in terms of value-added even in the period when net exports in conventional GDP accounting may turn negative due to higher demand for imported goods.

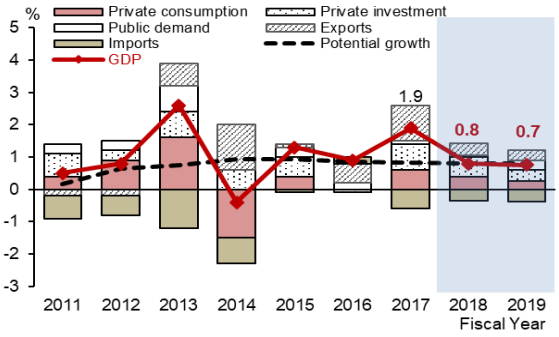
3. **Looking ahead, real GDP is expected to maintain moderate growth of 0.8 percent in FY2018, before easing to 0.7 percent in FY2019.**[2] Buoyant domestic and external demand is expected to drive growth in FY2018 (Figure 2). Growth in FY2019 would be moderate due to the scheduled consumption tax hike in October 2019, negative spillovers from the U.S.-China trade conflicts, and moderating investments with the completion of projects for the 2020 Tokyo Olympics.

Figure 1. Value-added Contribution to Real GDP



Source: Based on the alternative GDP decomposition method of subtracting the import contents from final demand.
Source: Cabinet Office; AMRO staff calculations

Figure 2. Real GDP Growth



Note: Cabinet Office; AMRO staff estimation

4. **The labor market tightened further amid steady job growth, while overall wages grew at a moderate pace.** The active job openings-to-applicants ratio was as high as 1.63 in

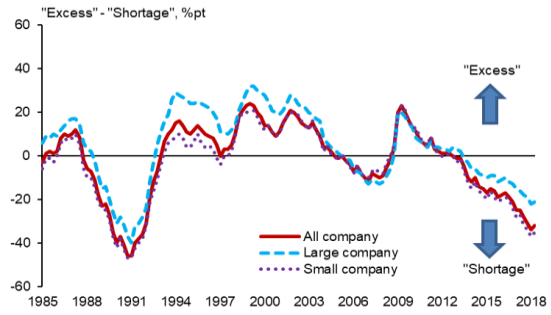
[2] In the baseline projection, the effect of temporary offsetting measures including temporary fiscal stimulus (worth JPY2 trillion) is not considered. If these measures are successfully implemented, they may pose upside risks to the growth outlook in FY2019.

November 2018, while the unemployment rate remained low at 2.5 percent. Although payroll employment growth moderated to 2 percent in October after peaking at 2.8 percent in April, overall employment sustained a modest upward trend. Meanwhile, the real wage income of employees continued to improve during the first three quarters of 2018, reflecting higher employment and increases in nominal wages. Scheduled hourly wages for part-timers rose by 2.4 percent in Q3, while scheduled monthly earnings for full-timers increased by 1.2 percent. Last year's spring labor-management negotiations (*shunto*) ended with a modest 2.1 percent increase in wages across all companies, the same as in the preceding two years, falling short of the government's call for an increase of at least 3 percent.

5. **Consumer price inflation has continued to rise steadily to 1 percent, broadly approaching the medium-term inflation expectations of households and corporates (Figure 4).** Following a slight drop in Q2, CPI (less fresh food) inflation gradually recovered to 1 percent in September and October, due to higher energy and services prices. However, despite tighter labor market conditions and a positive output gap, core inflation – excluding fresh food and energy – stayed within the 0.2-0.5 percent range in the first three quarters of last year. Medium-term inflation expectations hovered around 1 percent.

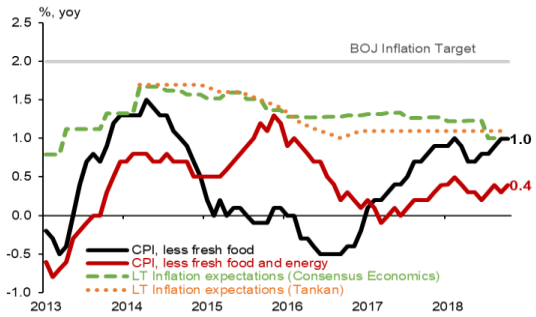
6. **Despite the strengthening momentum in inflation, the Bank of Japan's 2 percent inflation target remains a difficult goal to attain in the near-term.** Going forward, consumer price inflation is expected to rise moderately to 0.9 percent in FY2018 and 1 percent (excluding the effects of the consumption tax hike) in FY2019. Given lagged adjustments in wages and goods prices amid low inflation expectations of around 1 percent, it is unlikely that inflation will reach the BOJ's 2 percent target in the near- to medium-term.

Figure 3. Employment Condition



Note: Based on the BOJ Tankan Survey for all industries.
Source: Bank of Japan (BOJ)

Figure 4. CPI Inflation and Inflation Expectations



Note: Yoy growth of the CPI, excluding the effects of consumption tax hikes is used.
Source: Ministry of Internal Affairs and Communications; BOJ; Consensus Economics

Authorities' Views

7. **The authorities' near-term growth and inflation outlook are broadly similar to those of AMRO.** The BOJ is of the view that domestic demand will hold up growth with a virtuous cycle from income to spending in private sectors amid highly accommodative financial conditions and supportive government spending. With the recent downward revision in January 2019, the BOJ's projections are largely in line with those of AMRO. The real GDP forecast is 0.9 percent in FY2018 and 0.9 percent in FY2019. On inflation, the BOJ forecast the FY2018 CPI (less fresh food) inflation at 0.8 percent, with FY2019 to 0.9 percent, excluding the effects of the

consumption tax hike and policies concerning the provision of free education in 2019. Meanwhile, in December 2018, the Cabinet Office revised down the GDP growth forecasts to 0.9 percent for FY2018 and 1.3 percent for FY2019, reflecting a sharp drop in the second estimate for Q3 GDP, while adjusting CPI inflation forecasts to 1.0 percent and 1.1 percent in FY2018 and FY2019, respectively.

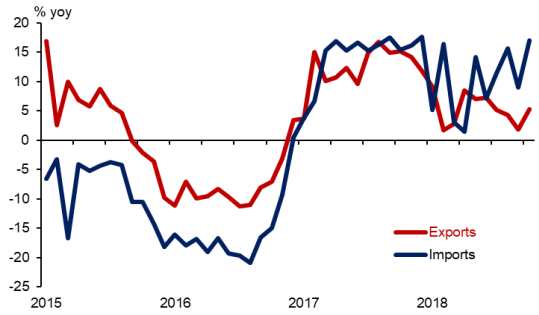
A.2 External Sector and the Balance of Payments

8. **Merchandise export growth slowed somewhat due to natural disasters, amid escalating U.S.-China trade tension.** Merchandise export growth declined to 5.1 percent during the first three quarters of 2018 from 11.8 percent in the 2017 full-year. Import growth slowed to 9.1 percent during the same period from 14.1 percent in 2017 while picking up gradually with higher oil prices (Figure 5). After showing a 1.3 percent decline from a year ago in September on account of a severe typhoon, exports rebounded in October by 8.2 percent. Despite slower growth in the export volume to both U.S. and China, adverse impacts of the U.S.-China tariff measures that were already implemented seem to have not substantially materialized yet.

9. **The external position remains strong given the significant current account surplus, supported by large primary income inflows.** Of the current account surplus of JPY16.5 trillion in the first three quarters of 2018 (4.1 percent of GDP), net inflows from the primary income accounted for JPY16.9 trillion, reflecting Japan's large overseas investments. The goods trade surplus remained modest at JPY1.9 trillion, as imports continued to grow faster than exports amid strong business investment and strengthening private consumption.

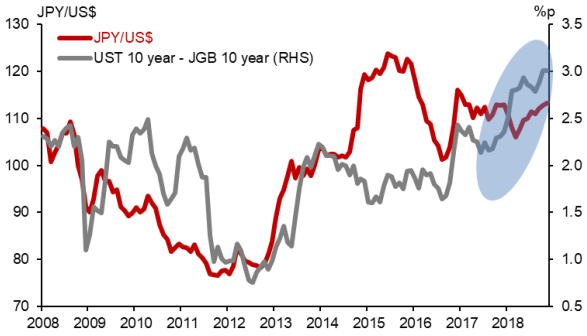
10. **Capital outflows continued to be driven by residents' outward investments in search of higher returns amid the sizable current account surplus.** Portfolio investment reverted to net outflows of JPY16.2 trillion during the first three quarters of 2018 from net inflows in 2017. Japanese investors purchased foreign stocks and bonds by a net total of JPY17.3 trillion in the period. Foreign investors continued to be net buyers of Japanese bonds, largely on short-term tenures, and net sellers of stocks during the same period. After heightened concerns over global trade conflicts led to a sharp appreciation to the 104-level in Q1, the JPY has been depreciating against the USD, reflecting widening interest rate differentials with the USD assets (Figure 6).

Figure 5. Merchandise Trade



Note: Based on the yoy change of export and import values in JPY.
Source: Ministry of Finance

Figure 6. JPY and Interest Rate Differentials



Source: Federal Reserve Board; Ministry of Finance; Haver Analytics

A.3 Monetary Condition and Financial Sector

11. **The overall financial condition remains accommodative amid very low interest rates.** Bank loan growth was around 3 percent in Q3 2018, slightly lower than the 3.2 percent growth seen in 2017.[3] Loans to corporates grew by 3.4 percent in Q3, while loans to individuals expanded by less than 1 percent. Loans to the real estate sector, meanwhile, grew by 5.7 percent in Q3, but is on a moderating trend. The private non-financial credit-to-GDP ratio remains above its trend (Figure 7), suggesting that the credit cycle continues to be expansionary.

12. **The financial markets have been broadly stable.** Since the introduction of the BOJ's Quantitative and Qualitative Monetary Easing (QQE) with Yield Curve Control (YCC) policy in September 2016, the 10-year JGB yield has been anchored at around 0 percent, restoring the positive yield curve. In July 2018, the BOJ recalibrated the 'QQE with YCC' policy by allowing the 10-year JGB yield to 'move upward and downward to some extent'. Since the policy tweak, long-term JGB yields have shown a moderate rise across the board. While stock prices remain broadly supported by strong corporate earnings, volatility has increased recently, mainly due to the U.S.-China trade tension.

13. **Although the overall financial system remains sound, financial institutions' core profitability is trending lower.** Banks have sufficient capital buffers, while non-performing loan ratios have remained low at around 1 percent (Table 1). However, the prolonged low interest rate environment and intensified competition among financial institutions continue to depress net interest margins (Figure 8), thereby exerting downward pressure on the banking sector's core profitability, especially in the case of regional banks, which depend mostly on the domestic lending business. Life insurance companies and pension funds, meanwhile, have been increasingly investing abroad, mostly in high-grade bonds, as they search for higher returns.

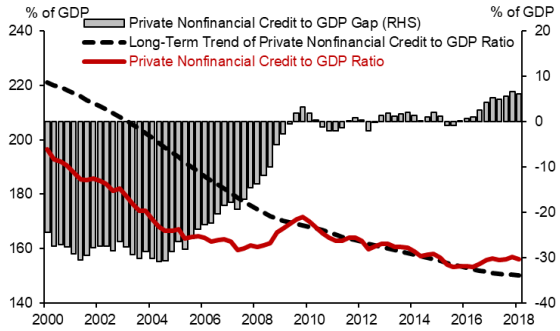
[3] Based on the yoy growth of Loans and Discount (Outstanding) by domestically licensed banks.

Table 1. Selected Financial Soundness Indicators

	2015Q1	2015Q3	2016Q1	2016Q3	2017Q1	2017Q3	2018Q1
Regulatory Capital to Risk-Weighted Assets	15.5	15.9	15.9	16.2	16.0	16.7	17.1
Regulatory Tier 1 Capital to Risk-Weighted Assets	12.5	12.9	13.3	13.4	13.5	14.2	14.9
Non-performing Loans Net of Provisions to Capital	12.8	12.2	11.5	10.9	9.0	8.1	7.6
Non-performing Loans to Total Gross Loans	1.6	1.5	1.5	1.4	1.3	1.2	1.1
Return on Assets	0.3	0.4	0.3	0.3	0.2	0.3	0.2
Return on Equity	6.3	8.9	6.9	8.3	5.1	8.1	5.4
Interest Margin to Gross Income	62.9	62.3	60.4	61.0	62.6	59.9	62.2
Non-interest Expenses to Gross Income	60.6	59.6	62.8	62.1	67.8	65.3	69.0
Liquid Assets to Total Assets (Liquid Asset Ratio)	26.9	27.6	27.2	27.1	28.7	28.7	29.6
Liquid Assets to Short Term Liabilities	48.1	49.4	49.1	48.2	49.7	49.3	49.9
Total Loans (non-interbank) to Customer Deposits	75.7	76.1	74.9	74.0	73.3	72.9	71.7
Corporate loan to total loan	36.8	36.8	36.7	37.3	36.8	36.8	36.6

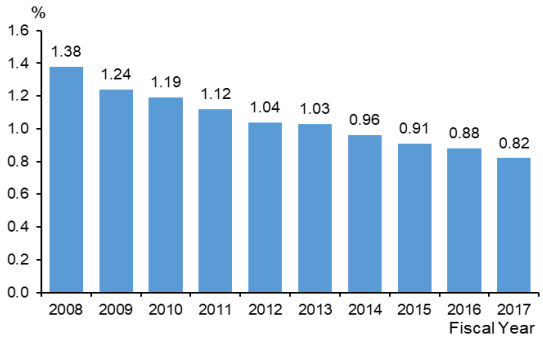
Source: IMF FSI Database

Figure 7. Private Non-financial Credit to GDP



Note: On the basis of market values.
Source: Bank for International Settlement (BIS)

Figure 8. Aggregate Net Interest Margin for All Banks

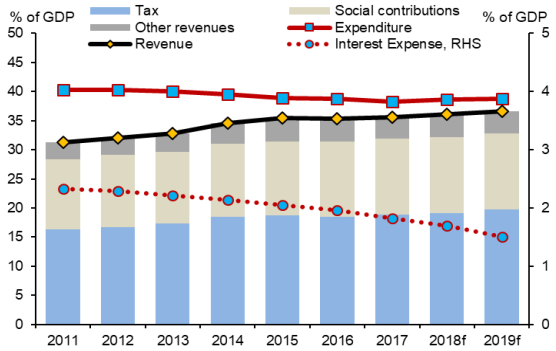


Note: Based on the difference between rates banks charge for loans and rates banks pay for deposits and other borrowings.
Source: Japanese Bankers' Association; Moody's Investors Service

A.4 Fiscal Sector

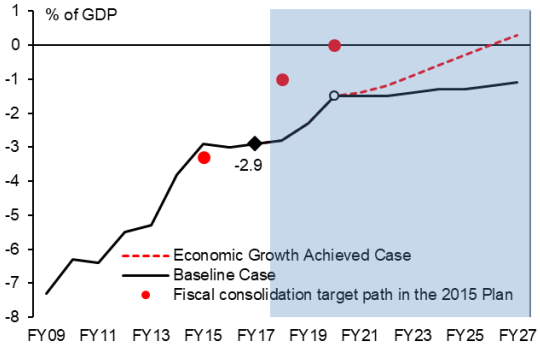
14. **Fiscal consolidation has lagged behind the schedule and fiscal policy has remained expansionary.** In FY2017, total expenditure amounted to 38.3 percent of GDP (on the basis of the general government), staying at a similar level since FY2015, partly due to ongoing fiscal consolidation efforts. Interest expense continued to decline to 1.8 percent of GDP in FY2017 from 2.1 percent in FY2015 amid prolonged monetary easing (Figure 9). In contrast, total revenue increased to 35.6 percent of GDP in FY2017 with strong tax collection reaching at around 18.9 percent of GDP, mainly due to robust economic growth. As a result, the overall fiscal deficit shrank to 2.7 percent of GDP in FY2017 from 3.4 percent of GDP in FY2016. Amid continued expansionary fiscal policy, however, the primary deficit of the central and local governments has remained significantly wider than the one in "The Plan to Advance Economic and Fiscal Revitalization" announced in 2015 with the target to achieve a primary surplus by FY2020 (Figure 10).

Figure 9. Revenue and Expenditure (General Government)



Note: Based on the fiscal year. The general government includes the central and local governments and social security funds. FY2018-19 figures are based on AMRO staff's projections.
Source: Cabinet Office, AMRO staff estimation

Figure 10. Primary Balance (Central and Local Government)



Note: Based on the central and local governments, excluding the fiscal resources for recovery and reconstruction measures.
Source: Cabinet Office

15. **The FY2018 initial budget aims to support both economic revitalization and fiscal consolidation.** In the initial budget[4] for FY2018, total expenditure worth JPY97.7 trillion was announced to support the 'Human Resource Development Revolution' with a focus on increase of childcare facilities supply and free early childhood education as well as the 'Supply System Revolution', while advancing fiscal consolidation by reducing the central government's primary deficit slightly from JPY10.8 trillion in FY2017 to JPY10.4 trillion in FY2018. However, reflecting the supplementary budgets proposed in Q4 2018[5], the FY2018 total expenditure amounts to JPY101.4 trillion while tax revenue is targeted at JPY59.9 trillion, implying a widening of the primary deficit to JPY13.3 trillion compared to the initial budget.

16. **Buoyant income tax revenue remains strong in FY2018.** In the first seven months of FY2018 from April to October, tax revenue remained favorable across the board with higher collection rates than the same period in FY2017. During the period, tax revenue expanded by 4.2 percent over a year ago. By category, corporate tax revenue grew by 19.8 percent during the period, followed by personal income tax (4.6 percent) and consumption tax (2.9 percent). Moving forward, tax revenue in FY2019 is expected to expand significantly, mainly due to the scheduled consumption tax hike from 8 to 10 percent, by 5.8 percent, compared to the FY2018 initial budget, as reflected in the FY2019 budget.

17. **The government has proposed a record-high JPY101.5 trillion budget for FY2019, reflecting measures to offset the impact of the consumption tax hike as well as rising social spending.** The budget includes temporary offsetting measures (worth JPY2 trillion), such as increasing spending on the natural disaster-related public investment as well as supporting households with low incomes or young children, and small-business owners in the form of reward point, shopping vouchers, and supports for house purchases.[6] The proposed budget

[4] On the basis of the central government's general account.
[5] In November 2018, a supplementary budget worth JPY935.6 billion was approved to take measures such as disaster relief to areas damaged by the heavy rainfall in July 2018. Subsequently, another supplementary budget of JPY3 trillion was proposed in December 2018 to fund disaster prevention measures and support the agricultural sector against the launches of the Trans-Pacific Partnership (TPP) and the Japan-EU Economic Partnership Agreement (EPA).
[6] Key offsetting measures include a state-subsidized plan worth approximately JPY280 billion to give a rebate to consumers who make purchases at smaller businesses with credit cards and through other cashless means. The budget also includes shopping

also includes permanent measures for free early childhood education[7] and the low-income elderly's household burden reduction. Due to these measures and the rapidly aging population, spending on social security is expected to rise by about JPY1 trillion to JPY34.1 trillion in the proposed budget, accounting for about a third of the budget. The government expects that aggregate impacts from these adopted measures will likely exceed the drag from the consumption tax hike.[8]

18. **Economic policies have recently been recalibrated to support growth and reform efforts.** In December 2017, to cope with structural issues such as low birth rates and population aging, the government approved the New Economic Policy Package to promote 'Human Resources Development Revolution' and 'Supply System Innovation'. Key policy agenda includes free early childhood education, realization of "Society 5.0", and promoting work-style reform.

19. **Medium-term fiscal consolidation has been postponed further.** In June 2018, the government announced the New Plan to Advance Economic and Fiscal Revitalization. In the plan, the government set the 'foundation-reinforcement period' from FY2019 to FY2021 in order to push for social security reforms so that the essential increase in social security expenditure will be limited to the growth corresponding to population aging. The government has also postponed the timeline for meeting the primary surplus target from FY2020 to FY2025 after reviewing "The Plan to Advance Economic and Fiscal Revitalization".[9]

B. Risks, Vulnerabilities and Challenges

20. **The favorable near-term growth outlook could be jeopardized by several key risk factors, both domestic and external.** Near-term downside risks have likely increased from 2017, mainly due to external factors. The Risk Heat Map in Table 2 summarizes key risk factors assessed in terms of the likelihood of occurrence as well as the size of potential impact. On the domestic front, the consumption tax hike scheduled in October 2019 may have a medium-size impact on growth although its likelihood remains low, because of a smaller increase in the tax rate, temporary offsetting measures, and permanent measures, including free early childhood education and a reduced tax rate for food and non-alcoholic beverages. On the external front, after a gradual escalation over the past two years, trade protectionism remains the most crucial risk factor with increasing likelihood and a medium-size impact on the growth outlook despite a temporary 90-day truce between the U.S. and China in November 2018.

vouchers with enhanced purchasing power, which will be made available to households with low incomes or children aged 2 and under, as well as roughly JPY1 trillion in spending on public works.

[7] The measure, which is to cover children from low-income households up to age 2 and all children aged 3-5, will cost a further JPY400 billion in the first six months following the introduction of the program in October 2019.

[8] According to the Document submitted by Minister of State for Economic and Fiscal Policy for the Council on Economic and Fiscal Policy at December 20, 2018, the burdens of the tax hike on households will amount to JPY5.2 trillion. Implementing permanent measures on free education and social security will reduce the burden by JPY3.2 trillion, and therefore the actual economic impact is estimated to JPY2.0 trillion. To suppress this adverse impacts, measures with tax reductions and temporary spending, amounting to JPY2.3 trillion, have been adopted.

[9] The Committee for Promoting the Integrated Economic and Fiscal Reforms' Interim Review attributed the primary balance gap for FY2018 between the benchmark (-1 percent of GDP) and the current projection (-2.9 percent) to i) slower growth of tax revenues (-0.8 percent), ii) deferred consumption tax hike (-0.7 percent), and iii) supplementary budgets (-0.4 percent), despite efficiency gain from expenditure reforms (0.7 percent).

