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JAPAN

FINANCIAL SYSTEM STABILITY ASSESSMENT

July 2017

This Financial System Stability Assessment paper on Japan was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with Japan. It is based on the information available at the time it was completed on July 12, 2017.

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FINANCIAL SYSTEM STABILITY ASSESSMENT

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This report is based on the work of the Financial Sector Assessment Program (FSAP) mission that visited Japan November 30–December 20, 2016 and April 6–27, 2017. The FSAP findings were discussed with the authorities during the Article IV Consultation mission in June 6–19, 2017.

- The team was led by Gaston Gelos (Mission Chief) and Sònia Muñoz (Deputy Mission Chief), and included Elsie Addo Awadzi, Luis Brandão Marques, Fei Han, Dyna Heng, Eija Holttinen, Mindaugas Leika, Constant Verkoren, Niklas Westelius, Christopher Wilson (all IMF), and Timo Broszeit, Mimi Ho, Robert Sheehy, Marguerite Zauberman, Mark Zelmer (all IMF external experts). Additional analytical input was provided by Giovanni Ganelli and Nour Tawk (all IMF). The mission met with Japan Financial Services Agency (JFSA) Commissioner Nobuchika Mori, Vice Minister Ryozo Himino, JFSA Deputy Commissioners Masato Kanda and Hiroshi Ota, JFSA Vice Commissioner Shunsuke Shirakawa, JFSA Deputy Director-General Jun Mizuguchi, Bank of Japan (BoJ) Assistant Governor Eiji Maeda, BoJ Executive Directors Shigeki Kushida and Atsushi Miyanoya, and other senior officials, as well as a wide range of private sector representatives.

- The Financial Sector Assessment Program (FSAP) assess the stability of the financial system as a whole and not that of individual institutions. They are intended to help countries identify key sources of systemic risk in the financial sector and implement policies to enhance its resilience to shocks and contagion. Certain categories of risk affecting financial institutions, such as operational or legal risk, or risk related to fraud, are not covered in FSAPs.

- Japan is deemed by the IMF to have a systemically important financial sector according to SM/13/304 (11/18/2013), and the stability assessment under this FSAP is part of bilateral surveillance under Article IV of the Fund's Articles of Agreement.

- This report was prepared by Gaston Gelos and Sònia Muñoz, with contributions from FSAP team members and draws upon a detailed assessment report and several technical and background notes.

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Glossary

ABL	Asset-Based Lending
AC	Additional Criteria
AML/CFT	Anti-Money Laundering/Combating the Financing of Terrorism
BCBS	Basel Committee of Banking Supervision
BoJ	Bank of Japan
BU	Bottom-Up
CAR	Capital Adequacy Ratio
CCFS	Council for Cooperation on Financial Stability
CCPs	Central Counterparties
CcyB	Counter-Cyclical Buffer
CET1	Common Equity Tier 1
CGC	Corporate Governance Code
CP	Core Principles
CPAAOB	Certified Public Accountants and Auditing Oversight Board
DICJ	Deposit Insurance Corporation of Japan
D-SIB	Domestic Systemically Important Bank
EC	Essential Criteria
ELA	Emergency Liquidity Assistance
EMEs	Emerging Market Economies
ESR	Economic Value-Based Solvency Ratios
FATF	Financial Action Task Force
FCRC	Financial Crisis Response Council
FMIs	Financial Market Infrastructures
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSC	Financial System Council
FSR	Financial System Report
FSSA	Financial Sector Stability Assessment
FX	Foreign Exchange
GFSR	Global Financial Stability Report
G-RAM	Global Risk Assessment Matrix
G-SIB	Global Systemically Important Bank
G-SII	Global Systemically Important Insurer
HQLA	High-Quality Liquid Assets
IAIS	International Association of the Insurance Supervisors
ICR	Interest Coverage Ratio
IFRS	International Financial Reporting Standards
IRRBB	Interest Rate Risk in the Banking Book
JDCC	JASDEC DVP Clearing Corporation
JFSA	Japan Financial Services Agency
J-GAAP	Japanese Generally Accepted Accounting Principles

JGBs	Japanese Government Bonds
JIPCA	Japanese Institute of Certified Public Accountants
JPB	Japan Post Bank
JSCC	Japan Securities Clearing Corporation
LCR	Liquidity Coverage Ratio
LGD	Loss Given Default
ML/TF	Money Laundering/Terrorist Financing
MoF	Ministry of Finance
MoU	Memorandum of Understanding
NFC	Non-Financial Corporation
NIM	Net Interest Margins
NIRP	Negative Interest Rate Policy
NPL	Non-Performing Loan
NRA	National Risk Assessment
NSFR	Net Stable Funding Ratio
ORSA	Own Risk and Solvency Assessment
OTC	Over-the-Counter
PD	Probability of Default
PFMI	Principles for Financial Market Infrastructures
PM	Prime Minister
QQE	Quantitative and Qualitative Easing
RAM	Risk Assessment Matrix
ROA	Return on Assets
RTGS	Real Time Gross Settlement
SESC	Securities and Exchange Surveillance Commission
SMEs	Small- and Medium-Sized Enterprises
SMR	Solvency Margin Ratio
SREP	Supervisory Review and Evaluation Process
SRO	Self-Regulatory Organization
STeM	Stress Testing Matrix
TD	Top-Down
VC	Venture Capital
WEO	World Economic Outlook

EXECUTIVE SUMMARY

Weak growth and low interest rates, together with underlying demographic headwinds, are posing chronic challenges for the financial system. Despite accommodative financial conditions, sluggish domestic demand have dampened investment and domestic credit growth. Combined with low interest rates and a flat yield curve, these factors are posing a sustained challenge for the financial system—one of the largest and most sophisticated in the world. To a significant extent, factors behind this environment are structural in nature, reflecting in particular demographic headwinds. Profitability of banks and life insurers is low, and net interest margins are shrinking. Since many advanced economies are likely to face similar headwinds in the future, the importance of Japan's response to these challenges extends beyond its borders.

While the financial system has remained stable, the low profitability environment is creating new risks, and pressures are likely to persist. The search for yield among banks has led some to expand their overseas activities, and more generally to a growth in real estate lending and foreign securities investments. Efforts to increase risk-based lending to small-and medium-sized enterprises (SMEs) are welcome, but many banks still need to develop commensurate credit assessment capacities. Stress tests suggest that the banking sector remains broadly sound, although market risks are increasing and there are some vulnerabilities among regional banks. Insurers have turned to foreign investments to provide the yield needed to meet the interest guarantees, but economic-value based solvency positions of life insurers have declined substantially. Compared to ample liquidity in yen and on an all-currency bases, potential vulnerabilities exist in foreign currency positions, particularly for some internationally active regional banks.

An aging and shrinking population is likely to imply gradual structural changes in the Japanese financial system. Empirical analysis suggests that aging will likely reduce the role of banks in financial intermediation. With low demand, domestic banking is more likely to evolve toward transactional and fee-based services. The impact of demographic headwinds is particularly strong for regional and *Shinkin* banks. Actions underway by these institutions to address these challenges are not without risks and may not be sufficient on their own.

While financial oversight has undergone significant improvements, further progress is needed to respond to these emerging issues. Further developing internal processes is key to supporting full risk-based prudential supervision to keep pace with the more sophisticated activities emerging across banks, insurers, and securities firms. Corporate governance needs to be strengthened across the whole banking and insurance sectors. Capital requirements need to be more tailored to individual bank risk profiles, and a stronger principles-based approach to related party exposures is required to prevent risks from building up as banks form alliances with other banks and other types of financial services firms. Further steps should be taken to implement an economic-value-based solvency regulation for the insurance sector, since certainty about the future regime would help companies adjust their business and investment strategies. The macroprudential framework could be further strengthened by clarifying the mandate of the Council for Cooperation on Financial Stability (CCFS) and proactively expanding the macroprudential toolkit.

It is therefore important to continue engaging with financial institutions on the implications of macroeconomic and demographic trends, and take actions on a timely basis when viability concerns are identified. The authorities are encouraged to further engage with bank boards and senior management to ensure that banks fully understand the implications of underlying trends for the future viability of their institutions and act promptly to facilitate the exit of firms when they are no longer viable. Regional banks should be encouraged to consider increasing fee-based income. Consolidation among regional banks may bring valuable economies of scale and scope and smoothen the transition to smaller financial systems at the regional level, although consolidation alone is unlikely to be sufficient to address the challenges. The supply of financial services by the industry should continue to adapt to the demands of an aging population.

These long-term challenges for business models of many banks, combined with the existence of large systemic institutions, highlight the need for a strong crisis management and resolution framework. Despite important advances in the design of the framework and in recovery and resolution planning, there remains room for improvement. The complexity of the framework, and ambiguities regarding the circumstances under which different components of the framework would be used, could prove challenging for implementation and may thereby contribute to expectations of public support. Further steps to ensure that supervisory powers are deployed without delay should be embedded more firmly in the authorities' framework for early intervention. Expansion of the resolution toolkit, enhancements and clarifications in the legal framework—including its extension to central counterparties (CCPs)—and improvements in operational aspects would help authorities' readiness and steer market expectations and incentives.

Table 1. Japan: FSAP Key Recommendations

Recommendations and Authority Responsible for Implementation	¶	Time[1]
Cross-Cutting Issues		
Further raise corporate governance standards to bolster independence of board and oversight functions from senior management across banking and insurance sectors (JFSA).	51, 56	NT
Further develop internal processes to support full risk-based supervision for banks, insurers, and securities firms (JFSA, SESC).	52, 54, 57	I
Consider enhancing independence of JFSA and BoJ in key supervisory issues (PM, MoF, JFSA, BoJ).	69	MT
Systemic Risks		
Develop own supervisory stress testing model for both solvency and liquidity risk analysis for banks, and for solvency risk analysis for insurers, as well as stress test large exposures periodically (JFSA).	25, 30	NT
Continue conducting liquidity stress testing regularly for significant foreign currencies and require banks to hold sufficient counterbalancing capacity, particularly high-quality liquid assets (JFSA).	32	I
Financial Sector Oversight		
Give JFSA the power to set capital requirements for banks based on specific risk profiles (Gov)	50	I
Introduce more specific periodic reporting requirements and more proactive investigations into related party transactions (JFSA).	53	I
Take further steps to implement an economic-value-based solvency regime for insurers (JFSA).	55	NT
Ensure robust supervision of the systemically important securities firms by ensuring access to sufficient number of experienced staff and onsite monitoring of overseas operations (JFSA, SESC).	57	I
Address recovery planning issues on regulation for central counterparties (JFSA).	59	I
Enhance recovery plan further by including extreme stress scenarios while ensuring continuity of critical services and mitigating contagion risks through clearing members. (JSCC).	60	I
Macroprudential Policy		
Clarify the mandate of the Council for Cooperation on Financial Stability (JFSA, BoJ).	63	NT
Consider proactively enhancing the macroprudential tool box, including sectoral tools (JFSA).	63	NT
Continue to broaden and deepen the scope of systemic risk assessments (JFSA, BoJ).	63	NT
Crisis Management, Resolution, and Financial Safety Nets		
Strengthen resolution framework by removing ambiguities in the choice of tools, introducing a statutory bail-in power, clarifying triggers to enable early entry into resolution, and ensure that the role for the courts does not hinder effective resolution (JFSA).	66	NT
Enhance crisis preparedness and coordination via an interagency crisis management forum (MoF, Minister for FS, BoJ, JFSA, DICJ).	69	NT
Establish an orderly resolution regime, following international guidance, for central counterparties and other FMI operators (JFSA).	59	MT
Encourage earlier prompt corrective action and provide a clearer path to resolution (JFSA).	65	NT
Consider broadening the perimeter of institutions to establish loss-absorbing capacity (JFSA).	67	NT
Strengthen framework for the provision of emergency liquidity assistance and tighten preconditions for the use of temporary public funding in resolution (MoF, BoJ).	68	NT
Financial Intermediation		
Continue engaging with banks on implications of macroeconomic and demographic trends and take actions on a timely basis when viability concerns are identified for individual institutions (JFSA).	73	I
Encourage banks to evolve risk management practices in line with new business activities (JFSA).	73	NT
Encourage regional and *Shinkin* banks to review measures such as cost reduction, consolidation, income diversification, and fee structures to address medium term profitability concerns (JFSA, Gov).	73	NT
Lower coverage of credit guarantees (SME Agency).	71	MT

[1] I-Immediate" is within one year; "NT-near-term" is 1–3 years; "MT-medium-term" is 3–5 years.

A CHALLENGING MACROFINANCIAL ENVIRONMENT

A. Financial Sector Structure

1. Japan has one of the largest and most sophisticated financial systems in the world. As of September 2016, total financial assets held by the financial sector reached about 620 percent of GDP in 2016, compared to about 1,000 percent in the United Kingdom (U.K.), 675 percent in the Euro Area, and 462 percent in the United States (U.S.). Financial conglomerates make up about 170 percent of GDP.[1] More than half of total financial assets are held by commercial banks. The remainder is mainly shared among insurance companies (14 percent of total assets), pension funds (8 percent), securities firms (5 percent), and investment trusts (6 percent).

2. Banks play a major role in financial intermediation in Japan. The Japanese banking sector mainly consists of city banks—three of which are mega banks classified as G-SIBs[2]—trust banks, regional banks, and *Shinkin* banks (credit unions), credit associations, and credit cooperatives (Figure 1). The three mega banks account for about 18 percent of total financial assets, while regional banks and *Shinkin* banks make up 14 percent and 5 percent, respectively. City banks and other large banks have nationwide networks and overseas operations, but regional and *Shinkin* banks primarily serve a domestic client base. Credit cooperatives service mainly farmers in agriculture, forestry, and fisheries. Foreign banks have a very small market share and are mostly involved in investment- and private banking and financial derivatives trading.[3]

3. Japan's highly concentrated insurance sector is the world's second largest after the U.S. Life insurance accounts for about 90 percent of the sector, with total financial assets of about 75 percent of GDP.[4] The five largest life insurers—three of which are mutual in structure—account for almost 70 percent of life insurance sector assets, while the four largest non-life insurers represent near 90 percent of non-life insurance sector assets.[5] In the life insurance sector, fixed-term annuities and medical insurance comprised about 28 and 23 percent of total new business premium, respectively. In the non-life sector, motor insurance is the dominant line of business with 43 percent of total premium income.[6]

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[1] The four largest financial groups hold banks, trust banks, and securities firms, and account for 136 percent of GDP. Twelve regional bank holding companies have combined assets of 21 percent of GDP. Other than Japan Post Insurance, none of the large insurers is part of a group that also includes significant banking activities.

[2] Mizuho FG, Sumitomo Mitsui and Mitsubishi UFJ FG. Japan also has four D-SIBs (Sumitomo Mitsui Trust Holdings, Inc., The Norinchukin Bank, Daiwa Securities Group Inc., and Nomura Holdings, Inc.). No insurance company has been designated as GSII.

[3] Japan Post Bank (JPB, 8 percent of total financial assets) takes deposits and primarily invests in Japanese Government Bonds and other government and corporate bonds.

[4] Based on data from JFSA, companies' publications, and IMF staff calculations.

[5] Japan Post Insurance is the largest life insurer, with 22 percent market share by assets.

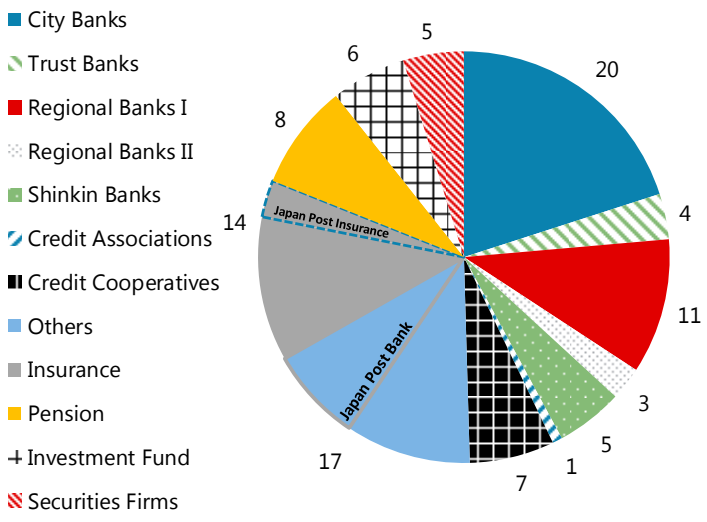
[6] According to JFSA data as of March 2016.

4. Japanese securities markets rank among the largest in the world. With an equity market capitalization of about 100 percent of GDP, the Japan Exchange Group's (JPX) Tokyo Stock Exchange (TSE) is the third largest exchange in the world after the U.S. New York Stock Exchange and NASDAQ. Derivatives trading is less significant, with Osaka Exchange (also part of JPX) ranking as number 17 in the world in 2016. Corporate bond market remains relatively small (17 percent of GDP) although Japanese companies have issued increasing amounts of corporate bonds in recent years.[7]

5. Japanese securities firms comprise a very heterogeneous group of companies. The largest five firms—three of which are subsidiaries of the megabanks—are major players in global capital markets, investment banking, and asset management. Many other commercial banks have securities subsidiaries, to be able to conduct trading or other specialized activities, but the market share of these firms is small. Securities firms that are part of global banking groups also have a significant presence in Japan.

Figure 1. Japan: Structure of the Financial System, March 2016

(In percent of financial assets)



Source: IMF staff calculations.
Note: Other banks include Japan Post Bank (JPB).

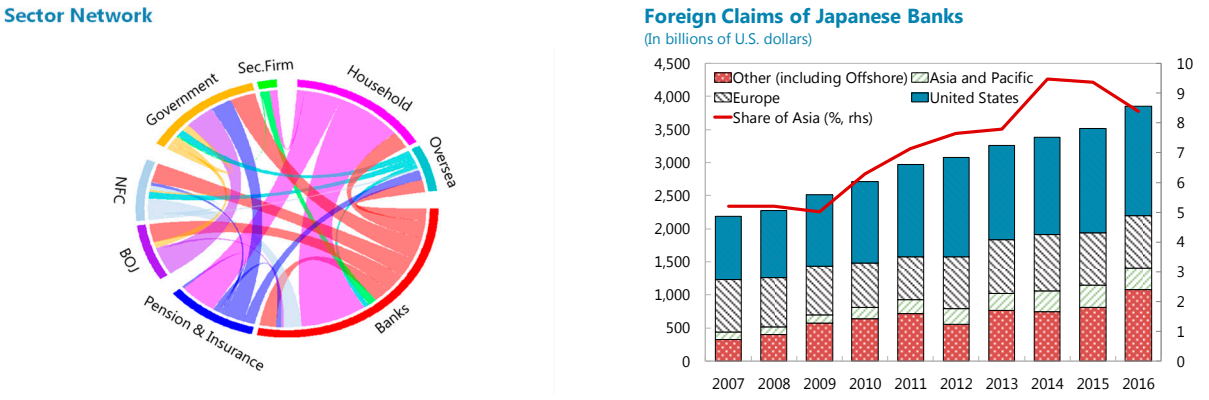
6. Three domestic central counterparties (CCPs) operate in Japan, including one of the top 10 CCPs worldwide. They are the Japan Securities Clearing Corporation (JSCC), the JASDEC DVP Clearing Corporation (JDCC), and the Tokyo Financial Exchange (TFX).

7. The financial sector has shifted its Japanese Government Bond (JGB) holdings and domestic lending to other investments, including overseas, but still has significant exposures to the government (Figure 2). At end-2016, banks held about 20 percent of total outstanding Japanese government bonds (JGBs) (down from about 45 percent in 2010); another 27 percent was

[7] The stock investment trust fund increased from 3 percent of GDP in 2013 to 7 percent in 2017.

held by insurance companies and pension funds, about 11 percent by foreign investors, and the remaining 3 percent by households and other sectors.[8] At the same time, larger Japanese banks and insurances have been expanding their overseas loan portfolios and investments, mainly into the U.S. and Asia. Many larger banks have established subsidiaries and branches abroad, and acquired stakes of foreign banks. Insurers have mostly acquired foreign insurers.[9]

Figure 2. Japan: Sectoral Linkages



Sources: Bank of Japan; BIS; and IMF staff estimates.
Note: A claims (color A) on B. Size of the link reflects the relative significance of claims (sum of deposit, debt securities, and loans. Only claims above ¥20 trillion are shown here.

B. Macrofinancial Conditions

8. Four years after the introduction of Abenomics, efforts to raise potential growth, put public debt on a sustainable path, and reflate the economy, are still ongoing. At the end of 2012 the authorities embarked on an ambitious policy agenda centered on aggressive and coordinated actions in monetary policy, fiscal policy, and structural reforms. Although the policy framework met with initial success, starting in 2014 the forward momentum began to slow, reflecting external and domestic factors, including the consumption tax hike and the fall in actual and expected inflation due to lower energy prices. While economic activity has recently strengthened, bolstered by net exports and a supportive fiscal stance, private domestic consumption remains sluggish and inflation is well below the BoJ's inflation target.

9. Unconventional monetary policies have drastically expanded BoJ's balance sheet and flattened the yield curve. In early 2013, the BoJ implemented its Quantitative and Qualitative Easing (QQE) program and introduced its 2 percent inflation target. In February 2016, in response to global financial market volatility and continued weak inflation expectations, the BoJ introduced its Negative Interest Rate Policy (NIRP) on marginal excess reserves, leading to a substantial further flattening of the yield curve and a negative yield on the 10-year JGB. However, the inflation outlook did not improve, and concerns about weak profitability of financial institution increased. In September 2016, the BoJ moved away from its annual JGB purchase target in favor of a target on

[8] 39 percent of total outstanding JGBs was held by the BoJ in 2016, compared to 10 percent in 2010.

[9] Pension funds, especially the public pension fund, also have increased their holdings of foreign assets.

the 10-year JGB yield at about zero percent (QQE with "yield curve control"). Since then, the short end of the yield curve has remained relatively stable despite rising global interest rates, resulting in renewed yen depreciation and higher equity prices.

10. A prolonged period of low growth and interest rates, together with underlying demographic headwinds, have resulted in a chronically challenging macrofinancial environment. Despite accommodative financial conditions, sluggish domestic demand are holding back investment and domestic credit growth (Figure 3). Meanwhile, low interest rates and a flat yield curve has presented challenges for the financial system. To a significant extent, factors behind this environment are structural in nature, reflecting in particular demographic headwinds. Significant fiscal-financial risks stemming from unsustainable public finances have so far been contained by BoJ purchases, sustained high domestic demand for JGBs, and consequent low sovereign funding costs.

11. Profitability of banks is persistently low and net interest margins are on a downward path. Very low interest rates—combined with a de facto zero lower bound on deposit rates and a flattening of the yield curve—and low credit demand have been pressuring on bank profitability and on net interest margins. The consequent search for yield among these banks has led some banks to lend overseas—increasing foreign-currency risks—and more generally to an expansion of real estate loans and foreign securities investments.

12. Despite these challenges, the overall banking system has so far remained stable. Since the last FSAP, overall balance-sheet indicators have remained broadly strong, with an average capitalization at 13 percent, declining nonperforming loan (NPL) ratios, and favorable local-currency liquidity indicators due to large excess reserves at the BoJ (Figure 4).

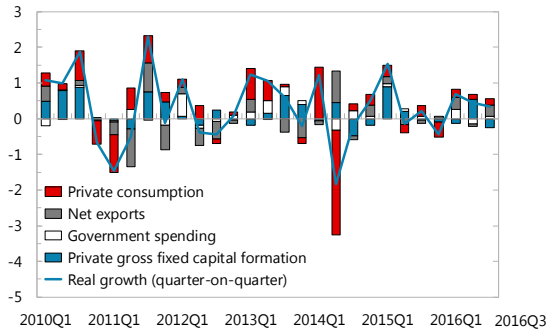
13. Heightened international activities have increased reliance on potentially volatile wholesale foreign currency funding. The largest three banks have not only increased their access to foreign currency (largely wholesale) customer deposits through overseas acquisitions, but also their reliance on capital markets to finance the growth of their overseas balance sheets. The cost of hedging via swaps rose in 2016 (with a corresponding divergence from covered interest rate parity), because of greater demand from Japanese investors, lower supply stemming from U.S. money market fund reform, and tighter limits to arbitrage.[10] Bond issuances in foreign currencies, mostly by large banks, have also been rising (in gross terms) since 2012.

[10] See for instance Borio, McCauley, and Sushko (2016). Reportedly, suppliers of U.S. dollars in the foreign exchange (FX) swap markets are increasingly emerging market funds (including sovereign wealth funds).

Figure 3. Japan: A Challenging Macrofinancial Operating Environment

Some growth momentum has been building under Abenomics..

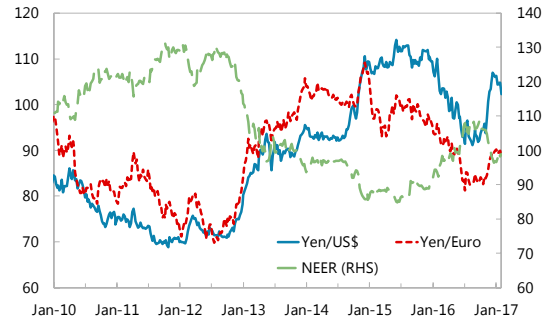
Contributions to Quarter-on-Quarter Real Growth
(In percent; seasonally adjusted)



Source: Haver Analytics.

....and weakening the currency.

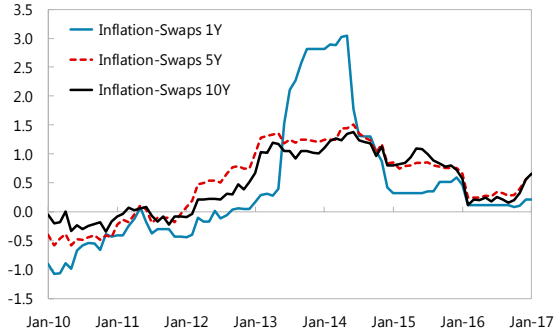
Selected Exchange Rates
(2005=100)



Source: Bloomberg, L.P.

.. backward-looking inflation expectations and a still negative output gap.

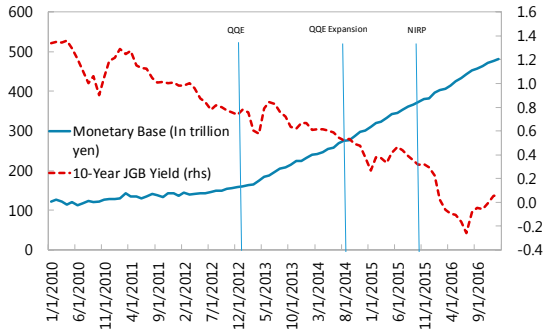
Inflation Expectations
(Year-on-year, in percentage points)



Sources: Bloomberg; and IMF staff calculations.

...unconventional monetary policies have contributed to pushing down long-term yields....

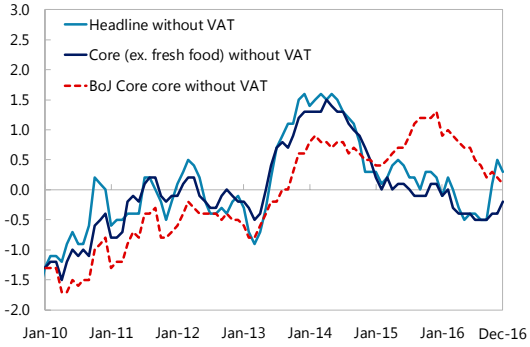
10-Year Japanese Government Bond and Monetary Base Expansion



Source: Haver Analytics.

However, inflation remains below BoJ's inflation target due to..

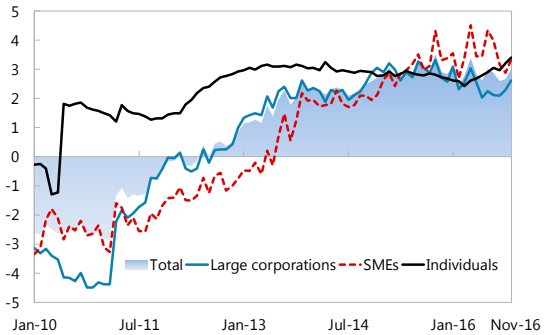
Inflation Indicators
(Year-on-year, in percent)



Sources: Haver Analytics; IMF staff estimates.

Investment and consumption remain sluggish, contributing to weak credit growth.

Growth in Bank Lending to Corporates
(Year-on-year, in percent)



Source: CEIC.

Figure 4. Japan: Banking Sector Indicators, Latest Available

Sources: Japanese Bankers Association; and IMF FSI database.

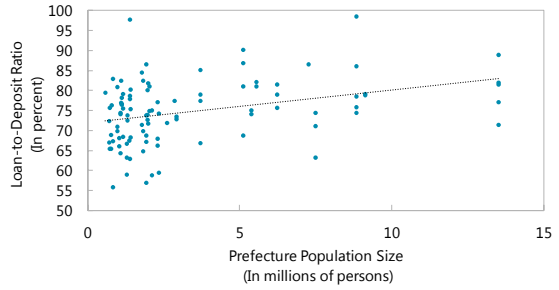
14. The extraordinary low interest environment is posing major challenges for regional and *Shinkin* banks, which rely more on funding by retail customer deposits than the city banks. More than 40 percent of regional banks and nearly 70 percent of *Shinkin* banks' core revenues (lending and fees) fail to cover operation expenses.[11] If interest rates remain at current levels, net interest margins will continue to evaporate over the next 5–10 years as older higher-yielding loans and bonds are replaced at lower interest rates. Profitability pressures are even more intense for smaller institutions outside of urban regions, due to declining populations. These

[11] BoJ Financial System Report, October 2016.

pressures are currently more chronic than acute, since these banks are benefiting from a benign credit environment where credit losses are low and capital positions are still satisfactory (Figure 5).

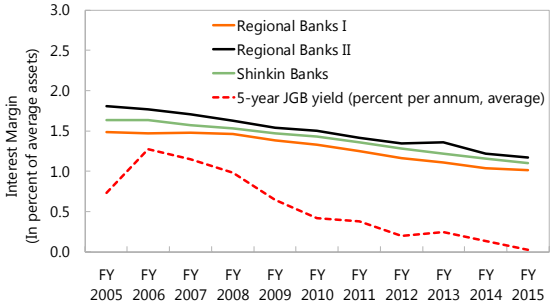
Figure 5. Japan: Regional and *Shinkin* Banks

Regional Bank Challenges Vary Across Institutions 1/



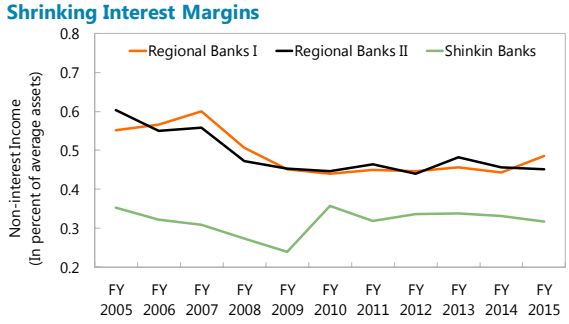
Sources: Japanese Bankers Association; and IMF staff calculations.
1/ The black dashed line is the simple regression line between the loan-to-deposit ratio and prefectural population.

Net Interest Income Shrinking as Interest Rates Decline



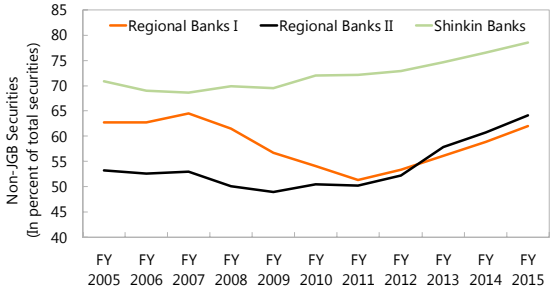
Sources: Japanese Bankers Association; Shinkin Central Bank Research Institute; Haver Analytics; and IMF staff calculations.

Non-Interest Revenue Has Not Filled the Gap Left by Shrinking Interest Margins



Sources: Japanese Bankers Association; Shinkin Central Bank Research Institute; and IMF staff calculations.

Regional and Shinkin Bank Holdings of Non-JGB Investments on the Rise



Sources: Japanese Bankers Association; Shinkin Central Bank Research Institute; and IMF staff calculations.

15. Regional and *Shinkin* banks are trying to adapt their operations to the current environment. Regional and *Shinkin* banks have been forced to cut costs. These banks are increasing real estate lending to help borrowers manage inheritance tax issues,[12] and are being encouraged by the Japanese Financial Services Agency (JFSA) to move beyond traditional collateral-based lending to higher yielding unsecured lending like working capital financing. Banks are also starting to offer advisory services and insurance products to clients, which helps to shrink their balance sheets while generating more fee-based income.[13] Some larger institutions believe they can achieve these cost savings on their own, while others are looking to alliances with banks in other regions via holding company structures to build shared systems or even outright mergers within regions. Many banks are also pursuing more aggressive investment strategies in domestic fixed-income and equity

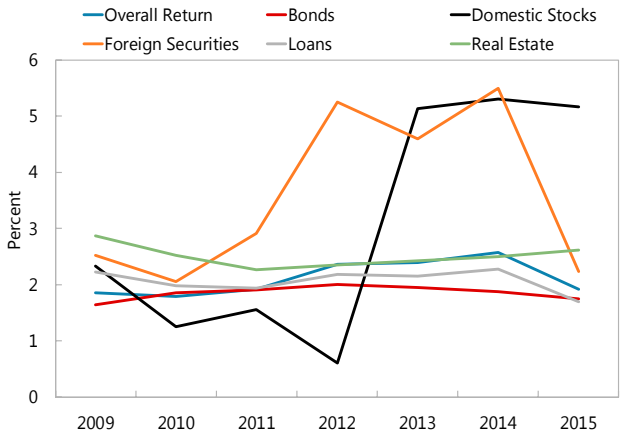
[12] Current tax rules provide exemptions on the inheritance tax for heirs who already live in the house, to be inherited when the parents die. There is also anecdotal evidence that valuations for tax assessment purposes make land an attractive bequest compared to financial assets.

