Financial System Report

Summary

April 2017

Bank of Japan

April 2017: Comprehensive assessment and highlights

Financial intermediation

- Signs of overheating in a large part of financial and economic activities have not been observed on the whole, although the funding environment for the non-financial private sector has been highly accommodative.
- Nevertheless, amid the continued low interest rate environment, banks have adopted the most accommodative lending stance since the bubble period. With regard to the real estate market, it is necessary to carefully examine whether there will be an excessive decline in risk premiums, etc.

Stability of the financial system

- Japan's financial system has been maintaining stability.
- Financial institutions' capital adequacy ratios are sufficiently above regulatory requirements, and their capital levels are generally adequate relative to the amount of risk undertaken. Results of macro stress testing suggest that financial institutions as a whole have generally strong resilience against stresses. However, further enhancement of risk management is warranted, as profits and capital after applying stresses vary from one financial institution to another.
- In terms of liquidity, financial institutions have sufficient yen funds. As for foreign currencies, they have a liquidity buffer that can cover funding shortages, even if market funding conditions become difficult for a certain period. Nevertheless, bolstering stable foreign currency funding bases remains important.

Potential vulnerabilities due to the decline in financial institutions' profitability

- At present, financial institutions have sufficient capital bases, which will allow them to continue risk taking even if profitability remains subject to downward pressure for the time being.
- However, when focusing on the structural aspects of the financial system, financial intermediation services provided by Japanese financial institutions are relatively homogeneous and easily substituted by one another, and there are a large number of competing financial institutions. Competition among them is therefore considered prone to intensify, when demand declines due to factors including population decrease. Excessive competition among financial institutions can reduce their profitability, thereby undermining their business stability.
- Regarding potential vulnerabilities due to the declining profitability of financial institutions, it is necessary to examine both the risk of overheating -- excessive accumulation of macro risks and exuberant asset prices, reflecting financial institutions' shifts toward excessive risk taking to maintain profitability -- and the risk of a gradual pullback in financial intermediation due to a persistent decline in profits.

Challenges for financial institutions and actions by the Bank of Japan

- Challenges for financial institutions are (1) to develop and implement business strategies that utilize their core competence by formulating business plans toward raising their profitability; (2) to strengthen their ability to respond to risks in areas where they are proactively stepping up their risk taking; and (3), for large financial institutions, to respond to their increasing systemic importance.
- The Bank of Japan will make efforts toward ensuring the stability of the financial system, while providing support to financial institutions in their efforts to meet their challenges.

Contents

1. Examination of financial intermediation

1.1. Loans by financial institutions: domestic loans

- Financial institutions' lending stances have remained accommodative, and their domestic loans outstanding have been increasing at a year-on-year growth rate of around 3 percent.
- Financial institutions' loans to firms, individuals, and local governments have all continued to grow. Among them, real estate loans have been growing at an even faster pace.
- Financial institutions' average contracted interest rates on new loans and discounts are hovering around historically low levels.

Chart III-1-1: Domestic loans outstanding among financial institutions

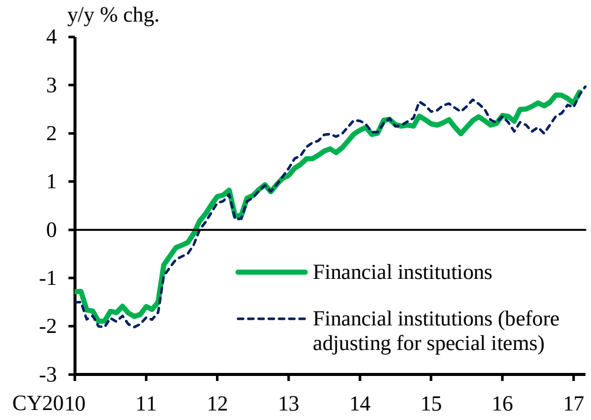


Chart III-1-4: Loans outstanding among financial institutions by type of borrower

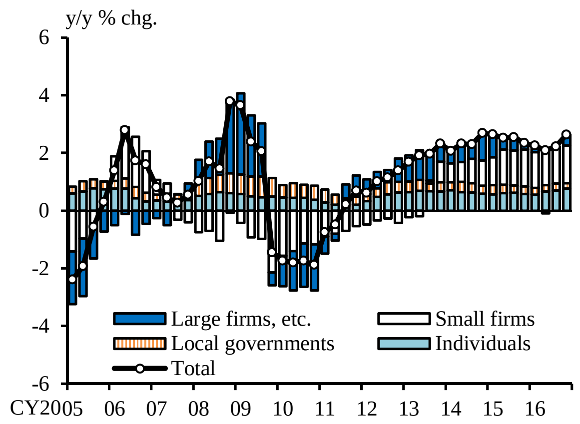


Chart III-1-11: Real estate loans among financial institutions

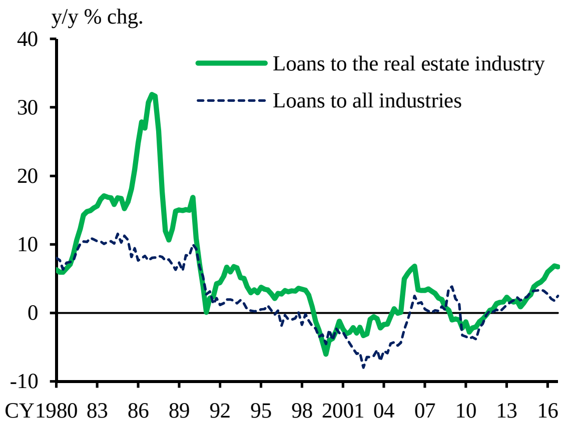
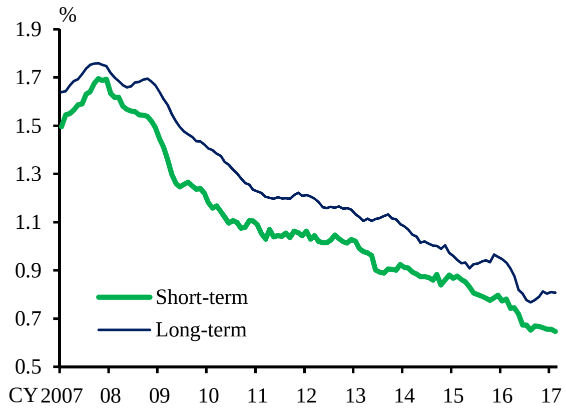


Chart III-1-14: Average contract interest rates on new loans and discounts among domestically licensed banks



1.1. Loans by financial institutions: overseas loans

- Banks' overseas loans, particularly to North America, have continued to show relatively high growth. In U.S. dollar terms, loans extended by major banks and regional banks have both increased by approximately 10 percent on a year-on-year basis.
- While maintaining a proactive stance with regard to overseas business on the whole, banks have recently taken a cautious stance in their initial assessment of loans in terms of their profitability and borrowers' creditworthiness and have been strengthening efforts to focus on non-interest income.

Chart III-1-24: Fee and commission income in the international business sector among major banks

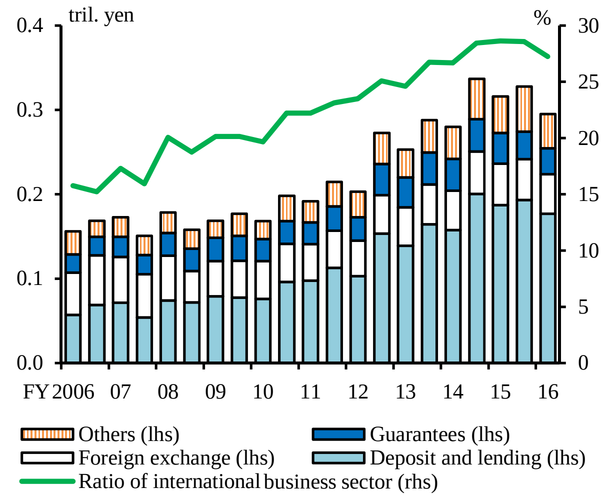


Chart III-1-20: Banks' foreign currency-denominated loans and loans by overseas branches

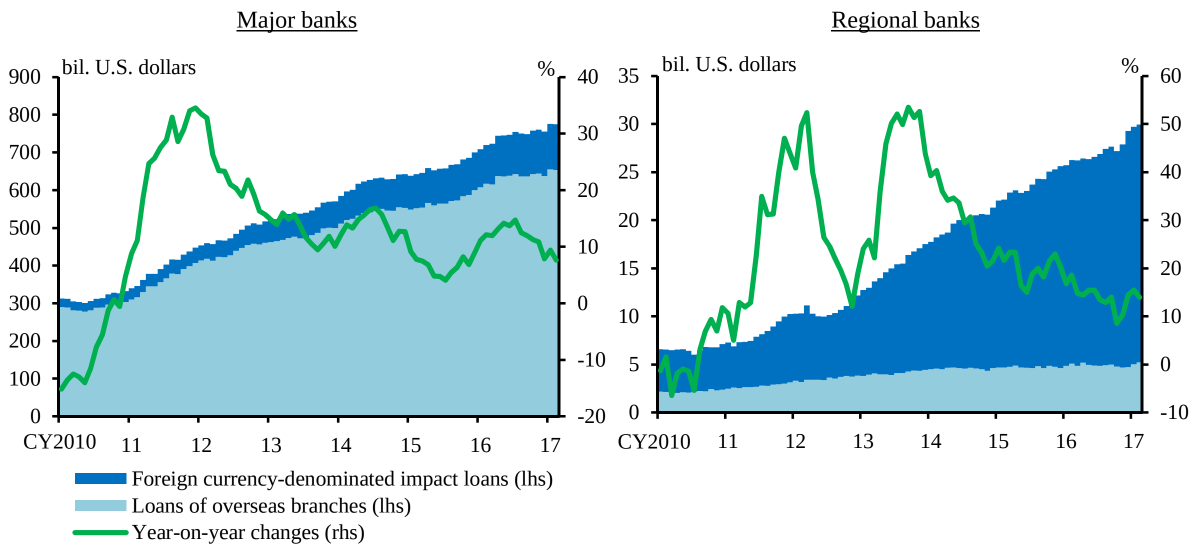
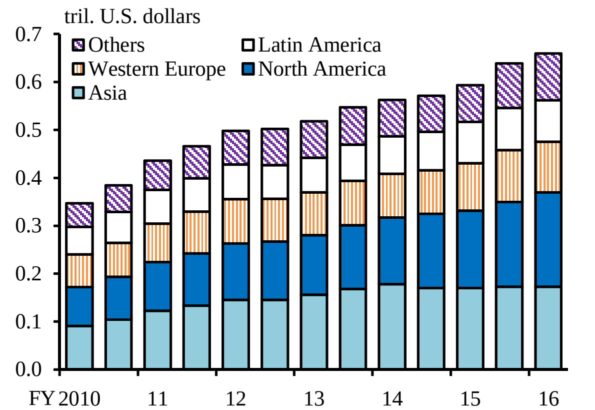


Chart III-1-21: Overseas loans outstanding of the three major banks by region



Sources: Published accounts of each bank.

1.2. Securities investment by financial institutions

- The amount outstanding of financial institutions' yen-denominated bond investment has been on a declining trend.
- Meanwhile, investment in foreign bonds has recently decreased, although it had continued to follow an increasing trend. Financial institutions have generally maintained their stance of increasing their risk taking in securities investment, as seen in the continued growth in the amount outstanding of financial institutions' investment trusts.

Chart III-1-25: Outstanding amount of yen-denominated bonds among financial institutions

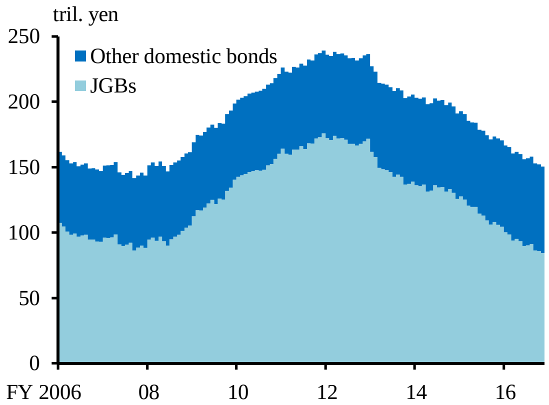


Chart III-1-26: Outstanding amount of foreign bonds among financial institutions

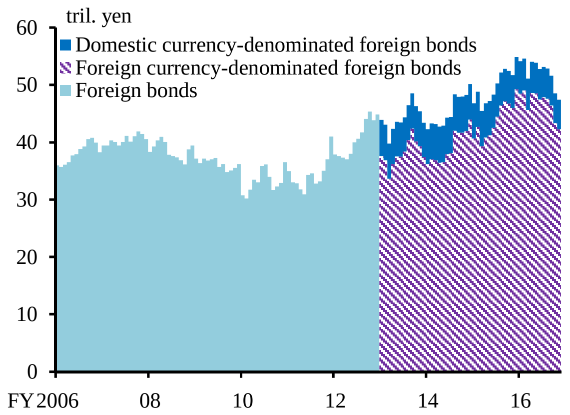
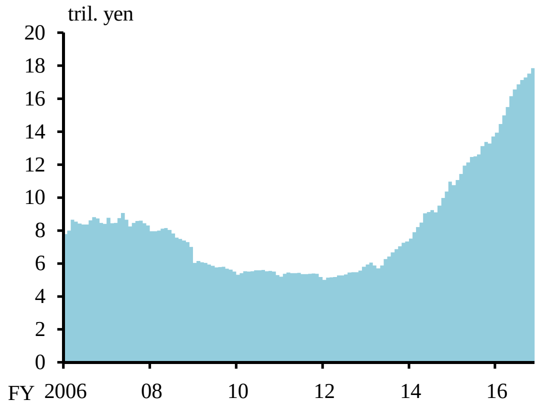


Chart III-1-27: Outstanding amount of investment trusts, etc. among financial institutions



1.3. Developments in investment by institutional investors

- Institutional investors, such as life insurance companies, and depository institutions with a focus on market investment, such as Japan Post Bank and central organizations of financial cooperatives, have continued to accumulate risky assets, in particular foreign bonds.