Table 2. Summary Heat Map for Key Risks

Risks		Likelihood			Potential Impact
		2016	2017	2018-20	
Domestic	Possible prolonged negative impact of the 2019 consumption tax hike			1	Medium
	Sharp correction in asset markets	1	1	2	Low
	Prolonged easing of monetary policy	1	1	2	Low
External	Escalating trade protectionism (U.S.-China trade tensions and other trade restrictive measures)	1	2	3	Medium
	Sharper-than-expected economic slowdown in major trading partners	1	2	3	Medium
	Heightened global uncertainties triggered by EM crises or geopolitical tensions	2	2	2	Low

1	2	3	4
Low likelihood	Low to Medium	Medium	High likelihood

Source: AMRO staff assessment

B.1 Near-term Risks to the Macro Outlook

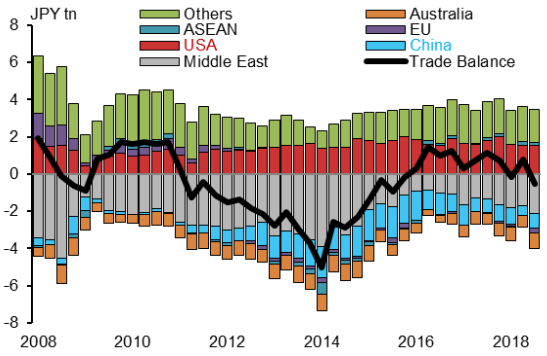
21. **Downside risks to the near-term outlook have intensified, mainly due to external risk factors with some tail events.**

- **A further worsening of trade protectionism, including the U.S.-China trade conflict and other trade restrictive measures.** The ongoing trade conflict between the U.S. and China may have a negative impact on the demand for Japan's exports. This is particularly the case for China, which imports Japanese capital and intermediate goods to manufacture final products for export to the U.S. in the global value chain. Potential U.S. tariffs on Japanese automobiles would directly affect Japan's exports to the U.S. market (See Selected Issue 1 on the Impact of U.S. Global Trade Friction on Japanese Economy).
- **A sharper-than-expected economic slowdown in major trading partners.** This includes a sharper-than-expected slowdown in China, which could negatively affect Japanese companies' activities in trade and investment while triggering a bout of market volatility in the region.
- **Heightened global uncertainties triggered by a crisis in some emerging markets or geopolitical tensions.** Further market turmoil in emerging market economies or a resurgence of geopolitical tensions might trigger a risk-off sentiment and increase demand for safe-haven assets, which would cause the JPY to appreciate, although such safe-haven inflows have generally been short-lived.
- **Prolonged negative impact of the 2019 consumption tax hike**. The previous two consumption tax hikes in 1997 and 2014 resulted in a significant drop in private consumption (Figure 12), although other factors may have also come into play. A protracted

weakness in consumer sentiment and private consumption due to the hike may derail the current pace of economic expansion.[10]

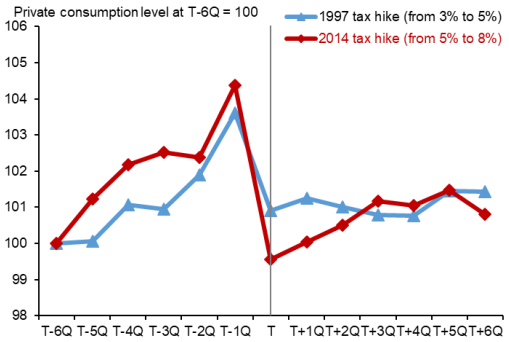
- **A sharp correction in asset markets.** Given that current real estate and stock prices are above their long-term trends, a sharp correction in the asset markets may undermine confidence and lead to financial instability. However, in our assessment, these are not imminent risks.

Figure 11. Trade Balance by Area



Source: Ministry of Finance

Figure 12. Private Consumption Around Previous Tax Hike Episodes



Source: Cabinet Office; AMRO staff calculations

B.2 Longer-term Challenges and Vulnerabilities

22. **Structural challenges could critically undermine the Japanese economy's long-run growth and stability.**

- **Demographic headwinds from population aging and low fertility rates**. Rapid population aging (Figure 13) and low birth rates will reduce the labor force and lower the economy's growth potential. Moreover, the associated increase in social security-related spending coupled with the shrinking tax base will likely bring about a deterioration in the fiscal balance.

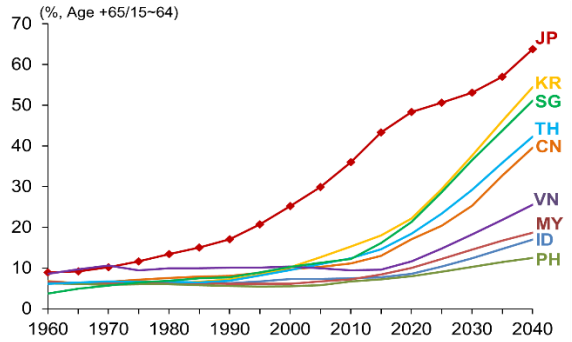
- **Prolonged weakening of fiscal discipline.** The repeated delays in fiscal consolidation could negatively affect fiscal discipline, leading to a further build-up in public debt and financial vulnerabilities. This could erode the authorities' credibility and imply the need for a sharper adjustment in future fiscal policy.

- **Prolonged easing of monetary policy.** The prolonged easing of monetary policy has led to a reduction in net interest margins of financial institutions and forced them to take more risks – especially in the case of regional banks, pension funds and insurance companies. It has also impaired the market's functioning in the Japanese Government Bond (JGB) market. Downward pressures on regional banks' profitability due to tight interest margins and the consequent build-up of risky portfolios may impede their financial intermediation function should a negative shock occur. Insurance companies and pension funds have built up their overseas assets in the search for higher returns. For instance, the share of foreign

[10] In the baseline projection, the effect of temporary offsetting measures including temporary fiscal stimulus (worth JPY2 trillion) is not considered. If these measures are successfully implemented, they may pose upside risks to the growth outlook in FY2019..

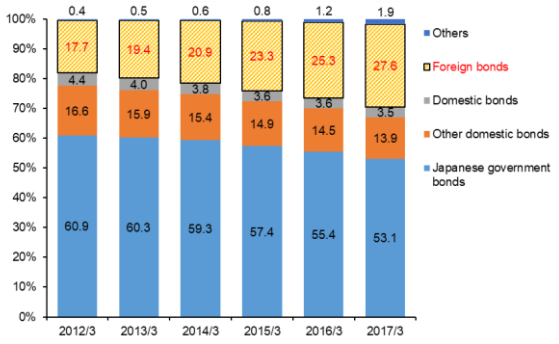
securities in Japanese life insurance companies' portfolios has increased by about 10ppts over the past five years (Figure 14).

Figure 13. Old-age Dependency Ratios



Note: The projections are based on the UN World Population Prospects.
Source: United Nations

Figure 14. Securities Portfolio Composition in Life Insurance Companies



Source: Financial Services Agency (FSA)

Authorities' Views

23. **The authorities broadly agreed with AMRO's risk assessments, while they viewed the impact of consumption tax hike and the U.S.-Japan trade negotiations somewhat differently.** In line with AMRO's assessments, the BOJ listed major upside and downside risks to economic activity, as: i) external developments in global economies such as the U.S. which can impact global financial markets, in addition to protectionism moves; ii) the effect of the consumption tax hike in October 2019; and iii) the prospect of private sector expectations given an aging population and secular changes in labor markets. With regard to the consumption tax hike in 2019, the government stressed that its impact will be limited compared to the last hike in the first place, and besides that there will be government-supported measures to offset adverse effects as shown in Prime Minister Abe's strong commitment to soften the impact. In addition to permanent measures such as free early childhood education and income transfer programs targeting low-income earners, temporary measures have been decided in the initial budget for FY2019. On trade tension, the authorities said they are not sure about the potential, specific impact of the U.S.-China trade friction on the Japanese economy at this point. Furthermore, the U.S.-Japan trade negotiation itself is not the result of a protectionist measure; rather, the negotiations are intended to further liberalize and facilitate bilateral trade flows.

C. Policy Discussions and Recommendations

24. **As an overarching policy framework, Abenomics should be periodically reviewed and recalibrated, considering the achievements and shortfalls thus far in order to enhance its effectiveness and sustainability in reviving the dynamism of the economy.** Abenomics has been successful in lifting the economy's growth potential, raising inflation expectations to a significantly positive level (although still below the 2 percent price stability target), containing a further build-up of public debt in terms of GDP, and improving the long-term prospects of the economy. However, the policies have also fallen short of achieving their targets in some areas and have had some unintended consequences on the financial markets. It is

therefore a good time for the authorities to take stock of the progress made so far, and to recalibrate the targets and enhance the effectiveness of the policies.

25. **In particular, Abenomics should be further strengthened with a focus on the third arrow of structural reforms.** Structural reforms should be on top of the policy agenda. To this end, a comprehensive policy upgrade is needed to strengthen the policy framework by focusing on medium- to long-term challenges over a longer time horizon, with more coordination/ synergy among the relevant authorities in charge of macro and financial policies. In particular, concerted efforts by the government and the BOJ to enhance growth potential and overcome deflation over the long-term should be strengthened. A comprehensive review of the joint statement between the two parties agreed in January 2013 will be helpful to recalibrate the policy.

C.1 Restoring Fiscal Sustainability

26. **Fiscal policy should prioritize restoring fiscal sustainability under the extended timeline, while effectively addressing the expected short-term negative impact from the scheduled consumption tax hike in 2019.** Assuming that growth remains in line with potential, fiscal policy needs to emphasize continued fiscal discipline. Reduced interest expense burden from low financing costs remains a tailwind for near-term fiscal management. In the near-term, supplementary policy measures that have been decided should be implemented as intended to lift consumer sentiment and mitigate the impact of the tax hike on private consumption and economic growth. Deploying additional tax revenues from the 2019 consumption tax hike towards free early-childhood education and increased supply of child care centers is highly commendable for improving human capital stock and encouraging further labor force participation of women. However, the measures are permanent and will slow down the reduction in public debt.

27. **A comprehensive and consistent medium-term fiscal consolidation plan should be formulated, based on macroeconomic scenarios that are realistic and implemented with a strong commitment to cope with structural challenges.** The recent extension of the timeline for meeting the primary surplus target to FY2025 is reasonable; however, the new target, in our view, still relies on overly optimistic assumptions on GDP growth and inflation. Economic and fiscal projections based on more plausible scenarios will be essential to make the fiscal consolidation plan credible and effective. Setting intermediate indicators on FY2021 would enhance the authorities' commitment to fiscal consolidation. Additional revenue-raising measures over a longer time horizon need to be articulated and implemented to offset the decline in the revenue base, given the projections that social security-related expenditures will keep rising beyond FY2022 when the first baby boomers begin to turn 75 years-old or more. Further efforts to enhance revenues, including an increase in the consumption tax to more than 10 percent and the extension of the retirement age beyond 65, should be considered in order to fund social security-related spending and to stabilize growing public debt. The government's recent efforts to raise the maximum age of continued employment to over 65 and to provide the options for retirees to receive higher pensions at a later age are welcome.

Authorities' Views

28. **As offsetting policy package against the consumption tax hike in October 2019 will be prepared and implemented, its adverse effects on growth and large swings in consumption will be mitigated.** The policy package includes a reduced tax rate on food and non-alcoholic beverages, free early childhood education, and temporary spending measures such as point reward to consumers via small- and medium-sized retail businesses. Tax breaks for durable goods such as autos and housing are considered to reduce consumers' burden even after the tax hike. The authorities are of the view that such measures will be effective in mitigating the negative effects of the tax hike, including the large swings in consumption and dampening effects on growth.

29. **The government's medium- to long-term economic and fiscal projections incorporate its policy goals.** Key assumptions have been revised in the January 2018 projection, incorporating feedback that the government tends to overly optimistic. Under the New Plan to Advance Economic and Fiscal Revitalization, the primary surplus target has been delayed to FY2025 from FY2020. To realize the plan, the government will review the progress mainly on social security reforms in FY2020. Key policies on social security that must be addressed in a comprehensive and prioritized manner, including modalities for benefits and burdens, will be compiled into annual Basic Policy on Economic and Fiscal Management and Reform. Achieving the primary surplus in FY2026 even under the medium- to long-term projection revised in January 2019 is mainly due to the assumption that additional expenditure reform measures to be considered are not fully reflected yet. The timing to achieve the primary surplus could be shortened to FY2025 depending on the pace of implementation in additional expenditure reform plans.

C.2 Maintaining Accommodative Monetary Policy

30. **The current accommodative monetary policy could be maintained for an extended period, but the policy should be constantly reviewed and recalibrated to address issues such as the achievability of the 2 percent inflation target and adverse side-effects such as the impact on the profitability of financial institutions and the functioning of the financial markets.** The BOJ's stronger commitment in July 2018 to achieving the price stability target with forward guidance is welcome in addressing skepticism over the achievability of the inflation target in the short run. Since its adoption in September 2016, the 'QQE with YCC' policy has contributed to maintaining the ultra-low interest rate environment while stabilizing financial markets. However, prolonged easing of monetary policy is a risk, given the adverse side-effects on the market functioning in the JGB and stock markets, and profitability of financial institutions. A further recalibration of the policy toward more flexibility is recommended to improve market functioning in the JGB markets. Stronger and clearer communication will be essential in addressing market concerns about the BOJ's exit strategy (See Selected Issue 2 on Assessing the Effectiveness of the 'QQE with YCC' Policy)

31. **Lifting inflation expectations can be achieved over a longer time horizon through collective efforts by the central bank and the government, given the prolonged period of deflation and the severity of an aging population in Japan.** Public service-related wages and prices have long been sticky by nature as they are administered by the government.

Government policies sometimes have some deflationary effects (for example, cutting mobile phone bills). Separately, prolonged low wage growth requires labor market reforms. Slow and weak transmission from positive output gaps to consumer price inflation needs some support from structural reforms to lift long-term growth expectations of people against strong demographic headwinds. Moreover, given broadly stable inflation expectations at around 1 percent, it will be useful to review the case for the current 2 percent inflation target and whether it should be adjusted to a lower level. The latter should be in line with inflation expectations and the saving behavior of an aging population.

Authorities' Views

32. **The BOJ strongly believes that the 2 percent target is achievable although it may take a longer time, and its side effects remain an issue.** Over the past five years, the BOJ has continued to modify its monetary policy framework. Recent policy adjustments include adding more flexibility while strengthening commitments to achieving the inflation target. The BOJ is strongly committed to maintaining the current policy target, which has contributed to strengthening the growth momentum and inflation expectations.

C.3 Prudent Macro-prudential Policy to Safeguard Financial Stability

33. **Financial oversight should focus effectively on monitoring the risk-taking behavior of financial institutions amid low profitability.** The recent widening of interest rate differentials among advanced economies may lead to a surge in overseas investment by financial institutions, especially regional banks, insurance companies and pension funds in the search for higher returns (See Selected Issue 3 on Japanese Bank's Cross-border Activity in ASEAN). The authorities should further supervise financial institutions' risk-taking behavior and the potential build-up of credit risks accompanied by the continued growth in loans against narrowed interest margins. In particular, special attention is needed to monitor emerging financial risks, especially in the real estate and stock markets as well as inward and outward spillovers (See Selected Issue 4 on Interconnected of Japan's Mega Banks and its Implications on Cross-Border Spillovers). Closer engagement with regional banks is recommended to address long-term challenges of declining profitability against demographic headwinds and macro risks. Life insurance companies' investments in foreign bonds, which may not be fully hedged due to rising USD funding costs, should be closely monitored. Newly emerging fintech-related industries may provide growth opportunities as well as associated risks to which special attention must be paid (See Box A. Fintech Development in Japan).

Authorities' Views

34. **The authorities closely monitor the financial institutions' risk exposures and presently find no serious underlying risks mainly due to the institutions' conservative stance amid sound regulations.** The authorities noted that financial institutions' core profitability has continued to decrease amid the persistent decline in the population and the number of firms as well as the prolonged low interest rate environment. During the prolonged ultra-low interest rate environment, most banks only increased their risk-taking moderately given

their conservative risk appetite and unwillingness to increase risk-weighted assets at the expense of setting extra capital aside. Regional banks' foreign exposure has been modest and there has been no noticeable sign of higher risk, with only 3-4 percent of their assets invested in foreign currency, mainly due to their generally conservative risk appetites, as well as rising USD funding costs. Over 70 percent of banks' (major banks) overseas lending is in investment-grade companies, which are bound by strict regulations to some extent. Assuming riskier positions would require more capital provision.

C.4 Structural Reforms

35. **Structural reforms focused on tackling demographic challenges should be enhanced and implemented in a credible and bold manner.** The authorities' proactive approach toward 'Human Resource Development' and 'Supply System Innovation' is commendable. To cope with the challenges of an aging society, creating continued employment opportunities for senior citizens should be a priority, and rigid labor practices under the traditional lifetime employment system need to be changed. New programs should be developed to expand mid- and late-career hiring markets to facilitate job transitions for professionals and retirees, and to encourage lifetime human resource developments. The implementation of free early-childcare services should be designed to promote more active labor force participation of women.

36. **Embracing foreign workers will also contribute to enhancing the growth potential of the economy and facilitate the demographic transition.** With rapid aging society and decline in working population, Japan has faced severe labor shortage which becomes more acute in the coming years. Although Abenomics has improved female and elderly participation it has partially offset the labor market pressure in recent years and its contribution would be slowed going forward. To address the issue, several measures will be adopted soon including creating new visa status for skilled foreign workers[11] and encouraging foreign students to work in Japan after their graduation, which is commendable. Nevertheless, it will be essential to create a welcoming environment and procedure to attract more foreign workers including living and working condition, and social security system, while increase in capital investment to boost productivity should be strengthened (See Selected Issue 5 on Recent Policy Development on Foreign Workers to Cope with Labor Shortage).

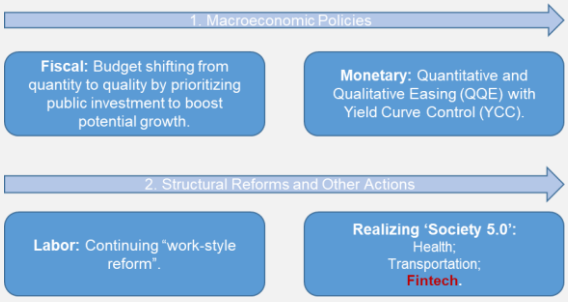
37. **Continued efforts towards trade multilateralism will contribute to sustaining growth momentum by expanding markets.** The government's stepped-up efforts to widen overseas markets through free trade negotiations are commendable. As one of the leaders of global free trade and investment, Japan should continue making progress in key trade negotiations, including such as the Regional Comprehensive Economic Partnership (RCEP) and Japan-China-Korea FTA.

[11] The new visa status is applied to two types of skilled workers, including the ones with certain expertise and skills in industrial fields as well as the ones with proficient skills in industrial fields.

Box A. Fintech Development in Japan[12]

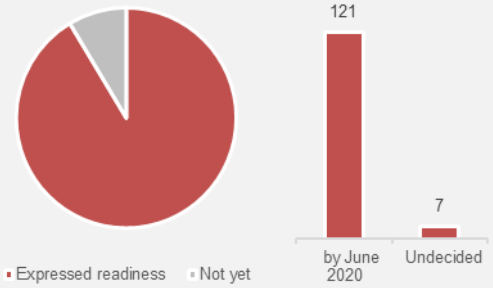
Fintech development has been prioritized to achieve sustainable growth. As elaborated in Japan's Growth Strategy 2017, two key points are highlighted in the pillar of structural reforms and related actions, including labor reforms and realizing 'society 5.0' (Figure A1). For the latter, it is a set of socio-economic systems with sustainability and inclusiveness, in a proactive response to the changes brought forth by the Fourth Industrial Revolution, while facing issues acute to Japan such as an aging population. The realization of such a society includes the creation of a next-generation healthcare system, smart transportation, and focusing on fintech to improve the financial sector. This box aims to provide an overview of fintech development in Japan, focusing on its value proposition, policy updates and sector development.

Figure A1. New Growth Strategy 2017



Note: As of June 2018
Source: Prime Minister Office and the Cabinet

Figure A2. Status of Introduction of Open API (Total 137 Banks)



Note: As of June 2018.
Source: Japanese Banks Association

Fintech could benefit the Japanese financial services sector and the economy in various ways, through efficiency gains and cost savings. In general, fintech could play a critical role in improving functionalities such as customer acquisition, service costs and business analytics, payments and remittances, online lending, asset management and insurance. These sectors are likely to witness an increasing rollout of related fintech applications. Given that Japan is characterized by a high degree of market geographic division, high cost of financial products and high cash usage, as pointed out by S&P Research, the development of fintech could potentially change the landscape and benefit society through both efficiency gains and cost savings. In this connection, the Japanese government has targeted an increase in cashless settlements to account for 40 percent of all settlements by 2025, from 20 percent in 2015. This could save operating costs for the banking sector by up to JPY1 trillion annually, according to estimates from Mizuho Research.

To reap the potential benefits from fintech, fostering an enabling legal environment for technology adoption is essential; and the Japanese government has been making efforts in this regard. In order to promote an open data environment to facilitate fintech development, the amended Banking Act in May 2017 introduced a registration system for Electronic Settlement Agency Service Providers. It came into effect on 1 Jun 2018 and aims to promote open innovation in the banking sector in particular through an open API framework.[13] According to a survey by the Japanese Bankers Association, a majority of Japanese banks will adopt the Open Bank API by mid-2020. Such

[12] Prepared by Xianguo (Jerry) Huang (Economist).
[13] According to the Japanese Bankers Association, Open API refers to a publicly available application programming interface, which creates an environment through which a wide range of fintech companies can connect to financial institutions' systems while ensuring the information security of customers. Outside of Asia, the E.U. has been the early mover to advocate open banking through its Revised Payment Service Directive (PSD2). In Asia, Hong Kong has made a similar move by publishing the Open API Framework in July 2018. Regulators in other economies such as in Singapore, while not through law, have also been actively engaging banks in promoting data sharing.

speedy implementation will create an amiable data sharing economy that will benefit all stakeholders, including fintech companies, banks and eventually the users of financial services (Figure A2).