[13] They hope that by offering a broader range of products and services to their clients this might also make the latter less susceptible to price-based competition for their business.

securities and investment trusts, plus expanding their holdings of foreign securities (in some cases on an unhedged basis).

16. The prolonged low domestic interest rate environment has also made life insurers turn to foreign investments to provide the yield needed to meet interest guarantees. Insurers still have a large stock of old policies in force with high interest guarantees. To obtain higher yields, insurers have ventured abroad. At end-2016, foreign investments accounted for about 20 percent of total assets of the four major life insurers. Currency hedges, mostly shorter-term currency swaps, range from 20 to 80 percent of the exposure, depending on insurer's risk appetite. Figure 6 shows investment returns by asset classes since 2009.

Figure 6. Japan: Investment Return by Asset Class (Life Insurance Sector)



Source: Life Insurance Association of Japan.

17. Although the statutory solvency position of insurers has improved since the last FSAP, economic value-based solvency ratios (ESR) are substantially lower. Statutory solvency margin ratios (SMR) stand at 945 for life insurance and 696 for non-life insurance as of March 2016. However, the results of the March 2016 JFSA third field test showed, on average, an ESR of 104 percent for life insurance and 194 percent for non-life insurance.[14]

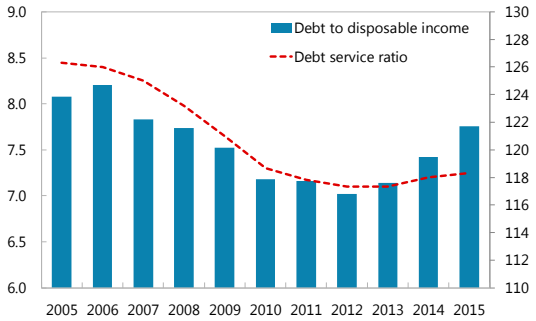
18. Household- and corporate balance sheets appear sound (Box 1). Households tend to be risk averse, holding about half of their assets as currency and deposits. The debt-to-income has increased due to weak income growth. Rising corporate profits and equity prices have strengthened corporate balance sheets and contributed to the build-up of record liquidity buffers for large firms. Corporate debt remains highly concentrated and relatively high as a share of GDP. However, leverage has been on a downward path, and the median interest rate coverage ratio is the highest among G-7 countries.

[14] While the statutory requirement of the SMR is 200 percent, the relevant threshold for the ESR would be 100 percent.

Box 1. Household and Corporate Sector Soundness

Household balance sheets remain robust, but indebtedness has trended up lately. Net wealth of households has gradually risen since 2008, with financial assets amounting to 338 percent of GDP in 2016. Meanwhile liabilities have remained relatively stable at about 60 percent of GDP. Direct exposure to risky assets is low, but indirect exposure through investment trusts and insurance products have risen marginally. The debt-to-income ratio has increased since 2012, partly due to weak income growth, but it remains below the mid-2000s peak. Moreover, the debt service burden (DSB) has fallen from 8.5 to around 7 percent over the past decade. Household debt will likely fall faster than assets as the Japanese population ages.

Household Indebtedness and Debt Service Burden
(In percent of income)



Sources: Haver Analytics and BIS.

Asset and Liabilities of Households, 2016
(In percent of total)

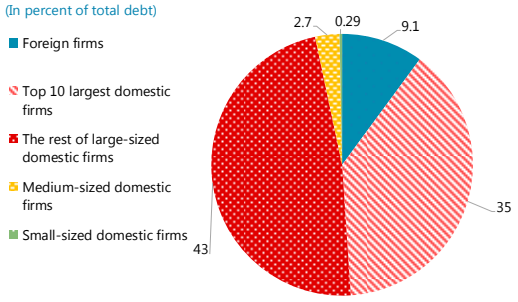
Assets		Liabilities	
Cash and deposits	52	Loans	94
Debt securities 1/	1	*Of which housing loans*	62
Equity	10	Other liabilities	6
Investment fund shares	5		
Insurance and pension	29		
Other assets	3		
Total	100	Total	100

1/ Central government securities account for about half of total debt securities. Households also hold indirect investments in government debt via insurance and pension reserves
Source: Flow of Funds; and BoJ.

Corporate debt amounts to about 130 percent of GDP—second highest among G7 economies—but corporate sector balance sheets have strengthened since the introduction of Abenomics. With sizable equity holdings, corporate financial net worth improved as share prices rose in the wake of BoJ's QQE program. In addition, the yen depreciation raised export revenues, increased corporate profits, and boosted corporate cash holdings for large firms. Overseas investments also rose as corporates looked for foreign investment opportunities given shrinking domestic markets. Corporate leverage fell to 156 percent in 2015—down from 205 in 2007—and the DSB have been on a declining trend, reaching 14 percent in 2015.

Corporate debt is highly concentrated, but the interest coverage ratio (ICR) is high and debt-at-risk has been falling. Large firms held close to 80 percent of total debt in 2015, with the top 10 corporates accounting for over 35 percent.[2] Foreign firms only accounted for about 9 percent of total debt. The manufacturing sector accounts for about 22 percent of loans by domestically licensed banks, while the real estate sector and the wholesale/retail sector accounted for 27 and 16 percent, respectively.[3] The median ICR for corporates was at a comfortable 15.7 percent in 2015, up from 6.5 in 2009, driven in part by a significant increase in the ICR of large firms to over 35 percent. The overall share of debt with ICR below one has fallen from 30 percent in 2009 to about 13 percent in 2015.

Share of Debt, 2015
(In percent of total debt)



Source: Orbis.

[1] In comparison, U.S. households hold about 14 percent in cash and deposits, 21 percent in corporate equity.
[2] Large firms are defined as firms with employees in excess of 250 or operating revenue above US$10 million.
[3] Total loans exclude loans to the finance and insurance sector.

THE LOW PROFITABILITY ENVIRONMENT IS CREATING NEW RISKS…

A. Market and Funding Liquidity Risks

19. The long period of low interest rates, followed by the introduction of QQE and NIRP, poses challenges for financial markets. There are indications that market liquidity for certain securities, including JGBs, has been declining. Short-term money markets have become much less profitable. Trading volumes in the collateralized call market have fallen sharply, because trust banks—which traditionally provided such funding—were no longer willing to do so at negative interest rates. Volumes in other short-term markets also fell, but have since recovered due to arbitrage under the three-tier reserve system. Financial institutions have expanded their recourse to yen-to-foreign-currency swaps, exposing them to refinancing risk in that market.

20. The level of liquidity in JGB markets seems to have been negatively affected by BoJ's outright purchases. Transaction-based indicators point to some declines in the liquidity in both JGB cash and futures markets since the implementation of QQE (Figure 7 and Appendix Figure 2).[15] Panel regressions, using bond-level data for all JGBs, find a statistically significant and negative impact of BoJ's purchases on market liquidity (proxied by estimated bid-ask spreads following Corwin and Schultz, 2012) which tends to increase with the share of the BoJ's holdings ("*scarcity effect.*")[16] The estimated size of impact from a one-time purchase is small. Having said that, since the cumulative effect may not be negligible, it is important for the BoJ to continue to monitor the share of the BoJ's holdings of each bond when conducting the outright purchases. Appropriate measures to alleviate shortages should also be considered in the event of liquidity stress.

21. The *resilience* of JGB market liquidity also seems to have declined as the share of BoJ's holdings of JGBs has increased. Markov regime-switching models for market liquidity (proxied by the estimated bid-ask spreads) show that key monetary policy announcements by the BoJ have been associated with sharp increases in the probability of being in a low- or intermediate-liquidity regime (Figure 7). Moreover, the resilience of market liquidity tends to decline—with a higher probability of switching from a higher- to a lower-liquidity regime or a higher probability of remaining in the low-liquidity regime—as the share of BoJ's holdings increases.

22. Market participants indicated that the low interest rates and decline in value-oriented trading had weakened private market capacity to react quickly to changes in circumstances. Fewer people are involved in trading, underwriting, and market making in the repo and cash markets, and significant technical expertise required for an efficient functioning of these markets has been lost.

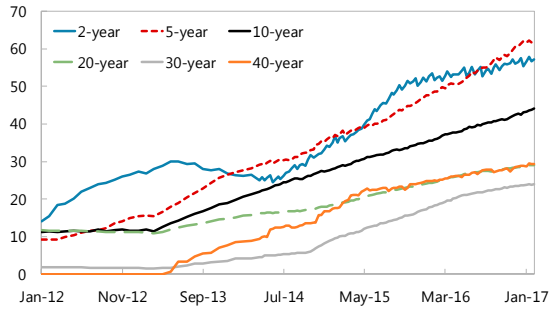
[15] The BoJ's new monetary policy regime—yield curve control—seems to have mitigated some of the pressures in JGB market liquidity (Figure 7, panel 3).

[16] The scarcity effect refers to the negative effect of a central bank's QE measures on market liquidity by increasing the shortage of the securities purchased by the central bank and hence its search cost (GFSR, October 2015).

Figure 7. Japan: The Level and Resilience of Market Liquidity

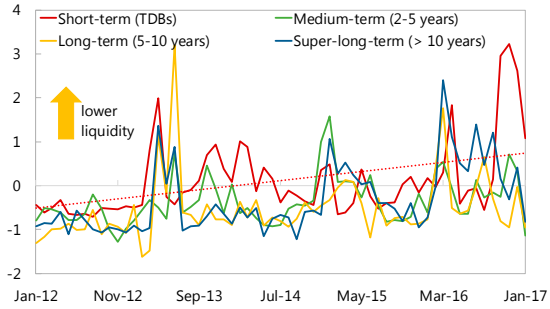
Bank of Japan's Holdings of Japanese Government Bonds by Original Maturity

(In percent of total amount outstanding)



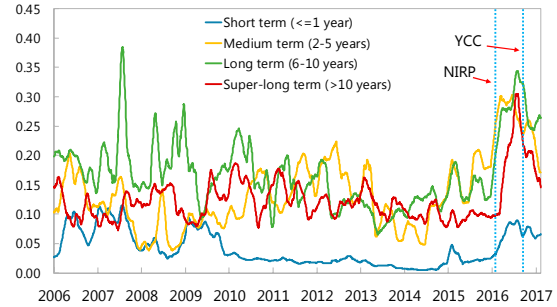
Estimated Bid-Ask Spreads for On-the-Run Japanese Government Securities 1/

(In percent; normalized by mean and standard deviation)



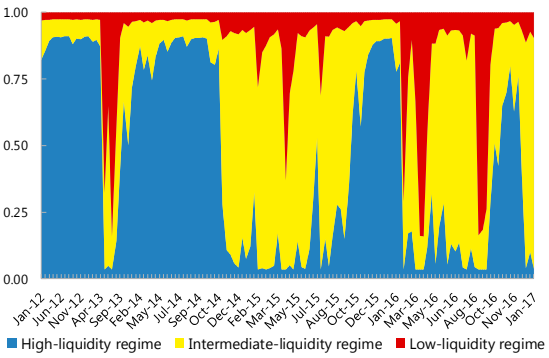
Japanese Government Bond Price Dispersion: By Remaining Maturity 2/

(In Japanese yen)



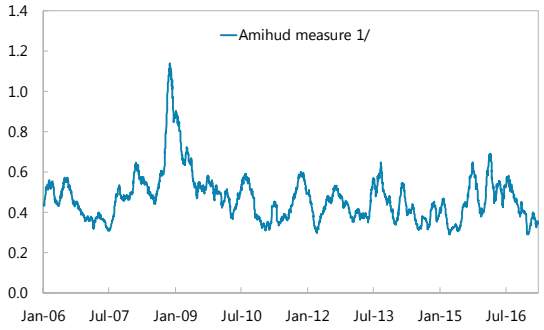
Market Liquidity Regimes: 10-Year Government Bond

(Probability of regime; on-the-run 10-year Japanese Government Bond)



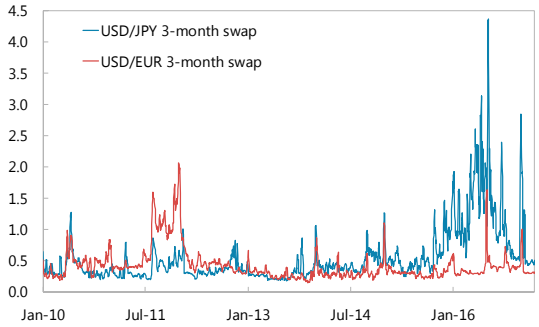
Japan: Stock Market Liquidity 3/

(In percent; 30-day moving average)



Foreign Exchange Swap Market Liquidity: Bid-Ask Spreads

(Japanese yen cents, U.S. dollars/10000)

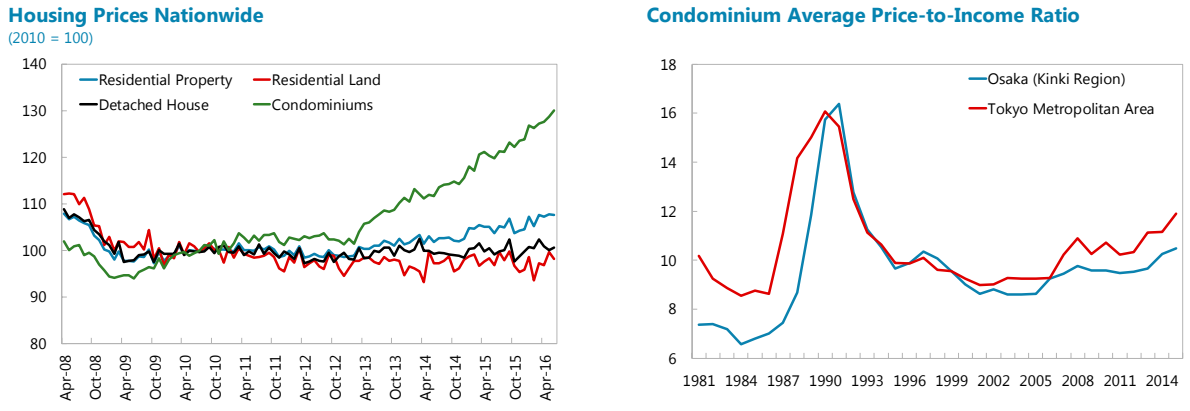


Sources: Bank of Japan; Japanese Ministry of Finance; Bloomberg, L.P.; and IMF staff estimates.
1/ Bid-ask spreads estimated using the high and low prices of on-the-run JGBs following Corwin and Schultz (2012).
2/ The price dispersion is first calculated for bonds with the same remaining maturity (rounded up to years) and the same coupon rate, as the standard deviation of the prices of these bonds divided by the average of their prices. Then the median of these price dispersion measures across different coupon rates are calculated and grouped into four categories according to their remaining maturities. The median of for each group (smoothed by 30-day moving average) is presented in the chart.
3/ The Amihud measure is calculated for each stock in Nikkei 225 as the absolute daily return divided by daily trading volume. The measure presented here is the 30-day moving average of the median across all the stocks in Nikkei 225.

B. Risks Emerging from Real Estate?

23. Housing prices have been on the rise in some geographic areas and market segments, despite the declining population. Condominium prices have increased by 23 percent at the national level since 2013 (Figure 8). Historically low mortgage rates and recent changes in the inheritance tax are contributing to demand pressures, with little response in the number of new houses put on the market.[17] Some overheating in the housing market is also indirectly suggested by house price-to-income ratios.[18] Growth in real estate loans has been higher than other loans and the amount outstanding by domestic and *Shinkin* banks reached a record high at end-December 2016 (FSR, April 2017).

Figure 8. Japan: Housing Market Developments in Japan



Sources: Haver Analytics; OECD; and IMF staff estimates.

24. Condominium prices appear to be moderately overvalued in Tokyo, Osaka, and several outer regions. While results should be interpreted with caution given data limitations and model uncertainty, an econometric analysis using city data shows that condominium prices in Tokyo and Osaka started exceeding values predicted by fundamentals in 2013, suggesting an overvaluation in the 15–20 percent range. A regional analysis also indicates that condominium prices may be moderately above their equilibrium values, with the degree of overvaluation in the 5–10 percent range (Figure 9).[19,20]

[17] Anecdotal evidence points to land shortages in fashionable areas of Tokyo and increased margins of construction companies.

[18] Condominium price-to-income ratios have risen to 12 and 10.5 in Tokyo and Osaka respectively in 2015, levels close to those observed at the beginning of the real estate bubble in the mid-1980s.

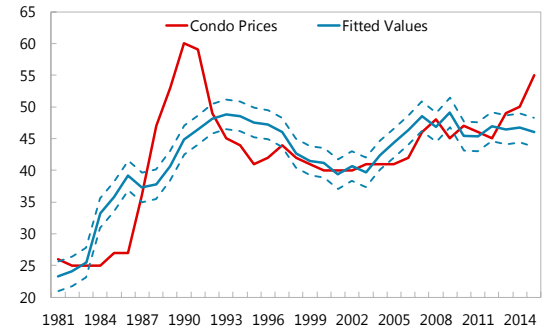
[19] The analysis is based on the estimation of econometric models that take into account both demand and supply factors. The standard disclaimers apply about caution on the results since they can vary depending on the estimation method and be imprecise due to limited data availability.

[20] These trends warrant close scrutiny in light of the fact that demographic patterns are expected to put downward pressures on real estate prices in the medium- to long-term and condo price overvaluation could therefore result in sharp price corrections in the medium term.

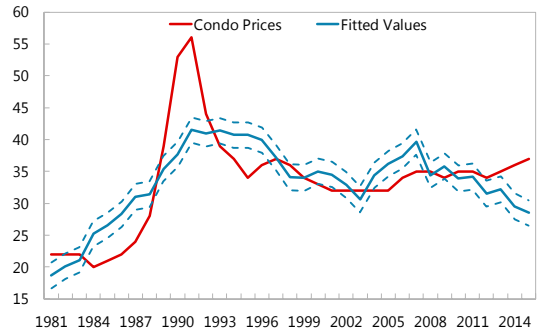
Figure 9. Japan: Housing Market Results

Condo Price Valuation Using Ordinary Least Squares

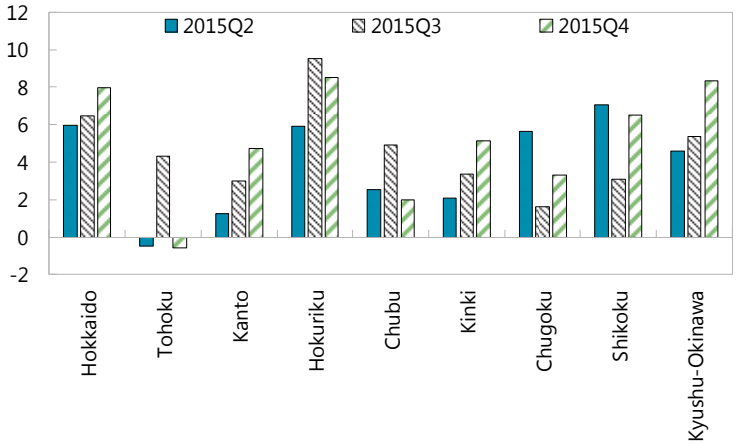
Tokyo Condominium Prices
(In millions of Japanese yen)



Osaka Condominium Prices
(In millions of Japanese yen)



Regional Condo Price Overvaluation, Using Seemingly Unrelated Equations (SUR) (In percent)



Sources: IMF staff estimates.

C. Systemic Risk Assessment of the Banking and Insurance Sectors

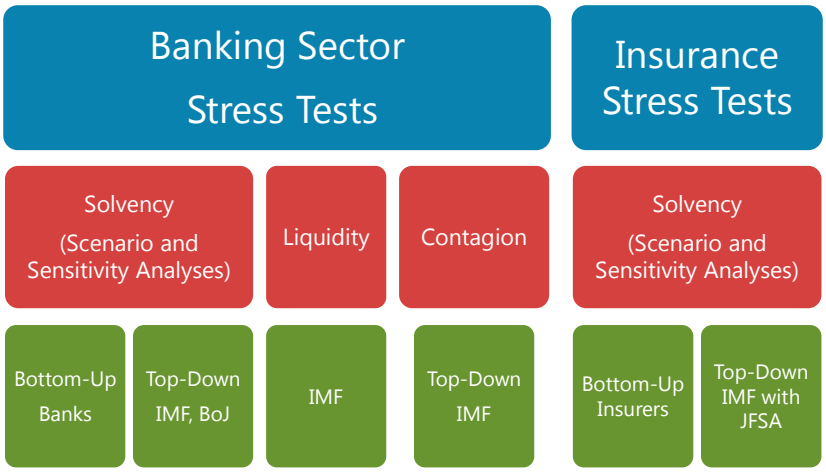
25. The team conducted an analysis of systemic solvency, liquidity, and contagion risks in the banking and insurance sectors (Figure 10 and Appendix Tables 6 and 7). The exercise followed a macroprudential approach, using both a bottom-up (BU)) and a top-down (TD) approach.[21] The TD banking solvency stress test covered the twenty largest banks, representing 90 percent of banking system assets, for a five-year period. The BoJ conducted a separate TD stress test using its own models, but following IMF scenarios, with a three-year horizon.[22] Liquidity analyses based on cash flows and on analyses and liquidity coverage ratios (LCRs) were undertaken to assess liquidity risks, and both balance-sheet- and market-data-based models were used to assess contagion risks. TD

[21] IMF TD stress tests used supervisory and market-based data, in collaboration with the JFSA.

[22] Due to timing issues, BoJ TD used March 2016 data while IMF used September 2016. Moreover, BoJ TD excluded Norinchukin Bank and JPB.

and BU stress tests were conducted for seven life- and six non-life companies covering 73 and 92 percent of the respective sectors.

Figure 10. Japan: Stress Testing Framework



Sources: Bank of Japan; Japan Financial Services Agency; and IMF staff.

26. The macroeconomic scenarios for stress tests incorporate the risks identified in the Risk Assessment Matrix (RAM) (Figure 11 and Appendix Table 5):[23,24,25]

- The *baseline scenario*, largely based on the projections from the October 2016 World Economic Outlook (WEO).[26]

- A *moderate adverse scenario* of de-globalization that features (i) inward-looking policies, with negative consequences for trade, capital and labor flows, sentiment, and growth; (ii) a significant credit slowdown in emerging market economies (EMEs) triggered by concerns over corporate leverage; and (iii) an initial depreciation, followed by some tightening in domestic financial

[23] The stress test scenarios were simulated using the Global Macrofinancial Model, a structural macroeconometric model of the world economy, disaggregated into forty national economies, and documented in Vitek (2015).

[24] It would be potentially difficult to predict any abrupt effects of aging on asset prices—including those of sovereign bonds, since only living generations can trade financial assets in any given point in time and imbalances in the demand and supply of assets cannot be arbitraged away beforehand. However, these effects are beyond the stress testing horizon.

[25] The scenarios formed the basis for the insurance stress testing exercise, but were slightly adjusted by front-loading the shock for the financial market variables.

[26] Short-term interest rates are expected to remain close to zero and long-term rates will only marginally rise over the medium term, reflecting the BoJ's recently introduced monetary policy framework.

conditions, including higher money market interest rates, lower equity prices, and a correction in the domestic housing market.[27]

- A *severe adverse scenario* with higher rates in the U.S. (due to a reassessment of policy fundamentals, a term premia decompression, or a more rapid U.S. monetary policy normalization), combined with severe stress in the domestic bond market. It assumes a 200-basis-point policy interest rate increase in the U.S. during 2017–18, leading to capital outflows and a further tightening of financial conditions in Japan. This would trigger a loss of confidence, resulting in a further increase in JGB yields.[28] A combined scenario with liquidity shocks is also analyzed.[29]

Banking Sector Resilience

27. The banking system appears generally resilient to short-term risks, but pockets of vulnerability exist. In the baseline scenario, city- and some regional banks would improve their capital positions due to an increase in income (especially overseas) which outpaces the growth in the cost of funding. At the same time, domestic banks would suffer from low net interest margins, and higher credit risk and overhead costs. In the severe adverse scenario, IMF TD results show that banks' solvency ratios would be significantly affected, the aggregate Common Equity Tier 1 (CET1) ratio would temporarily drop to 8.3 percent in 2018 before recovering to 12.8 percent in 2021 (Figures 12 and 13), and three regional banks would need additional capital to meet the 8 percent total capital requirement.[30] However, the capital shortfall would be small (a maximum of 0.05 of GDP). BoJ TD results broadly confirm the IMF TD results.

28. Equity and other market related losses represent the most important risk factor for the large banks included in the stress tests. Credit losses and the change in risk-weighted assets are also important factors.[31] These vulnerabilities, in turn, reflect banks' still large investments into equities, interest risk related to large holdings of debt securities, and reliance on wholesale funding in U.S. dollars to finance their overseas expansion.[32] This implies that the banking system is susceptible to correlated market (equity) and credit risk shocks.

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[27] Despite some tightening in money market rates, the scenario reflects a continuation of low real GDP, below-target inflation, and low long-term interest rates; implying lower net interest margin and a worsening of profitability.

[28] The additional decline in Japan's GDP compared to the moderate adverse scenario is primarily due to the assumed increase in JGB yields triggered by the accelerated U.S. monetary policy normalization.

[29] Further details on liquidity scenarios are provided in the Technical Note on Systemic Risk Assessment and Stress Testing.

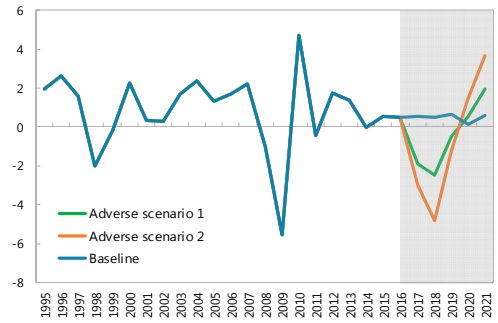
[30] Regional banks (excluding domestic banks) should maintain total capital above 8 percent. Domestic banks are not subject to total capital requirement and should maintain core capital above 4 percent.

[31] Risk-weighted assets and expected losses were projected using the Basel II Internal Ratings-Based Approach.

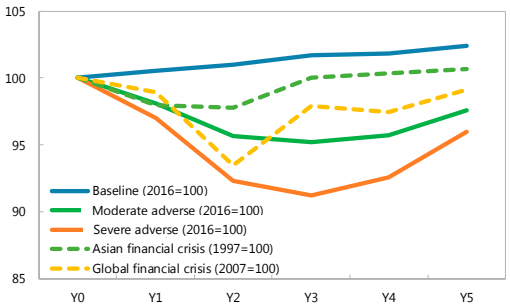
[32] Although Japanese banks have reduced their equity holdings, they still form a substantial share of assets (around 2.3 percent for the largest banks) and capital (65 percent for the largest banks). When the credit rating of a large corporate borrower drops, a bank is hit twice, both by the decline in equity prices and by the credit quality of related exposures. Based on BU sensitivity stress tests, an equity price drop by 50 percent would lead to a capital drop by almost two percentage points.

Figure 11. Japan: Macroeconomic Baseline and Stress Scenarios

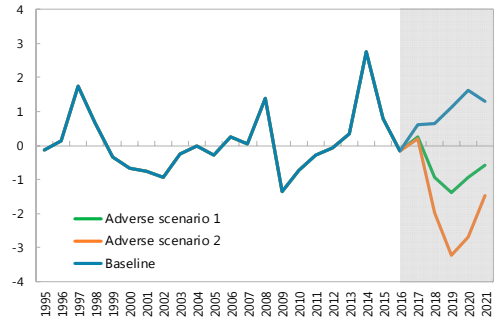
Japan: Real GDP Growth Rate
(In percent)



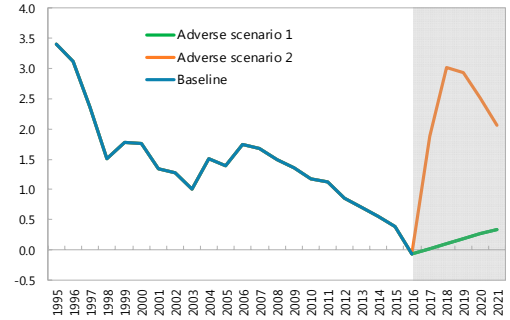
Japan: Scenario Severity from a Historical Perspective
(Real GDP in Y0=100)



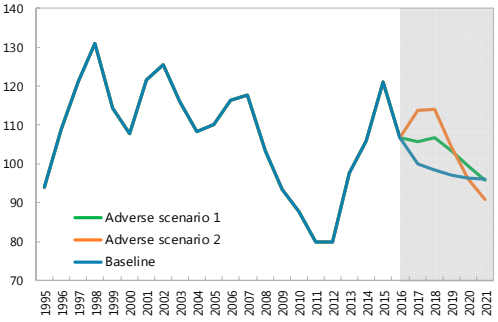
Japan: Consumer Price Index
(Year-on-year percent change)



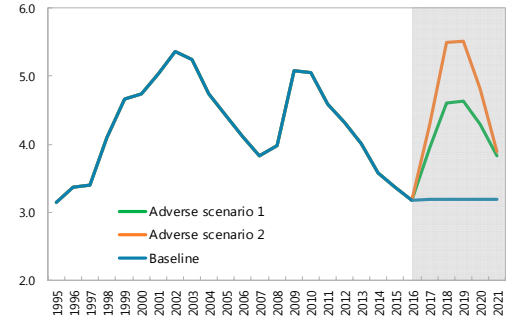
Japan: 10-Year Government Bond Yield
(In percentage point)



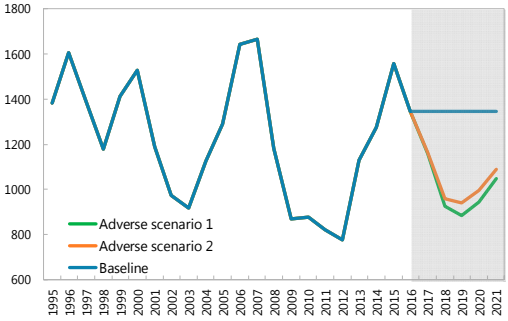
Japan: Exchange Rate
(Yen per U.S. dollar)



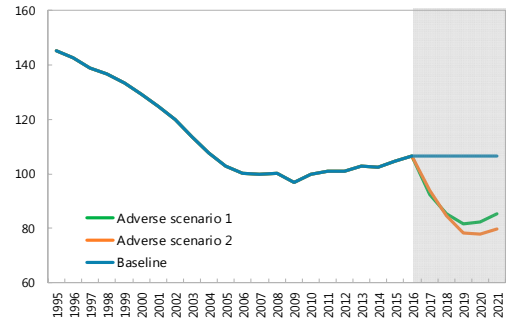
Japan: Unemployment Rate
(In percentage point)



Japan: Equity Price
(TOPIX composite index)



Japan: Real House Price
(Seasonally-adjusted index, 2010=100)

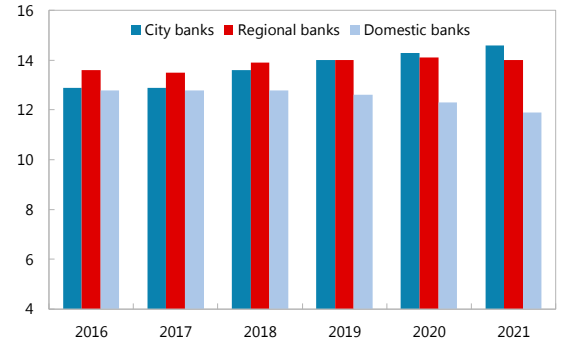


Sources: OECD Statistics; IMF's WEO and Global Assumptions databases; and IMF staff estimates.
Note: Adverse scenarios 1 and 2 correspond to the moderate and severe adverse scenarios, respectively. The projections for GDP were made before the National Accounts revision.