Chart III-2-5: Outstanding amount of yen-denominated bonds and foreign bonds of Japan Post Bank and central organizations of financial cooperatives

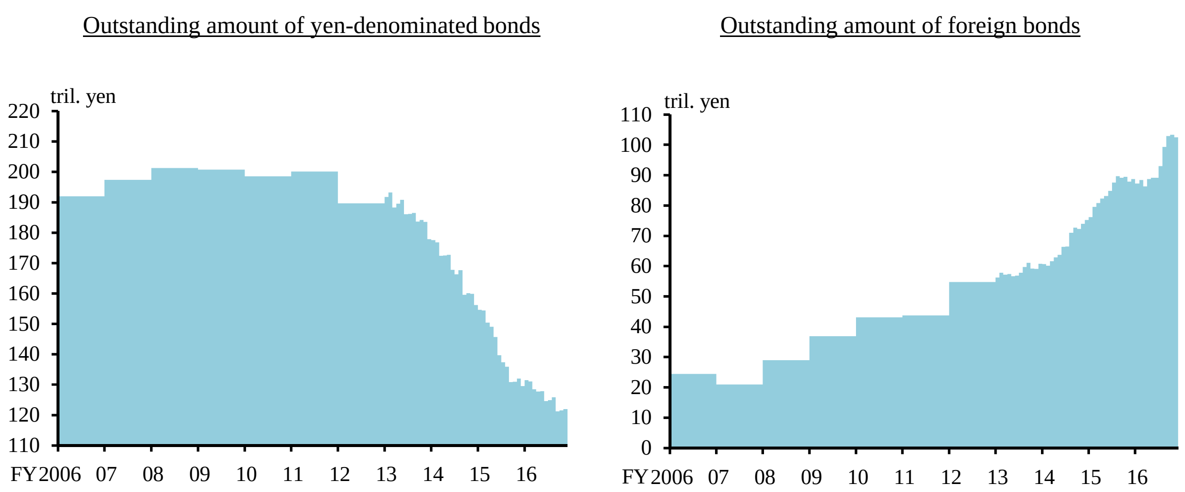
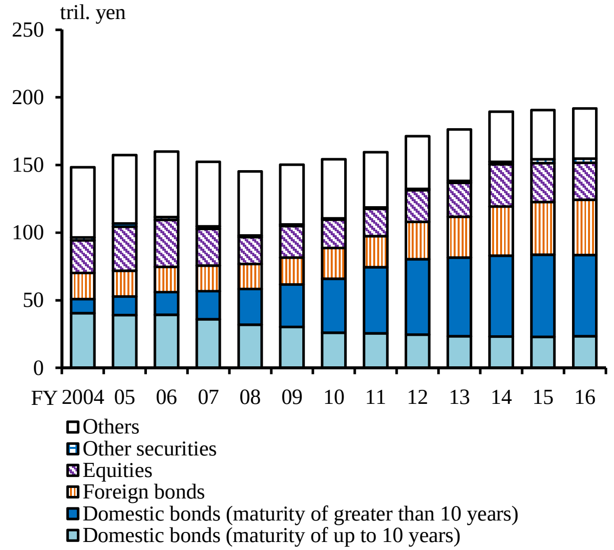
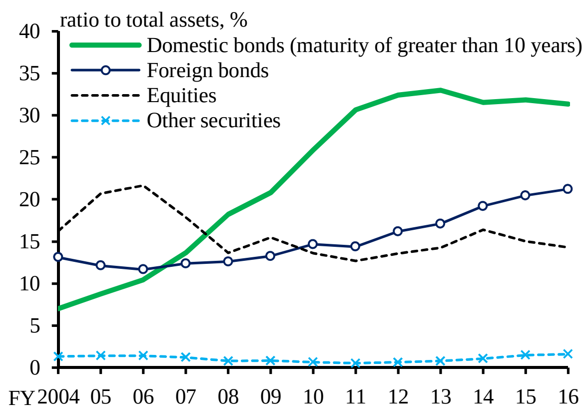


Chart III-2-1: Investment assets outstanding among life insurance companies



Sources: Published accounts of each company.

Chart III-2-2: Investment asset portfolios among life insurance companies

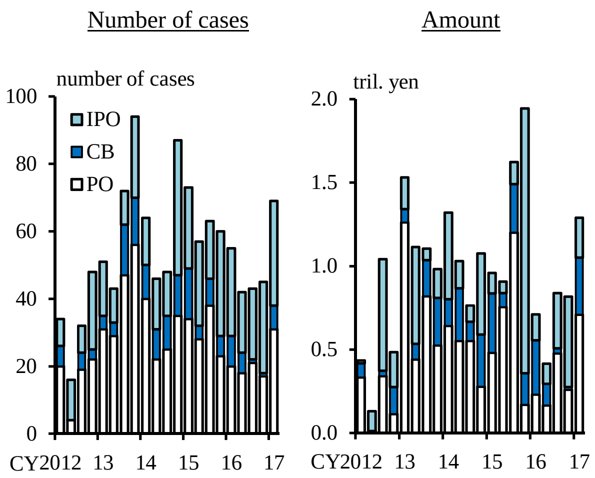


Sources: Published accounts of each company.

1.4. Financial intermediation through financial markets

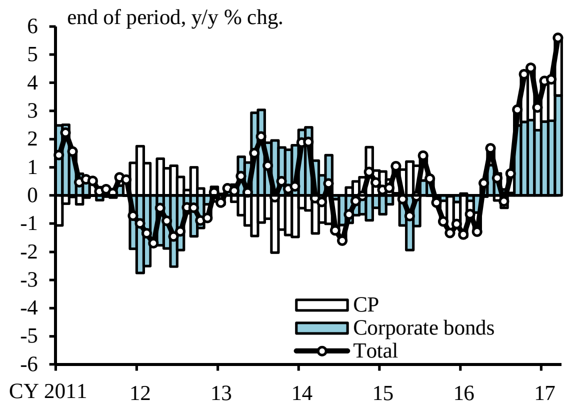
- In terms of equity financing through the stock market, transactions have remained lackluster amid a growing awareness among firms with regard to capital efficiency.
- On the other hand, firms' funding has increased as the issuance rate hovered at extremely low levels in the CP and corporate bond market.

Chart III-4-1: Equity financing



Source: I-N Information Systems.

Chart III-4-3: Outstanding amount of CP and corporate bonds

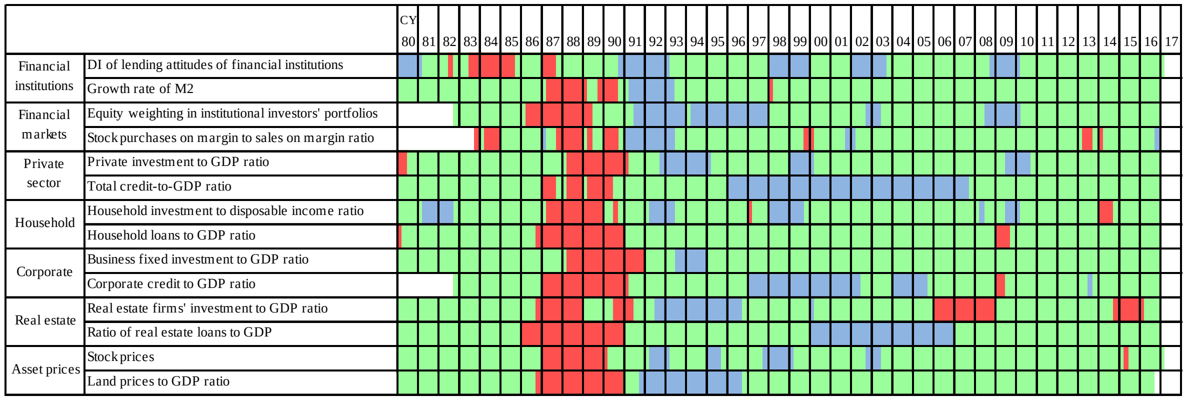


Sources: I-N Information Systems; JASDEC.

1.5. Examination of signs of overheating – Financial Activity Indexes –

- ➢ Signs of overheating in a large part of financial and economic activities have not been observed on the whole, although the funding environment for the non-financial private sector has been highly accommodative.
- ➢ Looking at Financial Activity Indexes, at present, none of the indicators are "red," which would signal overheating. However, the "real estate firms' investment to GDP ratio" and the "DI of lending attitudes of financial institutions," while remaining "green," are approaching "red," so that careful monitoring is required.

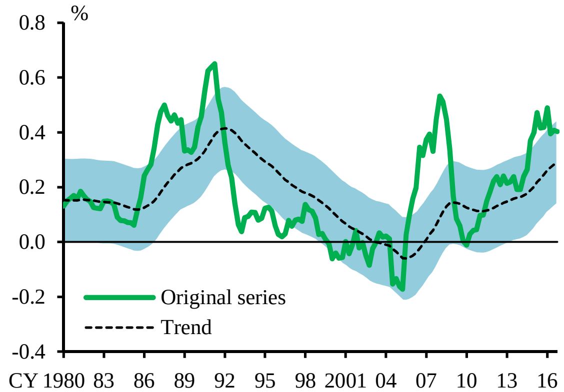
Chart III-5-1: Financial Activity Indexes



Sources: Bloomberg; Cabinet Office, "National accounts"; Japan Real Estate Institute, "Urban land price index"; Ministry of Finance, "Financial statements statistics of corporations by industry"; Tokyo Stock Exchange, "Outstanding margin trading, etc."; BOJ, "Flow of funds accounts," "Loans and bills discounted by sector," "Money stock," "*Tankan*."

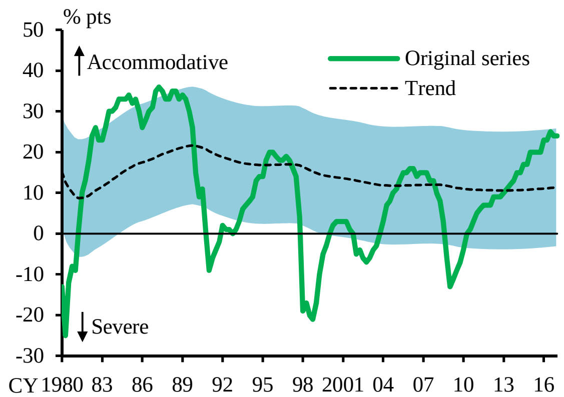
Note: Shaded areas in the chart above represent the following: (1) areas shaded in red show that an indicator has risen above the upper threshold, that is, it is overheating; (2) areas shaded in blue show that an indicator has declined below the lower threshold, that is, it is contracting excessively; and (3) areas shaded in green show a limited tendency toward either extreme.

Chart III-5-3: Real estate firms' investment to GDP ratio



Sources: Cabinet Office, "National accounts"; Ministry of Finance, "Financial statements statistics of corporations by industry."

Chart III-5-4: DI of lending attitudes of financial institutions



2. Stability of the financial system

2.1. Financial institutions' credit risk and market risk associated with stockholdings

- Looking at financial institutions' risks by risk category, the amount of credit risk has continued to follow a downward trend due to the improvement in the quality of their assets.
- The amount of market risk associated with stockholdings has continued to be on an upward trend for the past few years, mainly against the backdrop of the accumulation of stock investment trusts, but has recently decreased somewhat due to the decline in market volatility.