The authorities have also taken the lead in virtual currency regulation, targeting sustainable development of the sector while ensuring consumer protection. While some other countries are still unclear about their policy stance on virtual currencies, Japan has been spearheading a clear compliance framework governing virtual currency exchanges. The amendment of the Payment Services Act, effective on 1 April 2017, recognizes virtual currency as a form of payment and requires the registration of virtual currency exchanges with the Financial Services Agency.[14] Meanwhile, regulating Initial Coin Offering (ICO) — which determines the supply factor of virtual currency exchanges, has also been ongoing. However, it could take a longer time to establish the overall regulatory framework.

Besides moving forward on regulatory fronts, related stakeholders have been making efforts towards facilitating fintech sector development. For instance, Financial Services Agency's initiatives such as the FinTech Support Desk and FinTech Proof of Concept Hub have helped facilitate the establishment of fintech startups and supported innovative projects. The BOJ Fintech Center has also enabled the study of fintech in relation to financial services, while BOJ's collaboration with the ECB is exploring the potential of distributed ledger technology in building financial market infrastructure. Fintech associations have also played a critical role in promoting cooperation and knowledge sharing. Meanwhile, the Tokyo Metropolitan Government has also been actively trying to attract fintech firms aiming to position Tokyo as a key fintech hub in Asia.

Although mass adoption will need more time, the roll out of fintech-related applications has started. On the retail payment settlements front, companies such as LINE Pay have gained increasing popularity in Japan. At the same time, many merchants accept foreign services such as Alipay and WeChat Pay for the use of foreigners. Increasingly, startups have been exploring opportunities in asset management (by providing robo-advisory or online trading platforms), alternative lending, personal finance, accounting and data analytics.

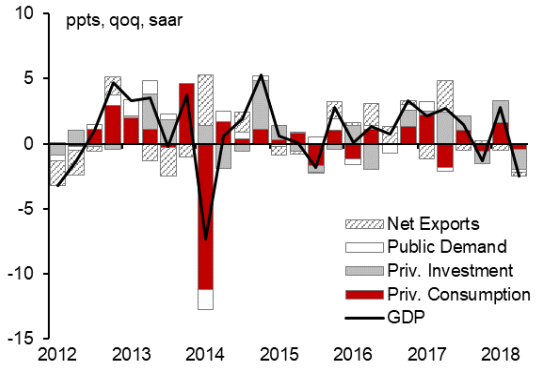
Going forward, the associated risks need to be monitored well while developing fintech. Japan's fintech development has the potential to accelerate the transformation of the financial sector, in particular banking models, raising the economy's potential growth in the medium term. However, security issues such as consumer protection and regulatory compliance will continue to be a priority while striving for innovation. On the other hand, cross-border regulatory cooperation is also critical in changing domestic regulations to cope with evolving fintech.

[14] Other related requirements such as Know Your Customer (KYC) and Anti Money Laundering (AML), book-keeping and auditing, possibly help bring virtual currency exchanges under the radar, and the regulators could strike a balance between financial innovation and consumer protection.

Appendix 1. Selected Figures for Major Economic Indicators

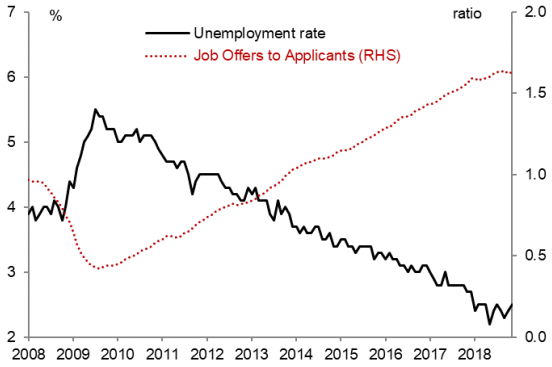
Figure 1.1. Real Sector

Real GDP contracted in Q3 largely due to natural disasters, after showing a strong rebound in Q2.



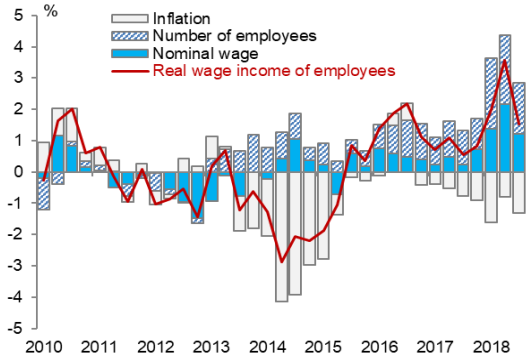
Source: Cabinet Office

The labor market has tightened further.



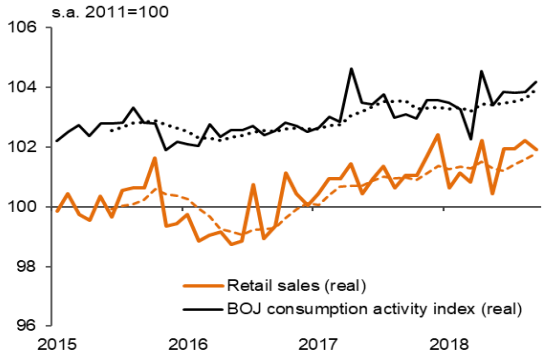
Source: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications

Real employee income continues to improve, reflecting higher employment and wage increases of non-regular workers.



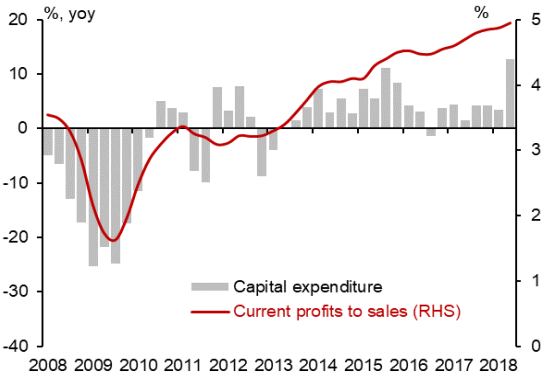
Source: Ministry of Health; Labor and Welfare; Ministry of Internal Affairs and Communications; AMRO staff calculations

Private consumption has shown signs of pick up recently.



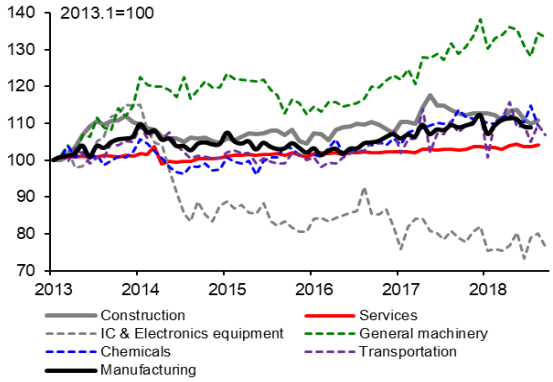
Source: Ministry of Economy; Trade and Industry; Ministry of Internal Affairs and Communications; BOJ

Business investment continued the increasing trend.



Source: Ministry of Finance

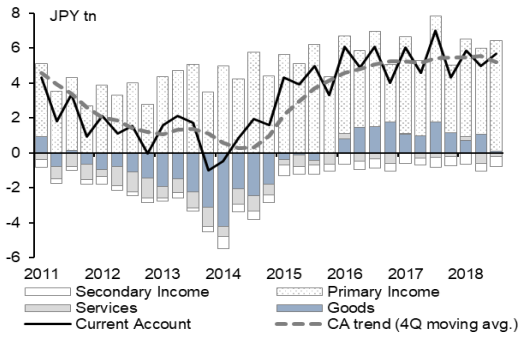
Industrial production has been picking up steadily.



Source: Ministry of Economy, Trade and Industry

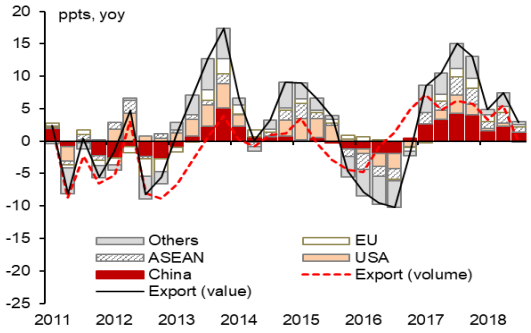
Figure 1.2. External Sector

The current account surplus remains sizable at around 4 percent of GDP.



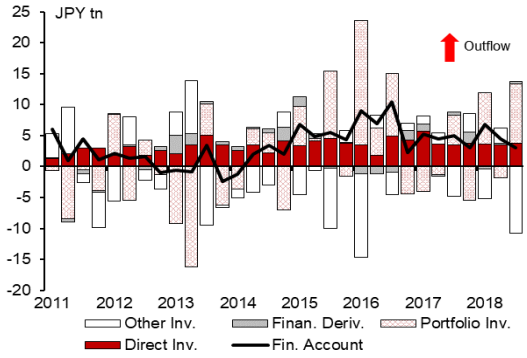
Source: Ministry of Finance

Merchandise exports moderated in H1 2018.



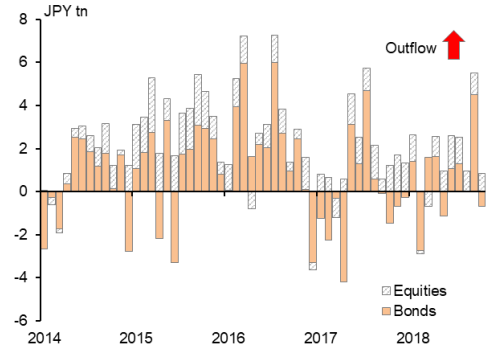
Source: Ministry of Finance; AMRO staff calculations

Capital outflows continue, driven by persistent outward direct investments.



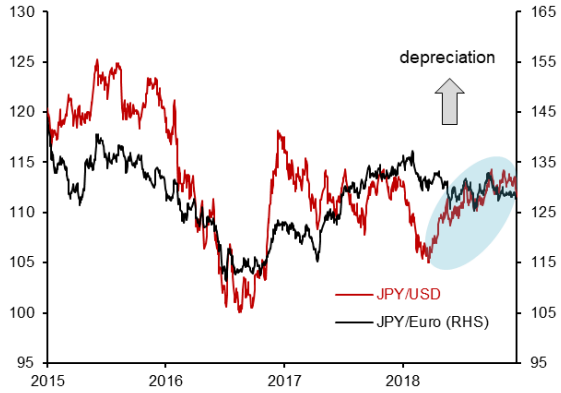
Source: Ministry of Finance

On a net basis, Japanese investors purchased foreign stocks and bonds during the first 10 months of 2018.



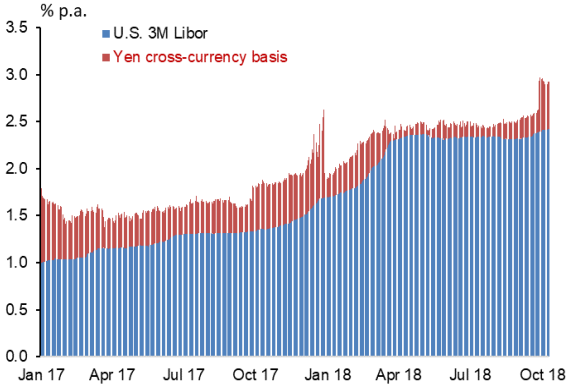
Source: Ministry of Finance

Since Q2 2018, the JPY has depreciated sharply against the USD.



Source: BOJ

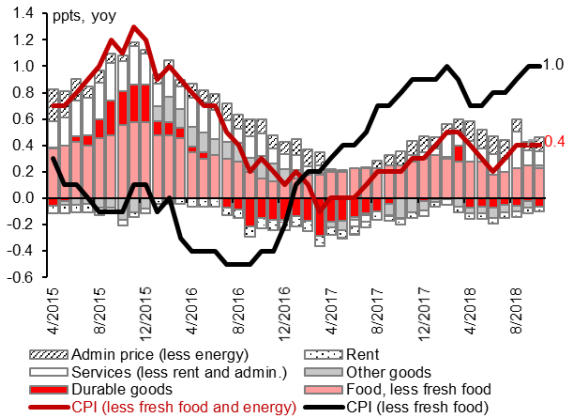
USD funding costs increased significantly in Q1, mainly due to a significant rise in the LIBOR rate, reflecting Fed rate hikes.



Source: Bloomberg

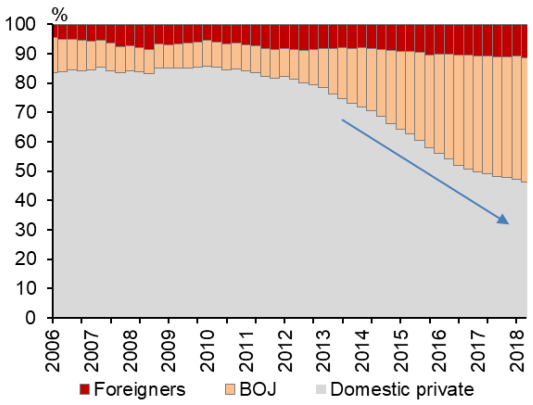
Figure 1.3. Monetary and Financial Sector

CPI inflation has increased gradually, but remains stubbornly low, short of the 2 percent target.



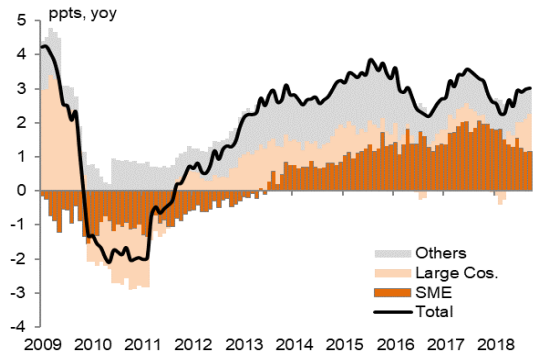
Source: Ministry of Internal Affairs and Communications; Japan Center for Economic Research

The BOJ's share of JGB holdings rose to over 40 percent, although there was some moderation.



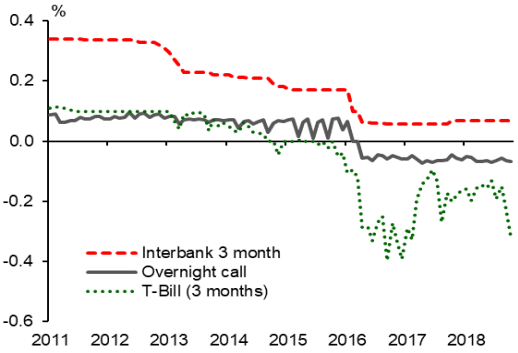
Source: BOJ; Haver Analytics

Loan growth has picked up and surpassed 3 percent.



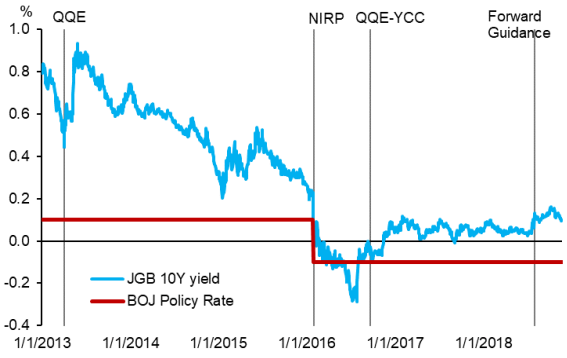
Source: BOJ

Short-term inter-bank rates remain very low.



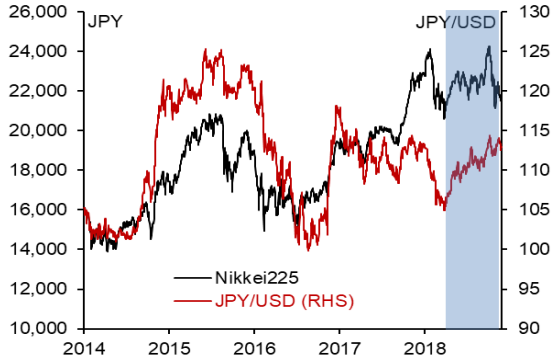
Source: BOJ; CEIC

10-year JGB yields, while remaining low, has shown an uptick after the BOJ allowed for a wider band in July 2018.



Source: Bloomberg

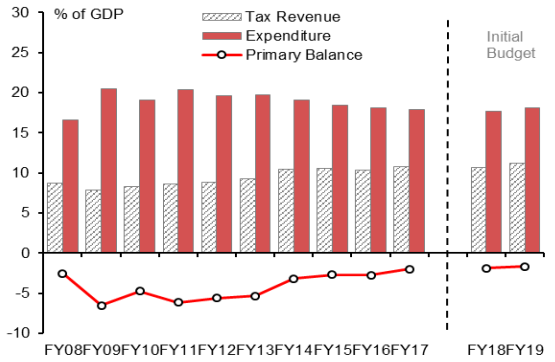
While stock prices continue to be broadly supported by strong corporate earnings, volatility has increased recently due to the U.S.-China trade tensions.



Source: Tokyo Stock Exchange; BOJ

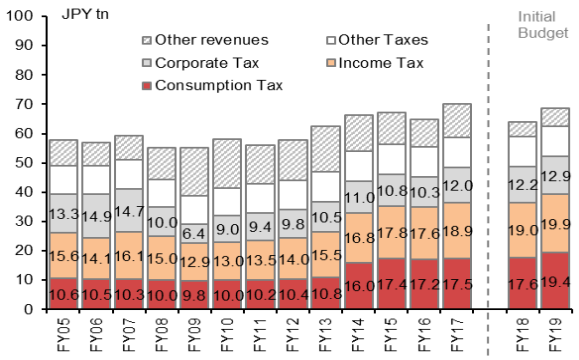
Figure 1.4. Fiscal Sector

The fiscal position has improved slightly as the central government primary deficit has narrowed.



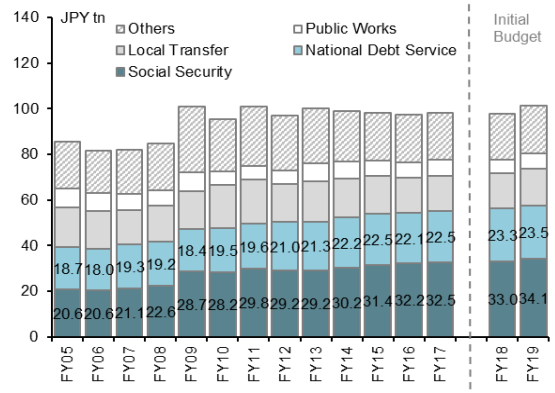
Note: Initial budget for FY2019 is the government's proposal.
Source: Ministry of Finance; Cabinet Office; AMRO staff estimations

Tax revenues are expected to remain strong during FY2018 and FY2019.



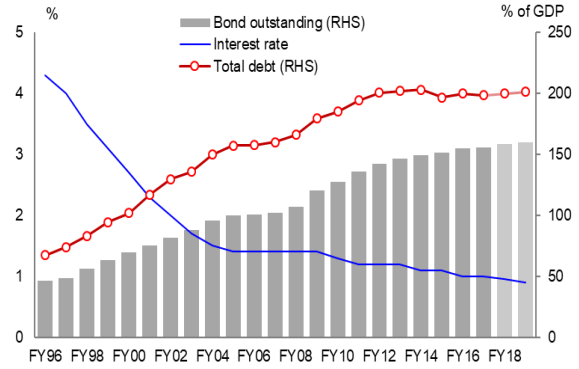
Note: Initial budget for FY2019 is the government's proposal.
Source: Ministry of Finance; AMRO staff estimations

Government spending has been contained, but social security spending has continued to rise.



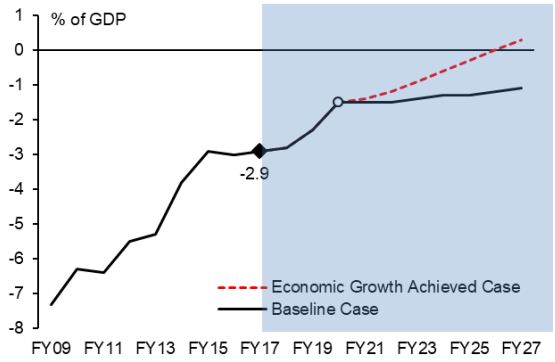
Note: Initial budget for FY2019 is the government's proposal.
Source: Ministry of Finance

Central government debt has moderated recently, but remains high at over 200 percent of GDP.



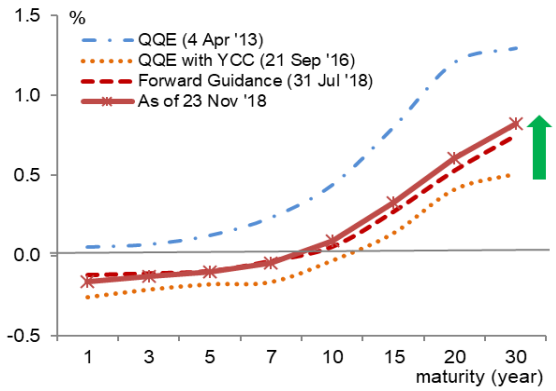
Note: Total debt consists of government bonds, borrowing and financing bills.
Source: Ministry of Finance; AMRO staff estimations

The primary balance in terms of GDP is projected to remain in deficit until FY2027.



Note: The primary balance is for central and local government.
Source: Cabinet Office (July 2018)

The JGB yield curve has steepened slightly since the BOJ's monetary policy tweak in July 2018.