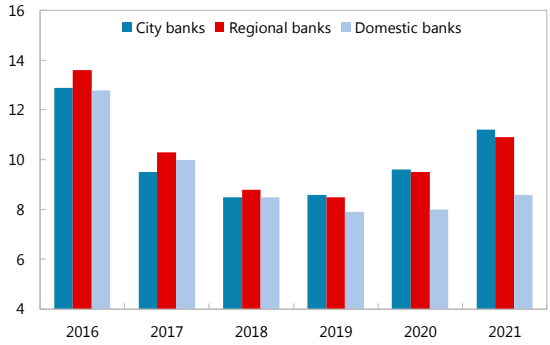
Figure 12. Japan: Solvency Stress Tests— IMF TD Results

(CET1 CAR, in percent)

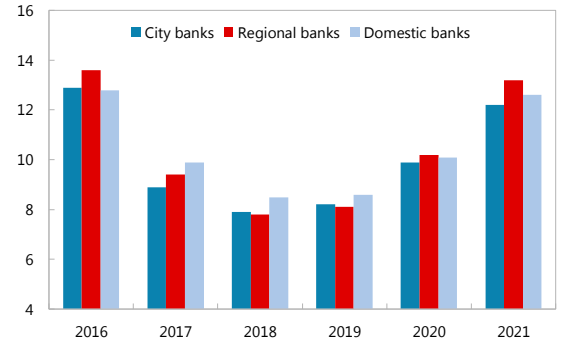
Baseline: IMF Top-Down



Moderate Adverse Scenario: IMF Top-Down

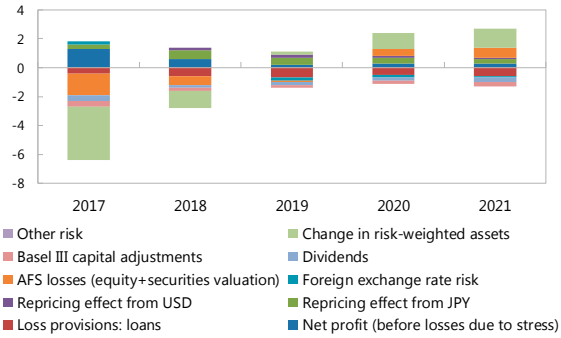


Severe Adverse Scenario: IMF Top-Down



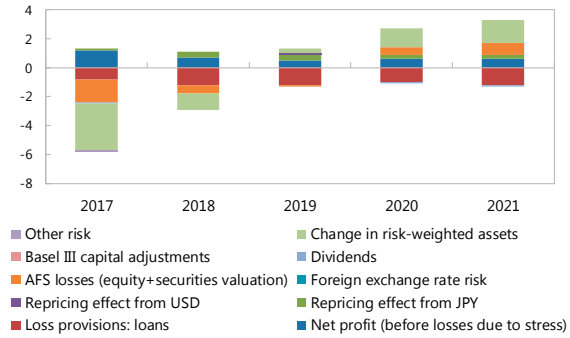
Severe Adverse Scenario: City Banks' Contribution to Changes in Risk-Weighted Assets

(In percentage points)



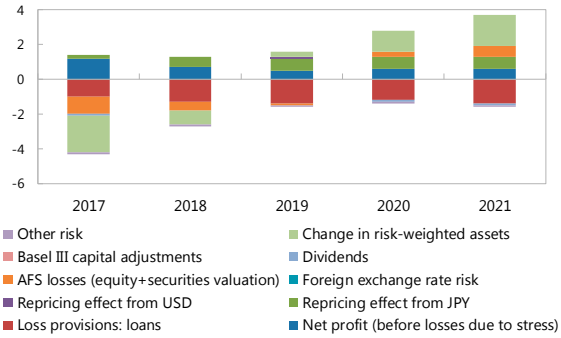
Severe Adverse Scenario: Regional Banks' Contribution to Changes in Risk-Weighted Assets

(In percentage points)



Severe Adverse Scenario: Domestic Banks' Contribution to Changes in Risk-Weighted Assets

(In percentage points)

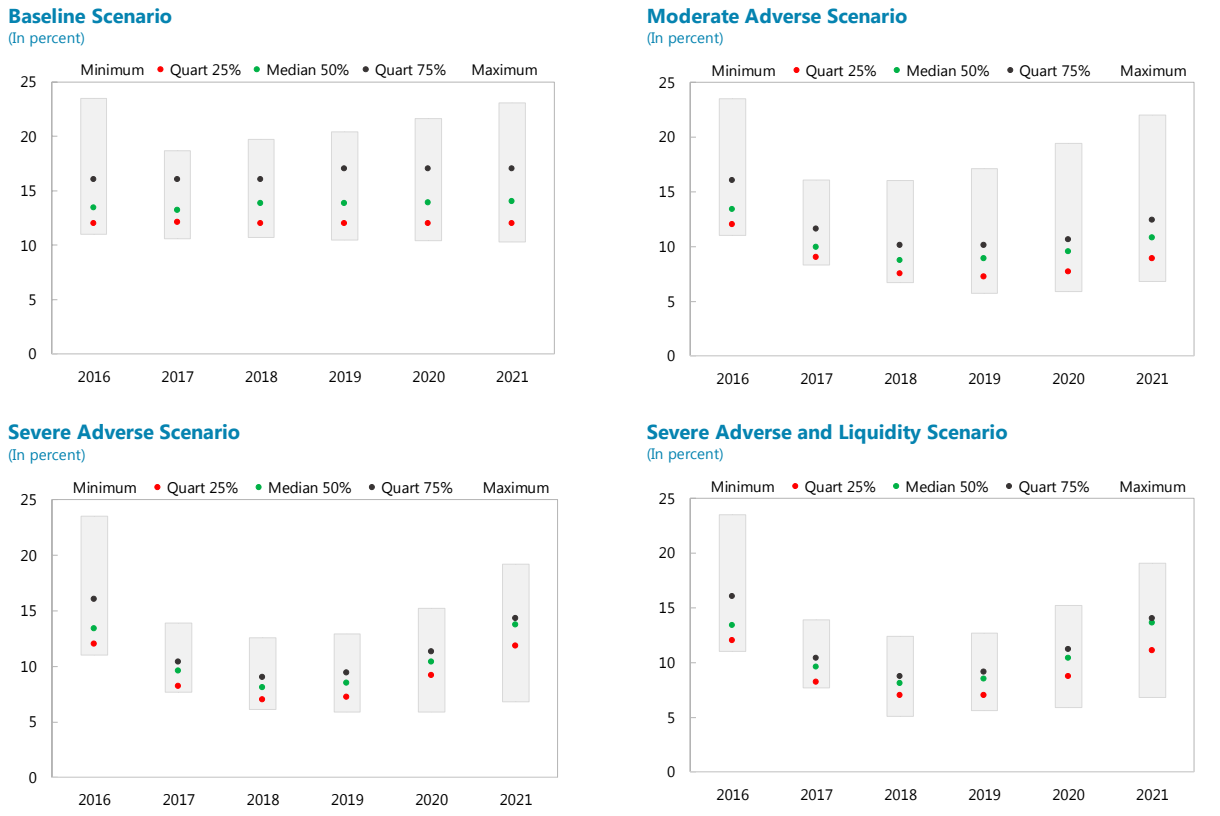


Source: IMF staff estimates.

Note: Domestic banks refer to banks that are not internationally active.

29. Stress testing reveals that regional banks remain most sensitive to credit-risk-related losses. Regional banks without international exposure, which have relative higher overhead costs and less diversified loan portfolios, exhibit a slow decline in profitability and capital levels even under the baseline scenario. Credit risk for those banks are much larger than for city- and internationally active regional banks.

Figure 13. Japan: Results of the IMF TD Solvency Stress Test by Quartiles



Source: IMF staff calculations.
Note: Baseline includes JPB.

30. Banks also carry common name credit concentration risk. Loans to corporates represent the most important exposure class after sovereign bonds.[33] The default of the largest borrower in the system would lead to the loss of 4.5 percent of the system's total capital, though no bank would be undercapitalized. The default of the five and 10 largest borrowers leads to four and 12 banks falling below minimum CET1 Capital Adequacy Ratio (CAR), respectively. Many large exposures are connected—that is, multiple banks have the same large borrower.[34]

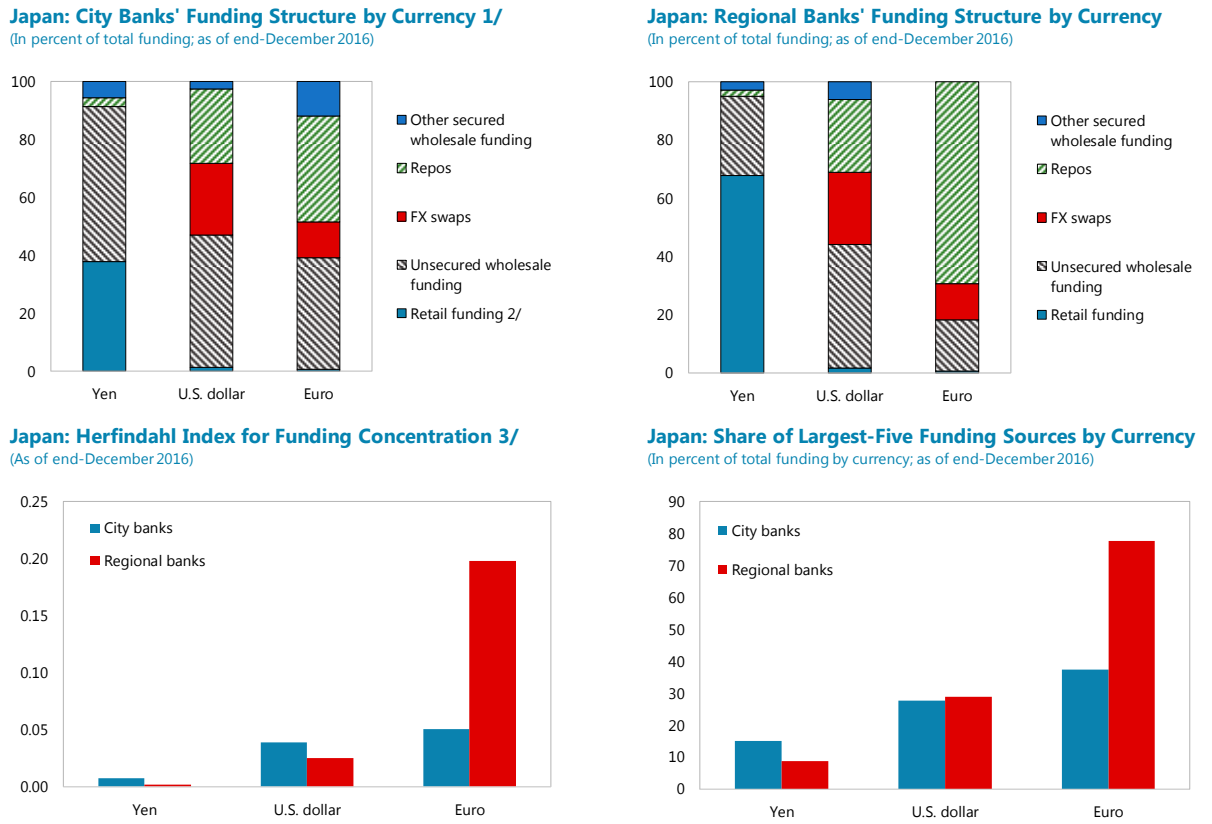
31. The funding structure suggests that banks rely heavily on wholesale sources for foreign currency funding (Figure 14, top panels). In contrast to their yen funding, most of banks' funding in U.S. dollars and euros comes from unsecured corporate funding, repos, and FX swaps—all of which could be more difficult to obtain in a stress environment—although banks have been shifting towards more stable and longer funding sources to reinforce their resilience under latent

[33] Following the regulatory approach, own domestic sovereign exposure class was assigned 0 risk weight. However, this risk was included into market risk stress testing with the increase in JGB yields scenario.

[34] Other BU sensitivity tests reveal that counterparty default risk and losses due to a decline in real estate prices appear limited for the banks in the sample.

stress in FX markets. Banks' funding sources in foreign currencies, particularly the euro, are also highly concentrated (Figure 14, bottom panels).

Figure 14. Japan: Funding Structure and Concentration



Sources: Japan Financial Services Agency; and IMF staff estimates.
1/ In percent of total retail and wholesale funding (not including funding through derivatives markets). Major banks include the three financial groups.
2/ Retail funding includes retail deposits, retail debt securities, and SME deposits.
3/ A higher Herfindahl index indicates a higher concentration.
Note: Regional banks in this panel are internationally exposed regional banks.

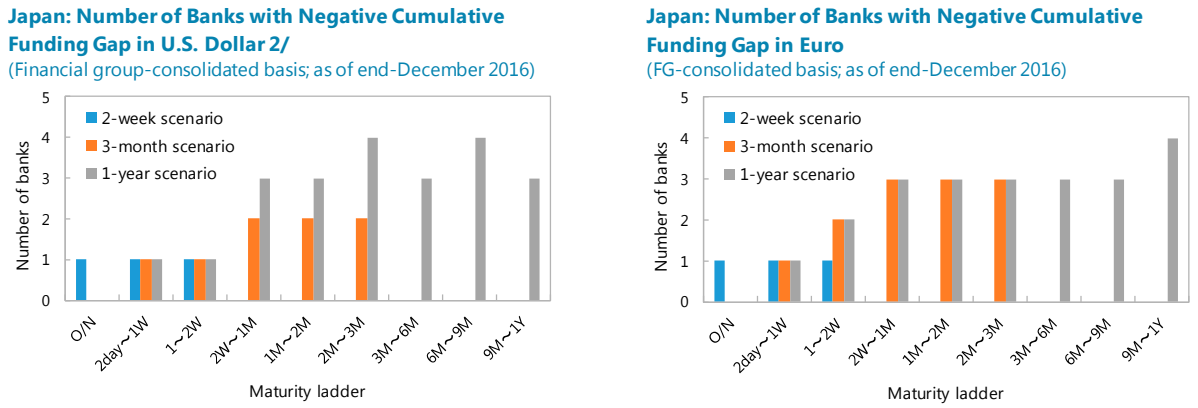
32. Despite ample liquidity in yen, significant areas of vulnerability exist in foreign currency positions, particularly for regional banks.[35] Although no bank fails the all-currency liquidity stress tests, four regional banks would experience negative cumulative funding gaps in U.S. dollars in the one-year severe scenario (Figure 15).[36] All-currency LCRs also suggest robust overall

[35] Regional banks in the liquidity stress testing sample are all internationally active regional banks. The liquidity stress tests using financial group (FG)-consolidated data are presented and discussed here.

[36] However, the total amount of negative funding gaps in U.S. dollars in the severe 1-year scenario accounts for only a very small proportion of total U.S. dollar-denominated liabilities of the entire banking sector. Liquidity stress testing was also conducted for the euro (although euro-denominated liabilities only account for less than 5 percent of total liabilities for the whole banking sector). The results show negative yet very small funding gaps (relative to total funding needs) or two regional and two city banks in the severe 1-year scenario. The results using end-March and

liquidity, with ratios above 100 percent in all banks in the sample. However, the LCR in U.S. dollars stands below 60 percent (system-wide), and the ratio for regional banks is lower on average.[37]

Figure 15. Japan: Liquidity Stress Tests—Cash-Flow Based Analysis 1/



Sources: Japan Financial Services Agency; and IMF staff estimates.
1/ Regional banks in this panel are internationally exposed regional banks. LCRs in euro are not presented because very few banks have euro-denominated liabilities greater than 5 percent of their total liabilities.
2/ Financial group (FG)-consolidated basis means that all the banking entities within the same financial group are consolidated. Japan has three financial groups in total.

33. Combining funding, market liquidity, and solvency stress tests yields slightly more severe outcomes for banks subject to liquidity constraints. Banks that fail U.S. dollar liquidity stress tests would need to liquidate their less liquid non-high-quality liquid assets (HQLA) denominated in U.S. dollars, yielding 0.02 percent of additional losses in terms of GDP.[38]

Insurance Sector Resilience

34. Life insurance companies experience a substantial decline in their solvency position, given their strong sensitivity to interest rates, while non-life companies are more resilient.[39] In the TD exercise, the average life sector solvency margin ratio (SMR) drops from 949 to 419 percent in the severe adverse scenario (Figure 16). Six out of seven companies remain above the statutory requirement. The interest rate hikes in Japan and the U.S., as well as the equity price declines, contribute mostly to the decline in capital. The assumed default of the largest counterparty also has a considerable impact. Being less sensitive to higher interest rates, the non-life sector performs better. BU results broadly confirm the TD results. Sensitivity analyses show resilience of the non-life

end-September 2016 FG-consolidated data are comparable with those using end-December 2016 data in the 1-year severe scenario. Liquidity scenarios are described in details in the Technical Note on Risk Assessments.

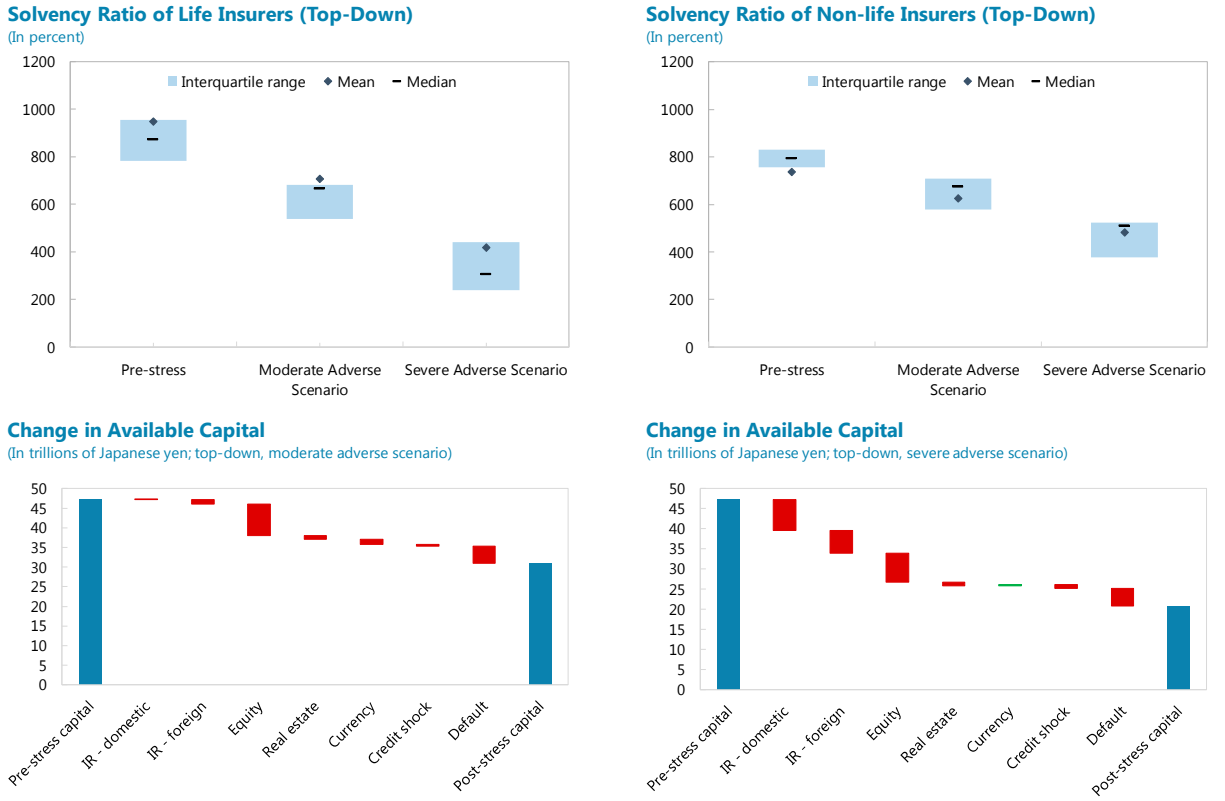
[37] A caveat is that the funding concentration indicators might not be fully comparable across currencies because CCPs are included in the funding concentration data, and account for significant shares in banks' secured funding in foreign currencies.

[38] This test explicitly assumes that banks choose to liquidate foreign assets rather than use the swap market to exchange Japanese yens to U.S. dollars.

[39] The impact was measured in terms of instantaneous changes in the SMR, with a 200 percent hurdle rate.

sector toward large natural catastrophes (modeled as single events). Domestic perils like earthquakes and typhoons are the most relevant risks.

Figure 16. Japan: Insurance Solvency Stress Test—Top-Down Results



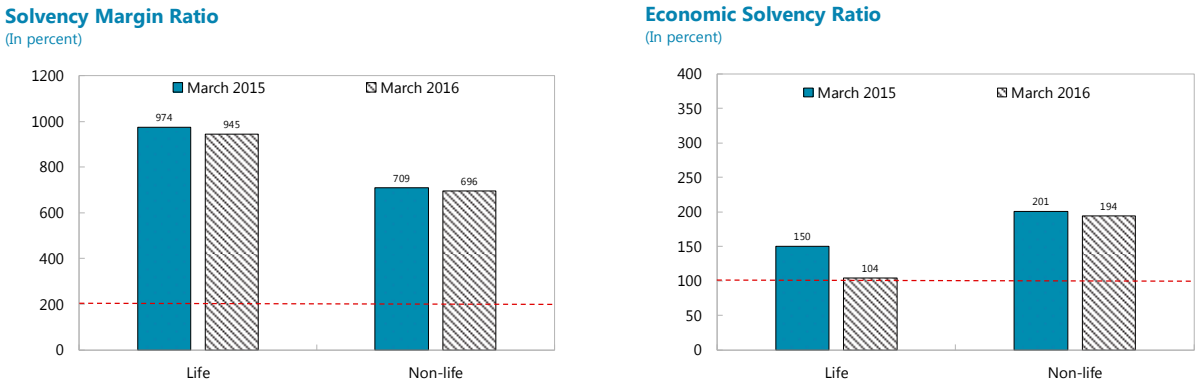
Source: IMF Staff calculations based on company submissions.

35. Stress test results need to be interpreted cautiously in the current valuation and solvency regime. Economic Value-Based Solvency Ratios (ESRs) as tested in a recent JFSA field test, and those disclosed by some companies are considerably lower than the statutory SMRs—on average, the life sector had an ESR of only 104 percent as of March 2016 (Figure 17).[40] In particular, an economic solvency regime makes life insurers less vulnerable to an interest rate increase—because liabilities decline in sync with the value of fixed-income assets, but more so to a prolonged period of low rates.[41] Certainty about future regime would help companies to adjust their business strategy.

[40] The JFSA published the results of its third Field Test on an economic solvency regime in March 2017. This exercise was performed in the second half of 2016 and built on the Field Test of the International Association of Insurance Supervisors (IAIS) with some smaller amendments made by the JFSA. The aim was to test the impact of a regime shift towards an economic valuation of assets and liabilities and a solvency requirement with capital charges calibrated at consistent confidence levels.

[41] The relevant threshold in an economic solvency regime would be 100 percent.

Figure 17. Japan: Solvency Ratios for the Insurance Sector



Source: Calculations based on JFSA field tests and data.

D. Risks Emerging from Financial Instruments and Markets

36. The potential financial stability risks arising from securities firms are primarily driven by the major securities groups' interconnectedness with the rest of the financial system. This dependence arises particularly through wholesale funding from the potential withdrawal of funding by large city banks. These major firms are also exposed to market and counterparty risk.

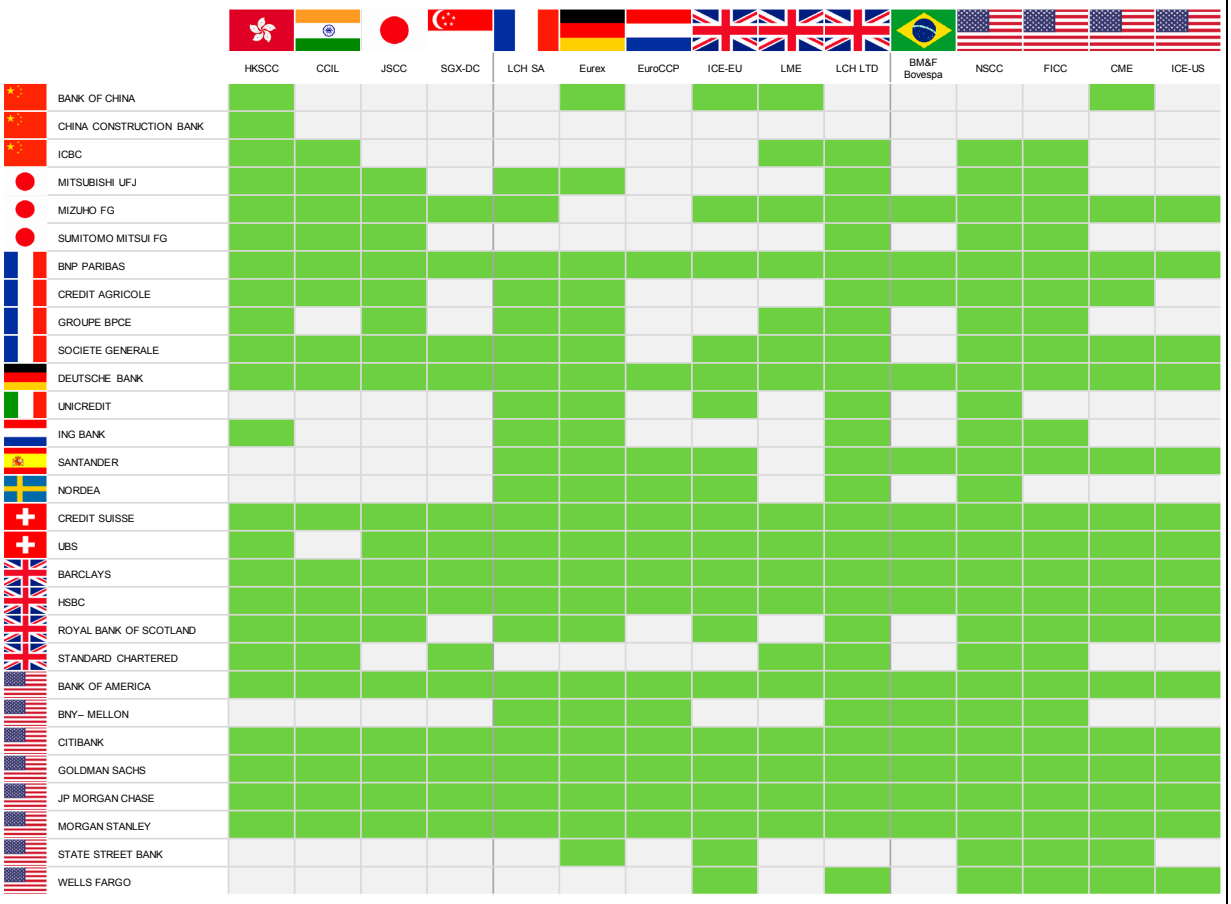
37. CCPs have become increasingly critical components of the financial system, due in part to the introduction of mandatory central clearing for standardized derivatives. The Japan Securities Clearing Corporation (JSCC) offers clearing in over-the-counter (OTC) derivatives transactions and faces liquidity risks from clearing participants. The three Japanese G-SIBs are clearing members in 13 other CCPs worldwide besides the JSCC (Figure 18), and can transmit financial shocks across domestic and international financial markets.

38. Cybercrime has recently been recognized in Japan as a major threat.[42] Increasing digitization of financial services combined with sophistication of cyber criminals represents a significant risk for the stability of the Japanese financial system. In response, the authorities have adopted a national approach by enacting the Cyber Security Basic Act (November 2014) to secure critical infrastructure, including the financial sector. To complement the work at the national level, the JFSA has been ramping up the intensity of its supervisory activities both industry-wide and at the individual firm level. Efforts by the JFSA are based around five key policies[43] and workshops to identify best practices have been undertaken in conjunction with simulation exercises.

[42] "Policy Approaches to Strengthen Cyber Security in the Financial Sector," JFSA, July 2015.

[43] The five policies include: constructive dialogue with industry; information sharing framework among financial institutions; continuous implementation of industry-wide cyber security exercises; human resources; and JFSA initiatives.

Figure 18. Japan: CCPs and G-SIBs



Source: Financial Stability Board.

E. Interconnectedness and Risk Amplification Channels

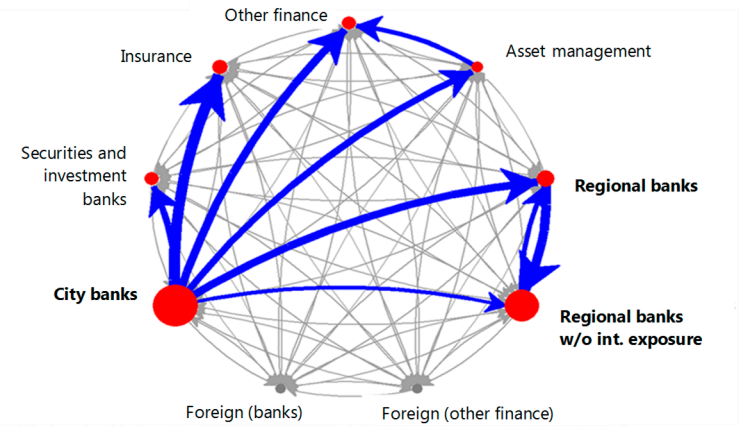
39. Japan's city banks and nonfinancial firms are the main source of financial spillovers. A network analysis based on market data suggests that shocks to the equity returns of Japan's largest banks propagate strongly to other sectors, especially to insurance companies (Figure 19).[44] Spillovers from nonfinancial firms are equally important. Links among internationally exposed and domestically-oriented regional banks are also strong. Indirect exposures to foreign shocks through their client base (nonfinancial forms) seem a relevant source of financial spillovers from abroad.

40. Financial spillovers can be partly explained by cross-ownership of equity and exposures to common factors—namely geographical and business exposures. The financial groups of the three mega banks, a large securities firm, and several major insurance companies still have significant (but declining) strategic equity claims in many Japanese financial institutions (Figure 20). On average, this cross-ownership accounts for 18 percent of the institutions equity

[44] The analysis of financial spillovers based on market data is constrained by data availability. In particular, for certain segments—such as insurance companies—the number of listed companies is small.

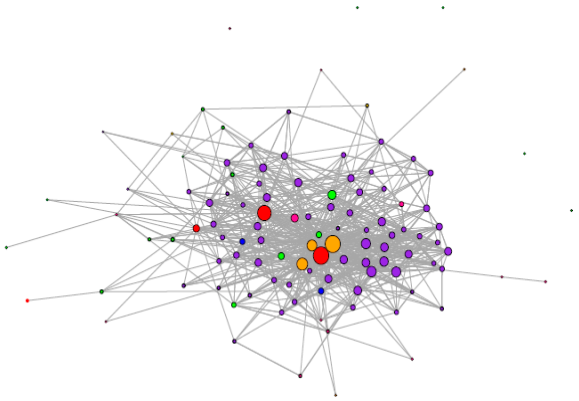
capital. Direct exposure to common foreign shocks seems to be a less important driver of spillovers, except for mega banks and nonlife insurance companies.

Figure 19. Japan: Financial Interconnectedness 2010-16



Sources: Bloomberg L.P.; Thomson-Reuters Datastream; IMF staff estimates.
Note: The network above shows the strength of average spillovers from one group of institutions to another (row). Spillovers are calculated using firm-level weekly equity returns data (except for domestic and foreign nonfinancial firms for which the Nikkei 225 Nonfinancials and S&P 500 Nonfinancials indexes are used, respectively) and Diebold and Yilmaz's (2014) generalized forecast-error variance decomposition approach. The sample starts in January 2010 and ends in December 2016. "Regional banks" includes only internationally exposed regional banks.

Figure 20. Japan: Cross-Ownership Among Japanese Financial Institutions

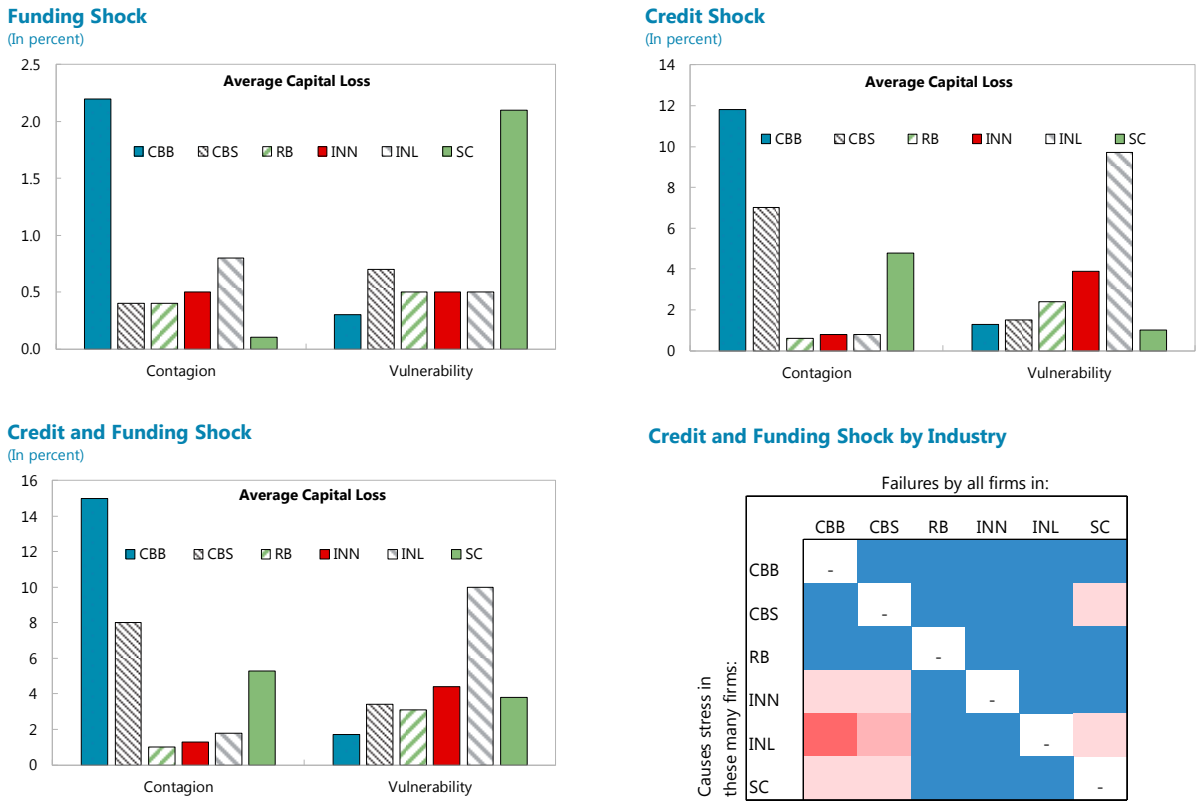


Source: FactSet, IMF staff.
Note: The chart shows the network of shareholdings among Japanese financial institutions based on publicly reported data. The size of the nodes reflects the number of stakes held directly or indirectly in other institutions (out-degree centrality). Only insider or stakeholder ownership is considered. City banks = red, Regional banks = purple, Life insurance = blue, Nonlife insurance = orange, Securities firms = green, Finance companies = pink, Asset managers = gold.

41. Losses to the financial system arising from a credit shock would be significantly larger than those stemming from a funding shock. A network analysis based on individual balance sheet data shows that a default by a large city bank would result in losses of about 12 percent of the

financial system's total capital (Figure 21).[45] Life insurance companies would be the most affected given their direct exposure. The withdrawal of funding by large city banks would have a smaller effect in terms of capital losses (2 percent of the financial system's total capital), with securities firms being the most vulnerable.