Chart IV-1-1: Credit risk among financial institutions

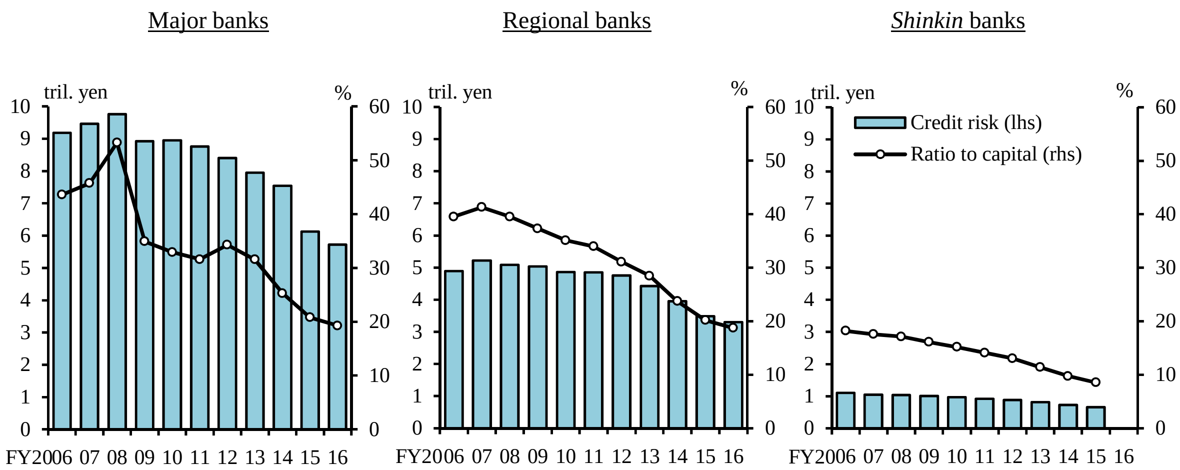
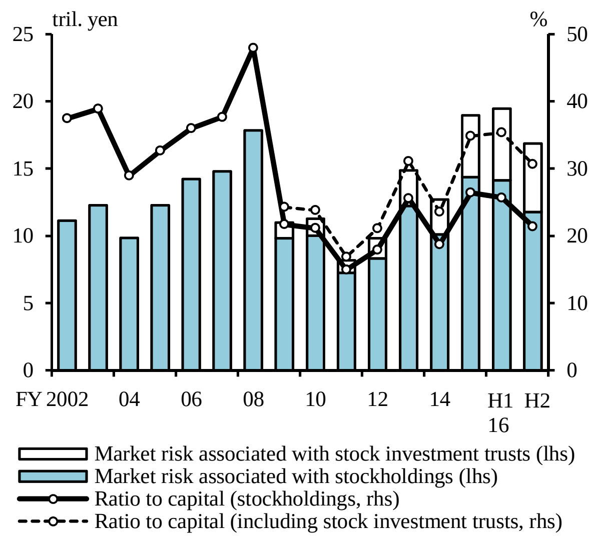


Chart IV-2-9: Market risk associated with stockholdings among financial institutions



2.2. Financial institutions' interest rate risk

- ➢ The amount of interest rate risk associated with yen-denominated bond investments remains at a high level from a historical perspective.
- ➢ The amount of interest rate risk associated with foreign currency-denominated bond investments has decreased recently.

Chart IV-2-3: Interest rate risk associated with yen-denominated bondholdings by type of bank

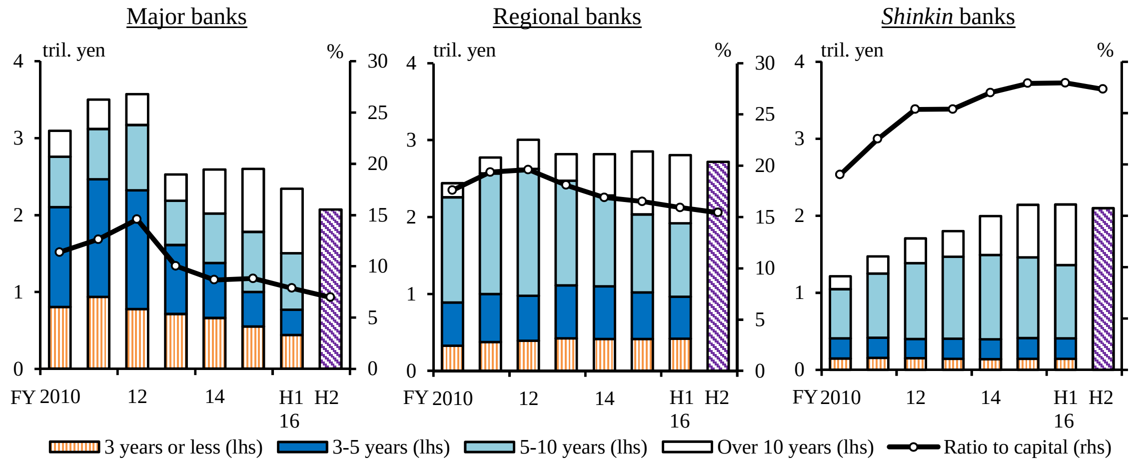


Chart IV-2-7: Interest rate risk of foreign currency-denominated bonds among banks

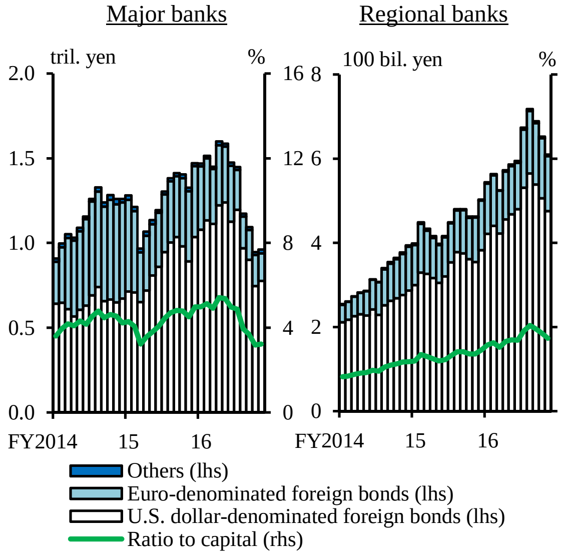
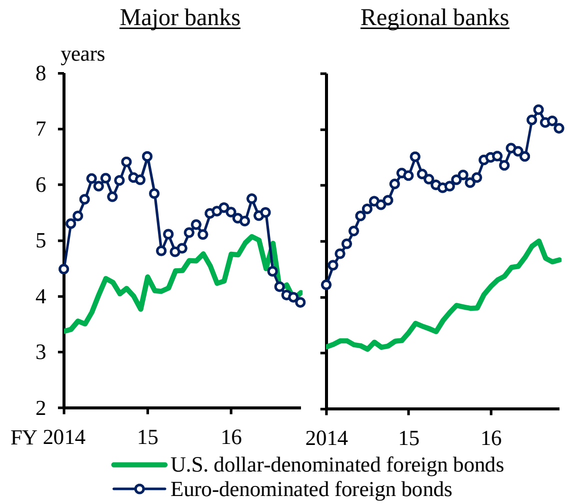


Chart IV-2-8: Average remaining maturity of foreign currency-denominated bonds among banks



2.3. Capital base against risks undertaken by financial institutions

- Financial institutions' capital adequacy ratios are sufficiently above regulatory requirements.
- Financial institutions' capital levels are generally adequate relative to the amount of risk they undertake. It can be judged that financial institutions currently have sufficient capacity to absorb losses and ability to take on risks.

Chart IV-4-1: Capital adequacy ratios

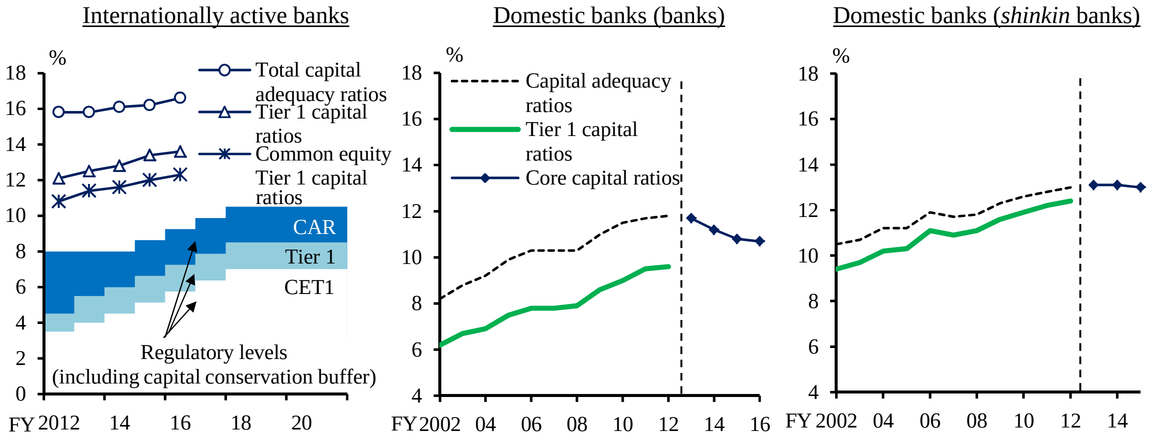
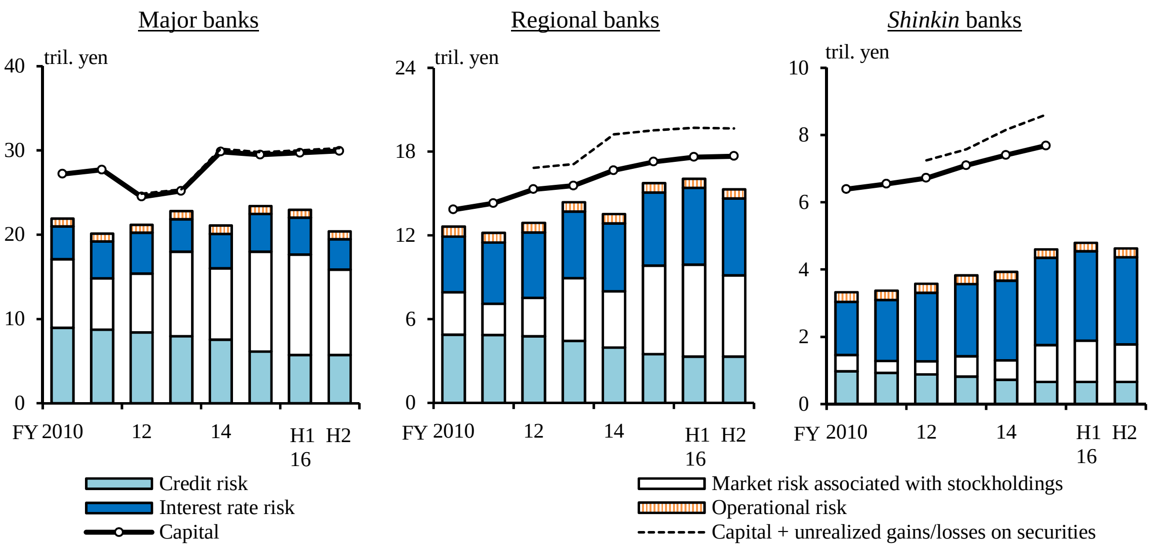


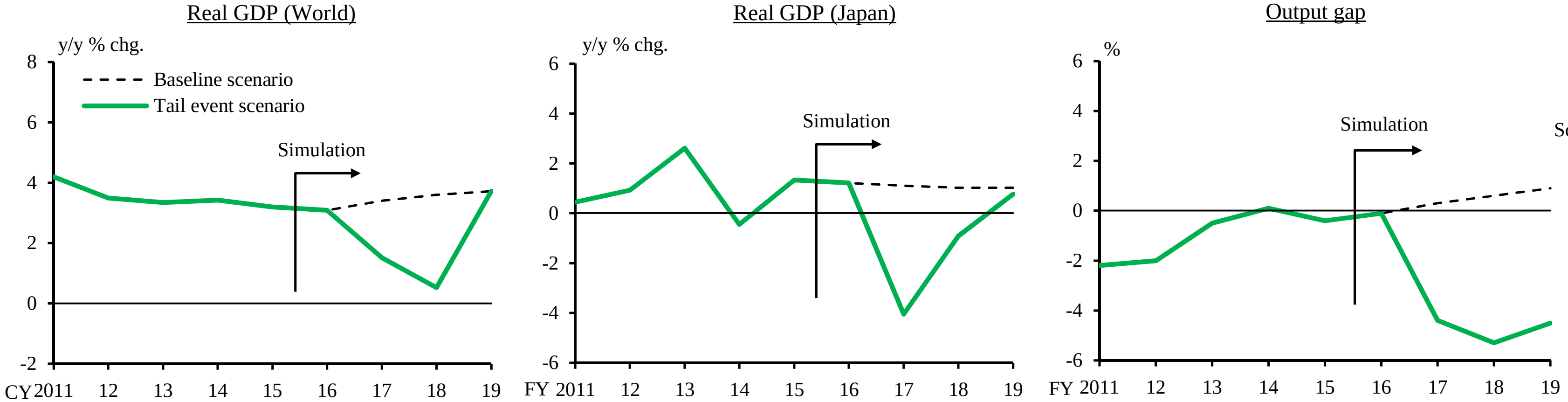
Chart IV-4-2: Risks borne by financial institutions and amount of capital



2.4. Macro stress testing: tail event scenario (1)

- Envisages a situation whereby economic and financial developments at home and abroad deteriorate to a level comparable to that seen during the Lehman shock.
- Given the growth rate of loans outstanding falls mainly reflecting subdued demand for funds due to an economic downturn, net interest income decreases substantially at internationally active banks, mainly due to the significant decline in overseas loans, and net interest income also decreases moderately at domestic banks, where overseas loans account for a smaller proportion of total loans.
- Credit cost ratios at internationally active banks increase to levels around their break-even points, while credit cost ratios at domestic banks rise to levels well above their break-even points.

Overseas economies and the domestic economy



Sources: Cabinet Office, "National accounts"; IMF, "World economic outlook"; Japan Center for Economic Research, "ESP forecasts"; BOJ.