Source: Bloomberg

Appendix 2. Selected Economic Indicators for Japan

	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019
					Projection	
Real Sector and Prices	(Annualized percent change, unless otherwise specified)					
GDP growth	-0.4	1.3	0.9	1.9	0.8	0.7
Private consumption	-2.6	0.7	0.0	1.0	0.7	0.5
Private non-residential investment	3.4	1.6	-0.5	4.6	3.1	1.8
Private residential investment	-9.9	3.7	6.3	-0.7	-4.0	-0.3
Government consumption	0.4	1.9	0.7	0.4	2.0	0.8
Public investment	-2.0	-1.6	0.6	0.5	-1.7	2.9
Net exports (ppts)	0.6	0.1	0.8	0.4	0.0	-0.1
Exports of goods and services	8.7	0.8	3.6	6.4	2.1	1.8
Imports of goods and services	4.2	0.4	-0.9	4.1	2.0	2.2
Labor market	(Average of monthly data)					
Unemployment rate (%, sa)	3.5	3.3	3.0	2.7	2.5	2.5
Ratio of job offers per one applicant (sa)	1.11	1.23	1.39	1.54	1.60	1.60
Prices 1/	(Average of monthly data)					
CPI (all items)	2.9	0.2	-0.1	0.7	0.9	1.0
CPI (less fresh food)	2.8	0.0	-0.2	0.7	0.9	1.0
CPI (less fresh food and energy)	2.6	1.0	0.3	0.2	0.4	0.6
External Sector 2/	(JPY trillion unless otherwise specified)					
Current account balance	8.7	18.3	21.0	21.8	21.0	20.7
Percent of GDP	1.7	3.4	3.9	4.0	3.8	3.7
Trade balance, customs cleared	-9.1	-1.1	4.0	2.4	2.6	2.3
Exports of goods, customs cleared	74.7	74.1	71.5	79.2	80.9	82.3
Imports of goods, customs cleared	83.8	75.2	67.5	76.8	78.3	80.0
Primary income balance	20.0	21.3	18.7	19.9	20.0	20.2
Financial account balance	14.2	24.3	24.7	19.6	21.0	22.0
International reserves (USD bn, period end)	1,245	1,262	1,230	1,268	…	…
Fiscal Sector (Central and Local Governments) 3/	(In percent of GDP)					
Primary balance	-3.8	-2.9	-3.0	-2.9	-2.8	-2.6
Fiscal balance	-5.4	-4.4	-4.5	-4.2	-4.3	-4.0
Outstanding debt	184.5	185.2	187.6	188.2	189.2	188.0
Monetary Sector 4/	(In annual percent change, unless otherwise specified)					
Monetary base	39.7	32.3	23.4	14.2	7.2	…
Overnight call rate (%)	0.015	-0.002	-0.060	-0.068	-0.066	…
Memorandum Items 4/						
Exchange rate (JPY/USD, FY-period average)	109.7	120.1	108.3	110.8	111.3	…
Exchange rate (JPY/USD, end of March)	120.2	112.4	111.8	106.2	110.4	…
Nikkei 225 (JPY, end of March)	19,207	16,759	18,909	21,454.3	20,014.8	…
JGB 10 year yield (%, end of March)	0.398	-0.049	0.067	0.043	0.013	…
Non-performing loan ratio (%, end of March, Major banks)	1.10	0.97	0.87	0.66	…	…
Nominal GDP (USD bn, FY)	4,722	4,437	4,955	4,940	5,016	5,074
Nominal GDP (JPY tn, FY)	518.2	533.0	536.8	547.4	551.8	558.1

Note: 1/ CPI inflation projections for FY2019 exclude the effects of consumption tax hike.
2/ The BOP data in external sector follow the IMF BPM6 standard.
3/ FY2018-19 figures are based on AMRO staff projections.
4/ FY2018 figures reflect the data up to the end-December 2018 (except for monetary base up to the end-Sep 2018); Fiscal year-based nominal GDP in the U.S. dollar is based on AMRO staff estimations.
5/ Based on fiscal year, unless otherwise mentioned.
Source: Japanese Authorities; AMRO staff estimates and projections.

Appendix 3. Balance of Payments

	2014	2015	2016	2017	2018.Q1-Q3
	(In trillions of yen unless specified)				
Current account balance (I)	3.9	16.5	21.1	22.0	16.5
Trade balance	-10.5	-0.9	5.5	5.0	1.9
Exports, f.o.b.	74.1	75.3	69.1	77.3	60.1
Imports, f.o.b.	84.5	76.2	63.6	72.3	58.2
Services, net	-3.0	-1.9	-1.1	-0.7	-0.6
Receipts	17.4	19.7	19.1	20.9	15.8
Payments	20.4	21.6	20.3	21.6	16.4
Primary income, net	19.4	21.3	18.8	19.8	16.9
Secondary income, net	-2.0	-2.0	-2.1	-2.1	-1.6
Capital account (II)	-0.2	-0.3	-0.7	-0.3	-0.2
Financial account (III) (+ indicates net outflows)	5.4	21.3	28.9	15.0	14.2
Direct investment (net)	12.6	16.1	14.5	16.8	10.9
Portfolio investment (net)	-4.8	16.0	29.6	-6.0	16.2
Financial derivatives (net)	3.8	2.1	-1.7	3.5	0.2
Other investment (net)	-6.1	-13.1	-13.7	0.7	-13.1
Errors and omissions (IV)	2.6	5.6	8.0	-4.0	0.8
Overall balance (= I + II - III + IV)	0.9	0.6	-0.6	2.7	2.9
Reserve assets (+ indicates increases)	0.9	0.6	-0.6	2.7	2.9
Memorandum items:					
Current account balance (In percent of GDP)	0.8	3.1	3.9	4.0	4.1
Current account balance (In percent of GDP, FY)	1.7	3.4	3.9	4.0	…
Gross reserves (JPY trillion, end of period)	151.1	148.6	142.6	142.4	142.8
(In months of imports of goods and services)	17.1	17.8	19.8	17.6	16.8
Changes in gross reserves (JPY trillion)	17.6	-2.5	-6.0	-0.2	0.4
Nominal GDP (USD billion)	4,854.8	4,390.0	4,924.8	4,860.4	…

Note: Based on calendar year, unless otherwise mentioned.
Source: Japanese Authorities; AMRO staff calculations.

Appendix 4. Statement of Government Operations

	FY2014	FY2015	FY2016	FY2017e	FY2018 Projection	FY2019 Projection
General Government 1/	(In percent of GDP)					
Revenue (I)	34.6	35.5	35.3	35.6	36.0	36.6
Taxes	18.5	18.8	18.5	18.9	19.1	19.7
Personal Income Tax	5.1	5.1	5.0	…	…	…
Corporate Income Tax	4.5	4.3	4.2	…	…	…
Consumption Tax	4.0	4.5	4.4	…	…	…
Others	5.0	4.9	4.9	…	…	…
Social Contributions	12.5	12.6	12.9	13.0	13.1	13.1
(o/w Social security contribution)	12.0	12.1	12.4	…	…	…
Other revenues	3.5	4.2	3.9	3.7	3.8	3.8
(o/w interest income)	1.4	1.4	1.2	1.4	1.4	1.4
Expenditure (II)	39.5	38.9	38.7	38.3	38.6	38.8
Expense (III)	38.8	38.4	38.2	37.8	38.0	38.2
Compensation of employees	5.5	5.4	5.3	5.2	5.3	5.3
Use of goods and services	3.4	3.3	3.3	3.2	3.3	3.4
Consumption of fixed capital	3.3	3.3	3.2	3.3	3.3	3.4
Social benefits	21.4	21.3	21.4	21.3	21.4	21.5
(o/w Social security contribution)	18.9	18.9	18.9	…	…	…
Interest	2.1	2.1	2.0	1.8	1.7	1.5
Other expense	2.3	2.3	2.3	2.2	2.3	2.4
Net Acquisition of Nonfinancial Assets (IV)	0.7	0.5	0.5	0.5	0.6	0.6
Net Operating Balance (= I - III)	-4.2	-2.8	-2.8	-2.2	-2.0	-1.6
Net Lending/borrowing (Overall Balance) (= I - II)	-4.9	-3.3	-3.4	-2.7	-2.6	-2.2
Primary Balance	-4.2	-2.7	-2.6	-2.4	-2.3	-2.1
Gross Debt 2/	236.1	231.3	235.6	237.6	238.0	237.0
Central and Local Government 3/	(In percent of GDP)					
Primary Balance	-3.8	-2.9	-3.0	-2.9	-2.8	-2.6
Central Government	-4.1	-3.4	-3.5	-3.3	-3.0	-2.8
Local Government	0.3	0.6	0.5	0.4	0.1	0.2
Fiscal Balance	-5.4	-4.4	-4.5	-4.2	-4.3	-4.0
Central Government	-5.2	-4.5	-4.6	-4.3	-4.2	-3.9
Local Government	-0.2	0.2	0.2	0.1	-0.1	-0.1
Outstanding Debt	184.5	185.2	187.6	188.2	189.2	188.0

Note: 1/ Based on the Government Finance Standard Manual (GFSM) 2014 standard; FY2017 figures are based on AMRO staff estimations; FY2018-19 figures are based on AMRO staff projections.
2/ Calendar year basis
3/ Excludes the expenditures and the fiscal resources for the recovery and reconstruction measures. FY2018-19 figures are based on AMRO staff projections.
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 are available (for expenditure, production and income approach).	Quarterly data are released, within two months of the end of the reference quarter (for 1st preliminary estimate)	-	-	-
Balance of Payments (BOP) and External Position	Monthly BOP data are available in detail.	Monthly BOP data are released at the sixth business day of the second month after the reference period, while quarterly IIP data are released at the sixth business day of the third month after the end of the reference period.	-	-	-
Central Government Budget/External Debt	Monthly central government public finance data are available, while quarterly external debt data available in detail.	Monthly central government public finance data are released within two months of the end of the reference period, while quarterly data on external debt are released within two months of the end of the reference period.	-	-	-
Inflation, Money Supply and Credit Growth	Monthly inflation, money supply and credit growth are available.	Monthly inflation data are released within one month of the reference period, while data on money supply and credit growth are released within two months of the end of the reference period.	-	-	-
Financial Sector Soundness Indicators	Available	Monthly data are released within one to two months after the end of the reference period, while quarterly data are available three months after the end of the reference period.	-	-	-
Housing Market Indicators	Available	Monthly data are released within one month after the end of the reference period.	-	-	-

Notes:
(i) Data availability refers to whether the official data are available for public access by any means.
(ii) Reporting frequency refers to the periodicity that the available data are published. Timeliness refers to how up-to-date the published data are relative to the publication date.
(iii) Data quality refers to the accuracy and reliability of the available data given the data methodologies are taken into account.
(iv) Consistency refers to both internal consistency within the data series itself and its horizontal consistency with other data series of either 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 compilations. This preliminary assessment will form the “Supplementary Data Adequacy Assessment" in the EPRD Matrix.

Annexes: Selected Issues

Annex 1. The Impact of Global Trade Tensions on the Japanese Economy[15]

With a large exposure to exports and overseas investment related to the tariff measures above, the Japanese economy would be susceptible to spillovers that come from the trade measures, especially with Japanese corporate sales being indirectly affected by slower demand from manufacturers in China. As a result, affected corporate earnings in Japan could weigh on the equity market and consequently on consumption and investment through wealth effects and changed expectation. Such a shock on the domestic economy could be partly offset by production relocation.

1. **While the U.S. and China agreed to a temporary truce in early December, trade friction between the two largest economies in the world continues to be an ongoing threat to the global economy and could weigh on the Japanese economy as well.** After the initially tariff measures by the U.S. in early 2018,[16] global trade tensions – especially between the U.S. and China –have escalated in the second half of the year, with the U.S. announcing an additional 25 percent tariff on USD50 billion worth of goods and an additional 10 percent tariff on USD200 billion worth of imports from China. In response, China also increased tariffs by 5-25 percent on USD110 billion worth of goods imported from the U.S.[17] Meanwhile, there is an additional tariff measure under review in the U.S. to impose additional tariff of 25 percent on all auto-related imports. With a large exposure to exports and overseas investment related to the tariff measures above, the Japanese economy would be susceptible to spillovers that come from the trade measures. The effects are mostly indirect resulting from the disruptions of global value chains, but also will be direct with new auto tariffs if imposed. This box focuses on understanding the mechanism through which the Japanese economy could be affected as a result of the trade conflicts, by referring to model estimates and exploring additional channels not captured by the models.

Table A1.1 Various Estimates of U.S. Tariff Measures' Impact on Japan

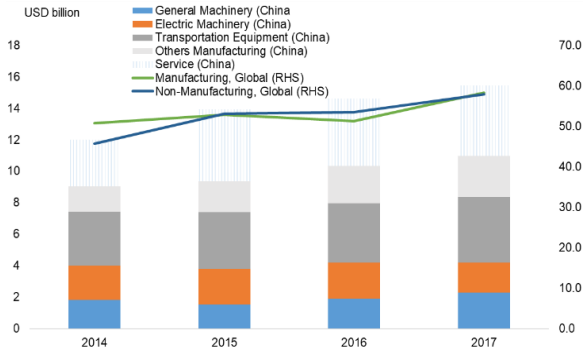
Estimates\ Scenarios	Implemented measures by the U.S. on China Imports for 250billion for 10-25 percent 1/	An increase by 25 percent on all imports from China to the U.S.	25 percent tariff on motor vehicles and parts by the U.S. (Under Consideration)	Remarks
AMRO	-0.04	-0.13	N.A	Oxford Global Macro Model
JCER	0.00	0.00	0.00	GTAP Model, Long Run Effects
DIR	-0.01	N.A	very big impact	DIR Macro Model
Mizuho	-0.09	N.A	very big impact	OECD Tiva, GVC
J.P. Morgan	N.A	-0.1 to -0.4	-0.60	GVC

Note: 1/. With China's retaliation in terms of increasing tariffs on USD110 billion worth of imports from the U.S. by 5-20 percent.
Source: AMRO; Japan Center of Economic Research (JCER); Daiwa Institute of Research (DIR); Mizuho; J.P. Morgan

[15] Prepared by Xianguo (Jerry) Huang (Economist).
[16] These measures include safeguard tariffs on washing machines and solar cells, steel, aluminum from all countries except a few that are exempted. Japanese corporates have steel, aluminum and vehicle plants in Brazil and Mexico which partly supply to the U.S. market. Brazil is exempt from new tariff measures. While subject to new tariffs, Canada and Mexico could be exempt under the USMCA framework once it becomes effective. Washing machines manufactured by Japanese companies have an insignificant presence in the U.S. market. For these products from Japan subject to direct tariffs, the cumulative figure for U.S. imports was USD1.5 billion in 2017.
[17] The truce in G20 Argentina, which helps to halt the potential increase in tariffs on USD200 billion worth imports from 10 percent additional tariffs to 25 percent in January 2019, and possibly 25 percent tariff on a new package of USD267 billion worth of imports, will elapse in three months, and the next step will be conditional on the outcome of U.S-China negotiation.

2. **Model estimates suggest the impact on the Japanese economy of the tariffs that have already been implemented by the U.S. and China, would be limited.** A very limited impact on the Japanese economy could be detected in the short-run dynamics by various models, recording a GDP loss of between -0.01 to -0.09 percent owing to the tariffs imposed by the two economies on each other (Table A1.1).[18] As tariffs are scaled up, the effects will be more significant. The impact of imposing an additional 25 percent on all imports from China to the U.S., which has yet to be implemented, could produce a larger short-run effect as it will raise the effective tariff from around 6.3 percent (on a simple average terms) to 25 percent.[19] AMRO and J.P Morgan models suggest loss of around -0.1 to -0.13 percent of GDP in this scenario. However, if weaker corporate sentiment is taken into account, the latter model shows an additional -0.3 percent loss in GDP.

Figure A1.1 Direct Investment Income in China and Globally



Source: BOJ

Table A1.2 Revenue of Japanese Manufacturers in China (USD billion)

Market	Revenue	Share
Total	249.3	100%
China	137.4	55%
Exports	111.9	45%
-Japan	41.7	17%
-North America	2.7	1%
-Asia	60.8	24%
-Europe	4.4	2%
-Others	2.3	1%

Source: Ministry of Economy, Trade and Industry (METI)

3. **While the models estimate that the tariff measures already implemented will have a limited impact on the Japanese economy, it is important to note that the models ignore some additional channels of impact.** In the case of Japan, since value added activities have not only come from domestic manufacturers but also from their global investments, investment income is also being redirected to support domestic equity market valuation, household consumption, and corporate capital spending. In 2017, Japan corporates received about USD58.2 billion manufacturing investment income and USD57.9 billion non-manufacturing investment income from overseas (Figure A1.1). Meanwhile, the corresponding figures for China stood at USD11 billion and USD4.5 billion respectively. Such exposure related to the investment abroad could transmit shocks to the domestic economy by (as a first additional channel) affecting household consumption through equity market re-pricing if earnings are expected to be affected, and then – as a second additional channel – changing investment decision with equity market revaluation and rising market uncertainties, amidst the adjustment of external demand expectation. The previously discussed model estimates do not include such channels

[18] Allowing for trade diffusion and long-run adjustments, the GTAP model estimated by the Japan Center of Economic Research suggests the trade tensions will have minimal impact across different scenarios. AMRO estimates based on the Oxford Economics Macro Global Model, which is a Keynesian-type open economy model in the short run, suggests an annual GDP loss of 0.04 percent. The variation in model estimates is largely due to the difference in model setup and parameter estimates.

[19] As USD250 billion of U.S. imports from China account for 48.3 percent of all imports from China, a 20 percent tariff increase on USD50 billion and a 10 percent tariff increase on USD200 billion of imports comes to about a 6.3 percent tariff increase for the U.S. imports from China at an aggregate level.

given the limitations of quantitative models, and it is therefore worthwhile to explore them as is done below.

4. **Given that Japanese manufacturers in both China and Japan sell intermediate and capital goods to customers in China, Japanese corporate sales will be indirectly affected by slower demand from manufacturers in China.** First, while Japanese manufacturers in China exporting to the U.S. will be directly affected by higher U.S. tariffs on goods imported from China, such exports are limited in value. According to the Ministry of Economy, Trade and Industry data, 45 percent of sales revenue of Japanese firms in China came from exports and only 1 percent or USD2.7 billion was shipped to the U.S. in 2016 (Table A1.2). Second, when higher tariffs weigh negatively on China's exports, manufacturers in China may postpone their investment plans and reduce orders of intermediate inputs, which would affect domestic purchases from Japanese companies manufacturing in China. Third, it could also depress the export performance of Japanese manufacturers, which are selling to China.[20] In total, the direct and indirect trade exposure for Japanese manufacturers is estimated to be around USD312 billion by end-2018, potentially being affected by slower U.S. demand for Chinese goods due to higher tariffs as well as slower overall demand in China itself (Table A1.3).

Table A1.3 Japan's Estimated Exposure to Additional U.S. Tariffs on Imports from China (USD billion)

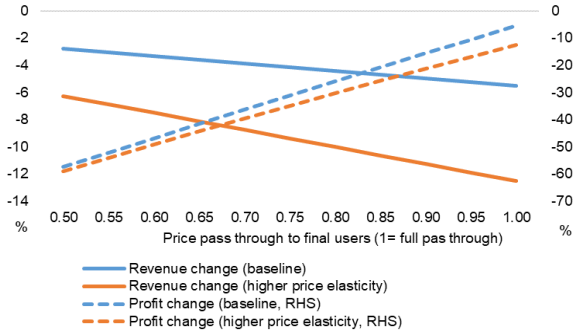
Type	Gross Exposure (Estimated, end-2018)
Direct exports to the U.S. by Japanese firms[1]	2.6
Japanese firms in China's local sales[2]	160.3
Japanese firms' exports to China from Japan[3]	148.9
Total	311.8

1/. Out of sales to North America, we assumes 80 percent of exports going to the U.S., by Japanese manufacturers. With only 2016 figures available from METI, it further assumes that the export grew by 8 percent annually in 2017 and 2018. Therefore, the estimated direct trade exposure of Japanese manufacturers in China by end-2018 would be USD2.6 billion.
2/. Japanese firms include both "overseas affiliates" where Japanese holds over 10 percent of equity share and "second-tier affiliates" where Japanese overseas subsidiary share holds over 50 percent of equity share. An overseas subsidiary is defined when Japanese has a major equity share. In 2016, domestic sales of Japanese manufacturers in China stood at USD137.4 billion. Assuming the sales grew by 8 percent per annum in 2017 and 2018, they would stand at USD160.3 billion by end-2018.
3/. Japanese exports to China in 2017 stood at USD135.4billion, and focused on intermediate and capital goods. Assuming 10 percent growth in 2018 (actual growth in H1 2018), the export exposure will be USD148.9 billion by end-2018
Source: METI; AMRO estimates

5. **To understand the impact of tariffs on a firm's revenue and profit, a simulation exercise suggests that manufacturers could face a tradeoff between a loss of market share and a loss of profit.[21]** The baseline scenario suggests that as a result of higher final costs driven by additional tariffs, dampened demand could reduce both revenue and profitability of manufacturers, and there is a tradeoff between losing more revenue and more profit (Figure A1.2). When there is a higher-pass-through from the higher tariff, the decline in profits could be less but the decline in revenue would be higher which imply the risk of losing market share to competitors.

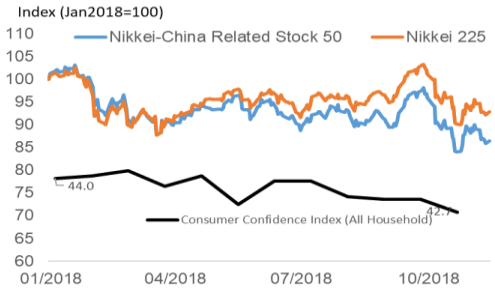
[20] Japanese exports to China in 2017 stood at USD135.4 billion, and focused on intermediate and capital goods.
[21] Such pass-through effects—partly buffering the impact to the manufacturers in China—could negatively impact Japanese firms in the U.S. together with other manufacturers.