Figure 21. Japan: Capital Losses in Contagion Scenarios



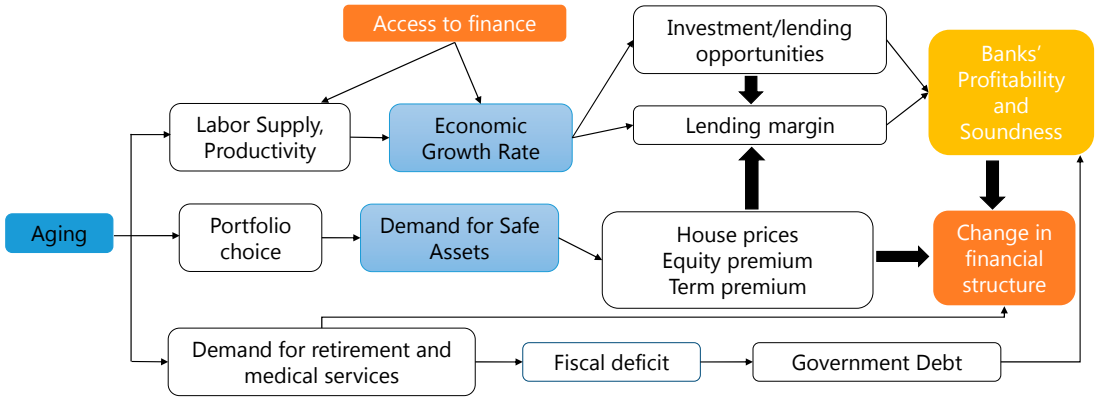
Sources: Japan Financial Services Authority; IMF staff.
Note: CBB = large city banks; CBS = small city banks; RB = regional banks; INN = Nonlife insurance companies; INL = life insurance companies;
SC = securities firms. In panels 1 through 3, Contagion shows the average percent of the system's capital lost because of the failure or withdrawal of credit from any given firm in each category. In the same panels, Vulnerability shows the average percent of the system's capital lost in each category because of the failure or withdrawal of credit from any given firm. In panel 4, the instensity of stress ranges from inexistent (blue) to high (red) and reflects the number of firms under stress in the simulation.

[45] Capital is measured as the book value of shareholders' equity for incorporated firms or the book value of net assets for mutual companies. By assumption, default or financial distress occurs when capital is below 2 percent of assets.

…AND AMPLIFYING LONG-TERM CHALLENGES FOR FINANCIAL INTERMEDIATION…[46]

42. An aging and shrinking population may imply structural changes in the financial system through its effect on asset prices (Figure 22). An older and shrinking population may reduce total factor productivity growth, curtail investment and credit demand, and put downward pressure on economic growth and real interest rates.[47] An increase in older population cohorts could pressure asset prices downwards as the older generations unload their savings. It is also possible that retirees increase their demand for safe assets, with negative effects on the price of assets at the long end of the yield curve.[48] Additional fiscal pressures may arise because of increased demand for medical services and increased payouts to retirees, which may raise the demand for safe assets.

Figure 22. Japan: Aging and Financial Intermediation Explained



Source: IMF staff.

43. Although, in theory, the effect of aging on the composition of the financial sector is ambiguous and complex, empirical work suggests that aging could reduce the role of banks. In theory, aging is consistent with both a growing and shrinking banking sector (in relative terms). However, results from a country panel regression analysis show that the size of nonbank financial intermediaries to banks is positively associated with aging through its effect on the term spread.

[46] The analyses and results showcased in this section are detailed in the Technical Note on Financial Intermediation.

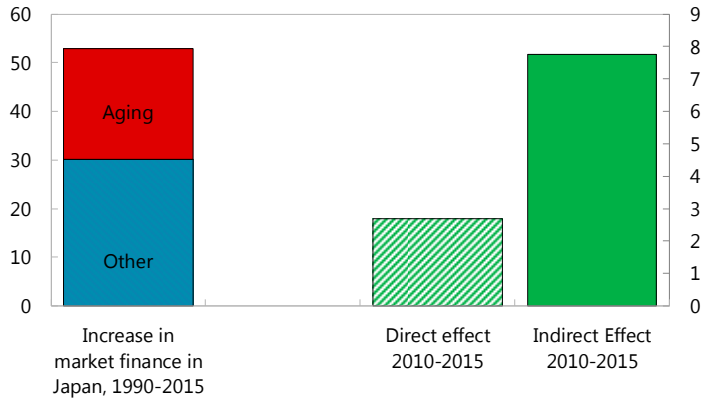
[47] For instance, aging is estimated to have reduced the real interest rate by 1.25 percentage points since 1985 (Ikeda and Saito 2014). This is the same as Gagnon, Johannsen, and Lopez-Salido (2016) estimate to have happened in the U.S. since 1980.

[48] However, increases in longevity would lead younger working-age generations to save more and increase their exposures to risky long-lived assets, off-setting some of the increase in the demand for safe assets. Although higher longevity can also raise labor supply and even lead to new businesses being created by senior citizens, the expectation is that these effects on the financial system are small.

About 40 percent of the increase in the size of market finance in Japan since 1990 can be explained by aging (Figure 23).[49]

Figure 23. Japan: Effect of Aging on Financial Intermediation

About 40 percent of the increase in the size of market finance in Japan since 1990 can be explained by aging.



Source: IMF staff estimates.
Note: The first column in the chart shows the increase in market-based finance—stock market capitalization as a percent of bank credit to private sector—during 1990–2015 and the part of the increase that can be attributed to aging. The last two columns show the estimated increase in the same ratio during 2010–15 that can be attributed directly or indirectly (via its effect on the term spread) to aging. The stripped pattern of the second column means the effect is not statistically significant.

44. The impact of shrinking and aging prefectural populations on regional banks' deposit and loan dynamics will intensify over the two decades. Prefectural population projections up until 2035 and panel regressions reveal that the combined negative impact from aging and especially of population growth on the loan-deposit ratio would be 1−1.5 percentage points per year.[50] Regional banks in major metropolitan areas will fare better, while some banks could see their loan-deposit ratios fall by an annual average of about 2 percentage points over the next two decades (Figure 24).[51]

45. Demographic headwinds also tend to push regional banks towards a higher share of securities holdings and fee revenues. Further econometric analysis finds that shifts in the age distribution are an important driver of banks' choice of business model. Aging or a decrease in population growth increases the likelihood that a bank will switch to a banking model more oriented toward holding securities and generating fee income, including from wealth management products (see also Chapter 2 of the GFSR April 2017). In principle, both effects should also accelerate the international expansion of regional banks.

[49] The effect of aging on the nature of financial intermediation—bank versus nonbank finance—has not received much attention in the literature, with a few exceptions (see Imam 2013). However, market finance may not entail additional risks to financial stability as it probably means less leverage backed up by deposit insurance and government contingent liabilities.

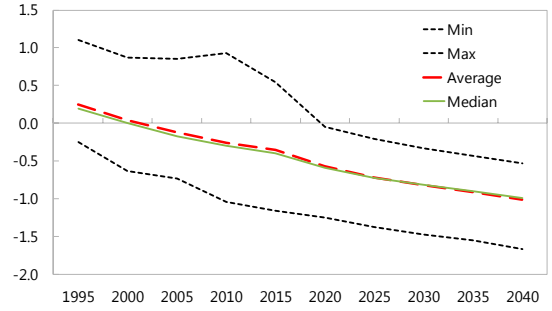
[50] Translating to a decline of over 20 percentage points over the next two decades.

[51] Some banks could see their loan-deposit ratios fall by 40 percentage points by 2035.

Figure 24. Japan: Historical and Projected Impact on Loan and Deposit Dynamics, 1995–2035

Population is shrinking in many prefectures.

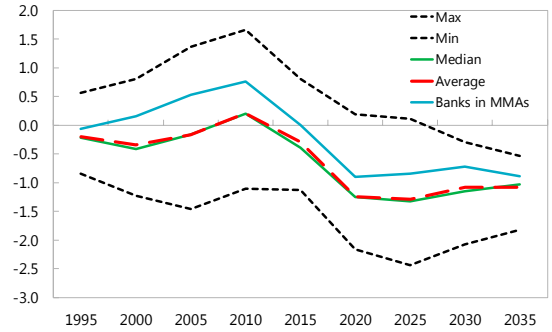
Average Annual Prefectural Population Growth
(In percent)



Sources: National Institute of Population and Social Security Research; IMF staff calculations.

Although regional banks in large metropolitan areas will fare better, the median regional bank will see a marked decline in loans-to-deposits before 2020…

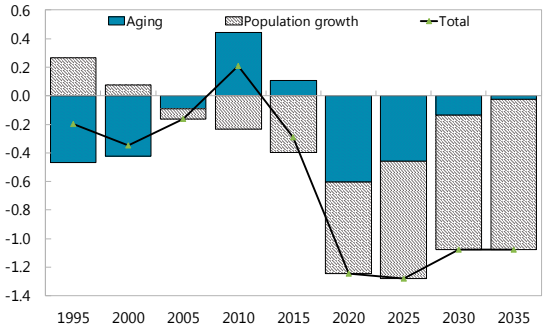
Demographic Impact on Loan-Deposit Ratios Across Banks
(Average annual percentage points change)



Source: IMF staff calculations.

Aging and especially population declines will cause banks to reduce lending relative to deposits.

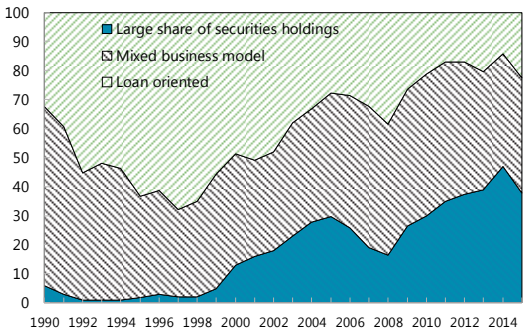
Demographic Impact on the Annual Loan-Deposit Ratio
(In percentage points)



Sources: IMF staff calculations.

… which will further encourage them to adopt business models based on securities investment.

Share of Regional Banks by Business Model, 1990–2015
(In percent)



Sources: Fitchconnect; IMF staff calculations.

46. Actions underway by regional and *Shinkin* banks to address these challenges are not without risks and may not be sufficient on their own. This shift in the business models of regional banks may bring diversification benefits. However, growing real estate lending exposures driven by tax issues are unlikely to be sustainable over time. Similarly, the increasing sophistication of their investment strategies exposes those banks to more market risk, while the growing range of fee-income services brings potential business-conduct issues. While non-interest fee income is growing, it is from a small base and is unlikely to fill the gap for many years. Similarly, savings from reducing their operating costs and rationalize their infrastructure are likely to be modest in practice.

CALLING FOR POLICIES TO ENHANCE RESILIENCE AND SUPPORT GROWTH

A. Financial Oversight

47. The institutional framework supporting the oversight and resolution of financial institutions involves many players. The JFSA conducts both prudential and conduct-of-business regulation and supervision for all the sectors of the financial system, designates systemically important financial institutions, develops resolution plans for G-SIBs, and oversees the implementation of resolution measures.[52] The BoJ is the lender of last resort, conducts oversight through onsite examinations and/or offsite monitoring of its counterparty financial institutions, and assesses risks to the financial system as a whole. The Deposit Insurance Corporation of Japan (DICJ) is supervised by the MoF and the JFSA. It is responsible for the reimbursement of insured deposits and helps to implement various resolution measures.

48. The PM has supervisory powers under the law, most of which have been delegated to the JFSA, except for a few important ones.[53] The PM retains the powers to (i) revoke banking, insurance, and most FMIs licenses; (ii) early intervention of financial institutions; and (iii) trigger resolution of failing financial institutions in systemic cases as determined by the Financial Crisis Response Council (FCRC).[54]

Banking Sector Oversight

49. While banking oversight has undergone significant improvements since the last FSAP (see Appendix II), further progress is needed to respond to the above-mentioned emerging issues. The JFSA is in the process of reforming its supervisory practices and shifting its focus from assessing compliance to a more sophisticated and forward-looking risk-based approach. The Stewardship Code and Corporate Governance Code (CGC) were introduced to strengthen corporate governance. Gaps in provisioning of SME loans have shrunk in recent years, although some legacy issues remain. The three priority areas are: (i) enhancing JFSA's ability to use bank-specific capital requirements for prudential purposes; (ii) further strengthening corporate governance and bank risk management; and (iii) introducing a more rigorous risk assessment process and a risk tolerance framework.

[52] Some of the JFSA's supervisory authority is delegated to the Securities and Exchange Surveillance Commission (SESC), Certified Public Accountants and Auditing Oversight Board (CPAAOB) and Local Finance Bureaus.

[53] For the exclusive powers of the PM see Banking Act for the banking sector; the Insurance Business Act for the insurance sector; and the Financial Instruments and Exchange Act (FIEA, for CCPs), Act on Book-Entry Transfer of Corporate Bonds and Shares (for SSSs), and Payments Services Act (PSA, for payment systems, in effect for Zengin-Net) for FMIs.

[54] The FCRC consists of the PM (chair), the Chief Cabinet Secretary, Minister for Financial Services, the MoF, the Commissioner of Financial Services Agency, and the Governor of the BoJ.

50. Capital requirements need to be more tailored to individual bank risk profiles. The JFSA would benefit from a residual power to set Pillar 2 capital requirements for individual banks on the basis of their specific risk profiles, to respond more dynamically to emerging issues—including credit concentration. The JFSA is also encouraged to work with regional and *Shinkin* banks to ensure that dividends and other capital distributions can be constrained before bank capital ratios fall below minimum requirements.

51. Board oversight of bank management needs to be strengthened across the whole banking sector. Banks of all types are engaging in more real estate lending and sophisticated unsecured lending; taking on more market risk in their investment activities; and becoming more exposed to potential business conduct issues as they expand their fee-based services. Similarly, the largest banks are increasing their overseas engagement, incurring new types of risks. Greater attention is thus needed to help boards of directors effectively oversee management and ensure that appropriate checks and balances are functioning. Further strengthening the independence of the risk management and internal control functions is also key to giving boards the information they need to carry out their duties.

52. Although supervision processes have been enhanced, internal processes need to be further developed to support the transition to a full risk-based approach. Designating some banks as systemically important has laid the foundation for more risk-based supervision. However, the risk-rating methodology needs to be further developed, and the JFSA's understanding of bank business practices needs to keep pace with the more sophisticated activities emerging across all types of banks, including the Japan Post Bank (JPB). The JFSA also needs to flesh out its risk tolerances for failure across different types of banks, calibrating them to systemic importance. The combination of bank risk ratings and risk tolerances can then be used to guide supervisory intensity.

53. A stronger principle-based approach to related party exposures is required to prevent risks from building up. "Exposures to related parties" are required to be conducted at "arms-length" terms. These exposures by their nature deserve enhanced risk management, especially now that banks are looking to form alliances with other banks and other types of financial services firms to deliver a broader range of financial products and services to their clients. While the JFSA takes them into account in its periodic compliance inspections, the supervision of related party exposures would benefit from more specific periodic reporting requirements and more proactive investigations.

Insurance Sector Oversight

54. The insurance regulatory and supervisory framework has also been enhanced since the 2012 FSAP, but further enhancements are necessary. Work is underway by the JFSA to develop a risk assessment methodology for insurance supervision that more efficiently prioritizes the supervisory resources. Since 2013, the inspection bureau has adopted horizontal reviews as the

primary inspection tool for major insurers.[55] For the smaller insurers, JFSA conducts offsite supervision and limited-scope inspections only. The JFSA needs to monitor the commonalities in insurers' exposures to assess the degree of susceptibility to common shocks. The JFSA should develop its risk-based supervisory framework and include a risk and impact assessment based on objective criteria. This would form the basis for deriving supervisory intensity in a holistic manner.

55. An economic-value-based solvency regulation should be implemented as soon as practicable. The JFSA has been studying an economic-value-based solvency regime since 2006, with three field tests conducted in 2010, 2014, and 2016. A number of major insurers already disclose economic solvency information to institutional investors. Implementing the economic-value-based solvency regime will enhance policyholder protection by eliminating information asymmetries.

56. Corporate governance has strengthened, but there is still room for improvement. Japan has strengthened requirements for good governance by introducing a more stringent definition of an outside (independent) director in the Companies Act. The JFSA has required listed insurers and insurance holding companies to have at least two outside directors. The Tokyo Stock Exchange has issued a voluntary CGC for listed companies. However, all insurers should benefit from good governance and key elements be extended to all insurers on a legally enforceable manner.

Securities Markets Oversight

57. The supervision of the major Japanese securities groups and Japanese subsidiaries of global banking groups deserves special attention, given the domestic and cross-border interconnectedness of these firms. The authorities should continue to ensure that the supervisory teams for the major Japanese groups have access to sufficient number of experienced staff. It is also important to further enhance the existing international cooperation in the supervision of Japanese firms' overseas operations and foreign-owned firms' activities in Japan. Recommended tools include joint onsite monitoring of Japanese securities firms' foreign business and enhanced cooperation with foreign authorities responsible for the parent banks of Japanese securities firms.

58. Given that supervision builds on strong asset segregation requirements, the authorities should enhance supervision of its compliance. The recommended review of the prudential framework—to be conducted within medium term—should ensure that the framework appropriately addresses the financial stability and investor protection risks potentially arising from smaller firms' activities. Such a review is needed to ensure that the framework remains appropriate when markets change.

[55] Horizontal reviews involve an examination of a common topic across a number of selected major insurers. The JFSA has conducted a number of them: M&A activities, corporate governance practices, management of product-selling practices, and compliance.

Financial Market Infrastructures Oversight

59. Authorities' supervision and oversight have been effective in improving risk management practices at Japanese FMIs, but improvements in interagency coordination and recovery issues should be considered.[56] The authorities should clarify how they would ensure coordination during a crisis, and consider establishing a joint crisis management plan.[57] The supervisory framework on CCPs recovery should be enhanced by explicitly requiring CCPs to develop a robust and effective recovery plan.[58] An orderly resolution regime, consistent with international guidance for CCPs, should be introduced.

60. The risk management framework at the JSCC has been significantly strengthened, but its recovery planning process should be further enhanced. The JSCC has developed a comprehensive set of tools to address credit losses from participant default in extreme scenarios. However, its recovery plan should be more detailed and comprehensive in envisaging extreme stress scenarios, whether resulting from default or not, while aiming at continuing to ensure critical services and mitigating contagion risks through clearing members.

B. Macroprudential Framework

61. Both the JFSA and BoJ have a preference to implement macroprudential policy largely through a microprudential approach.[59] The JFSA is the designated regulatory and supervisory authority for all financial institutions and responsible for the implementation of macroprudential policy in Japan. The BoJ also assesses systemic risks. Interagency coordination is conducted on an informal basis as well as through recently created committees (Figure 25).

62. The authorities have made significant progress in strengthening systemic risk oversight in line with the 2012 FSAP recommendations.[60] The JFSA established the Macroprudential Policy Office in 2015 to enhance macroprudential monitoring and analysis, with a focus on financial markets and Japan's G-SIBs. In June 2014, the Council for Cooperation on Financial Stability (CCFS) was established to exchange views and enhance coordination of macroprudential policy between senior officials of the JFSA and BoJ. The macroprudential toolkit has expanded in line with the adoption of Basel III rules, including the establishment of counter cyclical

[56] There are nine systemically important FMIs in Japan subject to supervision and oversight and assessed against the CPSS-IOSCO Principles for Financial Market Infrastructures (PFMIs) which BoJ and JFSA have adopted in their policies.

[57] A more coordinated risk assessment framework between the BoJ and JFSA for CCPs, based on joint analytical work, would bring together the data and expertise to enhance assessments of systemic risks.

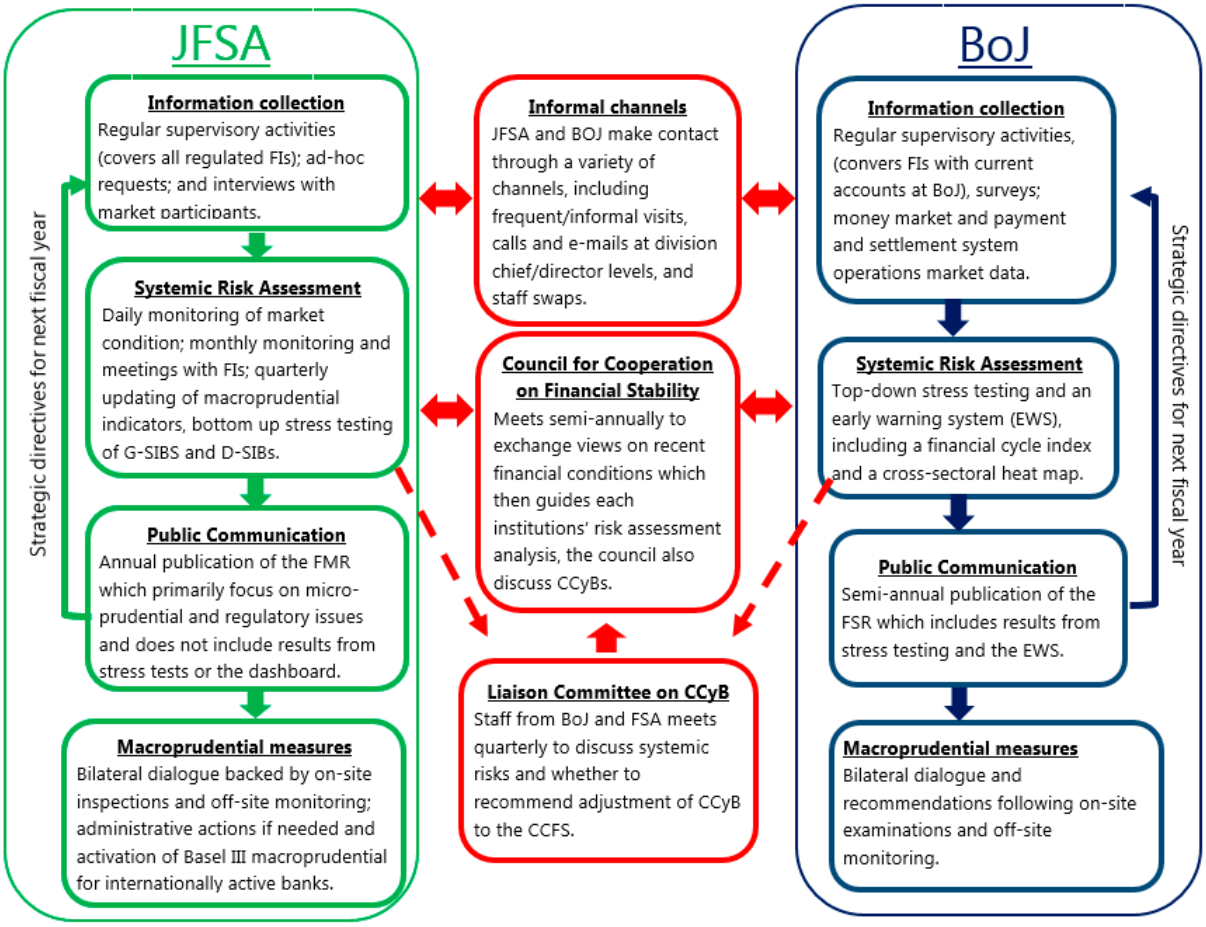
[58] Authorities' policies have been revised to enhance their approaches for cybercrimes.

[59] The JFSA conducts macroprudential policy largely through a supervisory approach that emphasizes bilateral dialogues with individual institutions backed by onsite examinations and offsite monitoring.

[60] See Appendix II and the Peer Review report for Japan, issued by the FSB in December 2016.

buffers (CCyBs), capital conservation buffers, and designation of G-SIBs and domestic systemically important banks (D-SIBs).[61]

Figure 25. Japan: Overview of the Macroprudential Framework



Source: IMF staff.
[1]The JFSA is the designated regulatory and supervisory authority for all financial institutions and responsible for the implementation of macroprudential policy. The BoJ derives its macroprudential responsibilities from its role as the lender of last resort.

63. The macroprudential framework could be further improved by strengthening institutional underpinnings, expanding the toolbox, and broadening the scope of systemic risk. Providing the CCFS with formal mandate with clear objectives would increase accountability, ensure that the JFSA and BoJ can act in a timely fashion, and mitigate possible conflicts between micro- and macroprudential policies.[62] Ensuring that the JFSA has the power and willingness to set

[61] In March 2017, JFSA issued operational guidelines for adjusting CCyBs, designating the CCFS as the venue for discussing the necessity for and the level of setting the buffers.

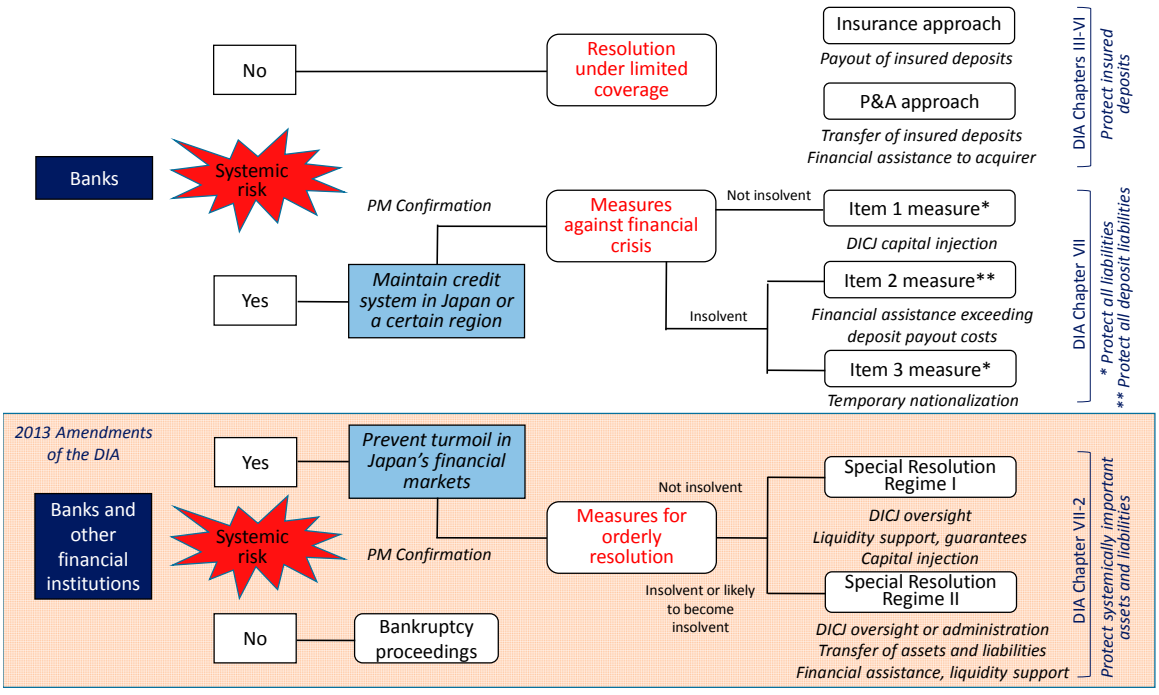
[62] Moreover, expanding the scope of the Quarterly Liaison Committee between the BoJ and JFSA to include the potential use other macroprudential measures beyond the CCyBs would further leverage the two institutions' comparative advantage and create a distinct process for macroprudential policy.

Pillar 2 capital requirement would further enhance the effectiveness of its supervisory approach to macroprudential policy. Moreover, developing a legal basis for sectoral tools such as loan-to-value and debt-to-income limits may be prudent in case of further risks in the housing market. The JFSA should continue to broaden the scope of systemic risk assessment to the nonbank sector and deepen the analysis of sovereign-financial linkages. While the informal approach to information sharing is currently working well, more formal arrangements would help ensure that such cooperation continued even if institutional friction arose.

C. Crisis Management, Resolution, and Financial Safety Net

64. The Japanese framework for crisis management and resolution has been strengthened significantly since the 2012 FSAP,[63] but complexity and ambiguities could complicate its effective implementation. Legal reforms in 2013 introduced additional resolution options and expanded the framework to cover insurance companies, securities firms, and holding companies. Recovery planning requirements have been firmly established for G-SIBs and D-SIBs and resolution plans have been prepared for G-SIBs and one D-SIB (see Appendix II). The legal framework provides for three separate regimes with different tools and triggers (Figure 26). However, ambiguity regarding the circumstances under which different components of the framework would be used can fuel expectations of public support.

Figure 26. Japan: Schematic Overview of Japanese Resolution Regime



Sources: Kodachi (2013); Hayashi (2015); and Financial Stability Board (2016).

[63] Also see Peer Review report for Japan, issued by the FSB in December 2016.

65. Further steps to ensure that supervisory powers are deployed without delay should be embedded more firmly in the framework for early intervention. JFSA's reliance on moral suasion before using its formal powers, may delay remedial action in situations where bank management is not sufficiently susceptible to supervisory feedback. Deployment of supervisory powers at an earlier stage, including in situations where breaches of minimum requirements have not yet occurred but are deemed likely, would be beneficial. Similarly, triggers set under the prompt corrective actions (PCA) framework appear too low, which may delay the initiation of corrective actions.

66. While efforts to align the resolution framework with the FSB's Key Attributes for Effective Resolution of Financial Institutions have progressed, the resolution framework has some remaining gaps. While the framework contains a broad set of powers,[64] the legal framework does not provide for statutory bail-in powers,[65] an explicit "no creditor worse off than in liquidation" safeguard is not in place, and more clarity is needed on resolution triggers (notably the concept of likely insolvency) and the creditor hierarchy in resolution. The authorities should also consider introducing (insured) depositor preference and a priority status for claims of the BoJ in the context of liquidity support. Finally, the authorities should carefully review the role of courts in resolution proceedings to ensure that resolution measures taken in good faith cannot be delayed, suspended, or reversed.

67. Preconditions for the use of temporary public funding in resolution should be tightened. Resolution measures can be funded by the Deposit Insurance Corporation of Japan (DICJ) through borrowing from the market as well as from the BoJ. The framework for BoJ borrowing appears less stringent than expectations for the use of public funding set under the KA. Relatedly, the mechanism for *ex post* recovery of losses from the industry inherently poses challenges and may not be sufficient to reduce perceptions of public support. The authorities should consider reiterating their commitment to rely on private funding sources and fully explore options for loss allocation before deploying public funds. For example, requiring all D-SIBs to maintain a minimum amount of loss absorbing capacity—similar but not necessarily identical to the FSB's requirements on Total Loss Absorbing Capacity for G-SIBs—could help limit the need for temporary public funding, and thus protect taxpayers' interests.

68. Although broadly satisfactory, some aspects of the Japanese financial sector safety net can be further improved. The BoJ has a robust operational framework to provide liquidity support to illiquid financial institutions, including nonbanks. But additional safeguards are needed. These include anchoring solvency and collateralization requirements in the Emergency Liquidity Assistance (ELA) framework and establishing protocols with the MoF on the provision of "special loans" at the

[64] Legal amendments enacted in 2013 expanded the scope of the regime to, among others, nonbank financial institutions (insurance companies and securities firms), holding companies and domestic branches of foreign banks. Measures introduced allow for the orderly resolution of firms that are insolvent or likely to become insolvent, with the ability to impose losses on certain liability holders.

[65] Triggers for some of the resolution measures are insolvency-based, potentially resulting in increased losses as resolution proceedings are initiated too late.

request of the JFSA and MoF, where this is deemed necessary to safeguard the stability of the financial system.[66] The deposit insurance scheme could be strengthened by (i) eliminating activities that are not germane to its core function of protecting small depositors; (ii) removing industry representatives from its Policy Board; and (iii) prescribing a shorter timeframe for depositor reimbursement (within seven working days at most).

69. Institutional arrangements are largely in place, but could be further strengthened. To strengthen the supervisory autonomy of the JFSA and BoJ, the powers of the PM and MoF in early intervention, resolution, and emergency liquidity assistance should be reviewed. The creation of an interagency forum for contingency planning and crisis management could help advance and support interagency coordination in situations of distress.

D. Enhancing the Role of Financial Intermediation

70. Financing conditions for SMEs and new businesses are vital to lift productivity growth but they remain subdued.[67] Lending to SMEs in Japan remains largely based on fixed-asset collateral and personal guarantees despite the existence of credit bureaus.[68] These practices depress lending to younger and possibly more innovative firms and discourage risk taking by entrepreneurs. Raising funds is especially hard for female entrepreneurs. The gender gap in access to entrepreneurial finance is larger in Japan compared to other OECD countries. In addition, public credit guarantees remain large in scale and broad in scope which discourages banks from investing in credit screening and monitoring technologies.[69] Alternative forms of finance for SMEs and startups—asset-based lending (ABL) and venture capital (VC)—have grown, but from very low levels, and still face important challenges (Figures 27 and 28).

71. Financial sector policy should aim to address constraints to financial access and deepening for SMEs and startups by further promoting risk-based lending. Banks should continue to be encouraged to upgrade their credit risk-assessment capacities by further making use of IT and enhancing staff's skills, and reduce their reliance on collateral and personal guarantees. One policy option to is to reduce the size of credit guarantees, since the marginal benefits are perceived to decrease. Reporting standards by SMEs should continue to be improved, and sustained investment in the promotion of financial literacy is needed.

72. Alternative forms of finance to SMEs and startups should be encouraged further. Further expanding ABL will probably require an upgrade in lenders' ability to value movable

[66] Article 38 of the Bank of Japan Act.

[67] In Japan, SMEs play an important role in both employment and production. SMEs account for 99.7 percent of all firms, about 70 percent of total employment, and 55 percent of total gross value-added (SME White Paper 2016).

[68] About 80 percent of SME loans require personal guarantees or fixed-asset collateral (SME white paper 2016). Japan has several private sector credit registries such as Credit Risk Database (CRD) and Teikoku Data Bank (TDB) that collect credit information and provide credit scoring on firms. Japan Credit Information Reference Centre (JICC) and Credit Information Centre (CIC) provide credit information on individuals.