Chart V-1-1: Loans outstanding

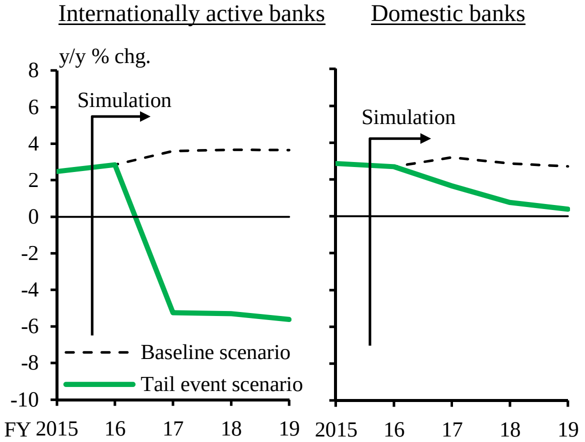


Chart V-1-2: Net interest income

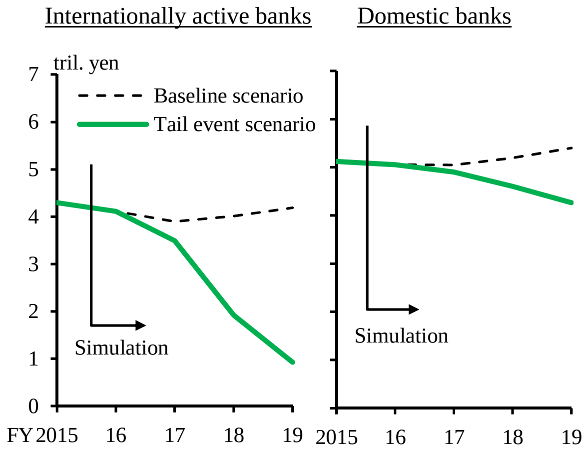
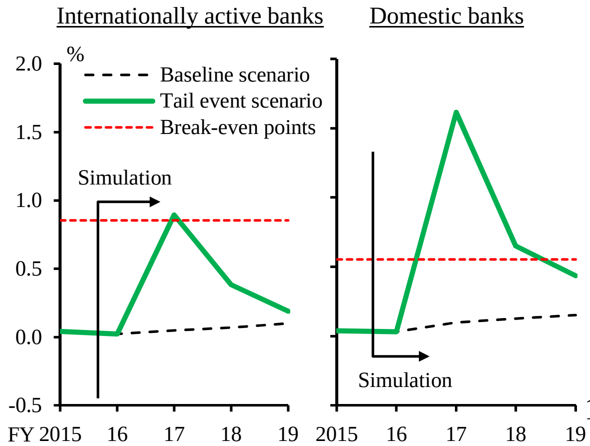


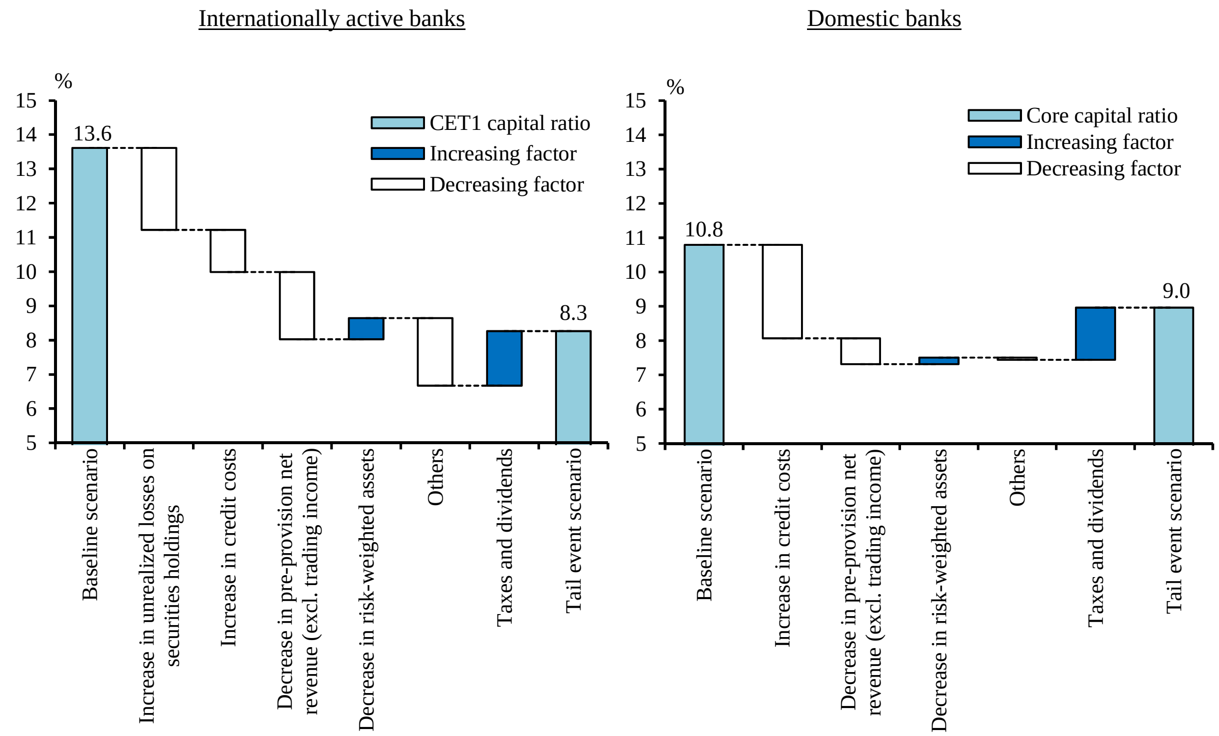
Chart V-1-3: Credit cost ratio



2.4. Macro stress testing: tail event scenario (2)

- Based on the tail event scenario, at internationally active banks, the CET1 capital ratio falls by around 5 percentage points compared to the baseline scenario, due to a decrease in pre-provision net revenue (excluding trading income) and an increase in unrealized losses on securities holdings. However, on average, the ratio still remains above regulatory requirements.
- The core capital ratio for domestic banks declines by around 2 percentage points, mainly due to an increase in credit costs, but remains well above regulatory requirements on average.
- The financial system is considered to have generally strong resilience.

Chart V-1-5: Decompositions of the CET1 capital ratio and the core capital ratio



2.5. Funding liquidity risk: yen and foreign currencies

- Financial institutions have sufficient yen funding liquidity.
- As for foreign currencies, they have a liquidity buffer that can cover funding shortages, even if market funding conditions become difficult for a certain period. They have also continued to make progress in bolstering funding bases.
- Due to the money market fund (MMF) reform in the United States in October 2016, the amount of CD and CP issuance by global banks has decreased substantially. However, major Japanese banks have been responding to the rise in loan demand by increasing other funding means, such as client-related deposits and corporate bonds.
- As market funding accounts for a large share of foreign currency funding, it is important to continue with their efforts to shore up the stability of their foreign currency funding sources.

Chart IV-3-1: Resilience to yen liquidity stress among major banks

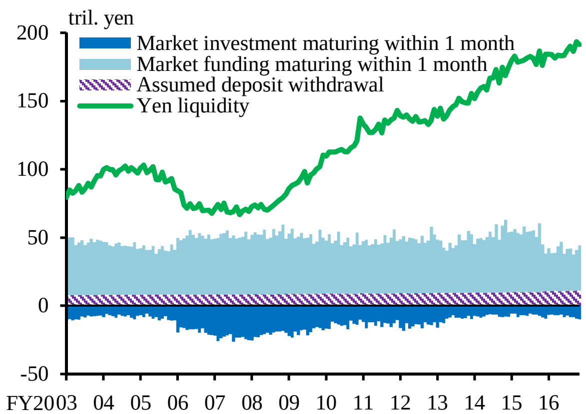


Chart IV-3-3: Stability gap among major banks

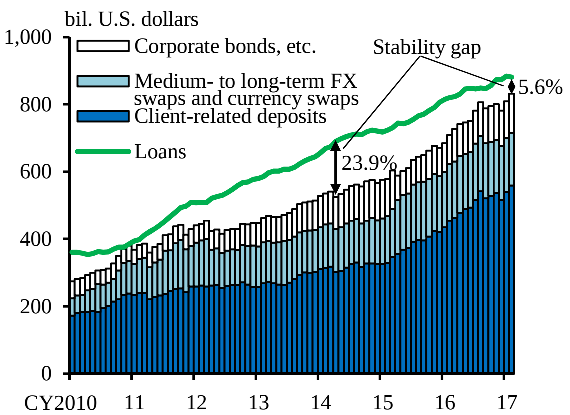


Chart IV-3-6: Resilience to foreign currency liquidity stress among banks

Major banks

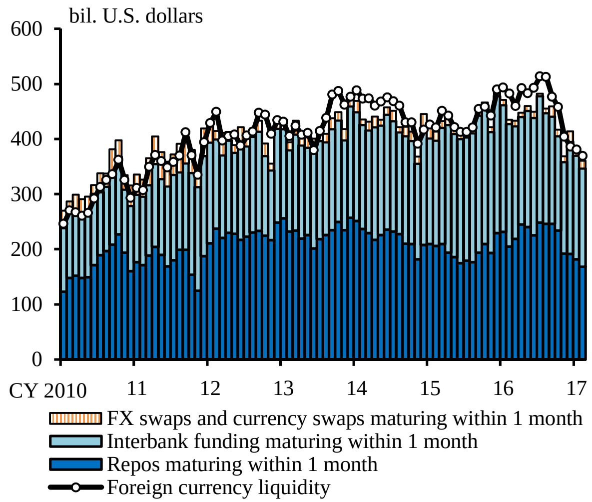


Chart IV-3-2: Major banks' foreign currency-denominated balance sheet

bil. U.S. dollars

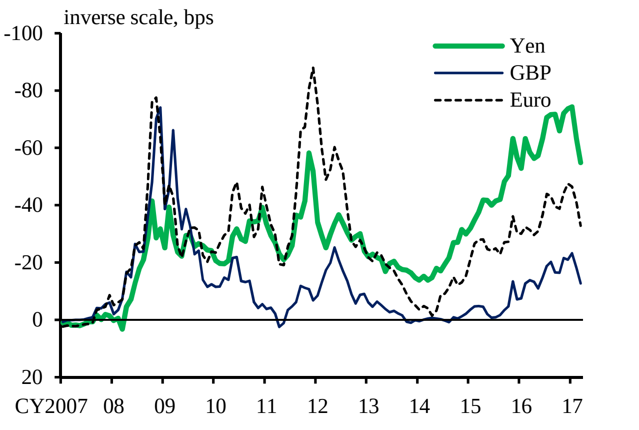
Assets		Liabilities	
Loans	881 (+33)	Client-related deposits	559 (+66)
		Corporate bonds, etc.	116 (+23)
Interbank investments	289 (+47)	Medium- to long-term FX and currency swaps	156 (-8)
		Short-term FX and currency swaps	67 (+6)
Securities	308 (-75)	Repos	189 (-50)
		Interbank funding	450 (-5)
Others	79 (+10)	of which: CD, CP	230 (-30)
		Others	22 (-16)
Total	1,557 (+16)	Total	1,560 (+15)

Note: Data as at end-February 2017. Figures in parentheses indicate the change from end-June 2016 to end-February 2017.

2.5. Funding liquidity risk: U.S. dollar funding environment

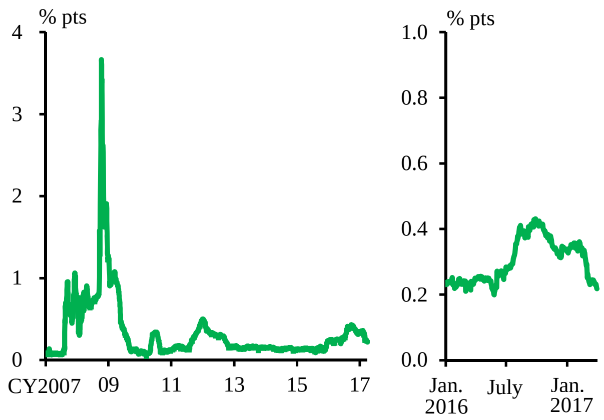
- With regard to the U.S. dollar funding environment among Japanese financial institutions, funding costs have remained high on the whole, although dollar funding premiums have declined somewhat as dollar funding demand decreased due to a temporary restraint on foreign bond investment.
- Given the difference in growth rates and yields between the Japanese and overseas economies, the appetite of Japanese financial institutions and institutional investors to invest in overseas assets is bound to remain strong. It is therefore likely that dollar funding premiums through FX and currency swaps will continue to be under upward pressure.
- In the FX swap markets, while U.S. and European financial institutions have refrained from engaging in arbitrage trading due in part to the effects of financial regulations, non-banks -- such as sovereign wealth funds (SWFs) and emerging markets' foreign reserve managers -- have relatively increased their presence as suppliers of U.S. dollars. It is necessary to continue to pay close attention to the risk that the slowdown in emerging market economies and the decline in commodity prices could induce these entities to take a cautious stance toward supplying U.S. dollars, thereby leading to a rise in U.S. dollar funding costs.