Figure A1.2 Change in Revenue and Profit in Response to an Increase in Tariff by 25 Percent (by Firm)



Note: The baseline scenario assumes that the original net profitability is 10 percent and demand price elasticity is -0.22 for China exports (as of Aiello et al. 2015), while the burden sharing between manufacturers and distributors is split equally to absorb non-pass-through tariff costs. A higher price elasticity scenario assumes the elasticity to be -0.5.
Source: AMRO staff estimates

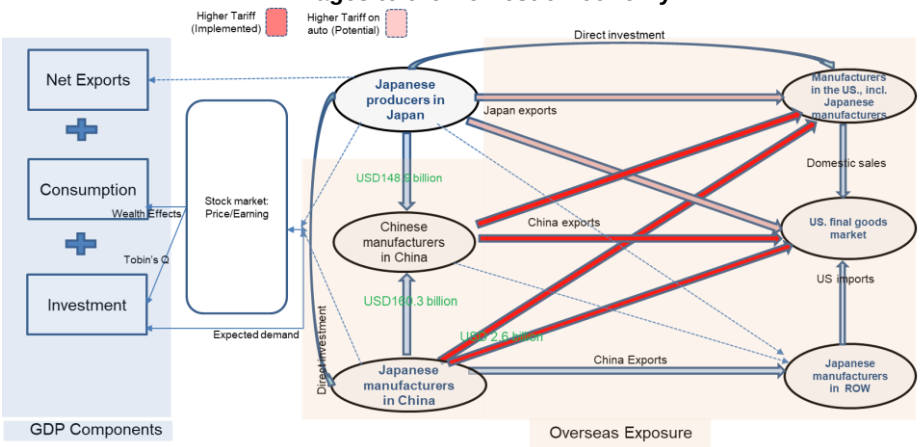
Figure A1.3 Stock Market and Consumer Confidence Index



Source: Nikkei; Economic and Social Research Institute

6. **Against this backdrop of trade exposure and business performance sensitivity, adversely affected corporate earnings in Japan could weigh on the equity market, which in turn could weigh on consumption through wealth effects.** For instance, the Japanese equity market has provided negative year-to-date returns by November 2018, dragged by companies with exposure to China (Figure A1.3). As of late November 2018, the Nikkei's China-related stocks were down by about 14 percent since January 2018 and losing 6 percent more than the average Nikkei 225 index. As various studies point out, wealth effects from the equity market on consumption could be substantial. Consumer confidence has been trending down in tandem in 2018. The wealth effects from financial assets on consumption would be JPY0.00-0.05 per yen of loss in the financial market, according to some empirical studies listed in the BOJ Outlook Report in April 2016.[22]

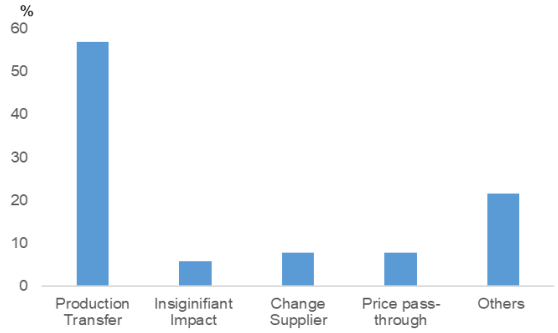
Figure A1.4 Japanese Manufacturers' Participation in Global Supply Chains and Linkages to the Domestic Economy



Source: AMRO

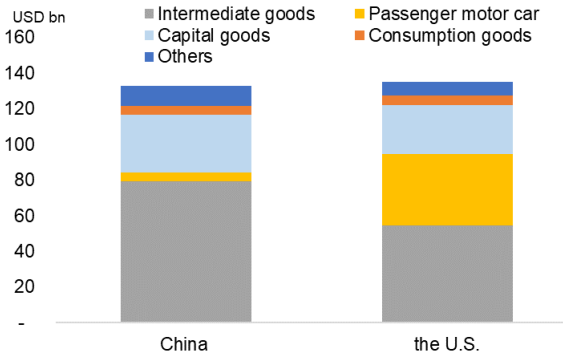
[22] With the stock market capitalization shrinking by around JPY76 trillion or USD690.1 billion in the first 10 months of 2018, the equivalent consumption loss could be around 0.27-0.54 percent of GDP, according to a rough calculation with the estimated effect of JPY0.02-0.04 per yen as in the BOJ Outlook Report in April 2016.

Figure A1.5 Response to the U.S.-China Trade Tensions (Japanese Manufacturers in China)



Source: Various news sources, July-September 2018

Figure A1.6 Japan's Exports to China and the U.S. by Category



Note: BEC Categorization.
Source: UN Comtrade; AMRO estimates

7. **In addition, the expectation of softer demand in China and lower investment returns from China could dampen overall corporate capital spending in Japan, despite the strong capital spending plan.** A recent Development Bank of Japan survey showed a very strong capex spending plan in the manufacturing sector in FY18, with a growth rate of 27.2 percent, in comparison to 0.8 percent in the previous year, mainly driven by new car models, R&D, capacity expansion and automation. Although these drivers are mostly structural and not likely affected by short-term factors, the equity re-pricing – due to the adjustment of lower earnings by listed China-related corporates – could dampen investment and some of the planned investment could be sized down, especially that which is related to demand in China (Figure A1.5).

8. **In summary, the above two effects on GDP will likely not be negligible in terms of impact, although such a shock on the domestic economy could be partly offset by production relocation (substitution by existing or new overseas production).** An exogenous shock as a result of higher tariffs could pass through to the domestic Japanese economy not only through trade linkages but also weigh on domestic consumption and investment through financial market and sentiment channels. Depending on whether companies have the ability to manufacture elsewhere or not and the cost structure of such production, the relocation of manufacturing activities to other countries could potentially provide a buffer and reduce the magnitude of the negative impact (Figure A1.5). Some Japanese firms have existing production bases in the U.S., which will help Japanese firms maintain competitiveness in the U.S. markets should the U.S. impose new tariffs on imports.[23] An increasing number of Japanese manufacturers has also shown a willingness to transfer production out of China in the second half of 2018 (Figure A1.6). Among them, while some consider strengthening their bases in third countries, others plan to expand their production in the U.S. or in Japan. In fact, there could also be a boost to domestic investment in Japan as a result. However, large scale on-shoring to the U.S. or to Japan is a less likely outcome, owing to the tight labor market and relatively high operational costs. Meanwhile, further challenges may arise particularly as the

[23] For instance, Panasonic's U.S. factory started operations in late 2017. The firm could gain from being an early bird in onshore production, compensating for the imports with higher tariff from its Vietnam and Malaysia units. For instance, the biggest Japanese aluminum manufacturer UACJ, joint venturing with other four Japanese companies, owns one of the largest aluminum sheet manufacturing in plants in the U.S. and could conveniently manufacture some of the goods it imports, locally.

financial and time-related costs associated with such production relocation is substantial in some cases.[24]

9. **Going forward, a new round of U.S.-Japan bilateral trade negotiations will be key.** Auto and auto-related items are among the key exports from Japan to the U.S., accounting for 37 percent of Japan's exports to the U.S. and 78 percent of Japan's trade surplus with it. The increase in tariff to 25 percent from the current 2.5 percent, could directly affect Japan's exports to the U.S., and it could lead to a GDP loss of up to 0.6 percent as estimated by J.P. Morgan. The new United States–Mexico–Canada Agreement (USMCA) requires higher local contents in production and also higher wage requirements, which could effectively increase the auto makers' production costs in the trade bloc including the U.S.[25] Bringing auto manufacturers onshore to produce vehicles in an environment with higher costs and preventing them from shifting offshore for cheaper production costs given the existing tariffs, it could be imperative for the U.S. government to recalibrate its auto tariffs in due course.

References

Aiello, F., G. Bonanno, and A. Via (2015), "Trade-elasticities for China and the OECD Countries Facts and Myths of Global Disequilibria", *Unpublished manuscript*, (http://www.etsg.org/ETSG2015/Papers/525.pdf)

[24] Anecdotally, firms such as excavator manufacturer Komatsu could leverage their production in the U.S., Mexico and Japan and reduce production in China. However, the company will incur a cost of an extra JPY4 billion (USD36 million) a year.
[25] The new agreement requires the 75 percent of a car's content to be built within the United States–Mexico–Canada trade bloc from the current 62.5 percent, in order to qualify for duty-free status. It also requires that at least 40 percent of a car's content be built where workers earn USD16 an hour or more. The new trade agreement also includes a foreign-exchange provision to deter countries from manipulating their currencies.

Annex 2. Assessing the Effectiveness of the Quantitative and Qualitative Monetary Easing with Yield Curve Control ('QQE with YCC') Policy[26] [27]

The 'QQE with YCC' policy has been effective in bolstering growth momentum and inflation expectations. In our assessment, the policy has contributed to lifting potential growth, actual inflation and inflation expectations by maintaining highly accommodative monetary conditions and strengthening bank lending channels. However, efforts to raise inflation up to the price stability target of 2 percent have not been successful thus far. Our analysis suggests actual inflation may begin to respond to long-term inflation expectations to some degree.

Background

1. **The BOJ's unconventional monetary policy framework has continued to evolve over the years since its inception in the late 1990s as an attempt to save Japan from a prolonged period of deflation.** In April 2013, the BOJ bolstered the policy framework by adopting the Quantitative and Qualitative Monetary Easing (QQE) Policy, following several policy experiments such as the Zero Interest Rate Policy (February 1999 to August 2000), the Quantitative Easing Policy (March 2001 to March 2006), and the Comprehensive Easing Policy (October 2010 to April 2013). Since its launch, the QQE policy framework has been further recalibrated in response to developments of economic activity and financial market conditions. In January 2016, the QQE policy was strengthened by the introduction of the Negative Interest Rate Policy (NIRP). However, the abrupt decline in JGB yields triggered by financial markets' misunderstanding of the NIRP resulted in the subsequent introduction of Yield Curve Control (YCC) in September 2016.

2. **The 'QQE with YCC' policy aims to create an ultra-low interest rate environment to boost demand and to change the adaptive inflation expectations among households and corporates to more forward-looking inflation expectations.** To this end, the BOJ has set the overnight policy rate target at -0.1 percent and the 10-year JGB yields at around 0 percent to reduce real interest rates in both short- and long-term yields (the YCC component). Furthermore, the BOJ has been committed to expand the monetary base with asset purchases until the 2 percent price stability target is achieved in a stable manner (inflation-overshooting commitment component) in order to strengthen the forward-looking mechanism in forming inflation expectations.

3. **This analysis aims to study the overall effects of the 'QQE with YCC' policy on the economy** to assess risks and challenges stemming from the policy, and to discuss some policy recommendations**.**

Assessing the Effects on Economic Activity and Prices

4. **The overall effects of the 'QQE with YCC' policy on the real sector are analyzed through key channels.** Looking into the effects of BOJ's monetary policy on economic activity and prices, key four monetary policy transmission channels – interest rate, portfolio rebalancing, exchange rate, and expectations – are identified and explored.

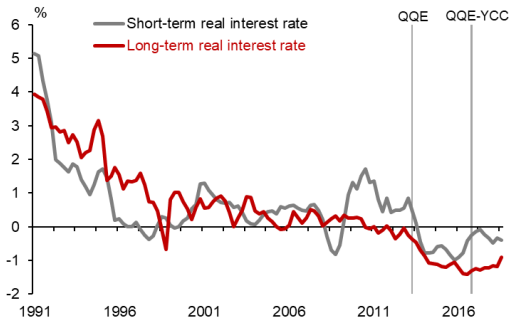
[26] Prepared by Jinho Choi (Senior Specialist)
[27] In essence, the QQE policy is closely linked in assessment of 'QQE with YCC' policy. Hence, the scope of this analysis may start from April 2013 in some parts despite the title.

a) Interest rate channel

5. **The interest rate channel is key to boosting domestic demand by lowering real interest rates, especially in the long-term.** While conventional monetary policy using short-term interest rates aims to lower long-term rates indirectly through term structure, the BOJ's asset purchases of JGBs and Exchange-traded funds (ETFs) aim to lower long-term financing costs and risk premiums directly. This, in turn, is expected to boost private consumption and investment.

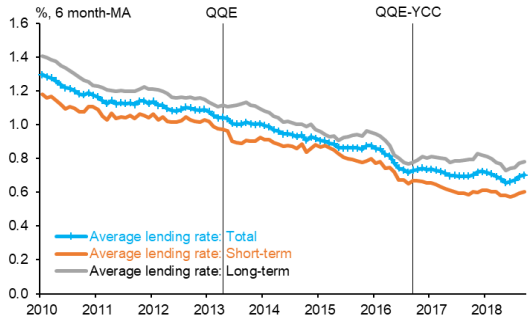
6. **The interest rate channel has been significant in lowering financing costs for corporates and households.** The 'QQE with YCC' policy is assessed to be effective in lowering nominal interest rates both in short- and long-ends of the yield curve. Since the adoption of QQE in April 2013, real interest rates were constantly in negative territory. In early 2017, however, short-term real interest rates picked up largely due to the then falling inflation rates, before declining again (Figure A2.1). As intended, lower JGB yields have been transmitted to a further decline in banks' lending rates for new loans and discounts (Figure A2.2) as well as corporate bond issuance yields, which helped maintain highly accommodative financial conditions.

Figure A2.1 Short- and Long-term Real Interest Rates



Note: The short-term real interest rate = uncollateralized overnight call rate – yoy growth of CPI (less fresh food and energy; excl. tax hike effects) inflation; the long-term real rate = 10-year JGB yields – long-term (6 to 10 years ahead) inflation expectations.
Source: Ministry of Finance; Ministry of Internal Affairs and Communications; Consensus Economics; Haver Analytics

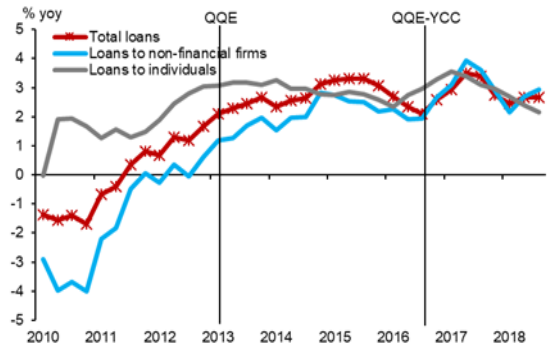
Figure A2.2 Bank Lending Rates



Note: Based on domestically licensed banks' new loans and discounts.
Source: BOJ; AMRO staff calculations

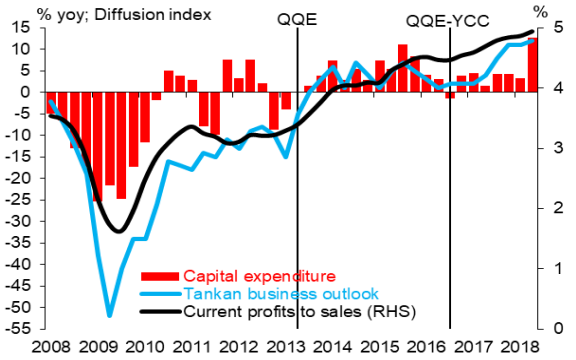
7. **The accommodative financing conditions have had a relatively modest impact on overall lending activities and a limited contribution to the real economy.** Although banks' lending growth has held up modestly at around 2-3 percent, the presence of ample internal funds has limited further demand for corporate loans (Figure A2.3). Even with lower interest rates, Japanese households also prefer to save rather than to borrow. On the growth front, the economy has been expanding since December 2012 and the output gap turned positive with the tightening of the labor market. That said, the direct effects of accommodative financial conditions on boosting domestic demand remained limited. Private consumption, meanwhile, has shown moderate growth, driven mainly by recovering consumer sentiment amid a tightening labor market. Business investment has strengthened, driven largely by an improving business outlook as well as labor-saving capital investment using internal funds or high corporate earnings (Figure A2.4) rather than by borrowing.

Figure A2.3 Domestic Bank Loan Growth



Note: Based on domestically licensed banks' loans outstanding. Loans to banks and insurance companies are excluded.
Source: BOJ; AMRO staff calculations

Figure A2.4 Capital Investment, Business Outlook and Corporate Earnings



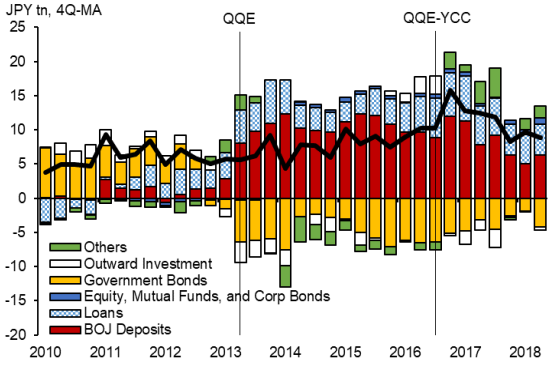
Source: Ministry of Finance; BOJ

b) Portfolio rebalancing channel

8. **The portfolio rebalancing channel may help invigorate financial intermediation and financial markets.** Under the BOJ's JGB purchase program with the annual target amount of JPY80 trillion, the portfolio rebalancing effect happens when financial institutions are encouraged to shift from safe JGBs to riskier and/ or higher-yielding assets such as loans, stocks and corporate bonds, which will help strengthen financial intermediation and support financial markets.

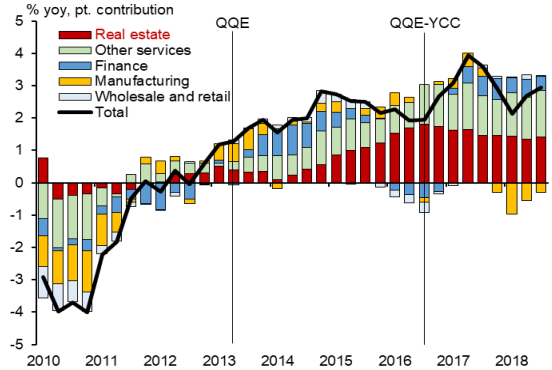
9. **Through the portfolio rebalancing channel, the BOJ's JGB purchases resulted in a shift in banks' portfolio from JGBs to riskier forms of lending such as real estate sector loans, but it also led to the accumulation of bank deposits at the BOJ.** The BOJ's JGB purchases did lead to financial institutions' portfolios rebalancing toward higher-yield assets, as intended. However, financial institutions mainly shifted from JGB holdings to current account deposits at the BOJ, while expanding bank lending and other risky asset investments to lesser extent (Figure A2.5). A decomposition of bank lending to corporates (Figure A2.6) suggests that the real estate sector benefited greatly from accommodative financial conditions. In contrast, bank lending to the manufacturing sector remained modest, probably due to a lack of loan demand.

Figure A2.5 Changes in Assets of Domestic Banks



Note: Corporate bonds consist of industrial securities and external securities issued by residents. Loans exclude call loans.
Source: BOJ; AMRO staff calculations

Figure A2.6 Bank Lending Outstanding to Corporates by Sector



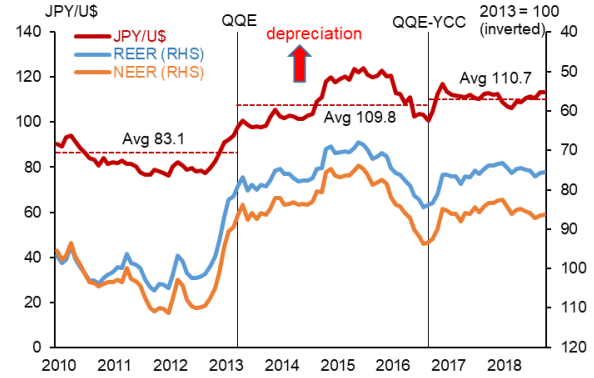
Note: Based on loans outstanding in the banking account of domestically licensed banks. Loans to banks and insurance companies are excluded.
Source: BOJ; AMRO staff calculations

c) Exchange rate channel

10. **The exchange rate channel tends to affect the trade balance, import prices and foreign currency-denominated assets and earnings.** In theory, a depreciation of the JPY is expected to affect the economy mainly by improving external competitiveness, increasing import prices, and expanding the value of foreign currency-denominated assets and corporate profits in terms of the JPY. However, recent years have witnessed weakened linkages between the export volume and exchange rate, mainly due to the developments of global value chains.

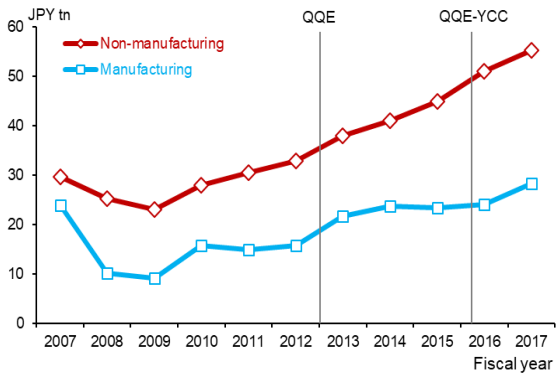
11. **This channel has been among the most effective channels of monetary policy transmission in the past few years.** The interest rate differential between the U.S. and Japan, reflecting the state of the two economies, could be one of the major factors behind the depreciation of JPY (Figure A2.7). Against the background of the steady growth of overseas economies, JPY depreciation has helped to improve Japanese firms' repatriated yen-denominated profits. Despite not directly being targeted by the 'QQE with YCC' policy, JPY depreciation can be assessed to have helped improve corporate earnings (Figure A2.8) and support stock markets, which in turn provided a strong boost for growth momentum.

Figure A2.7 JPY Exchange Rates



Note: JPY/U$ rates are based on inter-bank spot rates.
Source: BOJ; AMRO staff calculations

Figure A2.8 Current Profits



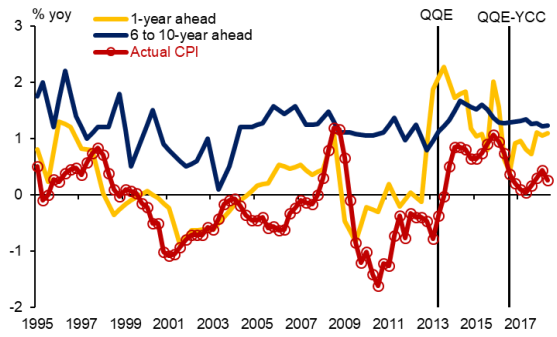
Note: Excludes financial corporations.
Source: Ministry of Finance; Haver Analytics

d) Expectations channel

12. **The expectations channel becomes effective when actual inflation rises, reflecting higher inflation expectations.** Through this channel, the BOJ's 'QQE with YCC' policy can reduce real interest rates, which may help to boost growth and raise inflation expectations. Once actual inflation increased together with inflation expectations, people will raise their inflation expectations further, which may push up the Phillips curve eventually. In this channel, long-term inflation expectations usually play a pivotal role as being anchored to the central bank's price stability target whereas short-term inflation tends to fluctuate with recent inflation performance. If this channel is effective, with the BOJ's strong inflation-overshooting commitment, inflation expectations could become more forward-looking, which may help raise actual inflation. Against this backdrop, it is essential to examine inflation expectations formation in Japan and then explore how inflation expectations have affected actual inflation since the adoption of the 'QQE with YCC' policy.