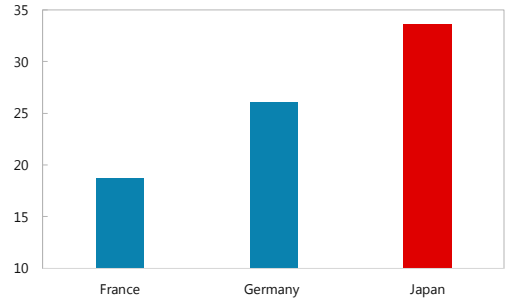
[69] Credit guarantees in Japan has a high coverage (80–100 percent of loans) with an average duration of about 5–7 years. See, for instance, Arping, Loranth, and Morrison 2010, and Benavente, Galetovic, and Sanhueza (2006).

collateral and accounts receivable. For VC to become more supportive of growth in startups it is necessary that VC funds become larger to be able to fund later stage ventures. Given limited funding engagement from institutional investors, there is room for pension funds in Japan to invest in VC.

Figure 27. Japan: Challenges in SME Financing

About one third of SMEs face financial constraints.

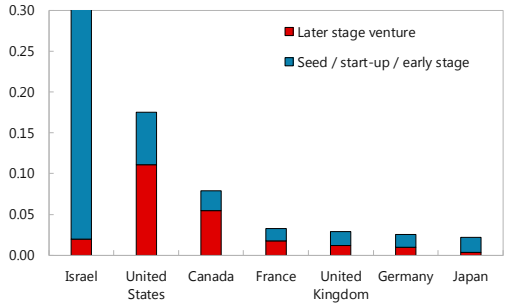
Financial Constraints: Kaplan-Zingales Index
(In percent of firms)



Source: IMF estimates.

Venture capital remains limited.

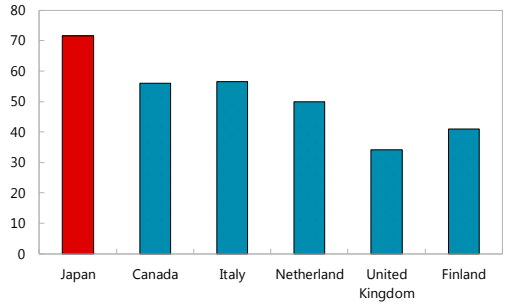
Venture Capital Investment
(In percent of GDP)



Source: OECD 2015.

Banks in Japan usually require collateral to lend...

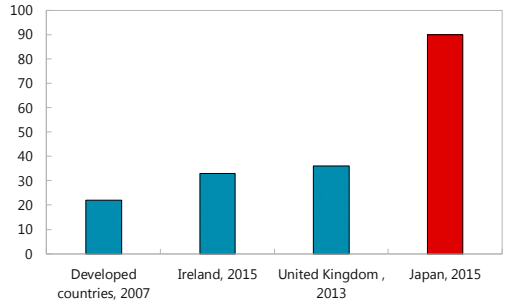
Collateral Requirement, 2014
(In percent)



Sources: OECD (2016); SME White Paper (2016).

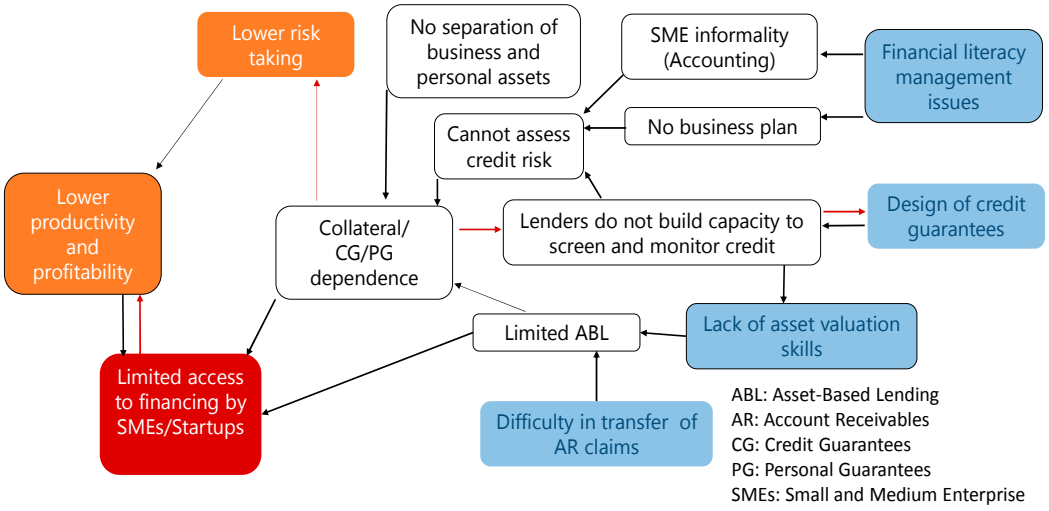
... in addition to personal guarantees from business owners.

Personal Guarantees
(In percentage of number of SMEs Loans)



Sources: Various sources.

Figure 28. Japan: SME Financing Constraints



Source: IMF staff.
Note: Boxes in blue highlight constraints to be addressed to promote access to finance by SMEs and startup. Boxes in red represent key bottlenecks. Boxes in orange represent ultimate effects of bottlenecks. ABL: Asset-Based Lending; AR: Accounts Receivable; CG: Credit Guarantees; PG: Personal Guarantees; SMEs: Smal-l and Medium Enterprise; VC: Venture Capital.

73. Overall, policymakers need to facilitate, or at least not hinder, necessary adjustments in the financial sector brought about by aging.

- *The Japanese authorities are encouraged to continue engaging with bank boards to ensure that banks fully understand the implications of macroeconomic and demographic trends for their future viability.* If, and when viability concerns emerge, it would be prudent for banks to be encouraged to take actions on a timely basis to safeguard the interests of depositors and other creditors of the bank and maximize benefits for their shareholders. This reinforces the need for governance practices at those institutions to be reformed. Credit risk management systems need to adapt the new unsecured lending practices, requiring more reliance on borrower transaction flow data than the current qualitative information and judgment.

- *The offer of financial services by the industry should continue to adapt to the demands of an aging population.* For example, advisory services for life-cycle portfolio management or retirement planning can create value for customers and raise revenue for financial institutions. In addition, the development of a market for life annuities could vastly improve households' ability to hedge longevity risk relative to what is now possible with the available term certain annuities. The likely transition to more market-based intermediation underscores the need for transparent, efficient, and investor-friendly product offerings by the asset management industry.

- *Facilitate the exit of unviable firms and review measures such as cost reduction and consolidation among regional banks*. However, consolidation alone is unlikely to be sufficient to address the challenges.

- *Regional banks may wish to diversify revenue sources including considering the merits of fee-based income by charging for routine banking transactions*. While such charges would run counter to Japanese banking culture, experience in other countries has shown that unbundling banking services and charging fees for routine banking transactions results in more efficient use of those services by customers.[70] Over time, such service fees may also potentially boost bank profits, which would help banks cope with future shocks. However, competitive pressures are such that banks are unlikely to introduce such fees on their own.

E. Anti-Money Laundering/Combating the Financing of Terrorism Issues

74. Japan has made significant progress since the 2008 assessment of its Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT) framework, and should continue strengthening it in line with the 2012 revised FATF standard.[71] It has taken steps to implement the upgraded legal framework and should ensure effective implementation of requirements, in particular with respect to due diligence on customers and beneficial owners. Japan has recently accepted the U.N. Convention Against Transnational Organized Crime. Since 2014, Japan has been developing, updating and publishing National Risk Assessments (NRA) of money laundering and terrorist financing on an annual basis, which, although welcome, should be improved.[72] To better help the authorities identify and mitigate the ML/TF risks, this exercise would benefit from: (i) deepening and broadening the analysis of threats (i.e., main proceeds-generating crimes) including by utilizing all relevant information instead of relying on ML convictions; (ii) identifying sectors that are particularly vulnerable to assist supervisory authorities in prioritizing resources; (iii) undertaking an analysis of the AML/CFT regime to identify weaknesses in the legal and institutional frameworks; (iv) undertaking specific analysis of TF risks; and (v) ensuring inclusiveness and sufficient involvement of all stakeholders. Lastly, Japan should develop and implement AML/CFT strategies and policies to address the risks identified in a coordinated and timely manner.

[70] Those fees would also take some of the pressure off banks to take on new risks in search of higher returns and may even help encourage depositors to invest more money in investment funds and other wealth management products.

[71] Japan has significantly improved its legal framework with respect to the money laundering (ML) offense, the terrorist financing (TF) offense, customer due diligence, record keeping, the financial intelligence center, mutual legal assistance, implementation of terrorism-related targeted financial sanctions, and international cooperation.

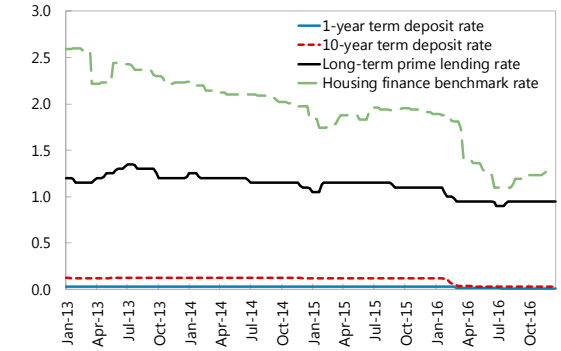
[72] The NRA was conducted by the National Public Safety Commission and may not fully represent or constitute the authorities' understanding of Japan's ML/TF risks. The latest version available in English is the 2015 report (see: https://www.npa.go.jp/sosikihanzai/jafic/en/nenzihokoku_e/data/jafic_nra_e2015.pdf

Appendix I. Figures and Tables

Appendix Figure 1. Japan: Low Profitability and Search for Yield

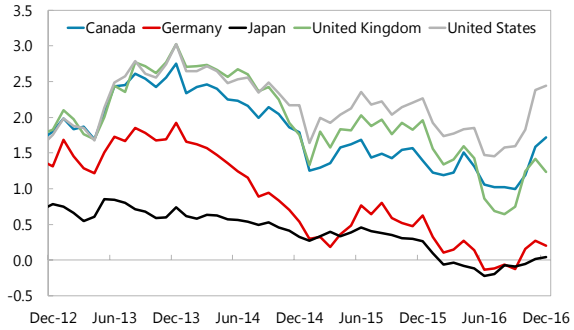
Net interest margins have been squeezed…

Japan: Lending and Deposit Rates
(In percent)



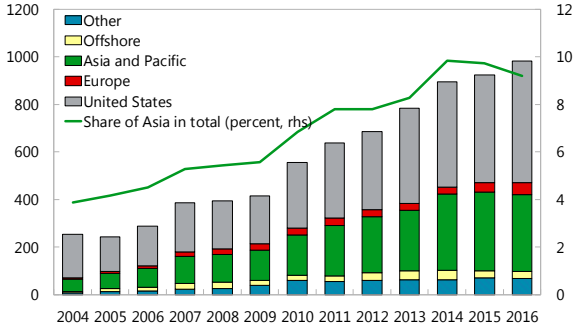
…while JGB yields have fallen.

Ten-Year Government Bond Yields
(In percent)



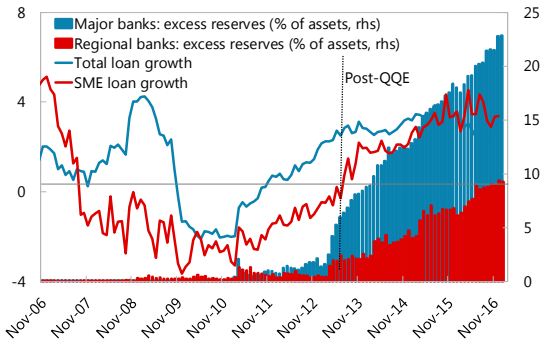
…and increased foreign claims…

Foreign Claims of Japanese Banks
(In billions of U.S. dollars)



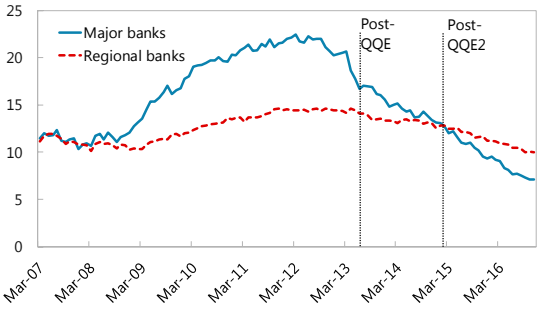
amid large excess reserves…

Japanese Banks: Excess Reserves and Domestic Lending
(In percent, year-on-year)



As a consequence, banks have reduced JGB holdings,

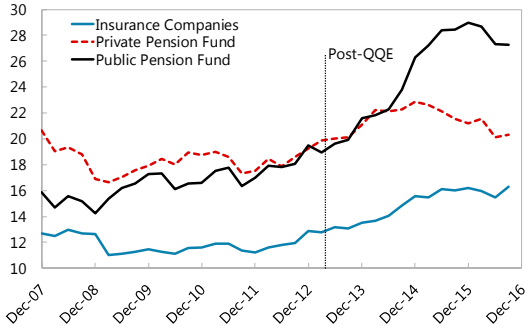
Japanese Bank Holdings of Government Debt 1/
(In percent of bank assets)



1/ Government debt includes Japanese government bonds (JGBs) and treasury discount bills

… as have insurance and pension funds.

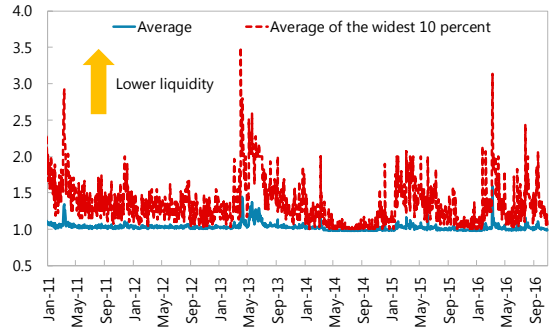
Insurance and Pension Funds: Foreign Security Holdings
(In percent of total assets)



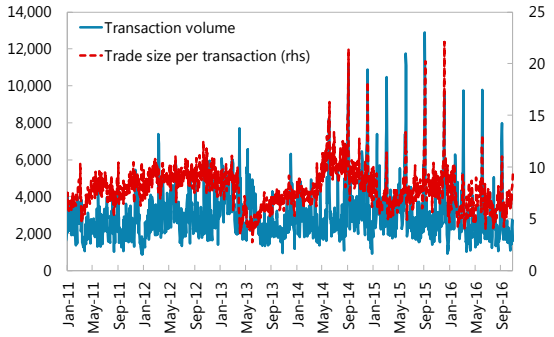
Sources: Bank of Japan; and IMF staff calculations.

Appendix Figure 2. Japan: Japanese Government Bond Market Liquidity

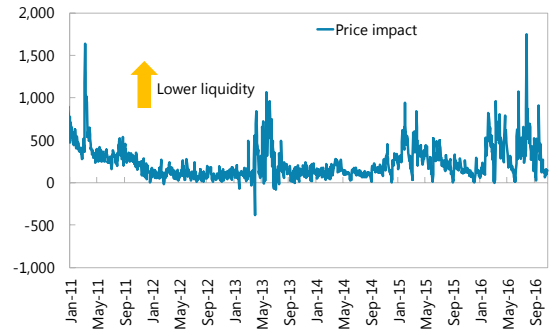
Japanese Government Bond Futures: Bid-Ask Spreads



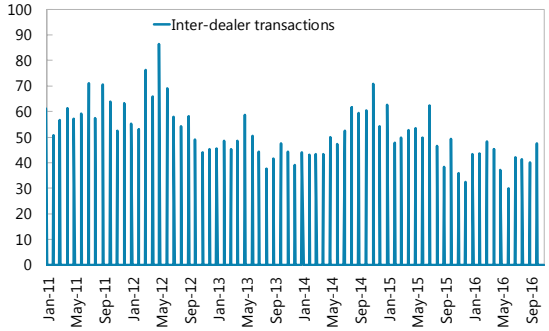
Japanese Government Bond Futures: Transactions



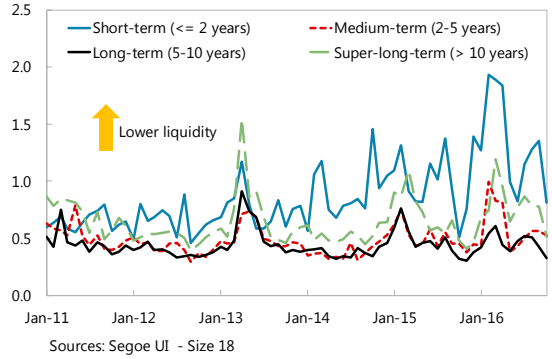
Japanese Government Bond Futures: Price Impact



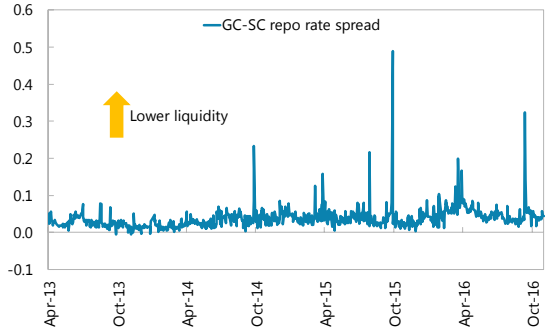
Japanese Government Bond Cash Market: Transaction Volume



Japanese Government Bond Cash Market: Best-Worst Quote Spreads



General Collateral-Special Collateral Repo Spread



Sources: Bank of Japan; and IMF staff estimates.

Appendix Table 1. Selected Economic Indicators, 2010–18

	2012	2013	2014	2015	2016	2017	2018
						Proj.	
Growth (percent change) 1/							
Real GDP	1.5	2.0	0.3	1.1	1.0	1.3	0.6
Domestic demand	2.3	2.4	0.4	0.7	0.4	0.7	0.7
Private consumption	2.0	2.4	-0.9	-0.4	0.4	0.8	0.7
Business investment	4.1	3.7	5.2	1.1	1.3	3.0	3.3
Residential investment	2.5	8.0	-4.3	-1.6	5.6	3.1	2.4
Government consumption	1.7	1.5	0.5	1.7	1.3	0.7	-0.2
Public investment	2.7	6.7	0.7	-2.1	-3.0	-0.2	-4.4
Stockbuilding 2/	0.0	-0.4	0.1	0.6	-0.3	-0.4	-0.1
Net exports 2/	-0.8	-0.4	0.0	0.3	0.6	0.5	-0.1
Exports of goods and services 3/	-0.1	0.8	9.3	2.9	1.2	6.3	2.4
Imports of goods and services 3/	5.4	3.3	8.3	0.8	-2.3	3.0	2.7
Output Gap	-3.6	-2.2	-2.6	-2.1	-1.8	-1.1	-0.9
Inflation (annual average)							
CPI 4/	-0.1	0.3	2.8	0.8	-0.1	0.7	0.6
CPI excluding VAT	-0.1	0.3	1.2	0.3	-0.1	0.7	0.6
Core Core CPI excluding VAT 5/	-0.4	-0.2	0.7	0.9	0.6	...	...
GDP deflator	-0.8	-0.3	1.7	2.1	0.3	-0.1	0.9
Unemployment rate (annual average)	4.3	4.0	3.6	3.4	3.1	3.1	3.1
Government (percent of GDP)							
General government							
Revenue	30.4	31.2	32.7	33.2	32.6	32.6	32.4
Expenditure	38.7	38.9	38.0	36.7	36.8	36.7	35.7
Overall Balance	-8.3	-7.6	-5.4	-3.5	-4.2	-4.1	-3.3
Primary balance	1987.1	1962.5	1922.6	1843.1	1592.7	1446.6	1251.6
Structural primary balance	-6.3	-6.4	-4.6	-3.5	-3.6	-3.7	-3.1
Public debt, gross	236.6	240.5	242.1	238.2	239.4	240.7	240.3
Macro-financial (percent change, end-period, unless otherwise specified)							
Base money	19.3	60.3	36.7	29.1	17.9	16.7	14.5
Broad money	2.8	4.0	3.0	3.0	3.4	3.1	2.7
Credit to the private sector	3.1	5.5	1.5	2.1	2.7	2.6	2.6
Non-financial corporate debt in percent of GDP	134.3	134.7	135.7	131.7	133.4	134.9	136.2
Household debt in percent of disposable income	119.7	121.9	124.2	126.4	129.6	130.0	131.1
Interest rate							
Overnight call rate, uncollateralized (end-period)	0.1	0.1	0.1	0.0	-0.1	...	...
Three-month CD rate (annual average)	0.3	0.2	0.2	0.2	0.1	...	...
Official discount rate (end-period)	0.3	0.3	0.3	0.3	0.3	0.3	0.3
10-year JGB yield (e.o.p.)	0.9	0.7	0.6	0.4	0.0	0.1	0.2
Balance of payments (in billions of US$)							
Current account balance	59.7	45.9	36.8	134.1	188.1	186.8	208.0
Percent of GDP	1.0	0.9	0.8	3.1	3.8	3.9	4.2
Trade balance	-53.9	-90.0	-99.9	-7.4	51.4	54.0	67.8
Percent of GDP	-0.9	-1.7	-2.1	-0.2	1.0	1.1	1.4
Exports of goods, f.o.b.	776.0	695.0	699.7	622.1	635.3	676.1	705.0
Imports of goods, f.o.b.	829.9	784.9	799.7	629.5	583.9	622.2	637.2
Energy imports	272.2	257.4	241.8	133.8	94.9	114.4	113.6
FDI, net (percent of GDP)	1.9	2.8	2.4	3.0	2.7	2.5	2.5
Portfolio Investment, net (percent of GDP)	0.5	-5.4	-0.9	3.0	5.7	4.1	3.8
Terms of trade (percent change)	-1.8	-2.5	-1.0	14.1	9.3	-17.2	3.6
Change in reserves	-37.9	38.7	8.5	5.1	-5.7	10.0	10.5
Total reserves minus gold (in billions of US$)	1227.2	1237.3	1231.0	1207.1	1188.4	...	...
Exchange rates (annual average)							
Yen/dollar rate	79.8	97.6	105.9	121.0	108.8	112.2	110.8
Yen/euro rate	102.6	129.6	140.8	134.3	120.4	122.5	122.4
Real effective exchange rate (ULC-based) 6/	118.6	95.9	86.8	83.6	93.6	...	...
Real effective exchange rate (CPI-based) 7/	100.6	80.3	75.1	70.1	79.5	...	...
Demographic Indicators							
Population Growth	-0.2	-0.2	-0.2	-0.1	-0.1	-0.3	-0.4
Old-age dependancy	37.8	39.8	41.8	43.5	44.9	46.2	47.2

Sources: IMF, Competitiveness Indicators System; OECD, and IMF staff estimates and projections as of Jun 12, 2017.
1/ Annual growth rates and contributions are calculated from seasonally adjusted data.
2/ Contribution to GDP growth.
3/ For 2014 export and import growth rates are inflated because of changes in the compilation of BoP (BPM6) implying a break in the series relative to previous years.
4/ Including the effects of consumption tax increases in 2014 and 2015.
5/ Bank of Japan Measures of Underlying Inflation; excluding fresh food & energy.
6/ Based on normalized unit labor costs; 2005=100.
7/ 2010=100.

Appendix Table 2. Financial System Structure, 2016

(Data is based on fiscal year, i.e. 2015 = March 2016)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 Sep.
Number of entities											
Banks	490	482	475	462	459	461	458	451	450	447	447
City and trust banks	13	13	13	12	12	12	10	9	9	9	9
City banks	6	6	6	6	6	6	6	5	5	5	5
Trust banks	7	7	7	6	6	6	4	4	4	4	4
Regional banks I	64	64	64	64	63	64	64	64	64	64	64
Regional banks II	46	45	44	42	42	42	41	41	41	41	41
Shinkin Banks	287	281	279	272	271	271	270	267	267	265	265
Others 1/	80	79	75	72	71	72	73	70	69	68	68
Foreign banks	69	67	65	62	61	62	62	59	58	57	57
Japan Post Bank	0	1	1	1	1	1	1	1	1	1	1
State-owned Banks 2/	7	7	5	5	5	5	6	6	6	6	6
Credit Association	168	164	162	159	158	158	157	155	154	153	153
Credit Cooperatives	1091	1051	986	955	942	925	913	896	847	810	...
Insurance companies 3/	86	94	97	98	99	97	97	97	94	93	93
Life	38	42	46	47	47	44	43	43	42	41	41
of which: Japan Post Insurance	0	1	1	1	1	1	1	1	1	1	1
Non-life	42	46	45	45	45	46	47	47	45	45	45
Reinsurance	6	6	6	6	7	7	7	7	7	7	7
Pension funds											
Public 4/	1	1	1	1	1	1	1	1	1	1	1
Corporate 5/	4912	6436	8669	11315	14354	19698	19500	19262	18963	18882	...
Investment funds (asset mgmt. companies)	5516	5978	6337	6629	6928	7174	7857	8817	9872	10088	10767
Consumer finance companies 6/	11832	9115	6178	4057	2589	2350	2217	2113	2011	1926	1894
Stock exchanges	6	6	6	7	6	6	5	5	5	5	5
Financial Dealers and Brokers	278	330	325	307	291	282	253	250	251	248	254
Financial system assets (in trillions of yen)											
Banks 1/	1099	1318	1318	1341	1371	1410	1471	1517	1626	1662	...
City and trust banks	462	478	500	502	521	538	567	584	640	661	647
City banks	402	416	437	439	455	471	496	507	553	561	551
Trust banks	60	62	64	63	66	67	72	77	87	100	96
Regional banks I	223	225	229	236	243	254	265	275	292	297	303
Regional banks II	60	61	61	62	63	66	67	68	71	73	74
Shinkin Banks	121	123	124	126	129	132	135	139	144	148	149

Appendix Table 2. Financial System Structure, 2016 (concluded)

(Data is based on fiscal year, i.e. 2015 = March 2016)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 Sep.
Financial system assets (in trillions of yen)											
Others 1/	233	432	404	414	415	420	437	450	478	483	...
Foreign banks	58	53	36	32	31	31	32	40	47	48	...
Japan Post Bank	...	212	196	195	193	196	200	203	208	207	207
State-owned Banks 2/	65	63	65	75	76	78	80	82	83	81	79*
Credit Association	17	18	18	18	18	19	20	20	21	22	22
Credit Cooperatives	156	159	160	163	166	170	173	177	181	187	...
Insurance sector 3/	258	362	342	350	351	355	374	380	399	399	399
Life	220	326	312	318	321	327	345	351	367	367	368
Non-life	36	34	29	30	28	27	28	28	30	30	30
Reinsurance	1	1	2	2	2	1	1	1	1	1	1
Pension funds											
Public 4/	115	120	118	123	116	114	120	127	137	135	...
Corporate 5/	...	...	...	...	...	...	...	...	92	97	...
Investment funds	119	82	95	98	90	100	128	148	168	165	168
Stock exchanges	0.4	0.5	0.6	0.4	0.8	0.6	0.7	0.2	0.2	0.2	
Financial Dealers & Brokers	131	147	98	108	105	111	114	126	140	134	136
Assets (in percent of GDP)											
Banks 1/	208	248	259	273	275	286	297	299	314	312	...
Insurance companies (life, nonlife, reinsurers) 3/	49	68	67	71	70	72	76	75	77	75	75
Pensions	...	...	...	...	...	...	...	...	44	44	...
Public 4/	22	23	23	25	23	23	24	25	27	25	...
Corporate 5/	...	...	...	...	...	...	...	...	18	18	...
Investment funds	23	15	19	20	18	20	26	29	32	31	31
Financial Dealers and Brokers	25	28	19	22	21	22	23	25	27	25	25
Nominal GDP (in trillions of yen)	529	531	509	492	499	494	495	507	518	532	535

Sources: Japanese authorities, published data from each company and IMF staff calculations

1/ Including Shinkin Central Bank, Norinchukin Bank, Aozora Bank, and Shinsei Bank

2/ State-owned Banks includes the Development Bank of Japan(DBJ), the Japan Bank of International Cooperation (JBIC), the The Shoko Chukin Bank(SCB), Japan Finance Corporation(JFC), The Okinawa Development Finance Corporation and The Japan International Cooperation Agency (JICA).

3/ Including Japan Post Insurance

4/ As a Public pension fund, it is described about Government Pension Investment Fund.

5/ It shall be coverd defined benefit corporate pension, defined contribution corporate pension, Employee's pension fund and Pension Fund Association.

6/ As a proxy for the number of consumer finance companies, we used the number of "Money Lenders" registered under the Money Lending Business Act, which provide consumer and business loans. Money Lenders include unsecured consumer lending companies, secured consumer lending companies, consumer residential lending companies, commercial lending companies, bill discounters, credit card companies, credit sales companies, distribution and manufacturing companies, construction and real estate companies, pawnbrokers, leasing companies, daily installment loan companies, and specified nonprofit firms.

*/ Excluding the Okinawa Development Finance Corporation

Appendix Table 3. Financial Soundness Indicators of the Banking System

(In percent; data is based on fiscal year, i.e., 2015 = March 2016)

	2014	2015					2016 Sep.				
	Total	City and Trust Banks	Regional banks	Shinkin banks	Others 1/	Total	City and Trust Banks	Regional banks	Shinkin banks	Others 1/	Total
Capital adequacy											
Regulatory capital 2/	15.5	16.2	14.1	13.1	...	15.9	16.7	13.9	...	...	16.2
of which Tier 1	12.5	13.2	13.2	...	...	13.3	13.5	13.0	...	...	13.4
of which common shares and retained earnings	...	11.4	13.2	...	...	...	11.8	13.0	...	...	...
Capital as percent of assets 3/	5.6	4.9	5.5	5.8	6.0	5.5	5.0	5.5	5.2	6.0	5.4
Loan Portfolio Composition											
Sectoral distribution of bank credit (as percent of total credit)											
Manufacturing	13.3	14.0	...	9.9	...	13.5	13.8	...	9.9	...	13.3
Nonmanufacturing	58.1	59.8	...	58.2	...	59.6	60.1	...	59.3	...	60.0
o/w Construction	3.5	2.8	...	7.6	...	3.5	2.7	...	7.7	...	3.4
o/w Energy	2.2	2.6	...	0.2	...	2.3	2.6	...	0.3	...	2.3
o/w Information and communications	1.4	1.6	...	0.4	...	1.4	1.7	...	0.4	...	1.5
o/w Transport and postal activities	3.6	4.0	...	2.1	...	3.7	4.0	...	2.2	...	3.8
o/w Finance and insurance	9.2	10.3	...	3.3	...	9.3	10.0	...	3.5	...	9.1
o/w Real estate	16.7	16.9	...	23.3	...	17.7	17.4	...	23.9	...	18.2
Local governments	7.0	7.0	...	8.4	...	7.2	7.1	...	8.3	...	7.2
Households	31.8	32.9	...	30.9	...	32.6	33.4	...	31.3	...	33.1
Others	2.1	2.9	...	0.0	...	2.5	2.7	...	0.0	...	2.3
Asset quality /4											
Non-performing loans (NPL) as percent of gross loans	1.6	1.0	2.2	4.9	...	1.5	0.9	2.0	...	...	1.4
Provisions as percent of NPL	24.1	29.1	22.9	...	...	25.1	...	...	...	...	...
NPL net of provisions as percent of tier I capital	12.7	6.8	18.8	...	...	11.5	...	...	...	...	...
Memorandum items:											
Restructured loans as percent of total loans /5	0.4	0.3	0.4	0.4	...	0.3	...	...	...	...	...
Written off loans /3	227.5	116.2	37.4	28.8	...	183.2	...	...	...	...	...