Chart II-1-9: U.S. dollar funding premiums (1-year)



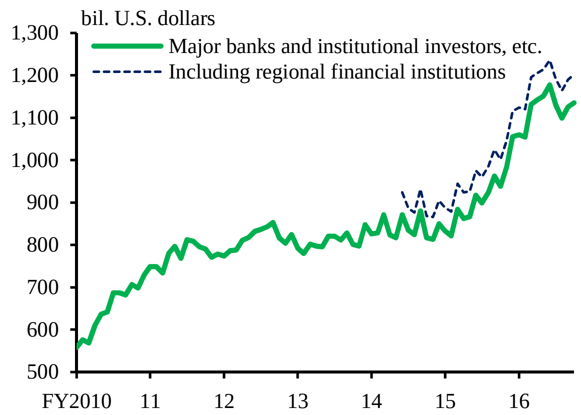
Source: Bloomberg.

Chart II-1-10: LIBOR-OIS spreads (U.S. dollar, 3-month)



Source: Bloomberg.

Chart IV-3-8: Amount of foreign currency funding via FX swaps and currency swaps by Japanese financial entities



Sources: Bloomberg; The Life Insurance Association of Japan; Published accounts of each company.

3. Potential vulnerabilities of the financial system

3.1. Background of increasingly accommodative lending stance by financial institutions and its impact

- The "Diffusion index (DI) of lending attitudes of financial institutions" has continued to widen toward the perception of "accommodative" lending attitudes as a trend, and has reached the highest level since the previous bubble period.
- Fiercer competition among banks can lead to an increasingly proactive lending stance.
- If this competition among banks becomes excessive, it can lead to excessive risk taking, such as in the form of an easing of loan standards or increase in loan amounts, or can result in a further deterioration in profitability on loans, thereby undermining their business stability.

Chart III-5-4: DI of lending attitudes of financial institutions

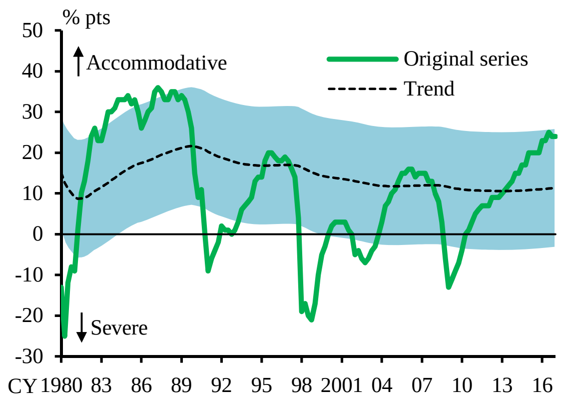


Chart III-5-5: Factors behind easing credit standards for loans to small firms

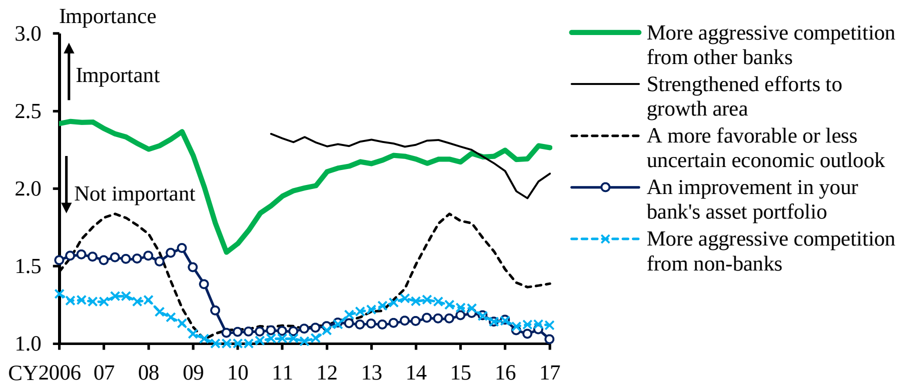
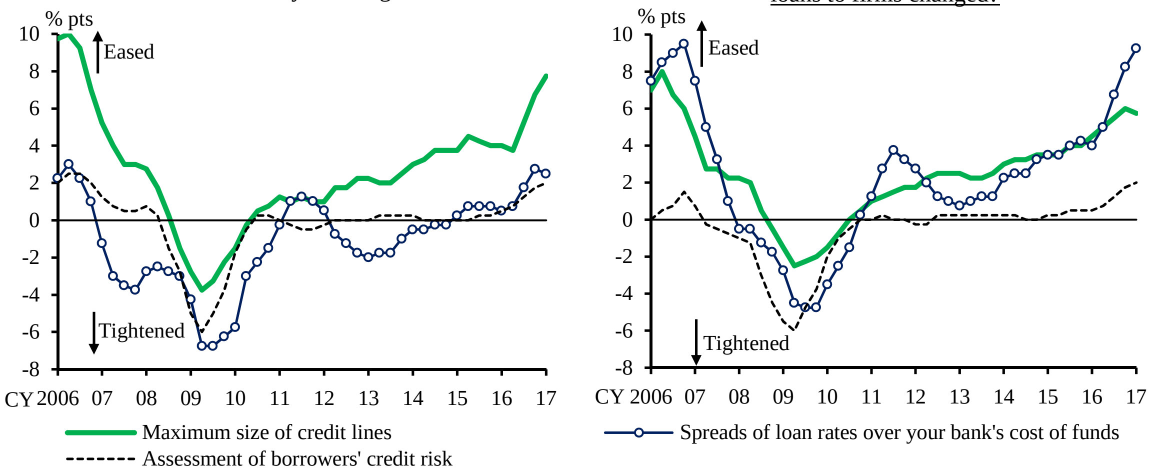


Chart III-5-6: DI for terms and conditions of loans (small firms)

How are the terms and conditions of loans to firms likely to change?

How have the terms and conditions of loans to firms changed?



3.1. Background of increasingly accommodative lending stance by financial institutions and its impact: financial institutions' lending attitudes by firm size

- Firms' DI of business conditions and firms' DI of the lending attitudes of financial institutions reveal a positive correlation in the long run.
- Using microdata from the *Tankan*, we classify firms in terms of their business conditions. The results indicate (1) financial institutions' lending attitudes differ depending on firms' business conditions, (2) while the lending attitude toward firms with favorable business conditions does not differ substantially depending on firm size, the lending attitude toward firms with unfavorable business conditions is more severe for small firms than for large firms, and (3), at times of financial stress, the extent to which lending attitude toward small firms deteriorates is smaller than that for large firms.

Chart B2-1: DI of lending attitudes of financial institutions and DI of business conditions

Large enterprises | Small enterprises

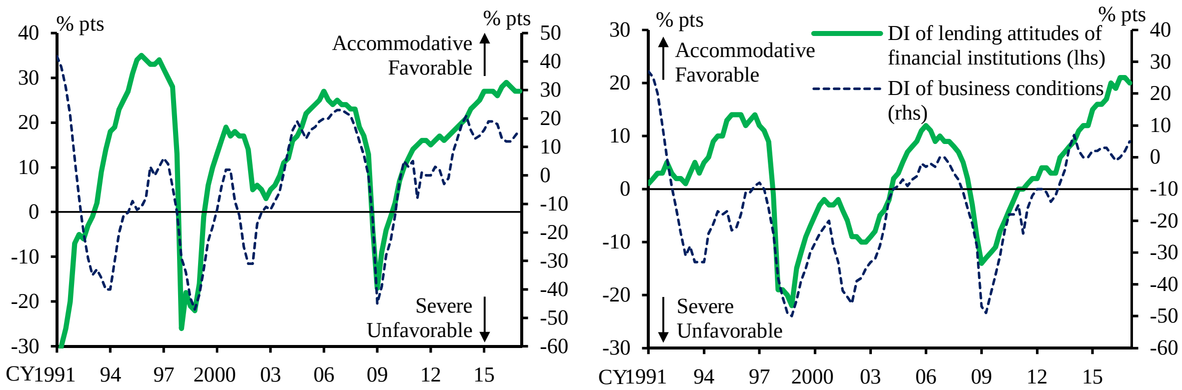
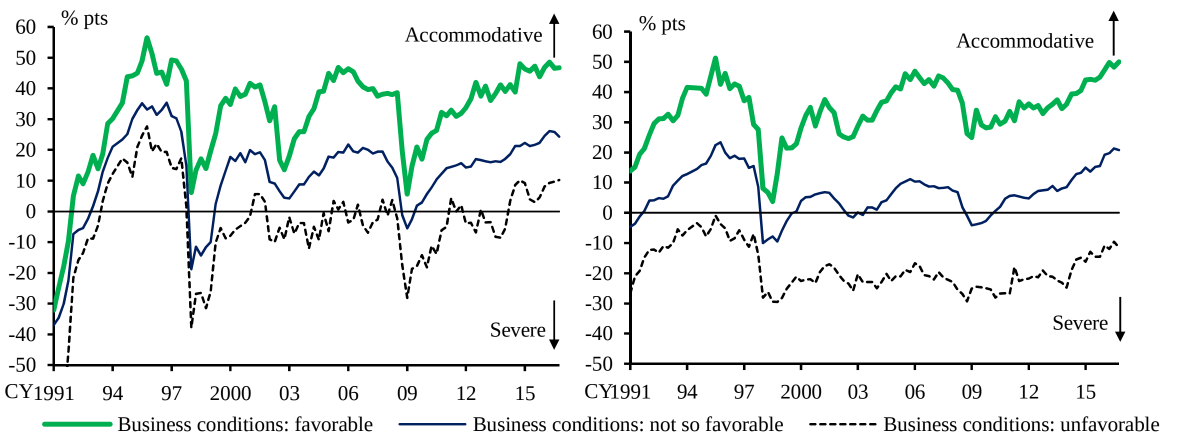


Chart B2-2: DI of lending attitudes of financial institutions by business condition

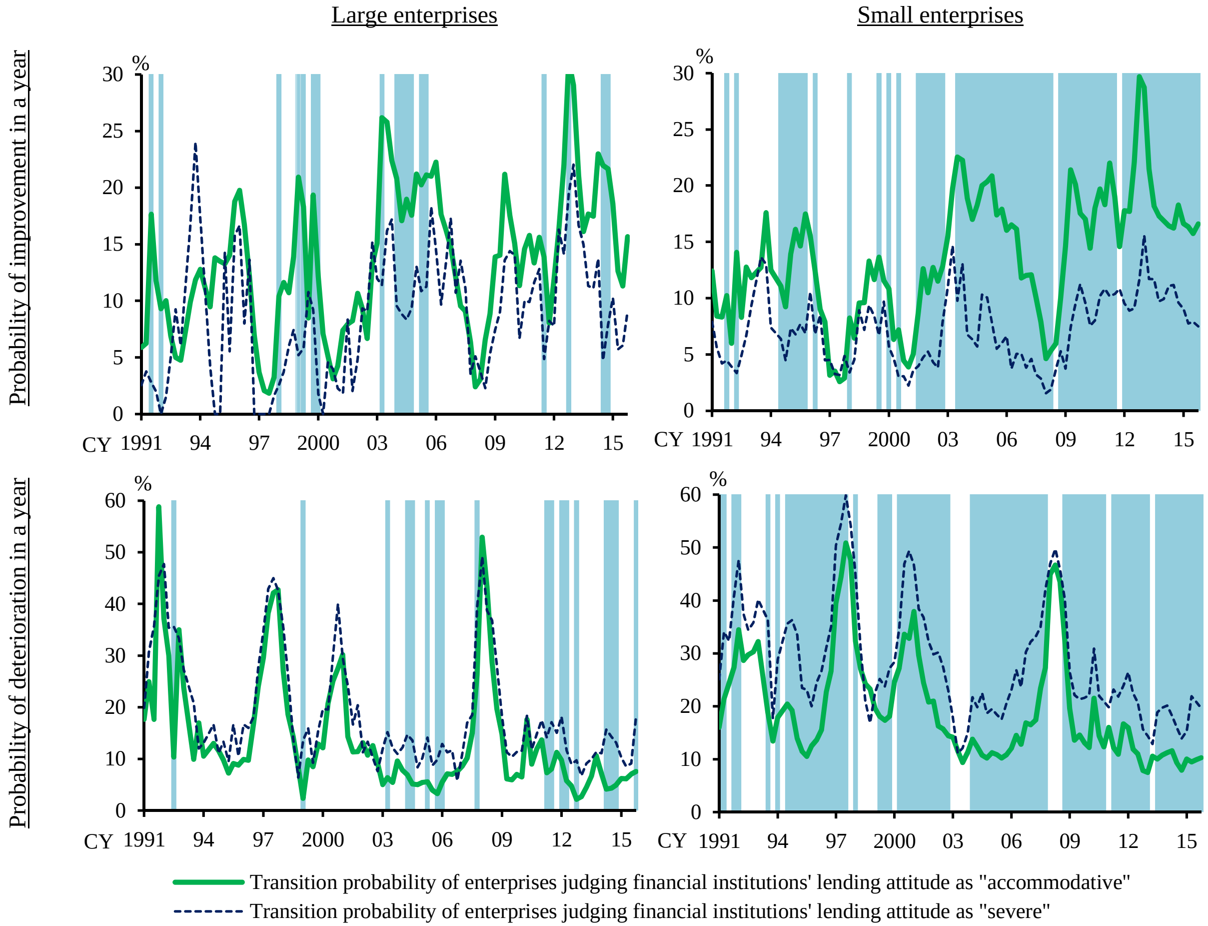
Large enterprises | Small enterprises



3.1. Background of increasingly accommodative lending stance by financial institutions and its impact: business conditions' transition probabilities

- Focusing on firms whose current business conditions are "not so favorable," we examine whether the transition probabilities with regard to firms' business conditions a year later differs significantly depending on whether financial institutions' lending attitude is "accommodative" or "severe."
- The results indicate that the probability that firms' business conditions will improve a year later tends to be higher, and the probability that they will deteriorate tends to be lower, when financial institutions' lending attitude in the current period is "accommodative" than when it is "severe". This tendency is more statistically significant for small firms.
- The shift of financial institutions toward more accommodative lending attitude can be expected to support the business sentiment of firms, small firms in particular, going forward.