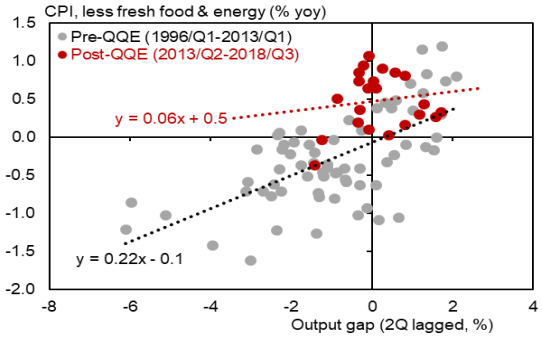
13. **Inflation expectations in Japan has been formed in a highly adaptive manner, especially in the short-term outlook.** It is well established that both short-term and long-term inflation expectations in Japan tend to be more adaptive than in other advanced economies such as the U.S., the Euro area and the U.K. (Nishino et al., 2016). Several inflation expectation indicators from market participants, the general public and bond markets[28] suggest that such an adaptive formation tendency is more pronounced in the near-term outlook, while longer-term expectations have been relatively stable. Figure A2.9 illustrates market participants' short-term inflation expectations (one year ahead). These tend to be more or less adaptive, reflecting the then-actual inflation level which had fallen into negative territory in the early 2000s and 2010s. In contrast, long-term inflation expectations (6-10 years ahead) have stayed at around 1 percent, except in 2003. Remarkably, short-term expectations began to persistently show an upward deviation from actual inflation since 2010, followed by a sharp pick-up in the long-term expectations at the onset of Abenomics and the QQE policy in April 2013, although they have trended down subsequently. Figure A2.10 suggests the Phillips Curve in the conventional form may have shifted up since the adoption of the QQE policy, meaning that inflation expectations were pushed up to some degree.

Figure A2.9 CPI Inflation and Inflation Expectations



Note: Yoy growth in the CPI – less fresh food and energy – excluding the effects of consumption tax hikes is used.
Source: Ministry of Internal Affairs and Communications; Consensus Economics

Figure A2.10 Upward-shifting Phillips Curves



Note: Yoy growth in the CPI – less fresh food and energy – excluding the effects of consumption tax hikes is used. Dotted lines indicate linear regression lines.
Source: AMRO staff estimations

14. **Our estimation results on the New Keynesian Phillips Curve suggest that the expectations channel has not been effective yet – the adaptive mechanism remains dominant.** With a view to quantifying the relative importance of forward-looking and adaptive mechanisms in affecting observed inflation, a 'hybrid' version of the New Keynesian Phillips Curve (Gali and Gertler, 1999), which relates actual inflation to past inflation, inflation expectations and the output gap, is employed with the model specification of core CPI inflation (excluding the effect of consumption tax hikes) against the regressors including: i) lagged core CPI inflation (as proxy of adaptive expectations component); ii) long-term inflation expectations (forward-looking expectations component); iii) the output gap with two quarter lags (economic activity); and iv) import price inflation (imported inflation). Reflecting the available data, the

[28] Most widely used inflation expectation indicators can be classified into the categories: (i) the general survey measures for households (BOJ, Opinion Survey on the General Public's Views and Behavior, over the next five years) and firms (BOJ Tankan, Outlook for General Prices, over the next five years); (ii) the professional survey measures for market participants (QUICK, Monthly Market Survey, 2-10 years ahead; Consensus Economics, semi-annual Consensus Forecast; 1 to 6-10 years); and (iii) Break-Even Inflation (BEI) measures extracted from the spread between fixed-rate coupon JGBs and inflation-linked JGBs.

sample period spans from Q1 1990 to Q3 2018 with two sub-sample periods breaking at the launch of QQE in Q2 2013. Key findings from our estimation results (Table A2.1) are summarized as follows:

- During the full-sample period, core CPI inflation is positively affected by lagged inflation, output gaps and import price inflation, while the role of long-term inflation expectations is not statistically significant. Moreover, the output gap has much stronger influences on the current period's core CPI inflation than import price inflation.
- Sub-sample analyses suggest the effects of lagged inflation on current inflation remain statistically significant in *Post-QQE* sample, albeit slightly lower. In the *Post-QQE* sample, the coefficient estimate on long-term inflation expectations increased sharply albeit being statistically insignificant. Moreover, the responsiveness of core CPI inflation to the output gap became insignificant, suggesting that linkages from real economic activity to inflation weakened in the recent period.

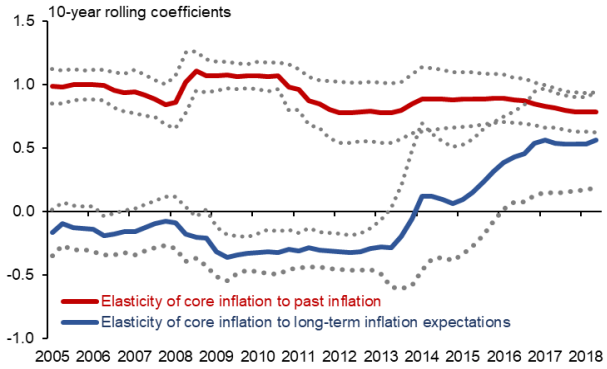
Table A2.1 Estimation Results of the Hybrid New Keynesian Phillips Curve

	All Sample (1990:Q1-2018:Q3)			Pre-QQE (1990:Q1-2013:Q1)			Post-QQE (2013:Q2-2018:Q3)		
Regressor	Coefficient estimates	95% confidence band		Coefficient estimates	95% confidence band		Coefficient estimates	95% confidence band	
Lagged core-CPI inflation	**0.92**	0.79	1.05	**0.91**	0.77	1.05	**0.85**	0.42	1.27
Long-term inflation expectations	**-0.03**	-0.20	0.14	**-0.05**	-0.23	0.13	**0.21**	-0.25	0.67
Output gap	**0.05**	0.02	0.09	**0.06**	0.03	0.09	**-0.07**	-0.21	0.06
Import price inflation	**0.01**	0.00	0.02	**0.01**	0.00	0.02	**0.01**	-0.01	0.02

Note: Based on the regressions of the yoy growth rate of CPI (less fresh food and energy, excluding the effects of consumption tax hikes) on a constant (not reported) and the regressors listed in the table. Standard errors are calculated using the HAC estimators with Bartlett kernel and Newey-West automatic bandwidth. Orange cells indicate statistical significance at the 1 percent level with light orange cell at the 5 percent level.
Source: Ministry of Internal Affairs and Communications; Consensus Economics; BOJ; AMRO staff estimations

15. **The forward-looking mechanism may have gained traction to some extent since the adoption of QQE.** To test the changing role of forward-looking components in inflation dynamics over the years, we ran the regression over 10-year rolling windows since 1990. Interestingly, the rolling-regression estimation results in Figure A2.11 suggest that CPI inflation has become more responsive to long-term inflation expectations since 2013, while being statistically significant from 2016 onward. Our estimation results may lend some support to the BOJ's continued commitment to enhancing the forward-looking mechanism in inflation dynamics that may begin to take effect while the backward-looking behavior remains dominant.

Figure A2.11 Inflation's Time-Varying Responsiveness to Inflation Expectations

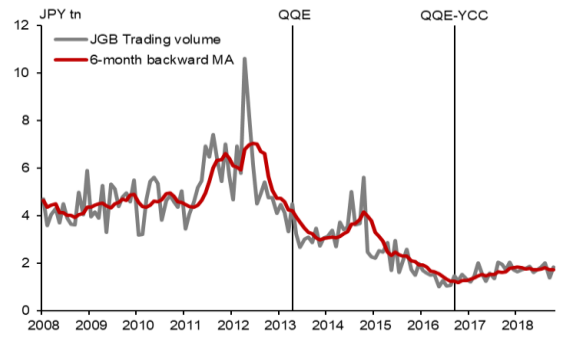


Note: Based on rolling regressions (10-year windows) of the hybrid Phillips curve specification. Dotted lines indicate 95 percent confidence bands.
Source: AMRO staff estimations

Assessing the Effects on the Financial Sector

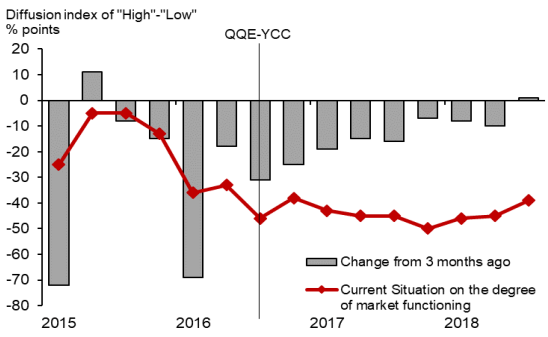
16. **The functioning of financial markets has been adversely affected by the BOJ's active JGB purchases, although it has shown some improvements recently.** As in other advanced economies, JGBs have been traded as primary collateral between financial institutions and provided benchmarks for yield curve pricing. However, with the BOJ's massive purchase of JGBs via the secondary market, key JGB market liquidity indicators such as investors' JGB transaction volume and the turnover ratio imply that JGB market liquidity deteriorated sharply following the introduction of QQE in April 2013. The JGB market functioning has improved (Figure A2.12) recently through the introduction of more flexible market operations, including allowing the yield to move upward and downward to some extent depending on developments in economic activity and prices, although the number of negative responses from the participants remains higher than that of positive responses concerning the absolute degree of market functioning (Figure A2.13). On the stock market, the BOJ's continued ETF purchases with an annual quota of around JPY6 trillion may have helped to support stock prices even when market sentiment worsened. However, such massive stock purchases under the 'QQE with YCC' policy has resulted in the impairment of the autonomous stock market functioning, while undermining corporate governance.

Figure A2.12 JGB Trading Volume



Source: Bloomberg; AMRO staff calculations

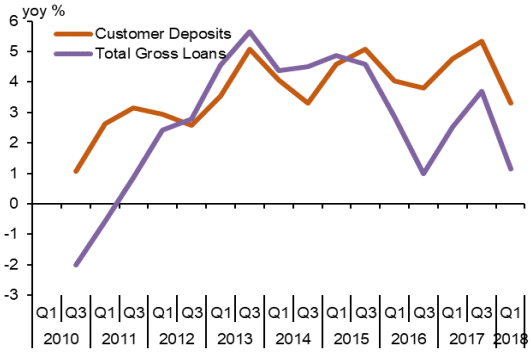
Figure A2.13 Bond Market Survey



Source: BOJ; AMRO staff calculations

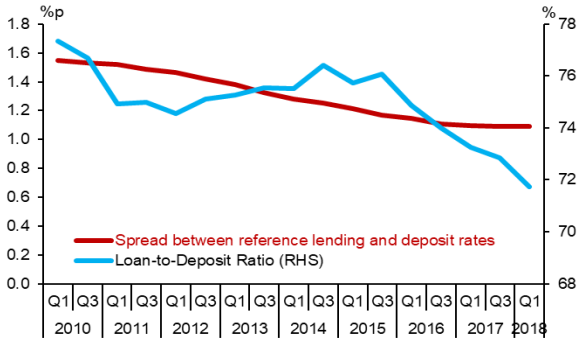
17. **Financial institutions have suffered from lower core profitability with tighter interest margins and limited prospects for capital gains from long-term JGBs.** Although the 'QQE with YCC' policy has contributed somewhat to encouraging financial institutions to increase lending through the interest rate and portfolio rebalancing channels, customer deposits outpaced loan growth from Q3 2015 to Q1 2018 (Figure A2.14). Such a robust supply of savings gave rise to a secular decline in the loan-to-deposit ratio as well as interest margins (Figure A2.15), which reduced the net interest incomes of financial institutions. Furthermore, the BOJ's government bond purchases have led to a decline in long-term interest rates while limiting the prospects for further capital gains from holding JGBs. This has incentivized long-term institutional investors to increase overseas investments in search of higher returns.

Figure A2.14 Deposit and Loan Growth Rate



Note: Domestically controlled cross-border, cross sector consolidation basis.
Source: IMF Financial Soundness Indicator; Haver Analytics

Figure A2.15 Loan-to-deposit Ratio and Lending Margins



Note: Domestically controlled cross-border, cross sector consolidation basis.
Source: IMF Financial Soundness Indicator; Haver Analytics

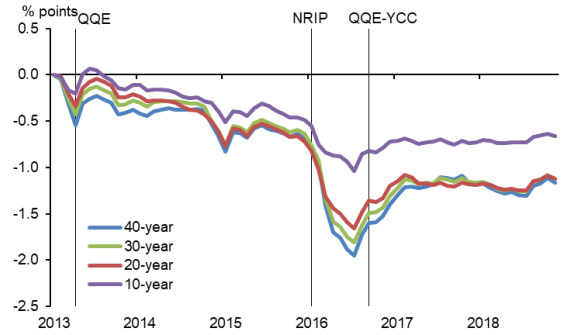
18. **Financial imbalances may have been building up in some asset markets.** Since the launch of QQE policy in 2013, the real estate loan-to-GDP ratio has grown rapidly, going above the long-term trend. Moreover, the stock markets have benefited from high corporate earnings and the BOJ's policy support with the ETF purchase has remained strong. In the midst of 2018, although the price-to-earnings ratio stayed slightly lower than its historical average, the TOPIX stock price remained higher than the long-term trend. Given that current real estate and stock prices are above their long-term trends, a sharp correction in the asset markets may undermine confidence and lead to financial instability, although the probability of this happening is low.

Effects on the Macro-policy Space and Sustainability

19. **Prolonged monetary easing has reduced the government's debt service burdens, while building up BOJ's JGB and other asset holdings.** Following the launch of 'QQE with YCC' policy, long-term JGB yields continued to decline across the board, mainly driven by the BOJ's purchases with its main purpose of achieving the price stability target. Although the introduction of 'QQE with YCC' policy prevented the yields from declining further as happened following the NIRP, as of December 2018, super-long JGB yields have declined by more than 1ppt compared to January 2016 (Figure A2.16). Moreover, the 'forward guidance' in the 'QQE with YCC' policy that was adopted in July 2018 has enabled the maintenance of low interest rates for an extended period. This will continue to reduce the government's debt servicing burden. However, the unprecedented accumulation of assets by the BOJ, which has amounted

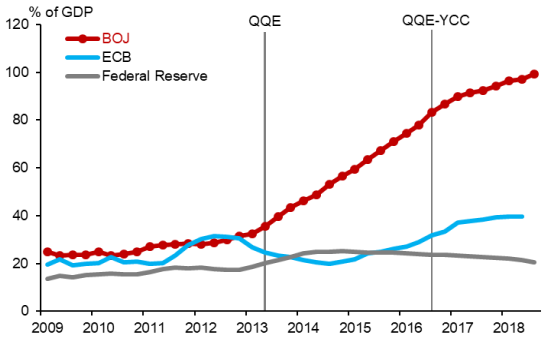
to the same size as the GDP (Figure A2.17), may translate into significant losses to the BOJ from valuation losses on JGB holdings as well as higher interest payments on domestic banks' current account deposits parked at the BOJ, when interest rates begin to rise.

Figure A2.16 Changes in Long-term JGB Yields



Note: Cumulative benchmark yield changes from January 2013.
Source: Ministry of Finance; AMRO staff calculations

Figure A2.17 Major Central Banks' Asset Holdings



Source: Bloomberg

Conclusions

20. **The 'QQE with YCC' policy has been effective in bolstering growth momentum and inflation expectations.** In our assessment, the 'QQE with YCC' policy has contributed to lifting potential growth, actual inflation and inflation expectations by maintaining highly accommodative monetary conditions and strengthening bank lending channels. However, efforts to raise inflation up to the price stability target of 2 percent have not been successful thus far. Our analysis suggests actual inflation may begin to respond to long-term inflation expectations to some degree. This highlights the importance of the BOJ's effective management of long-term inflation expectations, while suggesting the need to pay closer attention to investigating the optimal level of inflation target customized to Japan's socio-economic structures from the medium- to long-term perspectives.

21. **Monetary policy should continue to be reviewed and recalibrated to address issues related to the achievability of the 2 percent inflation target, and adverse side-effects such as the impact on the profitability of financial institutions and the functioning of the financial markets.** Achieving the 2 percent price stability target in the near term remains a very challenging task given the structural difficulties – adaptive inflation expectations formation and a weak link between output gap and actual inflation. Prolonged monetary easing policy has impaired the JGB market functioning, financial institutions' profitability and resulted in some signs of financial imbalances, while the BOJ's holdings of financial assets have increased to an unprecedented level. In this regard, the current mix of monetary and fiscal policies needs periodic review and recalibration in order to revitalize the economy while securing longer-term policy sustainability.

References

Galí, J. and M. Gertler (1999), “Inflation Dynamics: A Structural Econometric Analysis”, *Journal of Monetary Economics*, Vol. 44(2), 195-222.

Kuroda, H. (2013), “Quantitative and Qualitative Monetary Easing”, Speech at a meeting held by the Yomiuri International Economic Society in Tokyo, April 12, 2013.

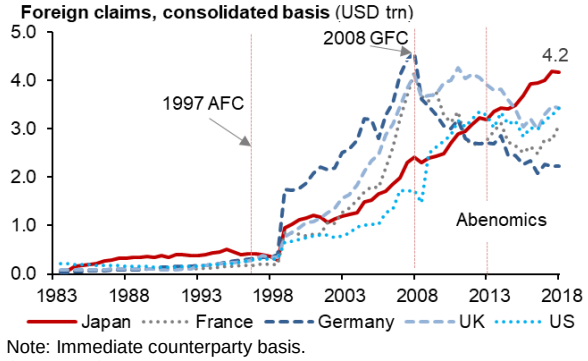
Nishino, K., H. Yamamoto, J. Kitahara, and T. Nigahata (2016), “Developments in Inflation Expectations over the Three Years since the Introduction of Quantitative and Qualitative Monetary Easing (QQE)”, *Bank of Japan Review*, No. 2016-E-13.

Annex 3. Japanese Banks' Cross-border Activity with a Focus on ASEAN[29]

Japanese banks have again been expanding their global network in what can be referred to as their fourth wave of overseas expansion. Closer to home, they have been actively supporting ASEAN countries' large financing needs. While this move could boost Japanese banks' profitability, it also increases their exposure to risks ASEAN is faced with, such as those emanating from tighter global liquidity, U.S.-China trade tensions, and a slowdown in China. Likewise, ASEAN economies could gain from Japanese banks' increased financing activity in the region, but should be mindful of potential stress points from Japanese banks.

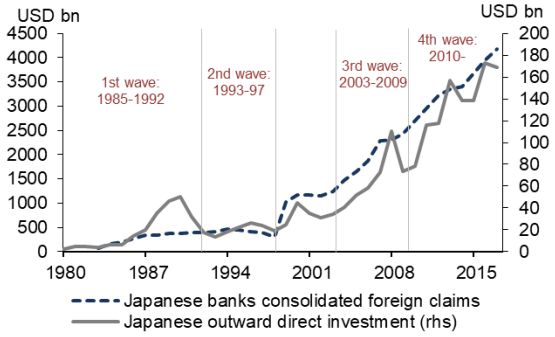
1. **Japanese banks have once again become the biggest source of cross-border credit globally.** Japanese banks have been stepping up overseas investment and lending since the 2008 GFC, as Western banks have scaled back on foreign exposure. With foreign claims having grown by over 70 percent since 2009, Japanese banks have re-emerged as the global leaders in cross-border financing, a position they once held in the second half of the 1980s through the mid-1990s.

Figure A3.1 Consolidated Foreign Claims of Japanese and Western Banks



Note: Immediate counterparty basis.
Source: BIS

Figure A3.2 Japanese Banks' Consolidated Foreign Claims & Japanese FDI



Note: Immediate counterparty basis.
Source: BIS, CEIC

2. **This is Japanese banks' fourth wave of overseas expansion.** The *first wave* ran from the mid-1980s until the burst of the asset bubble in the early 1990s. This period saw Japanese banks mainly supporting the rapid expansion in outward direct investments that were triggered by the sharp appreciation of the yen (Lam 2013). Outward FDI surged from just about USD6 billion per annum in 1984-85 to USD50.5 billion by 1990 as the 50 percent appreciation of the JPY/USD in the three years after the Plaza Accord in 1985 eroded the competitiveness of Japanese manufacturers. Also, strong domestic growth – with real GDP growth averaging 5 percent between 1984-1988 – and a shortage of labor, pushed up wages and land prices in Japan, providing an additional incentive for overseas production (Urata, 1993). In contrast to the first, the *second wave* in the mid-1990s was marked by a sluggish economy and a low interest rate regime, which saw Japanese banks extending U.S. dollar-denominated loans for investment projects in Asia to take part in the region's rapid expansion (Delios and Keeley, 2001).[30] This outward push was halted by the 1997 Asian financial crisis, although it has

[29] Prepared by Diana del Rosario (Economist).
[30] The early 1990s saw a substantial reduction in short-term interest rates. From 6.0 percent in 1991, the basic loan or discount rate fell to 0.5 percent by September 1995.

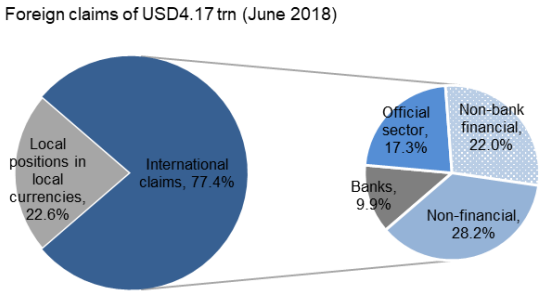
resumed since the early 2000s and was only temporarily interrupted by the GFC, in what can be referred to as Japanese banks' *third* and *fourth waves* of overseas expansion.