Appendix Table 3. Financial Soundness Indicators of the Banking System (concluded)

(In percent; data is based on fiscal year, i.e., 2015 = March 2016)

	2014	2015					2016 Sep.				
	Total	City and Trust Banks	Regional banks	Shinkin banks	Others 1/	Total	City and Trust Banks	Regional banks	Shinkin banks	Others 1/	Total
Earnings and profitability											
Gross profits as percent of average assets (ROAA) /3	0.4	0.5	0.4	0.3	0.2	0.4	0.5	0.4	...	0.2	0.4
Gross profits as percent of average equity capital (ROAE) /3	5.4	6.7	5.2	3.9	3.4	5.2	7.3	5.2	...	3.5	5.6
Gross income as percent of average assets /3	1.5	1.5	1.7	1.5	1.1	1.4	1.5	1.6	...	1.1	1.4
Net interest income as percent of gross income /3	54.3	38.9	66.3	73.1	49.8	51.5	38.1	65.4	...	44.0	47.0
Non-interest income as percent of gross income /3	32.8	45.9	28.4	21.1	17.4	33.9	44.7	29.9	...	22.4	36.3
Trading income as a percent of gross income /3	6.9	12.0	7.4	8.3	3.1	8.9	...	...	...	...	...
Non-interest expenses as percent of gross income /3	56.4	53.9	68.5	74.3	41.9	57.3	52.2	70.7	...	41.5	55.0
Spread between reference loan and deposit rates	0.8	0.5	1.0	1.5	1.0	0.7	0.5	0.9	1.5	0.9	0.6
Liquidity											
Loans as percent of deposits	68.1	64.7	73.2	49.9	...	67.9	64.1	73.6	49.5	...	67.9
Liquid Assets to Total Assets	26.9	...	...	...	...	27.2	...	...	...	...	27.1
Liquid Assets to Short-term Liabilities	48.1	...	...	...	...	49.1	...	...	...	...	48.2
Deposits as percent of assets (excl. interbank deposits)	69.2	...	...	...	...	68.8	...	...	...	...	68.5
Sensitivity to market risk											
Gross Asset Position in Financial Derivatives to Capital, percent	47.4	...	...	...	...	53.0	...	...	...	...	50.7
Gross Liability Position in Financial Derivatives to Capital, percent	48.6	...	...	...	...	50.2	...	...	...	...	45.6
Net open position in equities as a percentage of tier I capital /3	34.4	50.8	30.5	8.5	6.6	30.6	48.9	29.9	8.8	6.3	29.9

Sources: Japanese authorities, published data from each company and IMF staff calculations

1/ Including Japan Post Bank

2/ International Active Banks only for City and Trust Banks, Regional banks and Total; Shinkin Banks are all Domestic Banks

3/ Data are from Japanese Bankers Association and Shinkin Central Bank Research Institute

4/ Based on the Financial Reconstruction Act

5/ Based on Risk Management Loans

Appendix Table 4. Financial Soundness Indicators of the Nonbanking System

(In percent; data is based on fiscal year, i.e., 2015 = March 2016)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 Sep.
Insurance sector 1/												
Non-life:												
Capital adequacy												
Equity/total assets	24.7	24.7	19.7	14.2	17.6	16.1	15.4	18.7	20.1	24.0	22.1	22.4
Available solvency capital/required capital 5/	948.7	949.1	818.5	602.6	697.2	628.6	477.3	572.4	661.3	709.1	695.7	728.5
Profitability												
Growth in gross premiums	3.5	1.1	-1.4	-5.2	-2.3	-1.9	6.2	4.4	6.5	0.2	6.8	-3.2
Loss ratio (net claims/net premiums)	60.3	61.6	62.4	66.1	67.6	67.0	82.6	69.9	63.7	61.7	59.5	62.9
Expense ratio (net expenses/net premiums)	32.4	32.5	33.5	35.3	35.2	34.8	34.1	33.3	32.7	32.5	32.3	31.9
Combined ratio (loss ratio plus expense ratio)	92.7	94.2	95.9	101.4	102.8	101.8	116.7	103.2	96.4	94.2	91.9	94.8
Return on equity	3.3	2.4	3.3	-2.2	3.9	2.5	-6.3	3.2	3.6	4.9	8.3	8.6
Return to gross premiums	3.9	2.9	2.9	-1.3	3.0	1.7	-3.7	2.2	2.6	4.6	6.7	6.9
Asset quality												
Stocks/total assets	36.6	36.7	29.8	25.2	28.1	26.8	26.3	28.7	29.8	33.2	33.2	...
Bonds/total assets	34.6	33.0	36.7	38.6	38.1	38.0	39.2	39.9	42.0	39.0	37.7	...
Fixed income assets below investment grade/fixed income assets												
Investment yield	2.2	2.5	2.8	2.3	2.0	2.1	2.1	2.1	2.2	2.4	2.7	...
Sensitivity to market risk												
Net open foreign exchange position/equity 5/	...	...	...	...	...	...	35.8	32.5	29.9	28.2	29.9	27.7
Liquidity												
Liquid assets (bonds, listed stocks, deposits)/total assets	...	46.1	45.8	40.5	43.6	43.6	41.8	46.5	50.8	54.0	50.3	50.3
Reinsurance and actuarial issues												
Risk retention ratio (net premium/gross premium)	80.5	80.3	80.8	81.9	81.7	81.4	80.0	79.4	78.3	78.5	78.8	78.4
Net technical reserves/average of net claims paid in last three years	483.6	463.2	459.1	441.9	427.9	414.6	355.3	335.5	325.7	352.8	362.5	353.6
Net technical reserves/average of net premium received in last three years	266.2	265.1	261.0	258.4	257.4	255.0	237.4	226.3	215.3	210.0	203.9	197.9
Management soundness												
Gross premiums/number of employees (millions of yen)	123	122	115	105	101	96	101	107	116	115	123	...
Total assets/number of employees (millions of yen)	476	476	425	352	365	334	314	324	335	353	354	...

Appendix Table 4. Financial Soundness Indicators of the Nonbanking System (continued)

(In percent; data is based on fiscal year, i.e., 2015 = March 2016)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 Sep.
Insurance sector 1/												
Life:												
Capital adequacy												
Equity/total assets	7	8	5	3	4	4	4	6	6	9	8	7
Available solvency capital/required capital 5/	1,133	1,237	1,101	906	1,051	1,066	674	807	871	974	945	976
Profitability												
Growth in gross premiums	4.3	-1.5	-2.7	-3.1	1.3	2.2	7.0	5.7	-6.0	8.5	3.4	-9.7
Loss ratio (net claims/net premiums)	71.1	67.2	73.7	82.4	74.9	71.9	65.4	66.1	80.7	80.8	71.7	72.1
Expense ratio (net expenses/net premiums)	13.4	13.9	14.3	15.4	14.8	14.4	13.5	13.5	14.3	13.7	13.7	15.9
Combined ratio (loss ratio plus expense ratio)	84.5	81.0	88.0	97.9	89.7	86.3	78.9	79.6	95.1	94.5	85.4	88.0
Return on equity	6.0	6.7	8.0	-9.4	10.3	10.9	7.0	7.0	8.3	6.0	5.8	6.4
Return on assets	0.4	0.5	0.4	-0.3	0.4	0.4	0.3	0.4	0.5	0.5	0.4	0.2
Asset quality												
Stocks/total assets	14.7	14.9	11.8	8.7	9.7	8.3	7.5	7.7	8.0	9.4	8.5	8.1
Bonds/total assets	45.5	45.8	47.8	51.3	52.9	55.9	59.5	61.5	62.7	62.9	65.1	65.7
Fixed income assets below investment grade/fixed income assets												
Investment yield	2.7	2.9	3.0	2.5	2.6	2.6	2.5	2.5	2.7	2.7	2.7	...
Average guaranteed interest rate	3.1	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.5	2.4	2.3	...
Sensitivity to market risk												
Unrealized gains and losses/total assets	7.6	8.3	4.1	0.3	2.5	2.0	3.7	7.6	7.6	12.3	14.5	14.1
Net open foreign exchange position/equity 5/	...	...	...	...	...	...	91.6	84.8	85.4	77.8	79.4	68.9
Duration of assets (in years)	...	...	...	...	...	...	...	...	...	...	...	...
Duration of liabilities (in years)	...	...	...	...	...	...	...	...	...	...	...	...
Liquidity												
Liquid assets (bonds, listed equity, deposits)/total assets	...	59.8	57.8	55.0	57.4	59.5	60.1	63.2	64.8	66.5	67.1	66.3
Lapse rate (based on number of contracts)	7	7.1	6.3	6.4	6.2	5.6	5.4	5.6	5.1	4.9	4.7	...
Reinsurance and actuarial issues												
Risk retention ratio (net premium/gross premium)	96	96	97	94	96	96	96	93	94	93	94	90.1
Net technical reserves/average of net premium in last 3 years	678	688	700	714	761	782	784	802	821	837	843	858.6
Management soundness												
Gross premiums/number of employees (millions of yen)	83	85	82	77	76	78	86	92	88	95	97	...
Total assets/number of employees (millions of yen)	615	675	649	605	624	647	692	764	802	855	859	...

Appendix Table 4. Financial Soundness Indicators of the Nonbanking System (concluded)

(In percent; data is based on fiscal year, i.e., 2015 = March 2016)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 Sep.
Life and nonlife solvency status (no. of institutions):												
Actual solvency margin/required solvency <200 %	0	0	0	0	0	0	0	0	0	0	0	0
Actual solvency margin/required solvency 200-250 %	1	1	1	0	0	0	0	2	0	0	2	0
Actual solvency margin/required solvency 250-300 %	1	0	0	1	2	2	3	3	3	3	2	3
Actual solvency margin/required solvency 300-400 %	2	2	2	1	0	0	3	3	3	4	2	2
Actual solvency margin/required solvency 400-500 %	3	2	1	7	2	4	9	3	6	3	2	5
Actual solvency margin/required solvency 500-600 %	5	2	6	4	3	5	20	10	7	4	7	5
Actual solvency margin/required solvency >600 %	73	78	80	81	87	83	58	73	75	78	76	76
Pension Funds												
Public Funds:												
Return on Assets	9.9	3.7	-4.6	-7.6	7.9	-0.3	2.3	10.2	8.6	12.3	-3.8	...
Corporate Funds:												
Return on Assets	...	...	...	...	...	...	...	...	...	9	10	...
Corporate sector												
Total debt as a percentage of equity 6/	...	...	205	198	194	184	190	172	173	164	156	...
Profitability (Return on equity) 6/	...	...	6	2	2	4	4	5	7	7	7	...
Household sector												
Total assets/GDP 7/	531	538	524	511	541	529	532	537	549	552	540	...
Financial Assets/GDP 7/	314	319	303	290	316	313	318	327	342	348	343	...
Debt as a precentage of GDP 6/ 7/	74	74	71	72	75	72	73	71	71	72	72	...
Debt service burden (interest expenditure, % of total disposable income) 6/	1	1	1	1	1	1	1	1	1	1	1	...
Real estate sector												
House price inflation 3/ 6/	...	...	...	...	-4.7	1.5	-0.3	-0.8	2.5	1.4	2.2	1.9
Tokyo	...	...	...	-10.1	-3.8	3.0	-1.0	-1.0	4.2	3.3	5.7	5.0
Mortgage loans as percent of total loans 4/												
Of which: Domestic	24	23	24	24	24	25	25	26	26	26	25	25

Sources: Japanese authorities, published data from each company and IMF staff calculations
1/ Includes Japan Post Insurance
2/ Earnings before interest and tax as a percentage of interest and principal expenses
3/ Percent change in house price index, end-2016
4/ Solo basis, March 2017
5/ Data in old standard until FY2010
6/ Encouraged set of indicators
7/ Calender year basis

Appendix Table 5. Risk Assessment Matrix (RAM)[1]

Source of Risks	Likelihood (Over next 1–5 years)	Impact
➢ **Retreat from cross-border integration**	**High** A fraying consensus about the benefits of globalization could lead to protectionism and economic isolationism, leading to reduced global and regional policy collaboration with negative consequences for trade, capital and labor flows, sentiment, and growth.	**Medium/High.** A backslash against global trade will have a significant growth impact and will increase market volatility. Growth potential could be adversely affected and trade growth could slow down further complicating efforts to restore public debt sustainability. The yen would appreciate due to safe-haven effects as global risk aversion rises, dragging down equity prices and further reducing exports. Japanese banks are also impacted via increase in credit losses on their overseas investments. Fall in export increases credit risk of domestic companies. The risks will be assessed via solvency analysis.
➢ **Sharp growth slowdown and financial risks in China and other emerging market economies over the medium term**	**Medium** Insufficient progress with reforms could lead to a continued buildup of vulnerabilities, resulting in a significant slowdown in growth over the medium term.	**High**. The recovery of exports would stall not only due to close trade links with China and other emerging market economies but also because of safe-haven appreciation causing corrections in the stock market and sentiment. The fall in export revenue will hit companies and subsequently increase banks' credit losses. The risks will be assessed via solvency analysis.
➢ **Abrupt normalization of U.S. monetary policy**	**Medium/High** Higher than expected inflation as well as tightening labor market conditions in US prompt for higher Fed policy rates. Sharp asset price adjustment and decompression of credit spreads as investors reassess underlying risk and respond to unanticipated changes in growth prospects, Fed policy rate path, and increases in U.S. term premia, with poor market liquidity amplifying the effect on volatility.	**High** Low interest rate environment and higher interest rate differentials encourage banks to invest abroad and would make their funding in U.S. dollars and other key foreign currencies more expensive. Increases in risk premia lead to declines in equity prices and depreciation in the yen. Renewed stress in global wholesale funding markets would lead to FX liquidity strains and a sharp increase in funding costs for Japanese banks that rely on market funding from FX and cross-currency swaps for overseas expansion. The risks will be assessed via liquidity, funding, interconnectedness, market risk, derivatives as well as solvency analysis.
➢ **Bond market stress from a reassessment of sovereign risk in Japan**	**Medium** Abenomics falters, resulting in an eventual return of depressed domestic demand and deflation and leading to bond market stress. The sharp increase in long-term JGB yield leads to a further significant tightening in domestic financial conditions.	**High**. A sharp increase in the domestic sovereign risk premium would worsen public debt dynamics gradually as the average maturity is about 7.7 years. But such a shock could cause distress in the financial sector with possible knock-on effects on debt. The risk will be assessed via solvency (in particular market risk) analysis.
➢ **Tightening in domestic financial conditions**	**Medium** Negative spillovers from global trade disruptions to Japan's export and output growth, or capital outflows from higher U.S. interest rates, lead to a rise in domestic risk premia.	**High** Higher domestic risk premia lead to higher money market interest rate, lower equity prices, and a depreciation in yen. House prices could also decline as a result of the demand contraction. The risks will be assessed via solvency analysis.

[1] The RAM shows events that could materially alter the baseline path (the scenario most likely to materialize in the view of IMF staff). The relative likelihood of risks listed is the staff's subjective assessment of the risks surrounding the baseline ("low" is meant to indicate a probability below 10 percent, "medium" a probability between 10 and 30 percent, and "high" a probability of 30 percent or more). The RAM reflects staff views on the source of risks and overall level of concern as of the time of discussions with the authorities. Non-mutually exclusive risks may interact and materialize jointly. The two adverse scenarios also include an extra domestic risk factor of housing market corrections which is not included in the RAM.

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks

Domain		Assumptions		
		Bottom-Up by Banks	**Top-Down by Authorities**	**Top-Down by FSAP Team**
1. Institutional Perimeter	Institutions included	• 4 banks	• 18 banks • Largest internationally active and domestic banks plus several largest regional banks, excluding Japan Post Bank and Norinchukin bank.	• 20 banks • All major banks including Japan Post Bank and Norinchukin bank.
	Market share	• 65 percent	• 85 percent	• 90 percent
	Data and baseline date	• Institutions' own data as of end of March 2017 • Scope of consolidation: consolidated financial group • Coverage of sovereign exposures: Domestic and foreign sovereign bonds (disaggregated, granular data) in banking and trading books. • Coverage of foreign exposures. Full coverage, country-by-country.	• Supervisory data as of end of March 2016 • Scope of consolidation: banking group consolidated basis • Coverage of sovereign exposures: Domestic and foreign sovereign bonds (disaggregated by maturity) in banking and trading books. • Coverage of foreign exposures. Limited number of countries.	• Supervisory data as of end of September 2016 • Scope of consolidation: banking group consolidated basis • Coverage of sovereign exposures: Domestic and foreign sovereign bonds (aggregated positions only) in banking and trading books. • Aggregate portfolio analysis, with separate PD/LGD multipliers for domestic and foreign (mostly U.S.) exposures.
2. Channels of Risk Propagation	Methodology	• Banks' internal models, which are verified in advance by JFSA.	• BoJs Top Down stress testing model based on supervisory data (balance sheet model).	IMF Top Down stress testing model ("workbox") modified according to the JFSA supervisory reporting requirements.

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (continued)

Domain		Assumptions		
		Bottom-Up by Banks	**Top-Down by Authorities**	**Top-Down by FSAP Team**
				• Model is based on supervisory data (Balance sheet model).
	Satellite Models for Macro-Financial linkages	• Banks' internal models • Deleveraging is not allowed.	• Models for credit losses (credit costs), pre-impairment income, credit growth • Model integrates solvency and credit growth channel via second-round effects • Results include estimation with and without deleveraging.	• Models for credit losses, pre-impairment income, credit growth; expert judgment. • Models will be based on Bayesian Model Averaging (BMA) methodology to limit selection bias. • Models will integrate solvency-funding liquidity feedback mechanism • Sovereign risk parameters are calculated using Vitek's (2015) DSGE model • Feedback from financial stress to real economy, second-round effects is estimated using Vitek's (2015) DSGE model. • Results include estimation with and without deleveraging.
	Stress test horizon	• 3 years	• 3 years	• 5 years
3. Tail shocks	Scenario analysis	Macro scenarios include shocks to GDP, inflation, interest rates, exchange rate, unemployment, property prices, equity prices, haircuts on government securities.	• Macro scenarios include shocks to GDP, inflation, interest rates, exchange rate, unemployment, property prices, equity prices, haircuts on government securities.	• Macro scenarios include shocks to GDP, inflation, interest rates, exchange rate, unemployment, property prices, equity prices, haircuts on government securities.

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (continued)

Domain		Assumptions		
		Bottom-Up by Banks	**Top-Down by Authorities**	**Top-Down by FSAP Team**
		• The loss of real GDP in the moderate adverse scenario is about 5.0 percent over the 5-year horizon compared to the baseline scenario, equivalent to about 2 standard deviations of historical real GDP growth rate. The total loss of real GDP in severe adverse scenario is about 7.6 percent over the 5-year horizon compared to the baseline scenario, equivalent to about • 3 standard deviations of historical real GDP growth rate.	• The loss of real GDP in the moderate adverse scenario is about 5.0 percent over the 5-year horizon compared to the baseline scenario, equivalent to about 2 standard deviations of historical real GDP growth rate. The total loss of real GDP in severe adverse scenario is about 7.6 percent over the 5-year horizon compared to the baseline scenario, equivalent to about 3 standard deviations of historical real GDP growth rate.	• The loss of real GDP in the moderate adverse scenario is about 5.0 percent over the • 5-year horizon compared to the baseline scenario, equivalent to about 2 standard deviations of historical real GDP growth rate. The total loss of real GDP in severe adverse scenario is about 7.6 percent over the 5-year horizon compared to the baseline scenario, equivalent to about 3 standard deviations of historical real GDP growth rate.
	Sensitivity analysis	• Counterparty credit risk shock includes simulation of default of the two weakest counterparties (with the lowest credit rating) within the ten largest ones; • Shocks to real estate prices (20 percent decline); • 50 percent drop in domestic equity prices (both, Topix and Nikkei indexes).	• Not applicable	• Shocks to real estate prices (20 percent decline) • 50 percent drop in domestic equity prices (both, Topix and Nikkei indexes).

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (continued)

Domain		Assumptions		
		Bottom-Up by Banks	**Top-Down by Authorities**	**Top-Down by FSAP Team**
4. Risks and Buffers	Risks/factors assessed (How each element is derived, assumptions.)	• Credit losses, profitability, funding costs, market risk, fixed income holdings of banks/sovereigns,counterparty risk, exchange rate, taxes.	• Credit losses, profitability, funding costs, market risk, fixed income holdings of banks/sovereigns, exchange rate, taxes.	• Credit losses, profitability, funding costs, market risk, fixed income holdings of banks/sovereigns, exchange rate, taxes.
	Behavioral adjustments	• A static balance sheet, i.e., no change in composition of balance sheet nor as deleveraging (negative credit growth) are allowed. This assumption applies on a solo, sub-consolidated and consolidated basis for both the baseline and the adverse scenarios. • Interest expenses cannot decline under the adverse scenarios. • Interest income on defaulted assets is not allowed under the adverse scenarios; • Non-interest expenses are allowed to decline in the adverse scenarios, however decline, if any, is capped to the average observed in 2008–16.	• Dynamic. No deleveraging (negative credit growth) in domestic exposures is allowed. This assumption applies on a bank-consolidated basis for both the baseline and the adverse scenarios. • Interest expenses cannot decline under the adverse scenarios. • Interest income on defaulted assets is not allowed under the adverse scenarios. • Dividend payout: if bank meet all regulatory requirements, dividend payout as planned by bank.	• Quasi dynamic approach, i.e., no change in composition of balance sheet but deleveraging (negative credit growth) are allowed. This assumption applies on a solo, sub-consolidated and consolidated basis for both the baseline and the adverse scenarios. • Dynamic balance sheet adjustment allows for deleveraging as well as asset disposal in combined liquidity and solvency scenario only. • Interest expenses change under the adverse scenarios per the interest rate and funding costs projections. • Funding costs are linked to macro scenarios as well as banks capital buffers.

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (continued)

Domain		Assumptions		
		Bottom-Up by Banks	**Top-Down by Authorities**	**Top-Down by FSAP Team**
		• Dividend payout: if bank meet all regulatory requirements, dividend payout as planned by bank.		• Solvency and liquidity tests are linked via funding costs and fire-sales effects. • Interest income on defaulted assets is not allowed under the adverse scenarios; • Non-interest expenses are allowed to decline in the adverse scenarios, however decline, if any, is capped to the average observed in 2008–16. • Dividend payout: if bank meet all regulatory requirements, dividend payout as planned by bank.
5. Regulatory and Market-Based Standards and Parameters	Calibration of risk parameters	• PDs and LGDs: Banks' internal models which are verified in advance by JFSA through the cycle, point in time for both credit losses and stressed RWA calculations; • Separate PDs/LGDs for foreign exposures.	• Credit costs based on loan portfolio migration within the five supervisory categories. • Separate estimation for foreign exposures.	• PDs and LGDs: through the cycle, point in time (without defaulted exposures) by major exposure class for both credit losses and stressed RWA calculations; • EDFs for foreign exposures combined with historic credit losses.
	Regulatory/Accounting and Market-Based Standards	• Hurdle rate: Basel III • Capital metrics: Basel III • CET1, T1, CAR • RWAs change because of change in PDs/LGDs.	• Hurdle rate: Basel III • Capital metrics: Basel III • CET1, T1, CAR • RWAs change because of change in PDs/LGDs.	• Hurdle rate: Basel III • Capital metrics: Basel III • CET1, T1, CAR • RWAs change because of change in PDs/LGDs.

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (continued)

Domain		Assumptions		
		Bottom-Up by Banks	**Top-Down by Authorities**	**Top-Down by FSAP Team**
6. Reporting Format for Results	Output presentation	• Capital shortfall, system wide • Number of banks that pass or fail; percentage of assets that fail.	• Capital shortfall, system wide • Number of banks that pass or fail; percentage of assets that fail.	• Capital shortfall, system wide • Number of banks that pass or fail; percentage of assets that fail.
		• Contribution to changes in RWAs. • Contribution to changes in income.	• Contribution to changes in RWAs. • Contribution to changes in income.	• Contribution to changes in RWAs; • Contribution to changes in income.
BANKING SECTOR: LIQUIDITY RISK				
1. Institutional Perimeter	Institutions included			• 16 banks on the bank-solo basis (or 14 banks on the financial group-consolidated basis).
	Market share			• 76 percent of total banking sector assets.
	Data and baseline date			• Supervisory data. • Bank-solo basis or financial group-consolidated basis. • Baseline date: December 31, 2016.
2. Channels of Risk Propagation	Methodology			• LCR by currency (yen, U.S. dollar, and euro). • Cash flow-based analysis using maturity buckets by currency. • Link the cash flow-based liquidity analysis in U.S. dollar with solvency risk by increasing run-off rates for cash outflows including those from FX swaps, as well as funding costs and capital ratios.

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (continued)

Domain		Assumptions		
		Bottom-Up by Banks	Top-Down by Authorities	Top-Down by FSAP Team
3. Risks and Buffers	Risks			• Funding liquidity risk, rollover risk (roll-off rates). • Market liquidity risk: Markov regime-switching models are used to estimate the impact of market liquidity shocks on equity and JGB prices during time of stress. The estimated price impact is used to calculate the corresponding haircut ratios on these assets. In particular, haircut ratios on equities are dynamic and depend on the total amount of sales by all banks.
	Buffers			• Liquid assets/ Counterbalancing capacity, assuming HQLA in different jurisdictions can be transferred without restrictions.
4. Tail shocks	Size of the shock			• 2-week mild stress scenario: run-off rates for yen-denominated retail deposits are calibrated based on historical cases of capital injection, nationalization, and bankruptcy. • 3-month intermediate stress scenario: higher run-off rates on retail deposits, unsecured

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (continued)

Domain		Assumptions		
		Bottom-Up by Banks	Top-Down by Authorities	Top-Down by FSAP Team
				wholesale funding, and undrawn committed credit/liquidity lines on top of the mild stress scenario (comparable with LCR parameters). • 1-year severe stress scenario: higher run-off rates on secured wholesale funding (particularly FX swaps) on top of the intermediate stress scenario.
5. Regulatory and Market-Based Standards and Parameters	Regulatory standards			• Threshold for cash flow-based analysis: net cumulative funding gap falls below 0. • Threshold for LCRs set to 100 percent. • Fail criteria for cash flow-based liquidity analysis in foreign currencies: need to use yen liquid assets (either through market or through the BoJ's U.S. dollar funds-supplying operations). • Fail criteria for cash flow-based analysis in yen: need for the BoJ's emergency liquidity assistance and ratios below 100 percent of LCR (for LCR type of tests).

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (continued)

Domain		Assumptions		
		Bottom-Up by Banks	**Top-Down by Authorities**	**Top-Down by FSAP Team**
6. Reporting Format for Results	Output presentation			• Number of banks with negative net cumulative funding gaps by currency and by consolidation basis. • Distribution of LCRs by currency and by type of bank.
BANKING SECTOR: CONTAGION RISK				
1. Institutional Perimeter	Institutions included			• 10 banks and trust banks. • 10 regional banks, 13 insurances, and 5 securities firms, and 10 major foreign firms.
	Market share			• About 80 percent of the financial sector.
	Data and baseline data			• Authorities' data collected for FSAP, September 2016.
2. Channels of Risk Propagation	Methodology			• Balance-sheet model: Espinosa-Vega and Sole (2010). • Market-based model: Diebold and Yilmaz's (2014) generalized forecast error variance decomposition approach.
3. Tail shocks	Size of the shock			• Pure contagion: default of institutions, 80 percent loss given default, 50 percent funding roll-over ratio.

Appendix Table 6. Stress Test Matrix (STeM) for the Banking Sector: Solvency, Liquidity, and Contagion Risks (concluded)

Domain		Assumptions		
		Bottom-Up by Banks	Top-Down by Banks	Top-Down by FSAP Team
4. Reporting Format for Results	Output presentation			• Capital shortfall, by bank. • Capital shortfall, system wide. • Number of failed institutions given defaults. • Market-based analysis: Variance Decomposition (spillover contribution to equity prices).

Appendix Table 7. Stress Test Matrix (STeM) for the Insurance Sector

Domain		Assumptions	
		Bottom-Up by Insurance Undertakings	Top-Down by IMF and Authorities
INSURANCE SECTOR: SOLVENCY RISK			
1. Institutional perimeter	Institutions included	• 7 life, 6 non-life	• 7 life, 6 non-life
	Market share	• 73 percent in life, 92 percent in non-life (based on annualized new business premiums)	• 73 percent in life, 92 percent in non-life (based on annualized new business premiums)
	Data	• Statutory reporting	• Statutory reporting
	Reference date	• March 31, 2016	• March 31, 2016
2. Channels of risk propagation	Methodology	• Investment assets: market value changes after price shocks, affecting the solvency margin • Sensitivity analysis: effect on available capital and solvency margin.	• Investment assets: market value changes after price shocks, affecting the solvency margin.
	Time horizon	• Instantaneous shock • 3-year projection (only in the baseline and the severe adverse scenario).	• Instantaneous shock.
3. Tail shocks	Scenario analysis	• Baseline • Moderate adverse scenario • Severe adverse scenario.	• Baseline • Moderate scenario • Severe adverse scenario.
	Sensitivity analysis	• Longevity shock: permanent 20 percent decline in mortality rates • Pandemic event: temporary 35 percent increase in disability/morbidity rates, temporary 10 percent increase in mortality rates	• Sensitivity to market risk variables and interest rates.

Appendix Table 7. Stress Test Matrix (STeM) for the Insurance Sector

Domain		Assumptions	
		Bottom-Up by Insurance Undertakings	Top-Down by IMF and Authorities
		• Catastrophic events: (1) Great Kantō earthquake, (2), Typhoon Mireille, (3) Hurricane Andrew.	
4. Risks and buffers	Risks/factors assessed	• Market risks: interest rates, share prices, property prices, FX rates, credit spreads • Credit risks: default of largest financial and non-financial counterparty • Underwriting risks: catastrophe events, lapses • Summation of risks, no diversification effects.	• Market risks: interest rates, share prices, property prices, FX rates, credit spreads • Credit risks: default of largest financial and non-financial counterparty • Summation of risks, no diversification effects.
	Buffers	• Buffers inherent to product design and regulatory framework	• None
	Behavioral adjustments	• Management actions limited to non-discretionary rules in place at the reference date.	• None
5. Regulatory standards and parameters	Regulatory/accounting standards	• J-GAAP	• J-GAAP
6. Reporting format for results	Output presentation	• Impact on solvency margins • Impact on net income • Contribution of individual shocks • Dispersion measures of solvency ratios and net income.	• Impact on solvency margins • Contribution of individual shocks • Dispersion measures of solvency ratios.

Appendix II. Status of Key Recommendations of 2012 FSAP

2012 Main Recommendations	Implementing Agency	Status of Implementation (mainly based on authorities' responses)
Objective: Bolstering oversight of systemic risk		
Develop the framework for regular thematic risk assessments (across types of financial institutions) and bottom-up stress tests for macroprudential purposes	BoJ, JFSA	**Implemented for banks but partially implemented for nonbanks**. The BoJ has implemented regular thematic risk assessments in its Financial System Reports, and JFSA's has introduced bottom up stress test for G-SIBs and D-SIBs. Nevertheless, the scope of the risk assessments and stress tests remain largely focused on systemically important banks and less on the nonbank sector.
Intensify monitoring and oversight of systemically relevant financial institutions, markets, and infrastructures	BoJ, JFSA	**Implemented for banks, securities firms and markets, and FMIs but partially implemented for insurers.** The authorities have intensified their oversight of systemically relevant financial institutions including through more frequent onsite engagement with all levels of senior management and the Board. The implementation of the G-SIB and D-SIB frameworks for banks and the largest securities firms has strengthened this approach. The Macroprudential Policy Office has been established within JFSA to enhance macroprudential monitoring with a focus on financial market and G-SIFIs. Information collection has also improved with respect to a number of growing risk areas such as foreign exposure, FX funding, and liquidity risks. However, the JFSA has not identified D-SIIs. The JFSA though has implemented a new approach to onsite supervision, under which the largest insurers are subject to more frequent theme-based inspections. Under this new approach, JFSA has enhanced the quality of its onsite supervision through increased interaction with directors and senior management of insurers to better understand their governance practices and benchmark against industry best practices**.** BoJ published its latest FMIs oversight report in March 2016. There is no such report published by JFSA. However, there is evidence that

2012 Main Recommendations	Implementing Agency	Status of Implementation (mainly based on authorities' responses)
		the authorities' supervision and oversight has been effective in improving risk management practices at Japanese FMIs.
Consider more regular arrangements for more intensive and continuing interagency cooperation in systemic risk monitoring and contingency planning	JFSA, BoJ, MoF, DICJ	**Partially Implemented**. Several important steps have been taken to improve interagency cooperation, including the creation of the Council for Cooperation on Financial stability (CCFS), the joint framework for setting CCyBs, and monthly meetings between FSA, BoJ and MoF. However, CCFS lacks a formal mandate and clear objectives. Moreover, cooperation and information sharing between JFSA and BoJ with respect to regular supervisory activities are still primarily conducted on an informal bases.
Monitor closely sovereign-financial stability interlinkages and ensure that risk management frameworks are sufficiently robust to deal with stress situations	JFSA, BoJ	**Partly implemented**. The JFSA and BoJ incorporate into their supervisory activities analysis of sovereign exposures through traded and non-traded market risk and assess the adequacy of banks' risk management. However, regular monitoring of sovereign-financial stability interlinkages could be further enhanced.
Objective: Enhancing the quality of prudential and supervisory framework		
Review the FSA's regulatory mandate and evaluate the adequacy of its supervisory skills and resources	JFSA	**Implemented**. The JFSA has been publishing the Strategic Directions and Priorities annually to provide clarity and transparency of its supervisory focus in the coming year. The adequacy of supervisory skills and staff numbers has also been reviewed in line with its mandate and strategic direction (which is an ongoing process). For instance, the number of staff dedicated to insurance supervision has not changed meaningfully since the last FSAP (from 90 to 88). However, the JFSA has recruited staff with industry experience or specialty knowledge to deepen its internal capability. Resourcing of the FMI supervision and oversight functions within JFSA and BoJ are adequate and kept under review.
Move towards a more formalized risk-based framework for assessing	JFSA	**Partly implemented**. The JFSA has implemented a formal risk rating methodology to help differentiate supervisory intensity and frequency of

2012 Main Recommendations	Implementing Agency	Status of Implementation (mainly based on authorities' responses)
financial institutions' vulnerability and for prioritizing supervisory intensity		activities for banks. The roll-out of the methodology is ongoing. The development of the risk-based supervision methodology for insurers is still work in progress. The PFMI adopted by the JFSA and BoJ for their oversight and supervision of FMIs is a risk based approach to assessment.
Raise minimum capital ratios for domestically-active banks closer to those required of internationally-active banks and align capital buffers with the materiality of risks	JFSA	**Partly implemented**. The JFSA has made progress to implement the Basel III capital buffers for applicable banks, including G-SIBs and D-SIBs. For many domestically active banks, minimum capital requirements remain below international standards.
Strengthen supervisory requirements on large exposure limits for banks	JFSA	**Implemented**. The JFSA has tightened its regulatory limits for Large Exposures and will implemented the new Basel guidelines according to the BCBS timeline.
Encourage stronger risk management by financial institutions, including through improved internal governance, and enhanced role for company auditors and audit committees	JFSA	**Partly implemented**. The JFSA recognizes the need for good governance in light of the rising complexity of risk management associated with a search for yield amid prolonged low interest environment, cross-border expansions, and increased market and FX risks. Improvements in risk management and internal governance is evident, particularly for most of the G-SIBI and listed insurers. Nonetheless, there is scope for progress to be made across the regional banks which are becoming internationally focused and not listed insurers. Equally progress has been made in terms of the role of the audit committee and company auditors. The PFMI have imposed more stringent requirements on FMIs, resulting in improvements in the governance of risk management by establishing a risk management structure and policies for each risk category.
Strengthen securities firm oversight through expanded and more risk-based inspection programs, extended auditing requirements, and improvements to the registration process.	JFSA	**Partially implemented.** The authorities have adopted a new supervisory approach that integrates offsite monitoring and onsite inspections, making the latter more based on the risks identified through offsite monitoring. The SESC introduced an onsite inspection program of

2012 Main Recommendations	Implementing Agency	Status of Implementation (mainly based on authorities' responses)
		newly registered FIBOs in 2013. No changes have been made to the financial audit requirements that continue to focus on listed securities firms and other large firms.
Objective: Strengthening crisis management arrangements		
Explore further improvements to ensure the orderly resolution of systemically important nonbank financial firms	JFSA	**Partially implemented.** Amendments to the Deposit Insurance Act effective March 2014 introduced an orderly resolution regime largely in line with the Key Attributes. The new regime applies to a wide range of firms including nonbank financial firms (insurance and securities firms, and bank holding companies) but not to financial market infrastructure such as central counterparties.
Consider expanding the scope of recovery and resolution plans for all systemically-relevant bank and nonbank financial institutions, consistent with key attributes of an effective resolution regime	JFSA	**Partially Implemented.** All systemically important firms designated by the JFSA, i.e., five banking groups and two securities groups, have prepared recovery plans. Resolution plans for the three Japanese G-SIBs and for one D-SIB have been prepared, but such plans are not in place for the other three D-SIBs. No Japanese insurance firm has been designated as systemically important globally or domestically.
Objective: Supporting private sector growth		
Unwind and better target selected public support measures, including some credit guarantees and SME support measures, as economic recovery takes hold	SME Agency	**Partially implemented**. The emergency credit support programs were unwound and a number of guidelines have been introduced to better target support measures. However, the existing credit guarantee program remains larger in scale relative to other advanced countries. About 1/3 of SME in Japan still depend on credit guarantees for credit access, with about 10 percent of the total volume of loans to SMEs covered by guarantees. In this regards, it is encouraging that the discussions are on-going to modify the credit guarantee programs.
Develop an effective strategy to establish a stronger regional and cooperative bank sector, including through private sector-led consolidation	JFSA	**Implemented**. The JFSA set a strategy to establish a stronger regional bank sector in the Strategic Directions and Priorities (2015). The document sets a framework for the assessment by the JFSA of the sustainability regional and cooperative banks'

2012 Main Recommendations	Implementing Agency	Status of Implementation (mainly based on authorities' responses)
		business models, investment policies, and risk management. The JFSA is working in close cooperation with the central cooperative institutions to improve risk managements and business practices in cooperative banks.