Chart B2-3: Business conditions' transition probabilities



Note: Shaded areas indicate periods in which probabilities of improvement (deterioration) for enterprises judging financial institutions' lending attitude as "accommodative" are significantly higher (lower) than probabilities for those who choose "severe."

3.2. Background of intensified competition among regional financial institutions and its impact

- The markups (= Price – Marginal Cost) have been declining over the long term, confirming that competition among regional financial institutions is intensifying.
- In both metropolitan and provincial areas, population decline and the increase in the number of competing branches, as well as the tightening of term spreads, contributed to pushing down markups. Since population decline is expected to continue, the competitive environment that financial institutions will face could be even fiercer if there is no change in the number of competing financial institutions.
- Looking at the distribution of regional financial institutions' markups, the median has declined and the variance has been shrinking, suggesting that the services provided by financial institutions are becoming more homogeneous.

Chart B3-1: Markup (P-MC) and its distribution among regional financial institutions

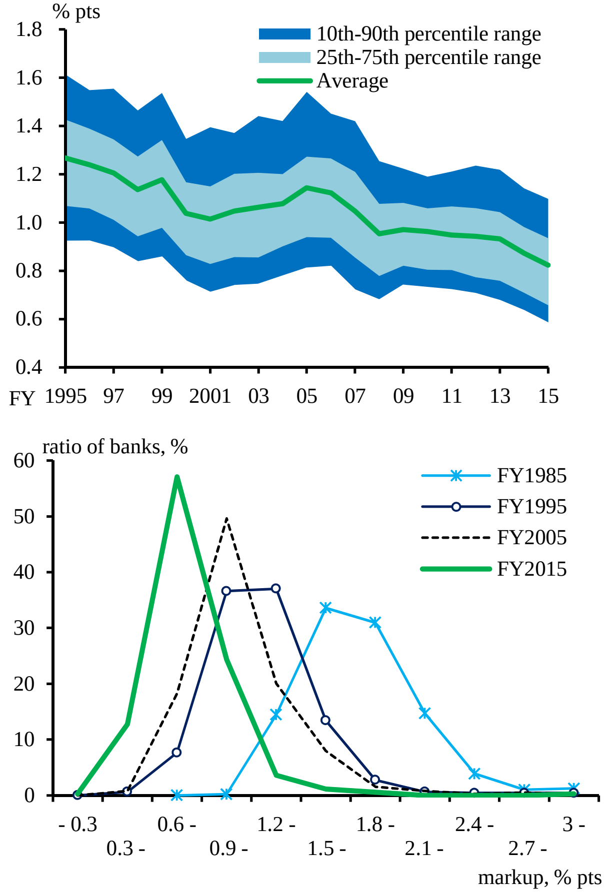
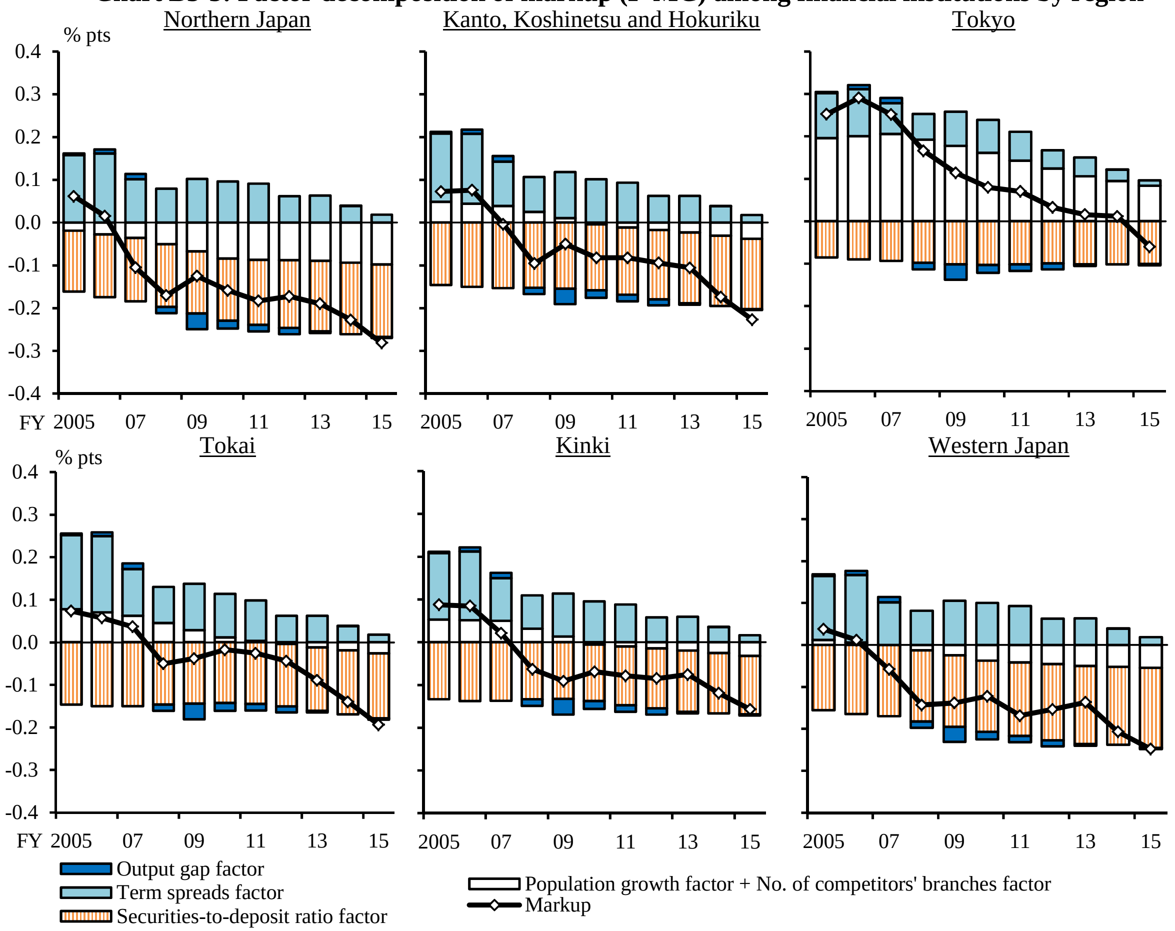


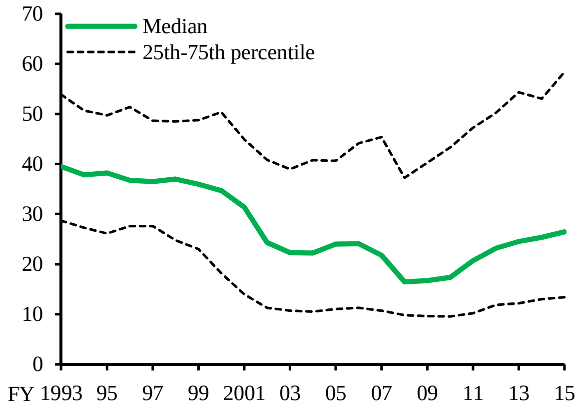
Chart B3-3: Factor decomposition of markup (P-MC) among financial institutions by region



3.2. Background of intensified competition among regional financial institutions and its impact: regional financial institutions' business stability

- There are two opposing views with regard to the impact of competition among banks on their business stability: "competition-stability view" and "competition-fragility view."
- Financial institutions' business stability (i.e., Z-scores) has fallen over the long term.
- The relationship between the markup and the Z-score forms an inverted U-shape.
- For recent years, "competition-fragility view" is considered to hold true. When the demand decline for financial intermediation services is caused by population decline, which represents a shock that is common to all financial institutions, there is a risk that this will lead to excessive competition that undermines financial institutions' business stability as a whole.

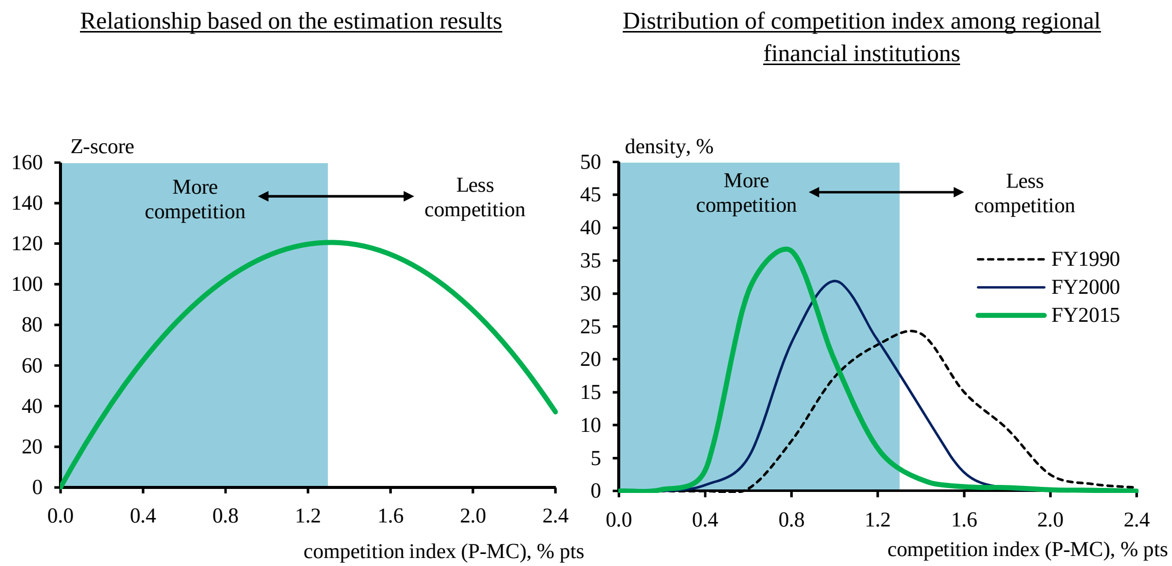
Chart B6-1: Z-score among regional financial institutions



Definition of Z-score

$$\text{Z-score} = \frac{\text{Loss-absorbing capacity}}{\text{Volatility of profits}} = \frac{\text{ROA}+\text{Capital adequacy ratio}}{\text{Standard deviation of ROA}}$$

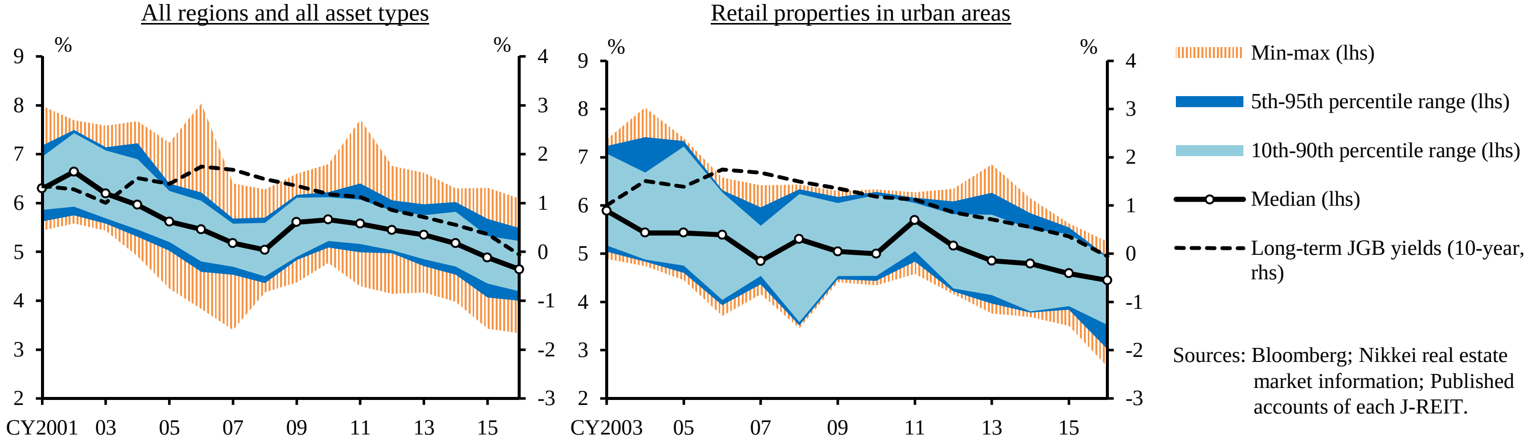
Chart B6-3: Competition index among financial institutions and their business stability



3.3. Assessment of the real estate sector

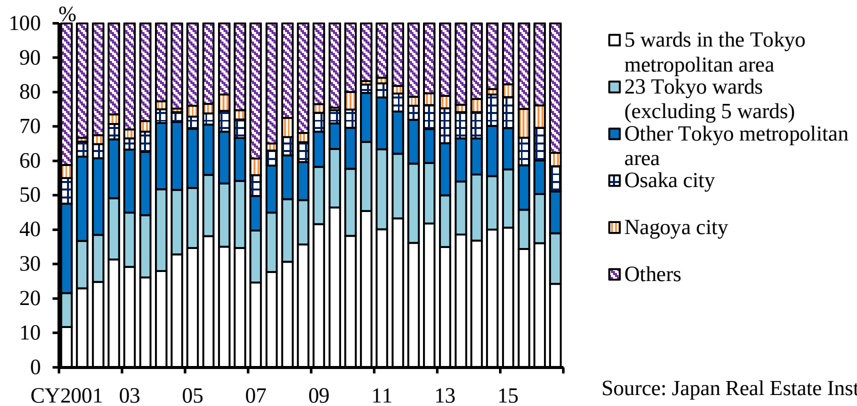
- The real estate market does not appear to show signs of overheating on the whole.
- With regard to J-REITs, the major buyers in the real estate market, looking at capitalization rates at the time of property acquisition, on the whole there are no signs of an excessive decline in risk premiums or of overly bullish expectations for rents.
- Among the properties acquired, such as retail properties in urban areas, there are instances in which the decline in J-REITs' capitalization rates is greater than the decline in long-term interest rates. J-REITs, etc. continue to acquire properties in provincial areas. Meanwhile, regional financial institutions are further increasing their equity investment in real estate funds such as J-REITs and private REITs. Thus, developments in real estate markets continue to warrant careful vigilance.