3. **The current uptrend in cross-border activity has been motivated largely by the low core profitability of Japanese banks and intensified by the BOJ's ultra-easy monetary policy.** Population aging, sluggish economic growth, persistent deflation and the large surpluses of Japanese corporations' limited the domestic opportunities for Japanese banks, thus pushing them in their *third* wave of global expansion through the 2000s. The major Japanese banks weathered the GFC and still had strong balance sheets, which facilitated their push for global expansion. The Japanese banks were drawn to diversify in Asia, with the region's large financing needs and greater scope for financial inclusion. Following the GFC and particularly from 2010 onwards, while the said factors continue to figure among Japanese banks' push to expand overseas, it can be said that the *fourth* wave is additionally motivated by the deleveraging of European banks and the BOJ's ultra-loose monetary policy. The European banks' reduction of foreign assets post-GFC gave the Japanese and other local Asian banks an opportunity to increase their market shares. Similarly, the added downward pressure on Japanese banks' core profitability resulting from the BOJ's aggressive monetary easing since 2011, has further prompted banks to search for growth areas overseas.

4. **Following a sustained global expansion starting in the early 2000s, Japanese banks' foreign claims now amount to about 84 percent of Japan's GDP.** Japanese banks' consolidated foreign claims have risen to USD4.2 trillion as of Q2 2018 – comprising 21 percent of total bank claims including domestic – according to the Bank for International Settlements (BIS), from just USD2.4 trillion in 2009 and USD1.2 trillion in 2003. The figure includes claims of foreign affiliates of Japan-headquartered banks but excludes intra-group positions. Of the total, 77 percent are international claims or claims in foreign currency and a balance of 23 percent in local positions in local currency.[31] Of the 77 percent in international claims, 28 percent have been extended to non-financial entities, 22 percent to non-bank financial corporations, and only 10 percent are claims on the banking sector. Over 40 percent of the claims have maturities of over two years. It is estimated that over 50 percent of international claims are in USD, about 13 percent in euro, and at least 20 percent in JPY.[32]

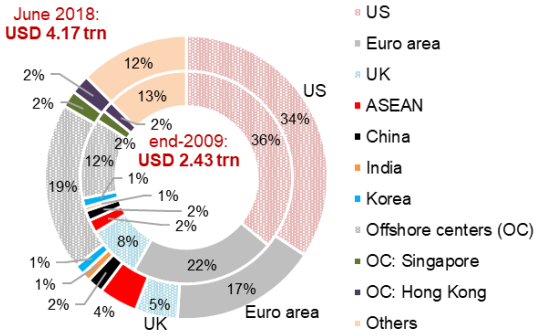
[31] By local position in local currency, we refer to local currency claims on a counterparty located in the same country as the Japanese bank affiliate. In contrast, international claims comprise cross-border claims in any currency plus local claims of foreign affiliates denominated in non-local currencies (BIS).
[32] Estimated based on BIS' locational banking data.

Figure A3.3 Consolidated Foreign Claims of Japanese Banks, by Type and Sector



Note: Immediate counterparty basis
Source: BIS

Figure A3.4 Japanese Banks' Consolidated Foreign Claims by Destination, 2009 vs 2018



Note: Immediate counterparty basis. Offshore centers include Hong Kong and Singapore, following BIS' classification.
Source: BIS

5. **Asia – ASEAN in particular – is back on the radar of Japanese banks.** The advanced economies of the U.S., the U.K. and the Euro area continue to comprise over half of total consolidated foreign claims of Japanese banks. Yet, Japanese banks' lending to the rest of Asia has grown the fastest, relative to other markets. ASEAN, in particular, is leading this rapid expansion where claims of Japanese banks have grown by over 3.7 times since 2009. As a result, the share of ASEAN has doubled to 4 percent according to the latest data while shares of China, India, and South Korea have remained the same and those of the U.S. and Europe have declined. Given the already sizable exposure to the U.S. and Europe and the tight regulatory restrictions on foreign banks in China and India, Japanese banks have been heading to Southeast Asia to take advantage of the economies' rapidly growing markets.

6. **Japanese banks have been increasing their ASEAN footprint by setting up branches or subsidiaries and taking stakes in local banks and other financing companies.** Aside from the traditional business of providing financing, derivatives and cash management services to Japanese corporates in ASEAN, Japanese banks in the region have expanded their services to non-Japanese entities, including SMEs, as well as to consumers. More recently, some regional banks have also initiated partnerships with local banks or setting up representative offices.

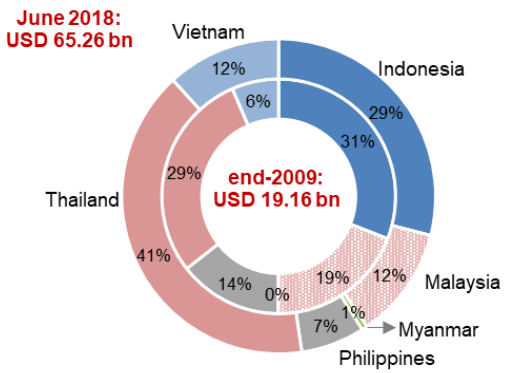
Table A3.1 Selected Activities of Japanese Megabanks and Regional banks in ASEAN in Recent Years

Japanese Megabanks	Type of investment in ASEAN	Country	Year
Mitsubishi UFJ Financial Group	Representative office	Cambodia	2012
Mitsubishi UFJ Financial Group	Branch	Myanmar	2015
Mitsubishi UFJ Financial Group	20% stake in Security Bank	Philippines	2016
Mitsubishi UFJ Financial Group	Merger with Bank of Ayudhya, now a subsidiary	Thailand	2015
Mitsubishi UFJ Financial Group	20% stake in VietinBank	Vietnam	2012
Mitsubishi UFJ Financial Group	40% in Bank Danamon	Indonesia	2018
Mizuho Bank	Branch	Cambodia	2017
Mizuho Bank	Branch	Myanmar	2015
Mizuho Bank	15% stake in Vietcombank	Vietnam	2011
Sumitomo Mitsui Banking Corp.	12.25% stake in Acleda Bank	Cambodia	2014
Sumitomo Mitsui Banking Corp.	40% stake in BTPN	Indonesia	2013
Sumitomo Mitsui Banking Corp.	35% stake vehicle financing firms PT Oto Multiartha and PR Summit Oto Finance	Indonesia	2015
Sumitomo Mitsui Banking Corp.	Branch	Myanmar	2015
Sumitomo Mitsui Banking Corp.	15% stake in Eximbank	Vietnam	2007
Sumitomo Mitsui Trust Bank	49% stake in Financial Leasing Company of BIDV	Vietnam	2017
Regional and other banks	**Type of investment in ASEAN**	**Country**	**Year**
Ashikaga Bank	Representative office	Thailand	2018
Bank of Fukuoka	Partnership with BDO Unibank	Philippines	2018
JTrust Bank	55% stake in ANZ Royal Bank	Cambodia	2018
Juroku Bank	Representative office	Vietnam	2018
Kansai Urban Banking Corp, Minato Bank	Business alliance with RCBC	Philippines	2018

Note: The Bank of Tokyo-Mitsubishi UFG (BTMU) has been renamed MUFG Bank, a subsidiary of Mitsubishi UFJ Financial Group (MUFG).
Source: Various media reports, AMRO

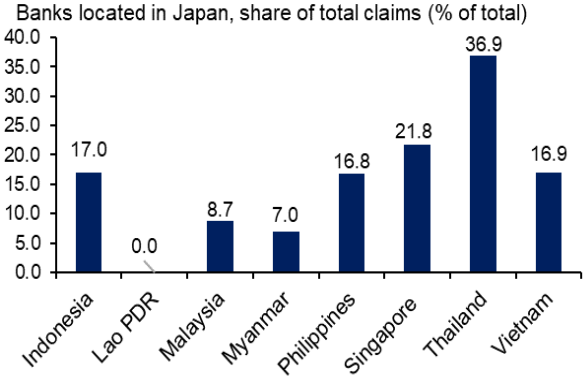
7. **Japanese banks represent a considerable portion of the total external claims on ASEAN.** According to the BIS' locational banking statistics, total cross-border claims on ASEAN amounted to USD1.1 trillion as of June 2018, or nearly 40 percent of the region's GDP. Banks located in Japan represent 20 percent of the total claims on ASEAN in the same period (18 percent excluding Singapore, which is a financial center), up from 17 percent in 2009 (13 percent, if excluding Singapore). Within ASEAN, Thailand has the biggest share of its liabilities from banks located in Japan at 37 percent, followed by Singapore at 22 percent, and Indonesia, Philippines and Vietnam (17 percent).

Figure A3.5 Claims on ASEAN of Banks Located in Japan, 2009 vs 2018



Note: Singapore represented 70 percent of total in June 2018. Only ASEAN countries with a numerical entry in the BIS database are presented.
Source: BIS

Figure A3.6 Claims on ASEAN Countries of Banks Located in Japan, Share of Country Total

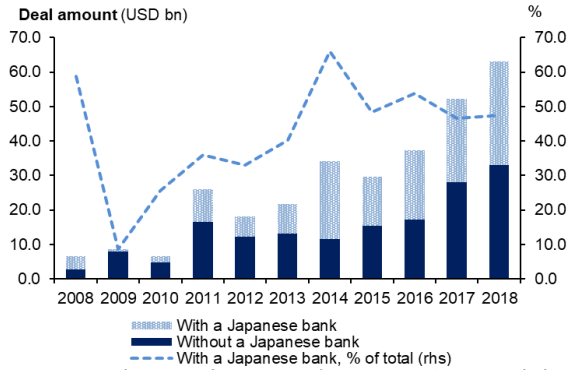


Note: Only ASEAN countries with a numerical entry in the BIS database are presented.
Source: BIS

8. **Japanese banks have become active players in the region's syndicated loans business.** Syndicated loans serve as a major instrument in supplying credit to large-scale developments in ASEAN, and the Japanese banks, primarily the megabanks—with their strong balance sheets and long-term focus in lending—have been active as both arrangers and

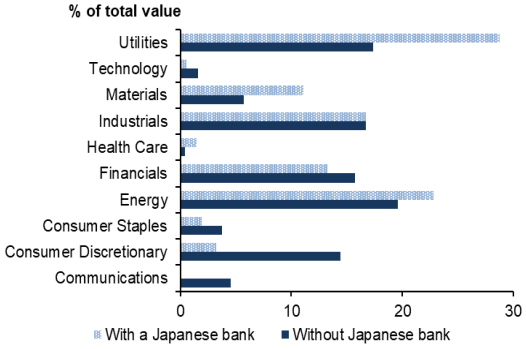
participants. Bloomberg's compilation of syndicated loans in ASEAN shows that the three Japanese megabanks have taken an increasing share in the business over the last decade. Indeed, the Mitsubishi UFJ Financial Group (MUFG) topped Thomson Reuters' ranking of lead arrangers for project finance deals in Asia-Pacific (and globally) in H1 2018, rising from the third spot in 2017, while SMBC rose from the fifth to third place in the same period. Mizuho, meanwhile retained the fourth spot. According to Bloomberg data, Japanese banks tend to have a bigger role in providing largely U.S. dollar--denominated financing in energy, utilities and industrial projects in ASEAN than non-Japanese banks. About three-quarters of the syndicated loans in ASEAN with a Japanese bank for the 2016-2018 period were for corporates headquartered in Indonesia and Malaysia, with the balance shared by companies in the Philippines, Thailand and Vietnam.

Figure A3.7 Syndicated Loans in ASEAN



Note: 2018 data as of 22 November 2018. ASEAN excludes Singapore, to be consistent with the BIS grouping.
Source: Bloomberg Finance LP

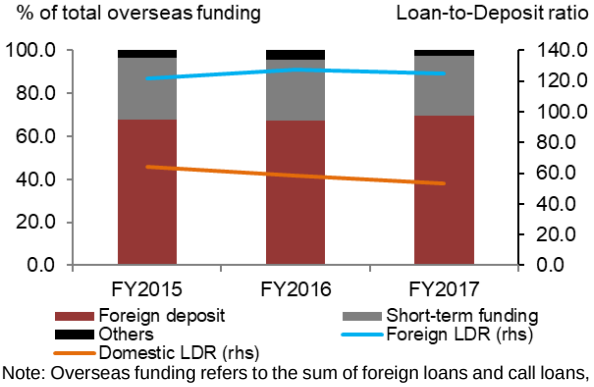
Figure A3.8 Syndicated Loans in ASEAN, by Sector



Note: Referring to 2016-2018 period; 2018 data as of 22 November 2018. ASEAN excludes Singapore, to be consistent with the BIS grouping.
Source: Bloomberg Finance LP

9. **While proving to be profitable, Japanese banks' overseas expansion, including to ASEAN, brings with it funding and credit risks.** Overseas expansion has been an income growth driver for many of the Japanese banks. This is the case for MUFG – Japan's largest bank – where foreign net interest income, accounting for about 40 percent of the group's net revenues, has offset the decline in the domestic net interest income in recent years. However, Japanese banks' large overseas exposure also makes them more vulnerable to funding and credit risks. Given that a sizeable portion of Japanese banks' operations are funded short-term and that the loan-to-deposit ratio for overseas loans exceeds 100 percent, such as in the case of MUFG, Japanese banks can be more susceptible to higher USD funding costs arising from the policy rate hikes in the U.S. than other foreign financial institutions with a sufficient deposit base. Such upward pressures in

Figure A3.9 Funding of Overseas Operations and Loan-to-Deposit Ratios—MUFG



Note: Overseas funding refers to the sum of foreign loans and call loans, funds sold, and receivables under resale agreements and securities borrowing transactions. Short-term funding refers to the sum of call money, funds purchased, and payables under repurchase agreements and securities lending transactions and other short-term borrowing.
Source: MUFG Report 2018

funding costs, in turn, call for closer monitoring by supervisory authorities as some banks may be motivated to increase their lending towards firms with a higher risk profile. Moreover, Japanese banks' increasing global footprint makes the Japanese banks more exposed to overseas credit risks, particularly those arising from Europe and ASEAN, as shown in Selected Issue 4 on the Interconnectedness of Japan's Mega Banks and Implications on Cross-border Spillovers. With regard to their exposure to ASEAN in particular, Japanese banks would have to deal with the risks the region is confronted with, such as tighter global liquidity, U.S.-China trade tensions, and a slowdown in China.

10. **Lastly, outward spillovers from Japanese banks remain modest, but ASEAN economies should be mindful of them, nonetheless.** Selected Issue 4 on the Interconnectedness of Japan's Mega Banks shows that compared to the inward spillovers from the world to the Japanese megabanks, the credit risks brought about by the Japanese banks to the world are relatively modest. Nonetheless, ASEAN – which benefits greatly from increased Japanese financing – should not be complacent. The region's economies need to strengthen their buffers to guard against the risks of tighter global liquidity, including that arising from a potential normalization of the BOJ's monetary policy, balance sheet stress on Japanese banks at home, and a pullback by Japanese banks from their foreign exposure.

References

Delios, Andrew, and Timothy Dean Keeley (2001), "Japanese Foreign Direct Investment in Thailand: An Empirical and Qualitative Post-Crisis Analysis." *Journal of International Business and Economy* 1(1): 91-118.

Lam, Raphael W. (2013), "Cross-border Activity of Japanese Banks." *IMF Working Paper* 12/235, International Monetary Fund, Washington, DC.

Urata, Shujiro (1993), "Japanese Foreign Direct Investment and Its Effect on Foreign Trade in Asia." In *Trade and Protectionism, NBER-EASE Volume 2,* edited by Takatoshi Ito and Anne O. Krueger, University of Chicago Press.

Annex 4. Interconnectedness of Japan's Mega Banks and Implications on Cross-border Spillovers[33]

Japan's mega banks are interconnected with financial institutions in the world and may receive substantial risk spillover through their credit exposure. In a global network of institutions, mega banks are connected with relatively more institutions in Europe and ASEAN and are increasingly connected with North America. The mega banks transmit relatively marginal credit risk to the rest of the financial system. As big creditors to the world, however, they are estimated to receive substantial spillover from abroad in case of a system-wide financial distress.

Overview

1. **The three mega financial groups of Japan, namely the Mitsubishi UFJ Financial Group (MUFG), the Sumitomo Mitsui Financial Group (SMFG) and the Mizuho Financial Group (MFG), have been at the forefront of the international expansion by Japanese financial institutions.** The mega financial groups ('mega banks' thereafter) have enormous assets, varied business segments and extensive international networks, which make their overseas outreach possible. Moreover, ultra-loose monetary policy at home serves as a push factor for them to seek higher returns abroad. Among the many asset classes, their gross loans deployed overseas have been growing and taking up an increasing share of their total outstanding loans over time, as shown in Figure A4.1. Perhaps not surprisingly, a by-product of this international expansion would be their exposure to various risks abroad, while transmitting any shock they receive further to domestic and foreign markets.

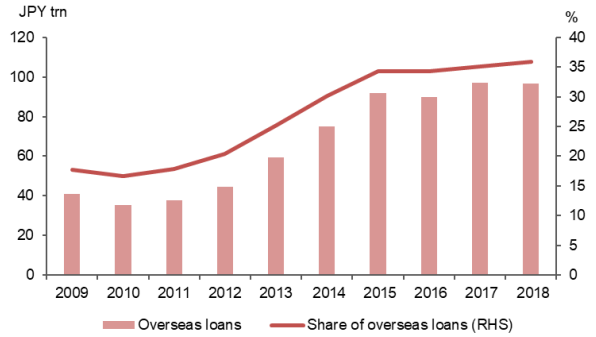
2. **This selected issue studies the interconnectedness of the mega banks in a global context and evaluates their risk spillovers to the world financials and vice versa, by utilizing *network* and *impact analyses*.** Focusing on credit risk, this study comprises a *network analysis*, where we construct a financial network between the mega banks and their global counterparts, and an *impact analysis*, where we quantify the credit loss attributable to the risk transmitting to and from the mega banks[34]. The *network analysis* employs a novel measure of interconnectedness, that is, a partial default correlation between any pair of financial institutions, introduced by Chan-Lau et al. (2018). This default correlation, or correlation coefficient of probabilities of default (PD), captures the tendency of two financial institutions defaulting together. It is 'partial' because it teases out the influence from any third parties from the broader global financial system and gives rise to a clean financial network, whose topology allows us to shed light on which markets the mega banks are immediately connected to and disproportionately so. The *impact analysis* employs a regression model to estimate the change in one financial institution's PD in response to one unit of change in another institution's PD. With the estimated coefficients, we compute the expected credit loss from the 'risk receivers' to

[33] Prepared by Wei Sun (Financial Specialist).
[34] Credit loss is the financial impairment that an entity has to bear due to borrowers not paying their debt obligations.

the financial system under prescribed stress scenarios, where the 'risk senders' experience a sharp increase in their PDs.[35]

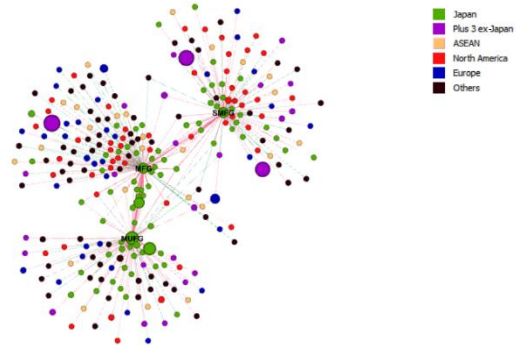
3. **The two analyses are based on PD, a direct measure of financial distress that captures the likelihood of a corporate entity being unable to pay off its debt obligations over a time horizon.** It is generated by the Credit Research Initiative (CRI) of the National University of Singapore through a model that incorporates risk drivers from macro-financial conditions, stock market movements and corporates' fundamentals. For this particular study, we obtain PDs for around 2,000 exchange-listed financial institutions around the world, including banks, insurance companies and brokerage firms.[36] To link the PD values with the level of financial distress they represent, we display the correspondence between the CRI PDs and S&P's major rating grades in Table A4.1.