Appendix III. Report on the Observance of Standards and Codes (ROSCs): Basel Core Principles

A. Introduction

1. This assessment of the current state of the implementation of the Basel Core Principles for Effective Banking Supervision (BCP) in Japan has been completed as a part of the FSAP mission undertaken by the International Monetary Fund (IMF) during December of 2016. It reflects the regulatory and supervisory framework in place as of the date of the completion of the assessment. It is not intended to represent an analysis of the state of the banking sector or crisis management framework, which are addressed in other parts of the FSAP.

2. An assessment of the effectiveness of banking supervision requires a review of the legal framework, and detailed examination of the policies and practices of the institutions responsible for banking regulation and supervision. In line with the BCP methodology, the assessment focused on the supervisory activities of the JFSA and BoJ and did not cover the specificities of regulation and supervision of other financial intermediaries.

B. Information and Methodology Used for Assessment

3. Japan requested to be assessed according to the Revised BCP Methodology issued by the Basel Committee of Banking Supervision (BCBS) in September 2012. The current assessment was thus performed according to a revised content and methodological basis as compared with the previous BCP assessment carried out in 2011. It is important to note that the two assessments are not directly comparable, as the revised BCP have a heightened focus on corporate governance and risk management and its practice by supervised institutions and its assessment by the supervisory authority, raising the bar to measure the effectiveness of a supervisory framework (see Box 1 for more information on the revised BCP).

4. The Japanese authorities chose to be assessed against the highest standards of supervision and regulation, and thus were rated against both the Essential Criteria and the Additional Criteria. To assess compliance, the BCP Methodology uses a set of essential and additional assessment criteria for each principle. The essential criteria (EC) were usually the only elements on which to gauge full compliance with a Core Principle (CP). The additional criteria (AC) are recommended best practices against which the authorities of some more complex financial systems may agree to be assessed and rated. The assessment of compliance with each principle is made on a qualitative basis. A four-part grading system is used: compliant; largely compliant; materially noncompliant; and noncompliant. This is explained below in the detailed assessment section. The assessment of compliance with each CP is made on a qualitative basis to allow a judgment on whether the criteria are fulfilled in practice. Effective application of relevant laws and regulations is essential to provide indication that the criteria are met.

Box 1. The 2012 Revised Core Principles

The revised BCPs reflect market and regulatory developments since the last revision, taking account of the lessons learned from the financial crisis in 2008/2009. These have also been informed by the experiences gained from FSAP assessments as well as recommendations issued by the G-20 and FSB, and take into account the importance now attached to: (i) greater supervisory intensity and allocation of adequate resources to deal effectively with systemically important banks; (ii) application of a system-wide, macro perspective to the microprudential supervision of banks to assist in identifying, analyzing and taking pre-emptive action to address systemic risk; (iii) the increasing focus on effective crisis preparation and management, recovery and resolution measures for reducing both the probability and impact of a bank failure; and (iv) fostering robust market discipline through sound supervisory practices in the areas of corporate governance, disclosure and transparency.

The revised BCPs strengthen the requirements for supervisors, the approaches to supervision and supervisors' expectations of banks. The supervisors are now required to assess the risk profile of the banks not only in terms of the risks they run and the efficacy of their risk management, but also the risks they pose to the banking and the financial systems. In addition, supervisors need to consider how the macroeconomic environment, business trends, and the build-up and concentration of risk inside and outside the banking sector may affect the risk to which individual banks are exposed. While the BCP set out the powers that supervisors should have to address safety and soundness concerns, there is a heightened focus on the actual use of the powers, in a forward-looking approach through early intervention.

The number of principles has increased from 25 to 29. The number of essential criteria has expanded from 196 to 231. This includes the amalgamation of previous criteria (which means the contents are the same), and the introduction of 35 new essential criteria. In addition, for countries that may choose to be assessed against the additional criteria, there are 16 additional criteria.

While raising the bar for banking supervision, the CPs must be capable of application to a wide range of jurisdictions. The new methodology reinforces the concept of proportionality, both in terms of the expectations on supervisors and in terms of the standards that supervisors impose on banks. The proportionate approach allows assessments of banking supervision that are commensurate with the risk profile and systemic importance of a wide range of banks and banking systems

5. The assessment team reviewed the framework of laws, rules, and guidance and held extensive meetings with officials of the the JFSA, BoJ, MoF, FIU, plus additional meetings with audit firms, credit rating agencies, and banking sector participants. The authorities provided a self-assessment of the CPs rich in quality and comprehensiveness, as well as detailed responses to additional questionnaires, and facilitated access to supervisory documents and files, staff, and systems.

6. The team appreciated the excellent cooperation received from the authorities. The team extends its thanks to staff of the authorities who provided excellent cooperation, including extensive documentation and access, at a time when they were burdened by many initiatives related to global regulatory changes.

7. The standards were evaluated in the context of the Japanese financial system's structure and complexity. The CPs must be capable of application to a wide range of jurisdictions, whose banking sectors will inevitably include a broad spectrum of banks. To accommodate this breadth of application, a proportionate approach is adopted within the CP, both in terms of the

expectations on supervisors for the discharge of their own functions and in terms of the standards that supervisors impose on banks. An assessment of a country against the CPs must, therefore, recognize that its supervisory practices should be commensurate with the complexity, interconnectedness, size, and risk profile and cross-border operation of the banks being supervised. In other words, the assessment must consider the context in which the supervisory practices are applied. The concept of proportionality underpins all assessment criteria. For these reasons, an assessment of one jurisdiction will not be directly comparable to that of another.

8. To determine the observation of each principle, the assessment has made use of five categories: compliant, largely compliant, materially noncompliant, noncompliant, and non-applicable. An assessment of "compliant" is given when all ECs and ACs are met without any significant deficiencies, including instances where the principle has been achieved by other means. A "largely compliant" assessment is given when there are only minor shortcomings, which do not raise serious concerns about the authorities' ability to achieve the objective of the principle and there is clear intent to achieve full compliance with the principle within a prescribed period of time (for instance, the regulatory framework is agreed but has not yet been fully implemented). A principle is considered to be "materially noncompliant" in case of severe shortcomings, despite the existence of formal rules and procedures and if there is evidence that supervision has clearly not been effective, the practical implementation is weak or that the shortcomings are sufficient to raise doubts about the authorities' ability to achieve compliance. A principle is assessed "noncompliant" if it is not substantially implemented, several ECs and ACs are not complied with, or supervision is manifestly ineffective. Finally, a category of "non-applicable" is reserved for those cases that the criteria would not relate the country's circumstances.

C. Institutional and Market Structure[1]

9. The Japanese banking industry mainly consists of the three mega banks (classified as G-SIBs), [2] **Japan Post Bank, two trading banks, a large number of regional banks, and many cooperative banks (*Shinkin* banks) including Farmers Bank**. These institutions have combined assets of ¥1,826 trillion (about US$16 trillion). The system is large by domestic measures and by international comparisons (with assets of 365 percent of GDP and is the second largest banking system in the world. While city banks and other large banks have nationwide networks and overseas operations, in some cases quite extensive, the regional banks serve a mainly domestic client base. Though regional banks are individually small, as a group they are systemically important representing approximately 40 percent of banking system assets.

[1] This section draws from other documents produced for the FSAP, some of which at the time of this assessment were not yet finalized. A complete analysis of the macroeconomic framework is contained in Article IV reports.

[2] Three Japanese banks have been deemed to be G-SIBs by the FSB and BCBS including: Mizuho FG, Sumitomo Mitsui FG and Mitsubishi UFJ FG. As published by the Financial Stability Board (FSB) in November 2016. See http://www.fsb.org/wp-content/uploads/2016-list-of-global-systemically-important-banks-G-SIBs.pdf

10. The banking system is characterized by low profitability, sound yen liquidity, low levels of nonperforming loans, and sound average capitalization. A prolonged period of low economic growth has depressed domestic credit demand with domestic loan growth slowing. The flattening of the yield curve has put pressure on net interest margins (NIM) with NIM on a downward path and the cost to income ratio flat. While return on equity remained broadly static between 2015 and 2016, pre-provisioning income is falling, since net interest income is the main source of revenue. Average capitalization of the sector seems sound. The average NPL ratio for the system is 1.6 percent.

Appendix Figure 1. Japanese Banking System: Key Financial Indicators /1

(In percent)

	2013	2014	2015	2016
Return on equity	8.29	7.8	8.82	8.5
Return on assets	0.37	0.33	0.37	0.25
Pre-provision income/RWAs	1.56	1.51	1.64	1.38
Cost-to-income ratio	54.13	52.44	51.26	54.32
CET1 ratio /2	11.15	11.42	11.37	11.75
Leverage ratio /3	5.25	5.31	5.72	5.48
NPLs/gross loans	1,98	1.64	1.37	1.17
Texas Ratio /4	17.7	15.05	11.56	10.15
Domestic loans/domestic assets	39.39	38.7	38.7	38.7

Sources: JFSA; ERAs; and IMF staff calculations.
1/ All figures as at December 31, 2015.
2/ CET1-ratio - transitional: 2010-2013 Core Tier 1-ratio.
3/ Calculated as Shareholders equity/Total assets.
4/ Calculated as NPLs/Shareholders equity+ loss reserves.

11. Domestic operating conditions are challenging and banks are expanding offshore to take advantage of lending opportunities.[3] Japanese banks have aggressively expanded in the region, with the country's second-biggest banking conglomerate, Mizuho Financial Group, and two other banks receiving licenses to operate in Myanmar last year; Sumitomo Mitsui Banking buying a stake in Cambodia's Acleda Bank in 2014; and Bank of Tokyo-Mitsubishi UFJ (MUFJ) acquiring Thailand's Bank of Ayudhya in 2013. At Mizuho, overseas business operations account for more than half of income from customers. The overseas expansion of Japanese banks brings opportunities and risks. While a more diversified income base and geographic reach expands lending opportunities, it brings about the need for stronger risk management, as well as potential foreign exchange funding risks.

12. Banks benefit from a relatively large, stable and growing deposit base yet larger FX liquidity needs create risks. More than half of domestic savings are held in bank deposits—a much higher proportion than most other developed markets—and Japanese banks have one of the lowest ratios of market-based financing globally, with very little reliance on confidence-sensitive sources of funding. Loan-to-deposit ratios for banks are at historic lows (average of less than 70 percent) with a large part of the excess liquidity invested in JGBs or held on deposit with the BoJ. Banks therefore enjoy favorable liquidity indicators in respect of LCR and NSFR in local currency. However, the need

[3] Data released at the end of July 2015 from the Bank of International Settlements revealed that Japan's banks became the biggest cross-border lenders at the end of the first quarter of 2015. With $3.53 trillion of foreign loans, Japan's banking sector has marginally surpassed its U.K. counterpart to renew its position as the world's dominant cross-border supplier of loans.

to finance overseas loans leaves the banks vulnerable to FX liquidity risk as non-Japanese yen loan growth is outpacing deposits, a large share of which are wholesale in nature.

13. Commercial real estate loans and cross border exposures are potential future sources of credit risk. The recent growth in real estate loans has surpassed that observed during the real estate boom preceding the Lehman shock. The increase in loans by major banks is mainly attributable to J-REITs and banks have continued to respond proactively to demand for funds from large real estate developers as well as from private real estate funds sponsored mainly by foreign affiliated funds. Real estate firms' investment to GDP ratio was rated "red" according to the BoJ's April 2016 heat map of macro risk indicators.[4] Banks' overseas loans have continued to show relatively high growth, particularly loans to advanced economies, such as North America. Loans extended by major banks, measured in U.S. dollars, have increased by approximately 10 percent in 2015 on a year-on-year basis (an annual increase of approximately US$80 billion) and those extended by regional banks increased by approximately 20 percent (an annual increase of approximately US$4 billion). However, domestic credit growth remains weak at about 2 percent (yoy), despite the rapidly growing lending to real estate firms.

14. The level of cross-shareholdings at the three banks has been deemed risky by the JFSA, and could pose severe problems to their capital levels. Banks hold large JGB and equity portfolios, about ¼ of total assets. Equity holdings are mainly held to support long-term relationships (and related business) with large corporations, and account for more than half of city banks' Tier 1 capital, well in excess of the less than 10 percent holdings evident among U.S. and European banks. The Nikkei rallied by 57 percent in 2013, by 7.1 percent in 2014 and by almost 18 percent in 2015, which has allowed banks with significant stock holdings to benefit despite the decline in Nikkei since August 2016.

15. Large exposures to JGBs by Japanese banks continue to be a risk. Japanese banks have traditionally been the largest buyers of JGBs purchasing about ¥200 trillion of JGBs since 2000, However, the BoJ is now the biggest buyer owing to current monetary policy settings. As of July 2016, JGBs accounted for around 10 percent of the industry's balance sheet, a significant drop from the recent peak of 20 percent as of March 2012. NIRP pushed yields on most low risk assets—including JGBs of most tenors—to near-zero or negative, and substantially flattened the yield curve, reducing banks' profit margins from maturity transformation. However, the yield curve seems to have been stabilized since the introduction of the yield curve control at end-September 2016.

[4] Although more recently the rating turned "green" in the October 2016 heat map, the level of real estate companies' investment to GDP ratio still remains high. The BoJ includes 14 ratios in its heat map of financial activity indexes from 1980 and includes seven sectors. See https://www.boj.or.jp/en/research/brp/fsr/data/fsr160422a.pdf

D. Preconditions for Effective Banking[5]

Sound and Sustainable Macroeconomic Policies

16. The institutional framework supporting the conduct of sound macroeconomic policies in Japan follows the integrated approach. A single universal regulator (the JFSA)[6] conducts both safety and soundness oversight and conduct-of-business regulation for all the sectors of financial services, while the BoJ conducts onsite examinations and offsite monitoring of its counterparty financial institutions. The MoF also retains an important role. The DICJ is responsible for implementing measures such as the reimbursement of insured deposits and financial assistance to reorganize failed banks. The reform of the previous supervisory system that established an integrated system in the late 1990s was a response to perceived weaknesses in the traditional inspection and supervisory practices of the MoF, which emphasized consultation and administrative guidance.

17. Close domestic coordination among the above agencies is required for effective macroprudential policy making. The Japanese authorities have made significant progress in strengthening the links between the domestic agencies involved in bank supervision. In June 2014, the CCFS was launched. It includes senior officials from the BoJ and JFSA. In addition, senior officials from the JFSA, BoJ, and MOF have been holding monthly meetings on international financial and capital market issues since March 2016.

18. As regards crisis management, the FCRC is activated by the PM when government intervention in a troubled financial institution is necessary under the "measures against crisis" or "orderly resolution" regimes. The FCRC consists of the PM (chair), the Chief Cabinet Secretary, Minister for Financial Services, the Minister of Finance, the Commissioner of Financial Services Agency, and the Governor of the BoJ. It is convened by the PM to advise him on how to handle financial institutions that face serious liquidity or solvency pressures; however, ultimate decisions on how to respond are formally taken by the PM himself. Since its creation, the FCRC has been used only twice, and since the blanket guarantee was lifted, the general bank resolution measure of providing partial depositor protection has only been used once. As stipulated in Article 38 of the

[5] This section draws from other documents produced for the FSAP, some of which at the time of this assessment were not yet finalized.

[6] The JFSA is an external agency of the Cabinet Office. It is responsible for ensuring the stability of the financial system; protection of depositors, insurance policyholders, and securities investors; and smooth intermediation, through such measures as planning and policymaking concerning the financial industry and market; and inspection and supervision of private sector financial institutions. It employs 1,600 people. The SESC is placed within the JFSA and conducts market surveillance and onsite inspections of securities companies. However, it is not authorized to take administrative actions such as penalties: the JFSA is responsible for these actions based on the advice of the SESC. The Certified Public Accountants and Auditing Oversight Board (CPAAOB), also within the JFSA, is in charge of overseeing the quality review work performed by the Japanese Institute of Certified Public Accountants (JIPCA). As in the case of the SESC, the CPAAOB can only recommend sanctions, while the JFSA imposes them.

Bank of Japan Act, the PM,[7] and the Minister of Finance may request the BoJ to take actions when they find it especially necessary for the maintenance of stability of the financial system. When the request has been made, the BoJ may undertake the necessary actions, including the provision of uncollateralized loans. The BoJ independently judges the proprietary of the necessary actions based on four principles.

19. As regards the financial system as a whole, the BoJ analyzes and assesses risks in the entire financial system and releases its findings in the Financial System Report (FSR) semi-annually. The FSR aims to gauge risks in and challenges for Japan's financial system and to share recognition of the risks with a broad range of concerned parties, including financial institutions, so as to ensure stability of the financial system. BoJ's analysis and assessment of the financial system from the macroprudential perspective are reflected in its onsite examinations and offsite monitoring, seminars of BoJ's Center for Advanced Financial Technology, and international discussions.

20. Separately, general advice regarding the financial system is provided via the Financial System Council (FSC) within the JFSA. The FSC, which comprises different sectional committees and subcommittees in the JFSA, conducts wide-ranging deliberations on the financial system in response to requests from the PM, the Commissioner of the JFSA, or the Minister of Finance. The FSC has conducted deliberations on matters that call for improvements of the financial system involving legislative measures, and has presented reports on the financial system from medium- and long-term perspectives (including disclosures and accounting issues).

Well-Developed Infrastructure

21. Overall, the infrastructure supporting effective banking supervision in Japan is well-developed. The accounting standards in Japan have been extensively developed over the last 10–15 years. Banks are subject to the Japanese generally accepted accounting principles (JGAAP) for regulatory reporting. Movements towards convergence between JGAAP and international financial reporting standards (IFRS) started in March 2005. Under the August 2007 "Tokyo Agreement," Japan established the timeline of end-2008 to eliminate the 26 major differences between JGAAP and IFRS, with the remaining differences being removed by June 2011. Industry opinion is that Japan is at the final stages of convergence to IFRS. At the moment, JGAAP allows for certain assets and liabilities to be reported as historical cost while the application of fair value accounting requires the reporting at the lower of historical cost or fair value under certain circumstances.

22. The legislative framework for external audit requires external auditors to be independent in both fact and appearance. The existing independence requirements are further bolstered by the establishment of the CPAAOB within the JFSA that is in charge of overseeing the quality review work performed by the JIPCA. The CPA Act also imposes specific requirements on mandatory rotation from audit engagements of listed companies within a maximum period of seven

[7] The PM delegates the above power to request BOJ to take actions to the JFSA Commissioner under Article 61-2 of the Bank of Japan Act.

years from the date of appointment with a two-year cooling off period. In addition, the CPA Act also requires larger audit corporations auditing 100 or more listed companies to follow a five-year rotation rule. The judicial system is well-developed.

23. The payment and settlement system is reliable and efficient. There have been several structural improvements for the past decade with the implementation of Real Time Gross Settlement (RTGS) for all large-value payments, the introduction of liquidity saving features in the RTGS, and the development of delivery-versus-payment (DVP) for all types of securities resulting in the reduction of risks in clearing and settlement of JGBs. Japan is the only jurisdiction, apart from the U.S., that had adopted legislation mandating central clearing of standardized OTC derivatives by the end of 2012.

Effective Market Discipline

24. Legislation in Japan contains several safeguards for disclosure and transparency. The Banking Act requires a bank to publicly disclose an annual report both on solo and consolidated basis that details the banks' business and financial condition. The Companies Act stipulates information disclosure for shareholders and the Financial Instruments and Exchange Act specifies the information disclosure requirements for listed companies. Listed companies are also required to publicly disclose and submit to the JFSA annual financial statements, as set forth in Article 435 of the Companies Act. These statements are to be audited by external auditors in accordance with the Companies Act and Financial Instruments and Exchange Act. The financial statements should be accompanied by explanatory documents on the business and property and be made available to the public by placing them in branches. Securities Exchanges and Japan Securities Dealers Association have also required listed companies to timely disclose information on their performance information. The information on decision making in management such as capital raising, merger and acquisition, and events such as disaster and lawsuits is made public through the "TDnet," the securities exchanges' online system. The reliability of financial disclosures is ensured by the legislative framework governing the external auditing function. Corporate governance requirements are also spelled out in the JFSA's Supervisory Guidelines and Inspection Manuals, which, while they are not legally binding, are explicit expectations to be complied with by the banks. Should banks fail to comply with these expectations, administrative actions can be taken by the JFSA.

Public Safety Nets

25. The Deposit Insurance Act defines the deposits that are protected in the case of a bank failure. "Payment and Settlement deposits," namely current deposits or non-interest bearing ordinary deposits that satisfy the three conditions of (i) bearing no interest; (ii) being redeemable on demand; and (iii) providing normally required payment and settlement services, are fully protected. The other remaining deposits, such as time deposits, are protected up to a maximum principle of ¥10 million including interest, per depositor, per financial institution.

26. The DICJ contributes to financial stability by managing the deposit insurance system and resolving failed banks.[8] In cases when a bank fails, the DICJ will make payouts to insurable deposits, inject capital in solvent banks (funded by government guaranteed borrowings from the market), and at the same time, take resolution actions and facilitate the collection of claims acquired from failed banks in coordination with the Resolution and Collection Corporation. Since 2008, capital injections have been based on the Act on Special Measures for Strengthening Financial Functions. As of March 2010, the DICJ has injected capital under this act in 13 banks, for a total amount of public funds of about ¥350 billion.

27. The Deposit Guarantee Scheme is funded ex ante by periodical contributions from banks. The insurance premium is determined as a flat rate to insured deposits. In addition, the DICJ has the powers to make borrowings and issue bonds in markets under the approval of the JFSA and MoF, and the government may provide guarantee on the DICJ's financing. Currently, ¥69 trillion of guarantee lines are provided to the DICJ by the annual state budget. The DICJ is also allowed to ask the BoJ for temporary liquidity support guaranteed by the government.

Legal Framework

28. The legal framework for banking supervision in Japan is formulated on four levels. The first level is the Banking Act that has been approved by the Cabinet and passed by the Diet. The second level is the Orders for Enforcement of the Banking Act that have been approved and issued by the Cabinet. The third level is the Ordinances for Enforcement of the Banking Act, which is issued by the JFSA. The JFSA is substantially involved in the drafting of laws, orders, and ordinances. As a fourth level, in order to implement and reinforce the legal framework, the JFSA has developed and published supervisory guidelines and inspection manuals. In practice, the supervisory guidelines are mostly being used in the assessment of offsite activities of the JFSA staff, whereas the inspection manuals are being used as guiding practice for the onsite activities of the JFSA during their inspections. Financial institutions are expected to establish internal control system in reference to Supervisory Guidelines and the Inspection manuals which are public. Supervisory Guidelines and Inspection manuals are frequently updated to take into account developments in the banking industry and improvements in supervisory practices and focus.

Supervisory Approach

29. Both the BoJ and the JFSA conduct day-to-day supervision of banks using both onsite inspections and offsite monitoring, and regular interactions with officials of the supervised entities. Formally, and based upon Article 44 of the Bank of Japan Act, the BoJ may submit the documents describing the results of the onsite examinations and other related materials to the Commissioner or have officials of the Financial Services Agency inspect them. Regarding offsite analyses and at senior management level, there exists more regular information exchange

[8] DICJ's role in resolution is contingent on its appointment by the JFSA to execute specific resolution actions determined by the JFSA or PM as the case may be.

between the JFSA and BoJ. Staff exchanges between the JFSA and BoJ also take place regularly. In September 2015, the JFSA published "Strategic Directions and Priorities" which indicates clearly what goals the JFSA aims to attain during the period from July 2015 to June 2016 and how. The "Strategic Directions and Priorities," places importance on PDCA cycle, and the JFSA evaluates/publishes its undergoing process and accomplishments. Meanwhile, the JFSA regularly summarizes its performance against objectives in its public annual reports. Both the BoJ and the JFSA determine the frequency, scope, and the number of examiners, using the "risk-based" framework for onsite examinations/inspections. The BoJ announces its onsite examination policy on an annual basis, including the key issues in the conduct of onsite examinations and major findings in the previous year.

E. Summary and Main Findings

30. Banking regulations and supervisory processes have undergone significant improvements since the last FSAP. The JFSA is in the process of reforming its supervisory practices and has been shifting its focus from assessing compliance with prudential requirements to a more sophisticated and forward-looking risk-based approach to supervising banks and bank holding companies. Its prudential requirements have also continued to evolve in line with international trends. Capital, liquidity and disclosure requirements have been updated to incorporate the Basel III reforms agreed by the Basel Committee in accordance with the internationally agreed timelines. Corporate governance expectations have also been strengthened with the implementation of Japan's Stewardship Code and Corporate Governance Code designed to strengthen corporate governance in the corporate and financial sectors. Japanese agencies have also deepened their working relationships among themselves and with their foreign counterparts.

31. While the supervisory framework is generally sound, some key priority areas need to be addressed. The approach to supervision by the JFSA is evolving and it needs to take some steps to further develop its processes so that it can respond nimbly and proactively to emerging issues. A confluence of low rates and slow credit growth in Japan has been accompanied by growing offshore lending, especially by the megabanks, resulting in a greater reliance on wholesale foreign currency funding. Moreover, the long-term sustainability of regional and *Shinkin* bank business models is under pressure. Against this backdrop, there are three main priority areas going forward: (i) enhancing the ability of the JFSA to use capital requirements to promote more robust capital planning and risk management practices; (ii) further strengthening corporate governance and risk management practices at banks; and (iii) introducing a more rigorous risk assessment process and a risk tolerance framework to support a more fully risk-based approach to supervision.

32. Capital requirements need to be more tailored to individual bank risk profiles. The JFSA would benefit from a residual power to set Pillar 2 capital requirements for individual banks on the basis of their specific risk profiles to respond more dynamically to emerging issues confronting individual banks. This would also facilitate a better integration of capital requirements with the Supervisory Review and Evaluation Process (SREP) and the supervisory rating system. The JFSA is

also encouraged to work with regional and *Shinkin* banks to ensure that dividends and other capital distributions can be constrained before bank capital ratios fall below minimum requirements.

33. Corporate governance and risk management remains an area that needs further work to strengthen independence of boards. Under the oversight of the Japan Government, much work has been dedicated to improving the corporate governance framework for commercial enterprises including financial institutions. Nevertheless, further work is needed to help embed better practices across the banking sector in an effort to drive cultural change. Importantly, greater attention is needed to help boards of directors effectively oversee management and help ensure appropriate checks and balances are functioning. Further work in the area of risk management is also needed to strengthen the independence of the risk management and internal control functions and provide them with clearer reporting lines to the board.

34. While supervision processes have been strengthened, internal processes need to be further developed to support the transition to a full risk-based approach. Designating some banks as systemically important has helped lay the foundation for more risk-based supervision. But the risk rating methodology needs to be further developed so that the risk profile of individual banks can be delineated across the spectrum of risk categories (e.g., credit, market, operational risk and AML/CFT vulnerabilities) while taking into account their financial condition, governance, and risk management capacity. The JFSA also needs to flesh out its risk tolerances for failure across different types of banks and calibrate them to bank systemic importance. That way the combination of bank risk ratings and risk tolerances can then be used to guide the supervisory intensity, including an effective allocation of supervisory resources.

35. A stronger principle-based approach to related party exposures is required to prevent risks from building up. "Exposures to related parties" are required to be conducted at "arms-length" terms. These exposures by their nature deserve enhanced risk management over and beyond standard credit underwriting processes. However, specific limits have not been set by either banks or the JFSA beyond those that already exist in the context of the large exposure rules. While the JFSA takes them into account in its periodic compliance inspections, the supervision of these activities would benefit from more specific periodic reporting requirements and more proactive investigations that are less reliant on signals received from internal audit.

F. Main Findings

Responsibility, Objectives, Powers, Independence, Accountability (CPs 1–2)

36. The legal framework for banking supervision is well established in Japanese laws, regulations, and supervisory guidance. The legal framework and supporting regulations and guidance are comprehensive, with clear roles and responsibilities assigned to the different agencies, plus a suite of powers that enables supervisors to effectively oversee the banking system. The three mandates—to promote the stability of the financial system, to protect depositors, policyholders, securities holders, and to facilitate finance—assigned to the JFSA are complementary. Depositor

protection and financial stability more generally are most likely to be achieved if the JFSA ensures that banks have capital and risk management practices commensurate with the risks they undertake and the environment in which they operate. In turn, this will promote a strong banking system that can contribute to the economic well-being of Japanese society by facilitating finance in the economy.

37. Most of the mechanisms are in place to allow banking supervision to be conducted with operational independence. However, the statutory provisions governing the removal of a JFSA Commissioner from office could be tightened up. In addition, while the JFSA budget has been stable in recent years, looking down the road there is a risk that the funding model for the JFSA may become less robust over time if the financial sector continues to expand in a period of public sector fiscal restraint. Consequently, the authorities may wish to consider whether a different funding model might make sense over the longer run.

Ownership, Licensing, and Structure (CPs 4–7)

38. The requirements governing licensing, ownership and major acquisitions are broadly well established. Some enhancements could be introduced at the margin to tighten up the licensing process, give the JFSA the opportunity to pre-approve majority voting interests in banks beyond the major shareholder threshold, and provide the JFSA with stronger powers to review investments by banks in other institutions.

Methods of Ongoing Supervision (CPs 8–10)

39. Supervision has been strengthened since the last FSAP, but further development of the risk rating methodology is needed. While the onsite and offsite supervisory processes are relatively sound, the analytical risk framework needs to be further developed to assess the risk profile of banks and banking groups on a more comprehensive and systematic basis. Importantly, this risk rating methodology would help foster further integration of offsite and onsite processes. While the JFSA has made progress in this regard, such as the establishment of a D-SIB and G-SIB framework, elements remain a work in progress and should be completed to support the move to risk-based supervision.

40. Planning and coordination for supervisory tasks could be improved further. The JFSA is in the process of adjusting its mix of offsite and onsite activities. For the megabanks and the two major trading banks this is reflected in the integrated approach to supervision where regular monitoring is complemented with periodic interviews of senior management and the use of thematic reviews. This process is planned to be rolled out to the larger Regional and smaller banks over the next few years. In the meantime, the approach for regional/*Shinkin* banks has moved away from annual onsite inspections. Greater emphasis on planning is needed to help allocate resources across banks and across supervision activities e.g., onsite and offsite.

Corrective and Sanctioning Powers of Supervisors (CP 11)

41. While the JFSA has the necessary powers to take measures against banks, greater willingness to exercise these powers is needed. The JFSA has a range of supervisory tools and powers to take measures against banks that are in violation of laws and regulations, or are engaging in unsafe or unsound business practices. However, in practice, the JFSA generally uses non-binding measures (e.g., suasion) to correct bank behavior, which may result in delays in remedial actions if consensus is not quickly forthcoming. PCA triggers should be recalibrated to grant the JFSA sufficient flexibility to intervene and act promptly in response to emerging risks. The authorities may also wish to consider strengthening interagency coordination for crisis management and crisis preparedness.