Chart III-5-7: Capitalization rates of properties acquired by J-REITs



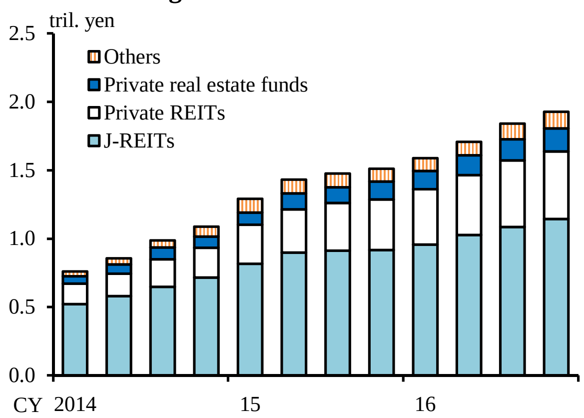
Sources: Bloomberg; Nikkei real estate market information; Published accounts of each J-REIT.

Chart III-5-8: Number of real estate transactions by region



Source: Japan Real Estate Institute.

Chart III-5-9: Equity investments in real estate funds by regional financial institutions

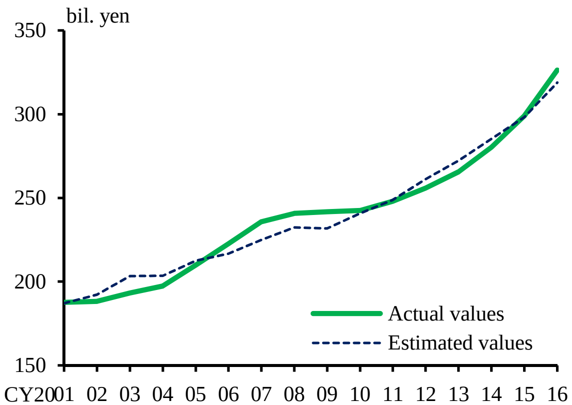


3.3. Assessment of the real estate sector: regional banks' real estate loans

- In recent years, regional banks have increased their real estate loans, especially to the housing rental business. The improvement in regional business conditions and the decline in interest rates have made the largest contribution to the increase in lending.
- However, the amount outstanding of real estate loans has recently been deviating upward from the level that can be explained by economic conditions. The distribution of regional banks in terms of the deviation rate suggests that some regional banks such as those in Kyushu have increased their loans by considerably more than the economic conditions would warrant.
- Given that vacancy rates have been rising in some regional rental housing markets, it is important to carry out more meticulously initial screening for such loans and interim management.

Chart B4-1: Panel estimation results for real estate loans of regional banks

Actual and estimated values (average of regional banks)



Factor decomposition of year-on-year growth rates (average of regional banks)

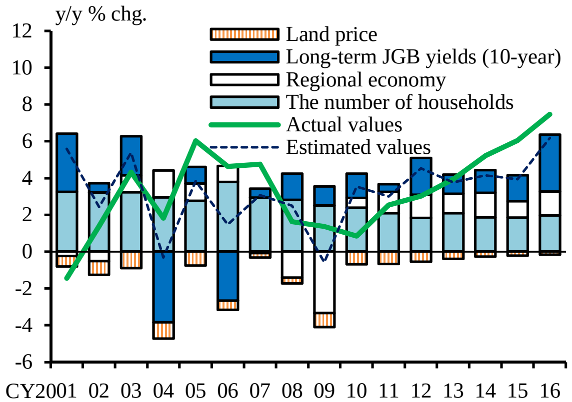


Chart B4-3: Distribution of deviation from estimated values by bank

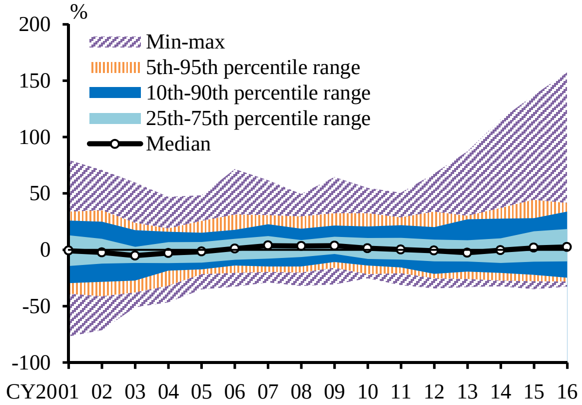


Chart B4-4: Deviation from estimated values by region (as at end-September 2016)

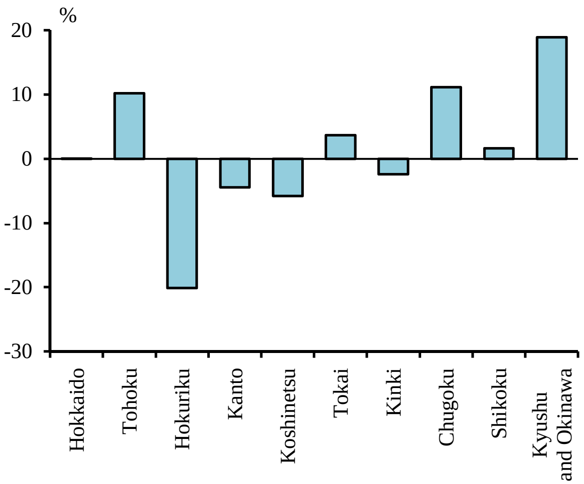
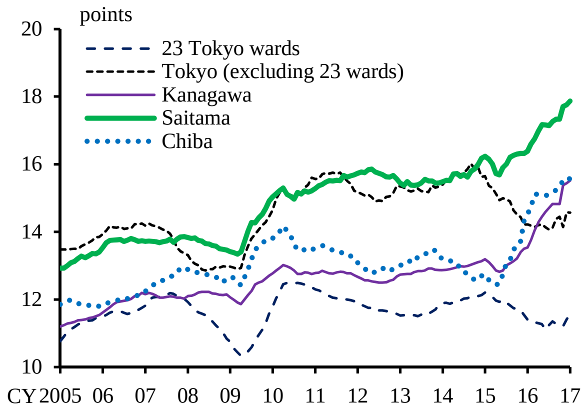
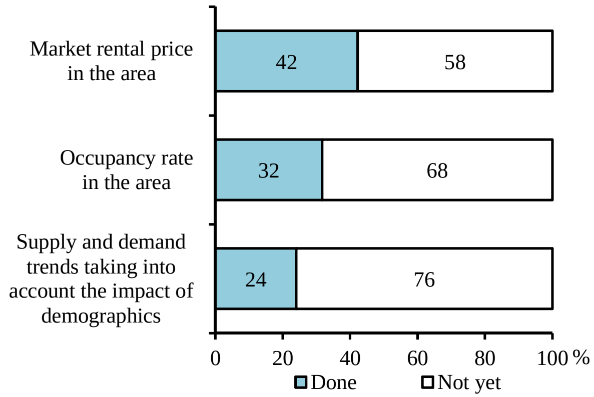


Chart IV-1-6: Vacancy indices of rental housing



Source: TAS, "Residential Market Report."

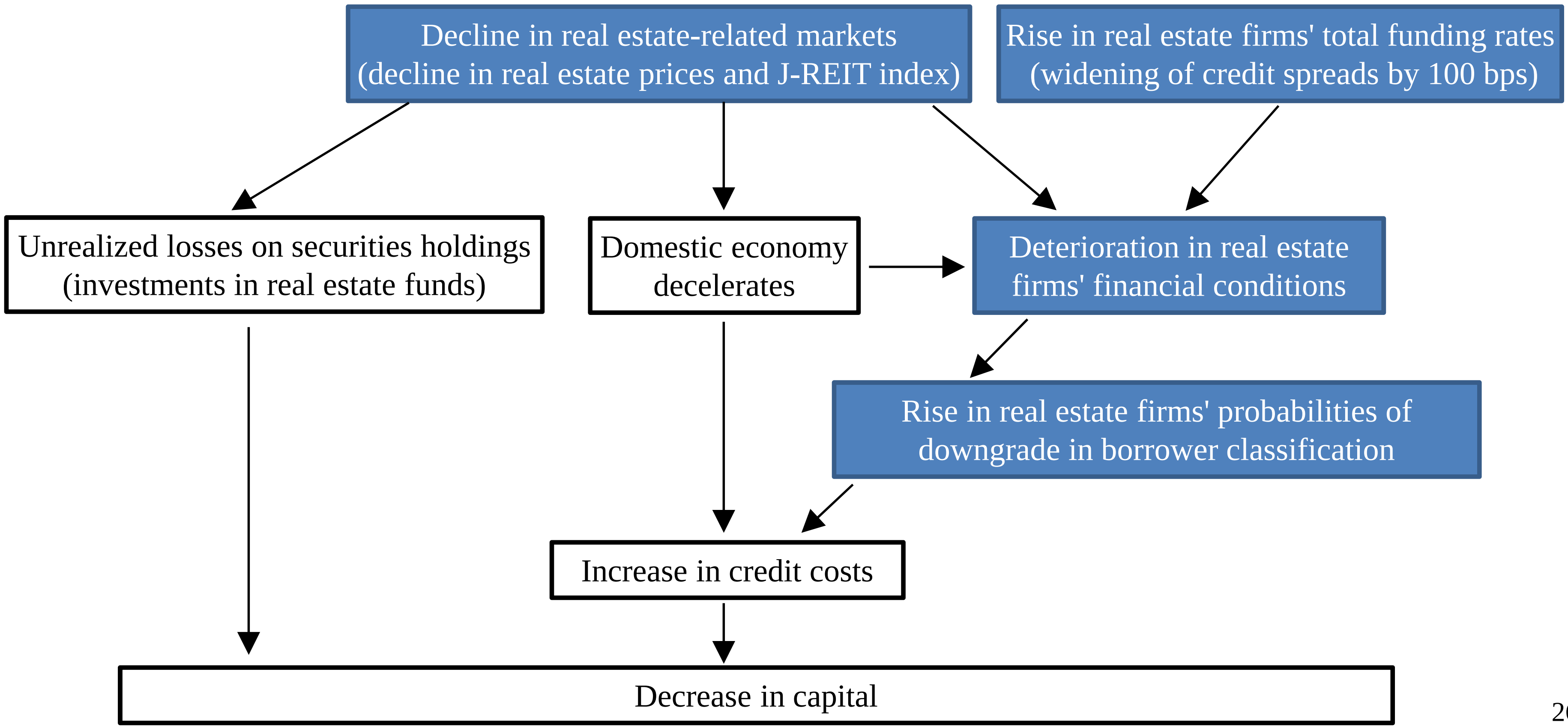
Chart IV-1-8: Implementation of research on rental housing markets



3.3. Assessment of the real estate sector: macro stress testing

- The tailored event scenario features the impact of shocks in the real estate sector on the financial system, given a recent rapid increase in financial institutions' exposures related to real estate.
- Specifically, the stress test examines the degree to which a decline in real estate-related markets and a widening of the real estate firms' credit spreads increase the credit costs of financial institutions through deterioration in the real estate firms' financial conditions. Another focus of the stress test is the degree to which unrealized losses on investments in real estate funds that arise from a drop in J-REIT prices affect the financial positions of financial institutions.

Transmission channels of risks



3.3. Assessment of the real estate sector: results of macro stress testing

- The adverse shocks in the real estate markets exert only a limited impact on the financial system on the whole, partly because real estate-related markets have not risen as much as they did during the real estate boom from 2006 through 2007.
- However, some heterogeneity is observed among financial institutions with regard to the simulation results of the tailored event scenario. The distribution of credit cost ratios indicates that around 40 percent of domestic banks' credit cost ratios are higher than their break-even points. Furthermore, more than 10 percent of domestic banks incur unrealized losses on investments in real estate funds comparable to more than 1 percentage point of the capital adequacy ratio.
- Financial institutions with significant exposures related to real estate could experience non-negligible adverse effects and need to strengthen risk management.