Figure A4.1 Amount and Share of Overseas Loans



Source: CEIC data

Figure A4.2 Financial Network Surrounding Japanese Mega Banks, as of June 2018



Note: Each node represents a financial institution, and two nodes are connected by an edge if the partial correlation of two institutions' PDs is non-zero.
Source: Credit Research Initiative of National University of Singapore; AMRO staff calculations

Network Analysis: Analyzing Which Financials the Japanese Mega Banks are Connected With

4. **The global financial network surrounding the mega banks (Figure A4.2) is characterized by the node and edge properties of the connected parties.** Each node represents a unique financial institution. The size of the node represents the total asset of the institution, and the color denotes its country of domicile. Two nodes are connected by an edge if the PDs of the two institutions have a non-trivial partial default correlation. Capturing the extent to which their credit risks move together, the strength of the edge, or interconnectedness, is driven by a combination of factors, ranging from institutions' exposure to global credit conditions, common corporate borrowers to bilateral inter-banking lending. Figure A4.2 uses information as

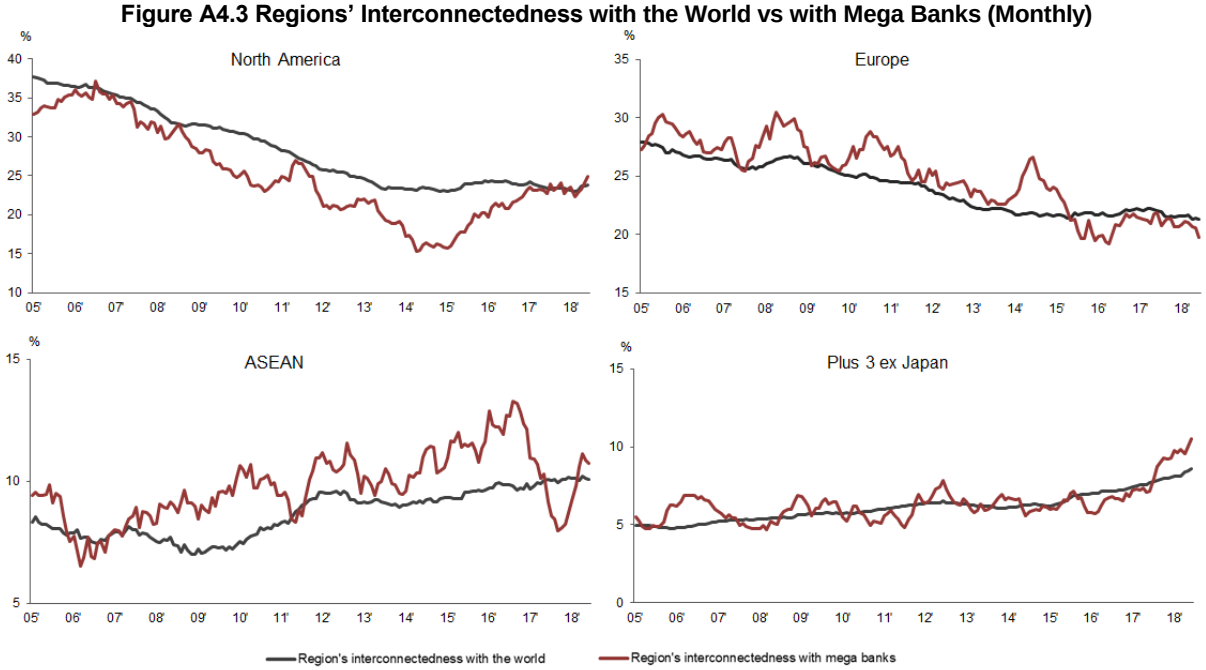
[35] Expected credit loss (ECL) is a new accounting requirement introduced in the International Financial Reporting Standard 9 (IFRS 9). It requires business entities to record loan loss provision based on expected rather than incurred loss. Mathematically, ECL=PD×Loss Given Default (LGD)×Exposure at Default (EAD). In this selected issue, we assume LGD to be 60 percent, a common assumption used in credit default swap pricing, and EAD to be the total liability of the 'risk receivers'. Accordingly, the ECL in this context is the credit loss that the 'risk receivers' are likely to contribute to the broader financial system, i.e. institutions and depositors that they owe liabilities to, after being affected by the deteriorating credit quality of the 'risk senders'.
[36] The PDs in the analyses are projected values based on the model introduced in Chan-Lau et al. (2018), 'Financial Network and Systemic Risk via Forward-Looking Partial Default Correlations' and on the CRI PD database. The data is provided by the CRI and updated as of 7 August 2018.

of June 2018 and shows that each mega bank in the center has a peripheral community of financial institutions, 'counterparties' thereafter, at the time. It suggests that the creditworthiness of the mega banks moves together with many of the world financials. We keep only institutions directly connected to the mega banks, with those indirectly connected, removed, because we focus on risk transmission through primary channels in this study.[37]

5. **Mega banks have relatively more counterparties in ASEAN and Europe, and they are increasingly inter-connected with financial institutions in North America.** The red line in Figure A4.3 shows the regional representation of the mega banks' counterparties over time. In June 2018, the last point in the analysis, which is also what Figure A4.2 represents, roughly 25 percent of the financial institutions, excluding those in Japan, surrounding the mega banks are located in North America. In comparison, the black line, our benchmark, represents the number of edges connecting North American financial institutions with the world relative to the total number of edges in the global network of around 2,000 institutions outside of Japan (this global network is not shown in this study). The two lines should more or less overlap if the mega banks are evenly connected to the rest of the world. For the longest time, however, institutions in ASEAN are over-represented in Japanese mega banks' peripheral communities, that is, the red line is above the black line. Among others, geographical proximity, Japanese manufacturers' active involvement in ASEAN, and mega banks' expansion of subsidiaries/ branches/stakeholding in the region (see Table A3.1 in Selected Issue 3) may help explain this. Japan is a big creditor to many European countries, and therefore it is perhaps not surprising that its mega banks may affect and be affected by credit risk movements in that continent. Mega banks' connectivity with North America has been below the benchmark, although it has been rising in recent years. This is consistent with the notion that the Japanese financial system was not widely affected by the GFC, which originated in the U.S.

[37] Directly connected parties are those that have first-order interconnectedness, or non-trivial partial correlation coefficients, with the mega banks. Parties that are connected to the mega banks only through third parties are considered indirectly connected parties and not shown in the figure.

Figure A4.3 Regions' Interconnectedness with the World vs with Mega Banks (Monthly)



Source: Credit Research Initiative of National University of Singapore; AMRO staff calculations

Impact Analysis

6. **This subsection quantifies the magnitude of outward and inward spillovers through the cross-border risk transmission.** While the network analysis in the previous subsection just shows the connection of possible spillovers, the impact analysis[38] in this subsection estimates the magnitude of possible spillovers – credit impairment an institution is likely to incur in the case of another experiencing deteriorating credit quality. Specifically, we do a regression for each institution of its PD on the PDs of all other world financials. These regressions, with about 2,000 independent variables each, are to control for any possible source of risk transmission within the global financial system and are made possible through a Least Absolute Shrinkage and Selection Operator (LASSO) approach, which tackles high-dimensional data by suppressing the minuscule coefficients to zero. The non-zero coefficient on each regressor translates into the PD increase of the 'risk receiver' provided the PD of the 'risk sender' rises by one unit, everything else being equal. With the estimated coefficients and the assumption on PD movements of the 'risk senders', we multiply a 60 percent loss given default and the total liability of the 'risk receiver' to proxy for its contribution of expected credit impairment to the financial system, our spillover measure.[39]

7. **Our model suggests that the mega banks' outward spillovers are generally modest.** The coefficients on the mega banks are very small in the regressions of the foreign institutions even for the European counterparties, which have the highest coefficients among all. To put this into perspective, if the mega banks are assumed to default, or to have their PD surge to around 779bps into CCC+ grade (see Table A4.1), their European counterparties are estimated to incur USD683.0 million in credit loss, equivalent to the total assets of a small-sized

[38] In another note, the network analysis depicts an 'non-directional' network, which reveals the tendency that the credit risks of the mega banks and of the world financials are to move together, whereas the impact analysis is 'directional' in a sense.

financial institution there. Perhaps not surprisingly, as they are from the economy that is the biggest creditor to the world, the mega banks should have ample assets to pay off their debt obligations, therefore not transmitting much risk overseas at least through the inter-bank channel.

8. **The inward spillovers from the world to the mega banks are more pronounced.** Table A4.2 displays the inward spillovers in terms of credit loss under two prescribed stress scenarios. In the adverse scenario, we assume the PDs of mega banks' global counterparties to rise by 10bps, which is to keep many of them in the investment grade (see Table A4.1). In this case, the expected credit loss the mega banks are to incur in June 2018 is estimated to include impact of USD5.5 billion from North America, USD28.2 billion from ASEAN, and USD163.3 billion from Europe. In a severely adverse scenario, we assume the counterparties' PD to rise by 20bps, sending more of them to speculative grade. In this case, the shock from Europe doubles to USD326.7 billion, significant enough to consume the entire common equity tier 1 capital (CET1) of the three mega banks, or about 10% of their total asset.

Table A4.1 Correspondence between CRI PD and Major S&P Rating Grades

S&P Rating Category	Range of CPI PD (Bps)
AAA	[0.0,0.9]
A	[5.6,6.9]
BBB+	[12.2,19.2]
BBB	[19.2,32.4]
CCC+	[651.3,779.0]
C	[2458.5,10000.0]

Source: 'Probability of Default implied Rating' whitepaper, Credit Research Initiative of National University of Singapore

Table A4.2 Inward Credit Risk Spillovers to the Mega Banks (USD billion)

Region	Adverse scenario	Severely adverse scenario
North America	5.5	11.1
ASEAN	28.2	56.4
Europe	163.3	326.7
Plus 3 ex-Japan	0.1	0.3

Source: Credit Research Initiative of National University of Singapore; AMRO staff calculations

Concluding Remarks

9. **This selected issue presents an approach to analyzing a risk transmission channel in a global context.** Capturing interconnectedness among world financials can be challenging. Ideally, one would expect to gather information on the flow of funds under different asset classes across institutions and then analyze whether any shock hitting one institution is likely to ripple through the system and in what form. Authorities may have these data for their jurisdictions, but for cross-border exposures, especially if indirect or time-sensitive, it might be difficult for them to collect them in a complete and timely manner. The interconnectedness in this study presents a way to capture how the financial distress of institutions interplays with each other. With a single statistical measure, it yields implications on how risk transmits and how credit loss is associated.

10. **The study also attempts to quantify possible credit losses through the risk transmission channel from and to the mega banks.** Through the direct risk transmission channels, the mega banks' outward spillover is marginal, whereas the inward spillover to them is substantial. This is likely because they are net creditors to the world, and therefore more likely to receive rather than export credit risk. The indirect impact – for example, from Turkey to the mega banks via Spain – is not discussed here. In a complex global financial system, the indirect

impact can be profoundly positive or negative overall, depending on how the institutions of interest are connected with the global financial system through primary, secondary linkages and beyond. In this regard, the network structure explored in this selected issue can be a useful platform for future studies. Readers should note that the credit risk discussed here is only one of the many kinds of risks that the mega banks might export and be exposed to overseas. Therefore, the marginal outward spillovers from mega banks to ASEAN, for example, does not necessarily mean risk transmission through other channels, such as liquidity, is also muted.

References

Chan-Lau, Jorge A., Chienmin Chuang, Jin-Chuan Duan, and Wei Sun (2018), “Financial Network and Systemic Risk via Forward-Looking Partial Default Correlations.” *Working paper*, IMF and Risk Management Institute of National University of Singapore.

Credit Research Initiative at the Risk Management Institute of the National University of Singapore (2017), "NUS-RMI Credit Research Initiative Technical Report.” http://d.rmicri.org/static/pdf/2017update1.pdf (version 2017 update 1).

Credit Research Initiative at the Risk Management Institute of the National University of Singapore (2018), “Probability of Default implied Rating.” http://d.rmicri.org/static/pdf/Probability%20of%20Default%20Implied%20Rating%20White%20Paper.pdf (last updated November 29, 2018).

Annex 5. Recent Policy Developments on Foreign Workers to Cope with Labor Shortage[40]

With rapid aging society and decline in working population, Japan has faced severe labor shortage. To address the issue, several measures will be adopted soon including creating new visa status for skilled foreign workers and encouraging foreign students to work in Japan after their graduation. Nevertheless, it will be essential to create a welcoming environment and procedure to attract more foreign workers including living and working condition, and social security system, while increasing capital investment to boost productivity.

1. **Labor shortage has been and will increasingly be one of the most pressing structural issues in Japan that could undermine its long-term growth potential.** Japan is aging rapidly amid a decline in population given the low fertility rate. Japan's population is estimated to decline by 4 percent to 121 million in 2030 from 127 million in 2018, and further by 14 percent to 109 million by 2050. According to the Ministry of Health, Labour, and Welfare (MHLW), there were only 946,065 births in 2017, the lowest since official statistics began in 1899, while there were up to 1,340,397 deaths. This means that population declined by over 390,000 in one year. Given this large decline in population, the working age population has been affected and is on a declining trend. Working population has started decreasing since late 1990s - from a peak of 87 million to 75.4 million in August 2018, and is expected to fall further going forward. This has resulted in severe labor shortage, although increase in participation rate of female and elderly workers has partly filled the gap. In fiscal year 2019, Japan's labor shortage is estimated to be at least 600,000, while it is estimated that the shortage could reach 1.30 to 1.35 million[41] in the next five years. Labor shortage has affected the quality of service, especially in personal consumption area such as long waiting times in supermarkets or restaurants. The decline in service quality can be regarded as an increase in real prices, although the price tags have remained unchanged[42].

2. **Although Abenomics has improved growth potential recently, it has also brought more pressure on the labor market.** With the implementation of the three arrows of Abenomics, increase in female and elderly labor participation has partly contributed to higher potential output. Female labor force participation rate has risen and reached 53.2 percent in October 2018 from a low of 47.3 percent in January 2012, while elderly labor force participation improved to 25.2 percent from 19 percent in the same period. These developments have helped to boost GDP growth since 2012. Production index across industries rose in 2018 and created more job opportunities, but this has increased pressure on labor shortage. Job availability improved to a 44-year high with job opening-to-job applicant ratio reaching 1.64 in September 2018, while unemployment hit a 25 year low at 2.3 percent.

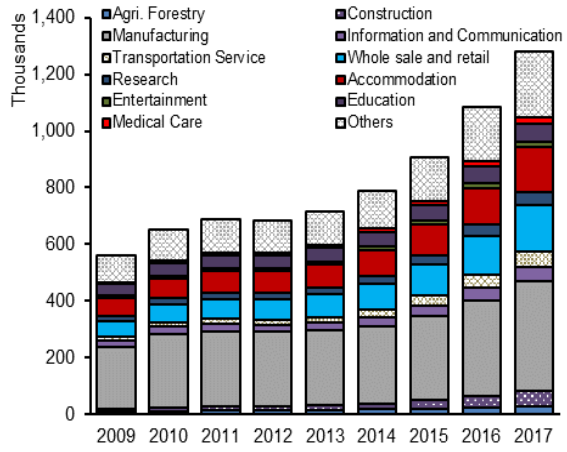
3. **It is high time for Japan to consider inviting more foreign labor, given the labor shortage.** The ratio of job vacancies to the labor force population stood at 3.2 percent in 2013;

[40] Prepared by Sophak Duong (Associate).
[41] *Nikkei Asian Review.* Japan expects up to 340,000 foreign workers after bill passes. November 13, 2018. https://asia.nikkei.com/Spotlight/Japan-Immigration/Japan-expects-up-to-340-000-foreign-workers-after-bill-passes
[42] See Morikawa (2018).

much higher than the only 1.1 percent in Germany and 2.5 percent in the US[43]. Moreover, according to a survey by the Ministry of Finance, 71 percent of Japanese companies, ranging from large enterprises to small and medium-sized businesses, responded that they were short of workers[44]. Construction sector is estimated to be short of between 780,000 and 930,000 workers, agriculture 103,000, and nursing care 550,000. Although raising the participation of female and elderly workers has been relatively successful in meeting the demand for labor thus far, the increase has likely peaked, due to declining working population, and accepting more foreign workers is necessary to ensure a steady supply of labor and sustain the growth momentum.

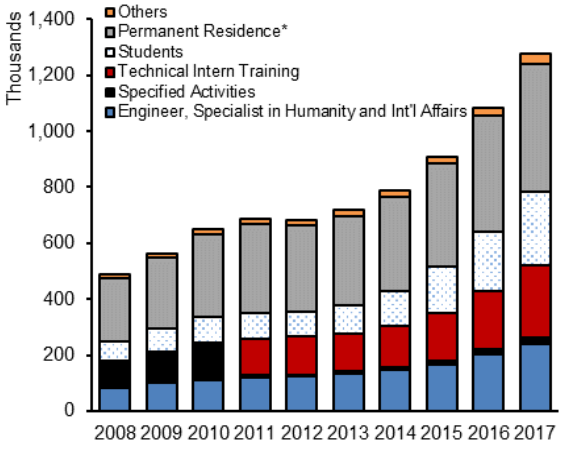
4. **With strict controls on employment of foreign workers, Japan has kept a tight control on the population of foreign workers.** Japan's foreign population accounted for about 2 percent[45] of total population in June 2018, which is far less than that in other OECD countries[46]. In the U.K. and in Germany, the proportion of foreign nationals in total population is 8 and 9 percent, respectively. Although it has increased lately, the number of foreign workers in Japan is still low, at just 1.28 million in October 2017, accounting for just 1 percent of its total population. Manufacturing sector has absorbed the largest share of foreign workers (about 30 percent of total foreign workers registered in the country), followed by wholesale and retail, and hospitality and accommodation, which accounted for 13 percent and 12 percent, respectively. Surprisingly, nursing care, the most needed services for this aging society, accounts for only 2 percent of total foreign workers (Figure A5.1). Thus, the shortage of labor in this sector could become even more acute, given the rapid population aging.

Figure A5.1 Foreign Workers across Industries



Source: Ministry of Health, Labour and Welfare (MHLW)

Figure A5.2 Foreign Workers by Residence Status



Source: MHLW

[43] See Ganelli and Miake (2015).
[44] *The Mainichi newspaper.* 71 percent of Japanese firms short of workers: survey. February 1, 2018. https://mainichi.jp/english/articles/20180201/p2a/00m/0na/005000c
[45] According to CEIC, of 2.6 million (in June, 2018) foreign nationals in Japan, Korean nationals accounted for 483 thousands, about 20 percent of total foreign population in Japan, the second largest national after Chinese. After WWII, about 600,000 Koreans remained in Japan. At the end of 2000, the population of Koreans with special permanent residency in Japan, a category that generally applies to former colonial subjects residing in Japan, amounted to 507429, according to Encyclopedia of World Cultures Supplements (*Koreans in Japan).*
http://www.encyclopedia.com/places/asia/japaneses-political-geography/korean-japan
[46] *OECD Data.* November 13, 2018. https://data.oecd.org/migration/foreign-population.htm#indicator-chart.

5. **To address this acute labor shortage, authorities have started to take steps to open its labor market for foreign labor.** Japan already has a framework to accommodate foreign workers. Like other advanced economies, Japan is more open to the admission of high-skilled workers by providing work visas, but less to low-skilled workers. Since 1993, foreign trainees have been brought into Japan under the Technical Intern Training Program, and by October 2017, roughly 20 percent of total foreigners working in Japan were registered under this scheme (Figure A5.2). Officially, under this program, accepted foreign trainees from developing countries come to Japan to acquire job skills and are allowed to remain in Japan for a non-renewable stay of up to five years. Hence, this program does not aim to allow low-skilled workers to stay on a long-term basis, and thus does not provide a permanent solution to mitigate the severity of labor shortages, in particular, in the low-skilled segment.

6. **A move to accept more foreign workers has been adopted to ease the labor shortage.** In June 2018, the government issued the Basic Policy on Economic and Fiscal Management Reform to ensure sustainable economic growth by overcoming the low birth rate and declining workforce. The policy lays out key issues to be addressed, including realization and expansion of the human resources development revolution, the promotion of work-style reform, and noticeably, the acceptance of human resources from overseas to solve the intensifying labor shortage issue. On this note, a new bill was passed allowing authorities to accept more foreign workers under a new residency status policy by creating two new visa categories for skilled workers in industrial fields, which will become effective in April 2019. The first type of new visa status applies to workers with certain expertise and skills in industrial fields who meet skill and language minimum requirement and are allowed to stay for up to five years without family accompanying. The second category applies to proficient-skilled workers in industrial fields with permission to bring their families and they are allowed to extend their stay with indefinite renewal. The new policy aims to bring in about 345,000 skilled foreign workers in the next five years, with 47,000 in FY2019. Fourteen industries that are witnessing severe labor shortage, including construction, nursing care, lodging and hospitality, agriculture, and shipbuilding were chosen for this new policy. Government hopes to bring in about 40,000 workers in construction by 2025, 26,000-83,000 in agriculture, 53,000 in restaurants, and about 60,000 in nursing care[47].

7. **Authorities will loosen the rules of residency for foreign students starting in spring 2019.** The government will clarify permitted activities under the status of residency to mitigate the burden of administrative procedure, allowing smooth switching of visa status for foreign students, aimed at expanding work opportunities. The government also decided to develop the status of residence to expand the field where foreign students can work in Japan after graduation from university by amending a public notice around March 2019, as stated in “Comprehensive Measures for Acceptance and Coexistence of Foreign Nationals”. The number of international students reached 277,331 in 2016, of which only 30 percent of them managed to find a job in Japan after graduation. This figure is well below that of the

[47] *Nikkei Asian Review.* Japan to receive 60,000 nursing helpers in new visa program. November 15, 2018. https://asia.nikkei.com/Spotlight/Japan-Immigration/Japan-to-receive-60-000-nursing-in-new-visa-program

government's target of 50 percent, although 60 percent of them wished to work in Japan. Nevertheless, Japan appears to be less attractive to high-skilled foreign workers. According to a survey by the International Institute for Management Development, Japan ranks 29th among 63 countries in term of being attractive to foreign talented staff. Its low ranking resulted from relatively low public expenditure on education as well as human development and investment, while Japanese firms' lack of eagerness to attract and retain talent and senior officials' lack of international experience in the corporate sector also pulled down its position.

8. **Although accepting more foreign workers is seen as a welcome and immediate measure to address severe labor shortage, the level of openness seems limited in mitigating the challenge.** According to a study, increasing immigration to increase labor force in Japan by 1 percent would increase growth potential by 0.15 percent point over 10 years[48]. Thus, opening up more in this regard can increase the labor supply and enhance the growth potential. However, the new policy of creating new visa status for foreign workers may have only limited capacity to reduce the pressure on labor shortage, given that a significant number of the 340,000 foreign workers that authorities aim to bring in, will be taken up by the conversion of intern trainees who are already residing in Japan. In the meantime, the government's foreign labor inflow target is far lower than the total shortage across industries, while the increase in participation by the locals, especially that of female and elderly, is likely to reach the limit.

9. **Developing a welcoming environment and procedure will be essential in attracting more foreign workers.** It is increasingly difficult to attract foreign workers in light of higher wage increases in Asia and given the prevailing conditions in Japan. To improve the attractiveness, one possible consideration could be to loosen the entry requirement such as the minimum level of Japanese language required. In addition, creating more favorable condition and environment for living and working, including social security system, for foreign workers which is comparable to Japanese peers, would also improve the attractiveness, while maintaining the prevailing measures aimed at increasing female and elderly participation.

10. **Increasing labor productivity will be critical in the long term amid shrinking population.** While foreign workers will help fill in labor shortages, increasing investment together with expanding training and other labor market policies that boost labor productivity should be strengthened.

References

Colacelli, Marina and Emilio F. Corugedo (2018), "Macroeconomic Effects of Japan's Demographics: Can Structural Reforms Reverse Them?", *IMF Working Paper* WP/18/248

Ganelli, Giovanni and Naoko Miake (2015), "Foreign Help Wanted: Easing Japan's Labor Shortages", *IMF Working Paper* WP/15/181

Morikawa, Masayuki. (2018). "Hidden Inflation: Japan's Labor Shortage and the Erosion of

[48] See Colacelli and Corugedo (2018).

Service Quality of Services", *VOX CEPR Policy Portal*, November 27, 2018 (http://voxeu.org/article/japan-s-labour-shortage-beginning-erodd-quality-services)