Cooperation, Consolidated, and Cross-Border Banking Supervision (CPs 3–12–13)

42. Significant progress has been achieved in enhancing the oversight of banking groups on a consolidated basis, and in deepening relationships among domestic agencies and between those agencies and their foreign counterparts. Japanese authorities have been able to supervise banks and bank holding companies on both a consolidated and unconsolidated or solo basis. Recent legislative changes have given banking supervisors more powers to review the activities of holding companies and related entities and to evaluate the suitability of senior management and owners of those companies. The BoJ and JFSA have also taken steps to enhance their working relationships to better understand financial sector developments and their implications for banking supervision. Deeper relationships have also been formed with foreign supervisory agencies with the signing of new MoUs and EoLs, and especially with the formation of Crisis Management Groups for the three major Japanese banks that have been designated as global systemically-important banks.

Corporate Governance (CP 14)

43. Initiatives to improve corporate governance standards in Japan have commenced; nonetheless, higher standards are needed for banks given the global importance of Japan's banking system. Under the oversight of the Japanese government, much work has been dedicated to improving the framework for corporate governance for commercial enterprises including financial institutions. Nevertheless, further work is needed to help embed better practices across the banking sector in an effort to drive cultural change, and there is scope for reducing disparities in governance practices even across major banks. Importantly, greater attention is needed to ensure that boards of directors, with the help of non-executive directors, effectively oversee management and help establish appropriate checks and balances. Owing to the legacy board structures, there is a lack of separation between board in its oversight role and the executive playing a management role. Equally there is insufficient independent reporting by the internal audit function to the Board Audit

Committee; in some instances, the latter reports to executive management, typically the President/CEO.[9]

44. Greater emphasis on the effective functioning of the committee structure is warranted to boost corporate governance. Owing to the three structures available to banks, there is always a separate audit committee, yet there is not necessarily a separate remuneration committee which allows a level of oversight and separation between those board members responsible for setting the budget, strategy, and targets of the bank from those who are also setting the remuneration strategies for board directors. To encourage more robust governance, the JFSA should increase the frequency and depth of onsite and offsite activities to assess the effective functioning of the board and its committee structure. While the JFSA has stepped up engagement with the boards of megabanks and major trading banks, this approach should be rolled out systematically across a broader range of banks.

Prudential Requirements, Regulatory Framework, Accounting and Disclosure (CPs 15–29)

Risk management (CP 15)

45. Greater emphasis on the independence of the risk function is needed, especially in relation to the reporting line of the CRO to the board risk committee. The JFSA and BoJ have sufficient frameworks for identifying and evaluating bank risk management systems and processes and for requiring remedial actions. However, further work in the area of risk management is needed to strengthen the independence of the risk management function with a clear reporting line to the board of directors. A counterbalancing feature is that in some cases bank business models are not overly aggressive and continue to have conservative risk settings. Given the challenging operating conditions (flat yield curve and subdued demand for credit), banks' search for yield requires more robust risk management systems and processes to monitor and detect risks early. Continued supervisory attention is recommended to promote stronger risk governance arrangements, including more independent risk management and internal control functions that have direct reporting relationships to the board of directors.

Capital adequacy (CP 16)

46. While capital requirements are closely aligned with the Basel Pillar 1 Framework for Internationally-Active Banks, a Pillar 2 capital framework to tailor capital requirements more closely to individual bank risk profiles is lacking. This is an important shortcoming that makes it difficult for the authorities to require banks to carry more capital beyond the minimum requirements to address specific risks within a bank that may arise, such as risk concentration or interest rate risk in the banking book (IRRBB). The JFSA's plans to become a more dynamic supervisor will require it to exert more influence and operate more proactively with banks to set capital and adjust risk management practices in anticipation of future events. Relying on the minimum capital framework

[9] It is acknowledged that the internal auditors do attend board meetings, which would give them an opportunity to convey views directly if necessary.

alone may not be sufficient in those situations. Adding a Pillar 2 capital framework would give the JFSA more influence in both bank capital planning exercises and in discussions with banks about their risk management practices more generally.

47. While most domestic banks are currently well capitalized, the thresholds for early intervention measures are set too low to support effective early action. For instance, constraints on dividends and other capital disbursements would only start to kick in when bank capital ratios fall below 4 percent. While increasing the minimum requirements for those banks to include a capital conservation buffer may not be practical given the concerns that have been expressed generally about the usability of Basel buffers in times of stress, the JFSA is encouraged to explore the feasibility of introducing such constraints for capital levels above the official minimum requirements, through bank policies and recovery plans, so that they start to kick-in well before capital ratios fall below the 4 percent threshold.

Credit risk (CP 17)

48. In general, there is a sufficient focus by banks as well as the JFSA and BoJ on credit risk management. Discussions with the banking industry indicated sufficient senior-management attention to the problem areas identified and a willingness to further migrate their credit risk management processes towards best practices. Credit risk is a key focus in JFSA Strategic Directions and Priorities which are also made public. Both routine and targeted ad-hoc work by the supervisory and inspection bureaus of the JFSA include detailed monitoring and in-depth analysis (through file reviews) of credit risks and the adequacy of risk management.

Problem assets, provisions, and reserves (CP 18)

49. Policies and practices with respect to problem assets have improved considerably since the Japanese banking crisis. In particular, the gaps in provisioning of SME and other special measure loans have shrunk in recent years, although some legacy issues remain that should be resolved. Regular detailed reviews of loan classifications and provisioning practices carried out by the Japanese authorities have undoubtedly contributed to the better performance in this regard. However, discussions with local observers suggest some issues remain and that a significant amount of work will need to be conducted by banks and the JFSA in coming years to migrate provisioning practices towards the new expected credit loss framework that is emerging as best practice in international accounting standards and Basel Committee provisioning guidance for supervisors. Looking forward, the JFSA may also want to consider whether there are other ways to continue to obtain satisfaction with respect to loan classifications and provisioning adequacy; for example, by possibly placing more reliance on the reviews carried out by external auditors, provided the scope and prudential rigor of those audits is adequate.

Concentration risk (CP 19)

50. While the JFSA has taken steps to tighten the regulations for large exposures, more attention is needed to expand risk management for risk concentrations. The JFSA has taken a

number of steps to strengthen the large exposure regime including imposing stricter limits for connected counterparties, which have been reduced from 40 percent of capital to 25 percent. In addition, the JFSA will implement the new BCBS LE guidelines that take effect in 2019. Nonetheless, more attention is needed to expand risk management for risk concentrations other than large exposures such as risk concentrations from market risk and other types of risks. The JFSA focuses on concentration as part of credit risk, and occasionally discusses concentrations in other risk-types when some material risk is detected. However, there is no requirement that all material concentrations be regularly reviewed and reported to banks' supervisory boards. Inclusion of these exposures in stress testing is also limited.

Related party exposures (CP 20)

51. The regulatory and supervisory framework for related party exposures has a number of deficiencies. Exposures to related parties are required to be conducted at 'arms-length' terms. These exposures by their nature deserve enhanced risk management over and beyond standard credit underwriting processes. However, specific limits have not been set by either banks or the JFSA beyond those that already exist in the context of the large exposure rules. While the JFSA takes them into account in its periodic compliance inspections, supervision of these activities would benefit from more specific periodic reporting requirements and more proactive investigations that are less reliant on signals received from internal audit.

Country and transfer risks (CP 21)

52. The JFSA has been monitoring this area closely with additional regular prudential returns focused on country exposures. Faced with weak profitability amid sluggish loan demand locally and a low interest rate environment, Japanese banks, particularly the mega banks are expanding overseas, notably in the U.S. and Asia.

Market risk (CPs 22–24)

53. The obligations in the Supervisory Guidelines are generally sound and establish the requirements for banks to implement effective risk management frameworks to measure and manage market risk. Supervisors periodically review banks to assess whether their market risk management processes are consistent with bank risk bearing capacity and market risk management frameworks. The city banks, including the three megabanks, are the more active participants in trading activities. Instruments traded in the main asset classes typically include JGBs, IRS, and currencies. The JFSA has market risk specialists carrying out onsite inspections in the market risk area. Risk limits established by banks for trading activities are usually low with real time monitoring and daily escalations. Most of the supervisory focus and expertise is directed toward mega bank and trading bank market risk management activities given that the market risk exposures of other banks are not material.

54. The IRRBB has received a significant amount of supervisory attention in the last several years and features as a key supervisory priority. Banks are required to measure, calculate

and report their exposure to the IRRBB on a quarterly basis. Banks are also required to conduct regular stress testing using both standardized and bespoke scenarios, especially for those banks with more complex business models and optionality in the portfolio. Supervisors make an assessment of IRRBB through the risk profiling process, and the assessors saw evidence that this risk is featured in the SREP assessment and is a key topic in discussions with bank senior management. Banks generally hold large JGB and equity portfolios. The JFSA has also begun the transition to new guidelines for IRRBB which will closely align with the new BCBS requirements in 2018.

55. The extent of FX funding is a significant risk facing the megabanks where they have expanded their overseas lending. The BoJ and JFSA carry out onsite examinations/inspections and offsite monitoring of banks in close coordination and cooperation, the former with detailed coverage of risk management. For internationally active banks (non-consolidated and consolidated), JFSA requires banks to comply with the total LCR minimum requirement on a monthly basis. This was implemented in March 2015 and includes disclosures (quarterly) from the end of June in 2015. Banks also report the LCR by significant currency to the JFSA on a monthly basis in accordance with the BCBS liquidity standard. The transposition of the LCR into local rules closely aligns with the BCBS text and implementation timeline meet the Basel III requirements. Offsite monitoring and onsite inspections by both the JFSA and BoJ appear rigorous. Contingency funding plans and FX Liquidity risk management have been a focus of the authorities.

Internal control, financial reporting, and audits (CPs 26 and 27)

56. The oversight of bank internal control frameworks is sound, although the internal audit function could be further strengthened by introducing a more direct reporting relationship to bank boards of directors. Stronger relationships could also be developed with external auditors so that the JFSA can exercise more influence over the scope of external audits and be more promptly informed about any financial reporting vulnerabilities. The JFSA has limited powers to have weak external auditors removed except in extreme situations. Moreover, external auditors should also be required to report to the Commissioner of the JFSA all items requiring corrective action, not just those that have not been addressed by the bank within two weeks of notification. Even those issues that have been corrected can often be a harbinger of underlying weaknesses in bank risk management and internal control practices that could be more promptly addressed by the JFSA the sooner it is made aware of them.

Disclosure and transparency (CP 28)

57. Domestic and internationally-active banks have strong disclosure practices. For example, they have implemented Basel III Pillar 3 disclosure requirements on both a consolidated and unconsolidated basis in accordance with internationally-agreed timelines. As these requirements become more detailed in the future in the wake of planned revisions to the Basel Pillar 3 Framework, the JFSA may wish to consider the regulatory burden imposed on smaller banks and assess the costs and benefits of imposing the more detailed requirements on those institutions.

Abuse of financial services (CP29)

58. Japan had taken a number of steps to strengthen its AML/CFT capabilities but greater onsite attention is needed. While the assessors noted that there have been some improvements, most notably in the reporting of Suspicious Transaction Reports (STRs), a reduction in focus of onsite inspections for AML/CFT is a shortcoming. While reporting of STRs is an input into offsite monitoring, surveillance should be complemented by routine onsite inspections to verify the effectiveness of risk management and controls e.g., in the area of CDD processes, and correspondent banking relationships.

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
1. Responsibilities, objectives and powers	The legal framework and supporting regulations and guidance are comprehensive with clear roles and responsibilities assigned to the different agencies plus a suite of powers that enables supervisors to effectively oversee the banking system. The three mandates assigned to the JFSA are complementary in that depositor protection and financial stability more generally are most likely to be achieved if the JFSA ensures that banks have capital and risk management practices commensurate with the risks they undertake and the environment in which they operate. In turn, this will promote a strong banking system that can contribute to the economic well-being of Japanese society by facilitating finance in the economy.
2. Independence, accountability, resourcing and legal protection for supervisors	Most of the mechanisms are in place to allow banking supervision to be conducted with the requisite operational independence. However, the statutory provisions governing the removal of a JFSA Commissioner from office could be tightened up. In addition, the funding model for the JFSA may become less robust over time if the financial sector continues to expand in a period of public sector fiscal restraint. Consequently, the authorities may wish to consider whether a different funding model might make sense over the longer run.
3. Cooperation and collaboration	The Japanese authorities have made significant progress in recent years in strengthening the links between the domestic agencies involved in banking supervision and in deepening relationships with foreign supervisory agencies via the introduction of more MoUs, EoLs and especially the introduction of CMGs for major Japanese banks that have been designated as global systemically important.
4. Permissible activities	The definition of a bank and the range of activities that banks and bank holding companies are permitted to engage in is clearly defined.
5. Licensing criteria	In addition, with banking groups becoming more complex over time the JFSA should consider introducing more intensive probing of ownership structures of banking groups to give it satisfaction that it truly understands who are the ultimate beneficial owners

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	standing behind a banking group and their capacity to provide capital to the bank in times of stress.
6. Transfer of significant ownership	Major changes in the shareholding structures above the 20 percent threshold do not necessarily need supervisory approval ahead of time. In practice intentions are clarified with respect to possible future majority shareholdings as soon as a shareholder becomes a 'major shareholder' and extra conditions could then be set on future increases. The assessors believe that authorities are generally better placed to exercise influence before a transaction takes place rather than having to respond by imposing additional obligations after the fact. Especially when a major shareholder obtains a majority shareholding (controlling interest), this should in the assessors' view be subject to a pre-approval process given the changes this might entail for bank governance structures and business models.
7. Major acquisitions	Given that material investments (more specifically investments that would lead to a significant influence of the investing bank on the operations of the institution receiving the investment) could have a major influence on the business model and risk profile of the latter, a stricter pre-approval is recommended as provided for in the case of subsidiaries, rather than a system based upon prior notification combined with onsite and offsite supervisory action. In addition, the scope for approval of acquisitions could be reconsidered, by expanding it to include the acquisition of ancillary business and banking related business.
8. Supervisory approach	Since the last FSAP, a risk rating methodology to assess the risk profile of banks and banking groups has been introduced (2014) referred to as "risk profiles"). The approach is still in the process of being rolled out and aspects of the methodology are still being refined (e.g., how to balance risk against factors such as size, scale, complexity, and systemic importance). While the onsite and offsite supervisory processes are relatively sound, the full implementation of an analytical risk framework to assess the risk profile of banks and banking groups on a more comprehensive and systematic basis is needed.

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	Importantly, the full implementation of this methodology will help foster further integration of offsite and onsite processes. The approach to the megabanks has been augmented through the introduction of the GSIB framework, which has helped to direct attention to the megabanks, so that the megabanks are receiving considerably more frequent and intensive supervision. The full roll out of the methodology will enhance planning and the allocation of resources to better differentiate the intensity and scope of supervision and better allocate its supervisory resources.
9. Supervisory techniques and tools	The JFSA has enhanced the supervisory toolkit through several developments: implementation of risk profiles (see CP8); a more targeted approach to onsite inspections; use of thematic style inspections; and a greater emphasis on onsite inspections in the mix of overall supervisory activities. Part of this new approach is also greater emphasis on engagement with banks' senior management and boards. The JFSA employs a mix of onsite and offsite activities commensurate with bank's risk profiles, size, scale, complexity and systemic importance. The introduction of the D-SIB and G-SIB framework has also helped to direct attention to the megabanks. It was evident that the megabanks are receiving considerably more frequent and intensive supervision.
10. Supervisory reporting	The JFSA has the means of collecting, reviewing, and analyzing financial institutions' prudential returns on both a solo and consolidated basis. There is potential that the JFSA collects too much information which may obscure what supervisors need to focus on. In relation to governance requirements for valuations, more emphasis could be placed on the internal risk management practices to confirm the prudent valuation of assets as part of regulatory reporting. Currently valuations are determined by the accounting standards, which may not fully capture governance and risk management requirements for valuations. The reporting standards do not explicitly set out expectations for governance structures and control procedures for regulatory reporting. Equally there is not

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	explicit reference to the valuation framework or control procedures for regulatory reporting.
11. Corrective and sanctioning powers of supervisors	The assessors have some concerns relate to (i) the willingness of the JFSA to exercise its powers at an early stage and (ii) the PCA triggers are set too low and do not grant the JFSA sufficient flexibility to intervene and act early in the event of emerging risks. These would usually take the form of business improvement orders and suspension of businesses. While there are no specific conditions existing that could narrow the powers of the supervisor mentioned under the Articles 24 and 26, such administrative actions could potentially result in delays in remedial actions. The assessors also recommend the authorities consider strengthening interagency cooperation for crisis management and preparedness.
12. Consolidated supervision	The Japanese banking supervision framework enables banks to be supervised on both a consolidated and a solo basis. It also gives the authorities the powers they need to be able to oversee foreign activities of Japanese banks and supervise the shareholders and senior management of parent and affiliated companies including outsourcing companies from a prudential perspective. While there is a legal clause that enables bank subsidiaries and bank outsourced companies to refuse JFSA investigations if there are "justifiable reasons," this is simply a legal safeguard to ensure that supervisory authorities do not demand information beyond what is needed to carry out their prudential responsibilities.
13. Home-host relationships	Foreign banks operating in Japan are held to the same prudential standards as their domestic counterparts. As noted above in CP3, significant progress has been achieved in deepening home-host relations with foreign supervisors in recent years.
14. Corporate governance	The corporate governance requirements have been strengthened recently through the introduction of the Corporate Governance Code. While implementation of the new Code will take time to be fully adopted, assessors saw a need for greater oversight of management (e.g., President/CEO) by board non-executive directors,

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	especially among regional banks. Overall, there is scope for reducing disparities in governance practices even across major banks in Japan. Fit and Proper (FP) processes to assess the collective experience and expertise of the board should be strengthened as well as applying the FP process at senior management level for bank structures where it is a company with auditor. To encourage more robust governance, the JFSA should increase the frequency and depth of onsite and offsite activities to assess the effective functioning of the Board and its committee structure across a broader range of banks.
15. Risk management process	The JFSA and BoJ have sufficient frameworks for identifying and evaluating bank's risk management systems and processes and for requiring remedial actions. However, independence of the risk management function needs to be given greater attention, especially in relation to the reporting line of the CRO to the board risk committee. While the JFSA has stepped up engagement with non-executive directors for the megabanks this process needs to be rolled out across the sector.
16. Capital adequacy	Capital requirements are closely aligned with the Basel Pillar 1 Framework for internationally-active banks but an important shortcoming is a lack of a Pillar 2 capital framework to tailor capital requirements more closely to individual bank risk profiles. This makes it difficult for the authorities to require banks to carry more capital beyond the minimum requirements to address specific risks within a bank. The JFSA's plans to become a more dynamic supervisor will likely bring it into territory where it may need to exert more influence and operate more proactively with banks to set capital and adjust risk management practices in anticipation of future events. Relying on the minimum capital framework alone may not be sufficient in those situations. Adding a Pillar 2 capital framework would give the JFSA more influence in

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	both bank capital planning exercises and discussions about bank risk management practices more generally. Although domestic bank capital requirements have been tightened up and those banks are carrying capital well above minimum requirements, the thresholds for early intervention measures such as constraints on dividends and other capital disbursements are set too low for those banks given they would only start to kick in when capital ratios for those banks fall below 4 percent. The feasibility of introducing such constraints for capital levels above the official minimum requirements through bank policies and recovery plans should be explored so that the constraints can start to kick-in well before capital ratios fall below the 4 percent threshold.
17. Credit risk	In general, we see a sufficient focus by banks as well as the JFSA and BoJ on credit risk management. Credit risk is a key focus in the JFSA's strategic plans which are communicated to the market. Both routine and targeted ad hoc work by the supervisory and inspection bureaus of the JFSA conduct detailed monitoring and in depth analysis (through file reviews) of credit risks and adequacy of risk management. In the discussions with the banking industry there is a trend toward more risk-based lending and away from collateral based lending as well as into new product lines (e.g., consumer finance) where the JFSA will need to ensure it keeps apprised of the adequacy of bank risk management.
18. Problem assets, provisions, and reserves	The policies and practices of banks with regard to problem assets have improved considerably since the Japanese banking crisis. Gaps in provisioning of SME and other special measure loans have become less important in recent years now that the relevant government programs have been terminated. However, the lingering issues should be resolved to further increase confidence in bank provisioning practices. Regular detailed reviews of loan classifications and provisioning practices carried out by the Japanese authorities have undoubtedly contributed to the better performance in this regard. Looking forward, more guidance on collateral valuations stressing the need for prudence would be helpful and provisioning practices will need to continue to evolve as the expected credit loss framework is implemented in

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	accordance with international accounting standards. In addition, the JFSA may want to consider whether there are other ways to continue to obtain satisfaction with respect to loan classifications and provisioning adequacy; for example, by possibly placing more reliance on the reviews carried out by external auditors if satisfaction can be obtained on the scope and prudential rigor of those audits.
19. Concentration risk and large exposure limits	The JFSA has taken a number of steps to strengthen the large exposure regime including imposing stricter limits for connected counterparties which have been reduced from 40 percent of capital to 25 percent. In addition, the JFSA will implement the LE guidelines which have been revised by the BCBS and will take effect from 2019 (aligned with the BCBS timeline). Nonetheless, more attention is needed to expand risk management for risk concentrations that go beyond large exposures such as risk concentrations from market risk and other types of risks. The JFSA focus on concentration as part of credit risk, and occasionally discuss concentration of other types when some material risk is detected. There is no requirement that all material concentrations to be regularly reviewed and reported to the bank's supervisory board. Inclusion in stress testing is limited.
20. Transactions with related parties	The JFSA has adopted a principles-based approach to related party exposures relying upon the credit risk framework to establish risk management expectations. However, exposures to related parties are inherently prone to higher credit risk and should be subject to enhanced and bespoke risk management standards and necessary governance. While there are various obligations and requirements, there are several areas where the framework falls short of the expectations in this principle e.g., no requirement for bespoke policies and processes covering the granting and managing of related party transactions; dedicated limits. It is acknowledged that related party exposures have not been a significant source of losses traditionally for the banking sector, however, owing to the unique risks

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	associated with these types of exposures, enhanced due diligence and governance by banks is needed and supported by supervisory expectations.
21. Country and transfer risks	Faced with weak profitability amid sluggish loan demand locally and a low interest rate environment, Japanese banks, particularly the mega banks have increasingly attempted to expand overseas, particularly to Asia. The JFSA has been monitoring this closely with additional regular prudential returns submissions on country exposures.
22. Market risk	The obligations in the Supervisory Guideline are generally sound and establish the requirements for banks to implement effective risk management frameworks to measure and manage market risk. Supervisors periodically review banks to assess that their market risk management processes are consistent with the risk bearing capacity and the market risk management framework. Most focus and expertise is directed toward the mega banks' market risk management. There was general compliance with this Principle.
23. Interest rate risk in the banking book	The IRRBB has received a significant amount of the supervisor's attention during the last several years and features as a key supervisory priority. Banks are required to measure, calculate and report their exposure to IRRBB on a quarterly basis. Banks are also required to conduct regular stress testing using both standardized and bespoke scenarios, especially for those banks with more complex business models and optionality in the portfolio. The JFSA is beginning the transition to new guidelines for IRRBB which will closely align with the BCBS revisions. The timeline for implementation is 2018.
24. Liquidity risk	The BoJ and JFSA carry out onsite examinations/inspections and offsite monitoring of banks in close coordination and cooperation, the former with detailed coverage of risk management. For internationally active banks (non-consolidated and consolidated), JFSA requires banks to comply with the minimum requirement of LCR (monthly) which was implemented in March 2015 including disclosures (quarterly) from the end of June in 2015. The transposition of the LCR into local rules closely aligns with the BCBS text and implementation timeline aligns with the Basel III requirements. Offsite monitoring

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	and onsite inspections by both the JFSA and BoJ appear rigorous. The extent of FX funding is a significant risk facing the megabanks where they have expanded their overseas lending. Contingency funding plans and FX liquidity risk management have been a focus of the authorities.
25. Operational risk	The area of operational risk has undergone several enhancements since the time of the last FSAP, most notably in the strengthening of dedicated IT risk specialists. Sound approaches for business continuity and disaster recovery as well as attention to ongoing monitoring of operational risk events.
26. Internal control and audit	Supervisory oversight of bank internal control functions is sound and the role of internal audit functions within banks has been strengthened in the wake of enhancements to corporate governance practices. That said the authorities should consider giving internal audit groups more direct links to boards in line with emerging best practice.
27. Financial reporting and external audit	Stronger relationships could be developed between bank supervisors and external auditors so that the JFSA can exercise more influence over the scope of external audits and be more promptly informed about any financial reporting vulnerabilities. The JFSA has limited powers to be able to have weak external auditors removed except in extreme situations. External auditors should also be required to report to bank supervisors all findings that could significantly impact the bank, including issues that have been subsequently rectified by the bank. Even minor issues that have been rectified can be a harbinger of underlying weaknesses in bank risk management and internal control practices that could be more promptly addressed by the JFSA the sooner it is made aware of them.
28. Disclosure and transparency	Domestic and internationally-active banks have implemented Basel III Pillar 3 disclosure requirements on both a consolidated and unconsolidated basis in accordance with internationally-agreed timelines. As these requirements become more detailed in the future in the wake of planned revisions to the Basel Pillar 3 Framework, the JFSA may wish to consider the regulatory burden imposed on small banks and assess the

Table 1. Summary of Compliance with Basel Core Principles	
Core Principle	**Comments**
	costs and benefits of imposing the more detailed requirements on those institutions.
29. Abuse of financial services	Japan has taken a number of steps to strengthen its AML/CFT capabilities. However, there remain parts of the frameworks to be put in place to align it further with this Principle. While the assessors noted that there have been some improvements, most notably in the reporting of STRs, a significant reduction in supervisory attention through onsite inspections is a shortcoming. It is recommended that the authorities remain vigilant through rigorous offsite monitoring complemented with regular verification of the effectiveness of policies and processes to control abuse of financial services.

Table 2. Recommended Actions to Improve Compliance with the Basel Core Principles and the Effectiveness of Regulatory and Supervisory Frameworks	
Reference Principle	**Recommended Action**
Principle 2	The statutory provisions governing the removal of a JFSA Commissioner from office should be strengthened. Consider whether a different funding model might make sense over the longer run.
Principle 5	The JFSA should introduce more intensive probing of ownership structures of banking groups to ascertain the ultimate beneficial owners and their capacity to provide capital to the bank in times of stress.
Principle 6	Strengthen the pre-approval process when a major shareholder obtains a majority shareholding (controlling interest) to ensure the JFSA is able to proactively assess the capacity of a majority shareholder to provide financial support to the bank in times of stress.
Principle 7	Implement a stricter pre-approval for an acquisition as provided for in the case of subsidiaries. The scope for approval of acquisitions should be expanded to include the acquisition of ancillary business and banking related business.
Principle 8	Complete finalization of the risk rating methodology as a way to support the transition to a more forward-looking and risk-based supervisory approach. Ensure the methodology has due regard to the bank's risk, size, scale and systemic importance in calibrating the rating.
Principle 10	Establish clear requirements for governance and risk management arrangements of prudent valuations for data submitted as part of regulatory reporting.
Principle 11	Recalibrate PCA triggers to allow the JFSA to intervene earlier. Consider strengthening interagency cooperation for crisis management and preparedness.
Principle 14	Further encourage involvement of non-executive directors in performing a check and balance of executive directors, especially their role on committees (e.g., remuneration, audit, nomination, and risk). For those banks expanding overseas into new markets, greater attention by the JFSA to the effectiveness of corporate governance is needed, such as through onsite and thematic reviews.

Table 2. Recommended Actions to Improve Compliance with the Basel Core Principles and the Effectiveness of Regulatory and Supervisory Frameworks	
	Establish the requirements for Internal Audit to report directly to the Board Audit Committee and follow up with necessary supervisory activities to verify new standards have been adopted. FP processes should be applied to include all key staff appointments.
Principle 15	Strengthen bank risk management requirements for the risk function that has a reporting line into the Board risk committee, via the CRO.
Principle 16	Establish a Pillar 2 capital framework to give the JFSA more influence in both bank capital planning exercises and discussions about bank risk management practices more generally.
Principle 18	Issue more guidance on collateral valuations stressing the need for prudence and provisioning practices to continue to evolve as the expected credit loss framework is implemented in accordance with international accounting standards.
Principle 19	Encourage appropriate risk management for risk concentrations that encompass both credit exposures in the banking book as well as large counterparty credit risk exposures emanating from trading activities (e.g., counterparty exposures) and other types of risks
Principle 20	Strengthen the risk management requirements for related party exposures in terms of bank's policies and processes for assessing, granting and managing these types of exposures. Enhance reporting requirements to explicitly include related party exposures reported on routine basis.
Principle 27	Strengthen relationships between bank supervisors and external auditors so that the JFSA can exercise more influence over the scope of external audits and be more promptly informed about any financial reporting vulnerabilities.
Principle 29	Increase the frequency and intensity of supervisory activities to verify the effective implementation of bank risk management to control abuse of financial crime.

G. Authorities' Response to the Assessment

59. The Japanese authorities express our sincere gratitude to the IMF mission led by Dr. Gaston R. Gelos for the efforts they have devoted to complete the assessment of compliance with "Basel Core Principles for Effective Banking Supervision" (hereafter, "the BCP"). We greatly appreciate that the assessment was conducted in a fair, thorough and professional manner throughout the process.

60. The Basel Committee on Banking Supervision published the revised BCP in September 2012, which was right after the completion of the previous Japan FSAP mission in August 2012. Since the last FSAP, the JFSA has taken various initiatives aiming at improving the quality of banking supervision and regulations in Japan, and the BoJ has taken measures to ensure financial system stability, while taking into consideration international regulatory and supervisory developments after the financial crisis as well as structural changes in the banking sector and the market. This full assessment against 29 principles of the revised 2012 BCP gave us an invaluable opportunity to review the effectiveness of such initiatives in a comprehensive and objective manner.

61. The Japanese authorities welcome the overall conclusion of the assessment that confirms a high level of compliance with the BCP recognizing significant improvements in our banking regulations and supervisory process.

62. From the late 1990's to early 2000's, the JFSA has made tremendous efforts to rebuild the public confidence in the Japanese financial system; this was done by such supervisory tools as rigorous onsite inspections for reviewing banks' asset qualities, and rigid administrative actions against violations of laws and regulations. While such *ex-post* supervisory approaches had worked well in addressing non-performing loan problems and in ensuring the minimum level of compliance at that time, it is no longer possible and desirable to keep placing a sole reliance on such traditional supervisory models amid the evolution in the financial and economic environment over time. It is important that banks continuously improve their management in order to stably fulfill their financial intermediary functions towards the future in rapidly changing conditions of financial markets and the real economy. The JFSA will continue to develop regulatory and supervisory frameworks that effectively support these efforts by banks.

63. In addition, the BoJ have continuously strived to reinforce its measures to ensure financial system stability, by analyzing and assessing the risk in the financial system as a whole and presenting the challenges in the FSR; conducting its onsite examinations and offsite monitoring while utilizing the analysis and assessments; and incorporating the findings obtained from its onsite examinations and offsite monitoring to the next FSR. The Japanese financial institutions face challenges, including strengthening the ability to respond to risks in areas where they are stepping up their risk taking, and responding to declining core profitability due to decreasing population. The BoJ will contribute further to ensuring financial system stability with effective use of its function as a central bank such as onsite examinations and offsite monitoring.

64. As we continue to achieve such developments, this BCP assessment by the IMF will clearly assist our efforts in this direction and shed light on the remaining issues that we should continue to address.

65. The Japanese authorities would like to take this opportunity to respond to some important findings that were identified through this BCP assessment as follows:

66. The IMF concluded to maintain MNC grade for Principle 16 regarding the capital adequacy framework, likewise previous BCP assessments for Japan FSAP in 2005 and 2012. We are of the view that this recommendation does not pose any questions in the power of the JFSA to ensure banks' compliance with the Pillar 1 minimum capital requirement. Rather, this is to recommend that the capital adequacy framework should enable the JFSA to exert more influence and act more proactively on banks with regard to their capital planning and risk management practices at an earlier stage before reaching the minimum level. We share the same view with the IMF on the importance of encouraging banks to improve their business management including capital planning with a forward-looking perspective. Therefore, we are currently reviewing our supervisory approach taking into account "risks outside Pillar 1," "appropriate balance of risks, return and capital," and "sustainability of a bank's business model," so that we would be able to have more effective and constructive dialogues with banks taking into consideration their size and business/risk features.

67. Additionally, we would like to draw your attention to the fact that after the completion of the previous FSAP in 2012, we have introduced the capital buffer framework above the minimum level of capital in line with the Basel standard for internationally active banks. We have also revised the definition of capital (Core Capital) for domestic banks, which has now become more conservative and broadly equivalent to the international definition of Common Equity Tier1 (CET1), with a view to improving the quality of capital for domestic banks. With these developments, we believe that Japanese capital adequacy standards have been strengthened since the previous FSAP.

68. As to Principle 20 regarding transactions with related parties, the JFSA is aimed at strengthening its onsite and offsite monitoring process in a more integrated manner, and thereby would pursue further effective approaches in this area.

69. Japanese authorities appreciate that the IMF has assessed our compliance with the newly introduced Principle 14 on corporate governance in the revised BCP, based on its substance rather than form. Initiatives to improve corporate governance standards are in progress in Japan, represented by the creation of the Corporate Governance Code and subsequent efforts by banks such as enhanced use of independent non-executive directors, and adoption of the corporate structure with a nominating committee by large banks. We are fully aware that this positive assessment is based on the assumption that these initiatives will keep evolving. Authorities are committed to making further efforts to establish a more robust corporate governance in Japan, by reviewing, for example, whether the board of directors exercise independent and effective oversight

of management at small and medium-sized banks under the "Company with auditor" structure, or how independent directors actually contribute to activating meetings of the board of directors at banks adopting the structure of "Company with nominating committee, etc."

70. Finally, Japanese authorities fully support the important role of the FSAP to enhance the soundness of the global financial system and develop bank supervisory practices. We expect to continue constructive dialogues with the IMF and other supervisory authorities in accordance with this objective.