Chart V-1-6: Credit cost ratio

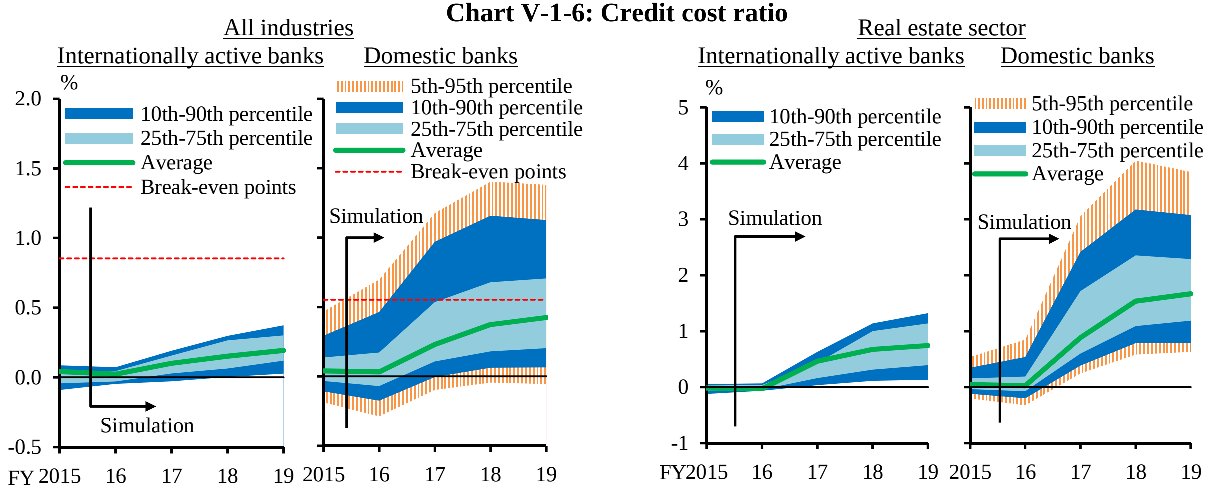


Chart V-1-8: CET1 capital ratio and core capital ratio

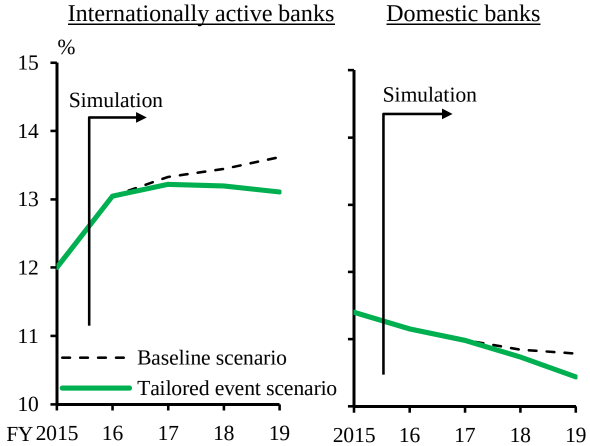
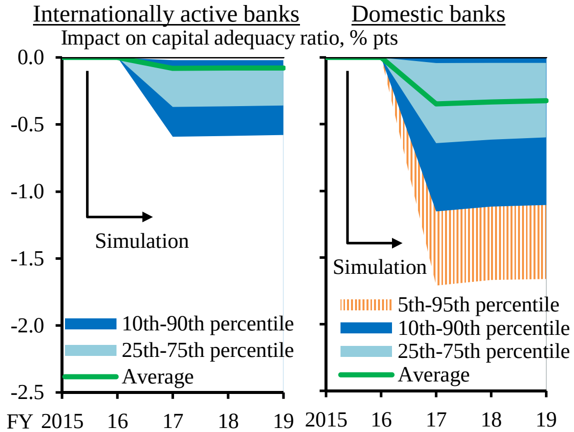


Chart V-1-7: Impact on capital adequacy ratio by unrealized losses on investment in real estate funds

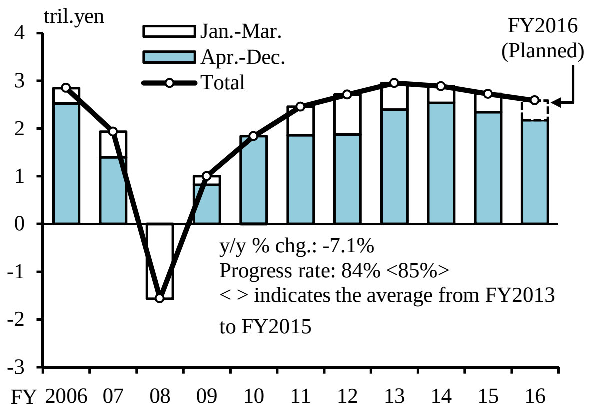


3.4. Assessment of financial institutions' profitability

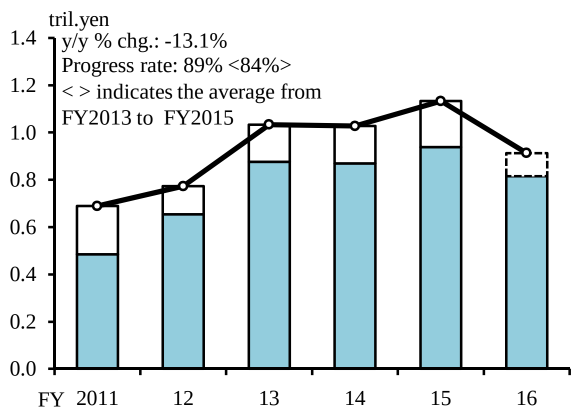
➢ Looking at financial institutions' financial results for fiscal 2016 up to the third quarter (i.e., April to December), financial institutions' profits are at a high level from a long-term perspective, but both major and regional banks have seen a net income decline, mainly due to a decrease in net interest income through the tightening of domestic deposit and lending margins, etc. and a decrease in profits from fees and commissions.

Chart IV-5-1: Net income

Major financial groups



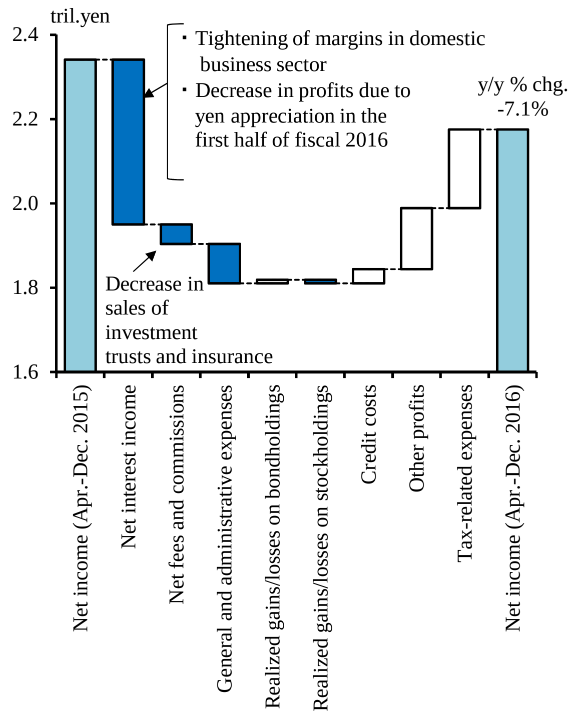
Regional banks



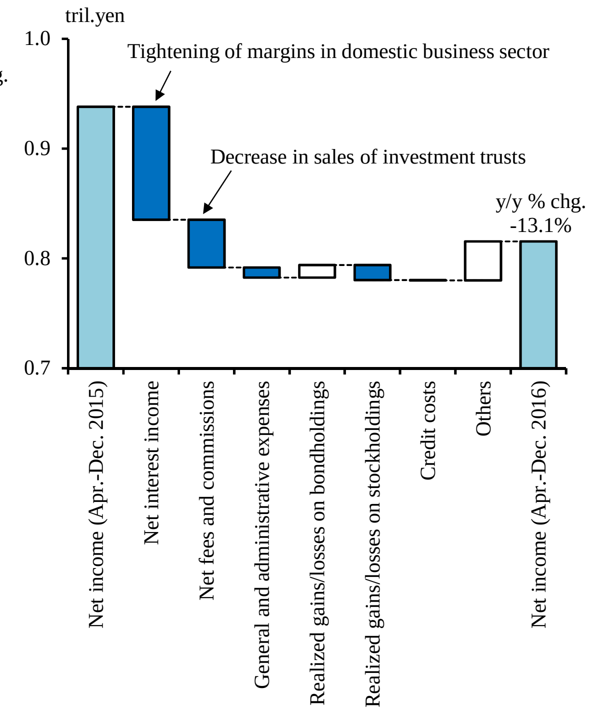
Sources: Published accounts of each bank; BOJ.

Chart IV-5-2: Decomposition of change in net income from the previous year

Major financial groups



Regional banks



Sources: Published accounts of each bank.

3.4. Assessment of financial institutions' profitability:
developments in lending rates and deposit and lending margins

- Turning to the effect of negative interest rates on loan interest rates, while the downward pressure on interest rates materialized at an early point in the case of market interest rate-linked loans that are subject to interest rate renewal every few months, the effects of the decline in interest rates at the time of rollover will continue to materialize for the time being in the case of fixed-rate loans with a remaining lending term of several years.
- By type of financial institution, fixed-rate loans make up a large share of loans at regional financial institutions, so that the downward pressure on deposit and lending margins is expected to continue going forward.

Chart IV-5-3: Lending margins among financial institutions

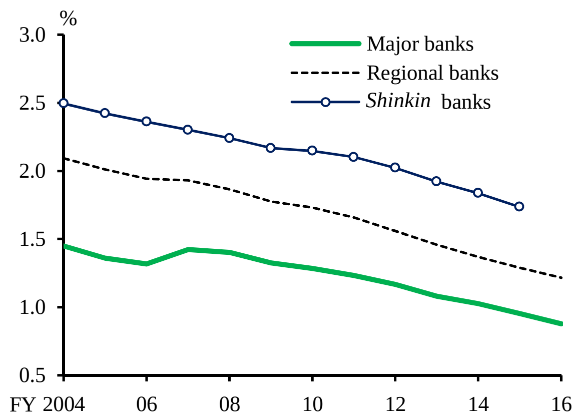
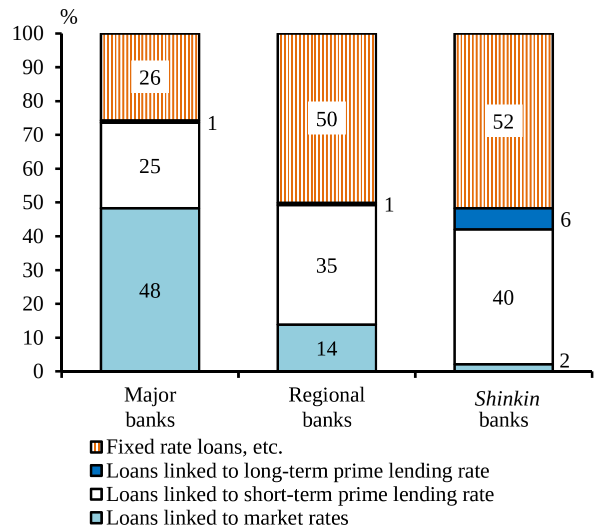


Chart III-1-18: Composition of loans by type of interest rate



3.4. Assessment of financial institutions' profitability: regional banks' unrealized gains/losses on securities holdings and realization of gains

- In recent years, the share of realized gains from the sale of securities in net income has increased at regional banks.
- Looking at regional banks' room for realizing gains individually, the higher a bank's dependence on realization of gains relative to net income, the less room it has for continuing to realize gains. Unrealized gains for some banks have become low.
- Unrealized gains/losses on securities holdings function as a capital buffer on an economic value basis in a sense. Their size may also affect banks' risk taking.
- In fact, while banks with large unrealized gains on securities holdings proactively increase investment in risky assets when their lending margin has declined, banks with small unrealized gains are cautious with regard to investing in risky assets even when their lending margin has declined.
- Looking ahead, as structural downward pressure on regional banks' profitability can be expected due to the shrinking of their business bases through population decline and other factors, there is a limit to compensating for the decline in profitability with the realization of gains through sales of securities.

Chart B5-2: Distribution of ratio of realized gains/losses on securities holdings, etc. to net income among regional banks

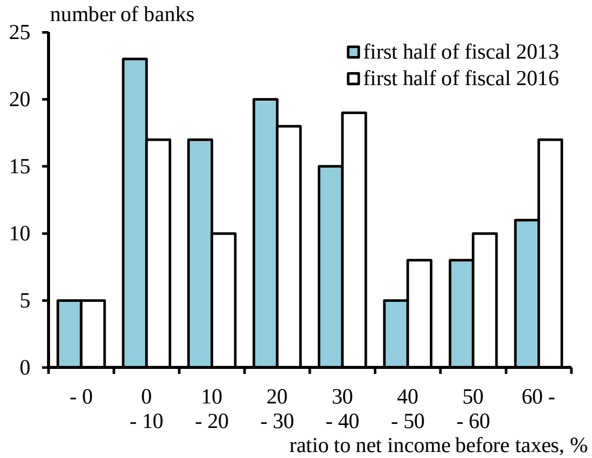
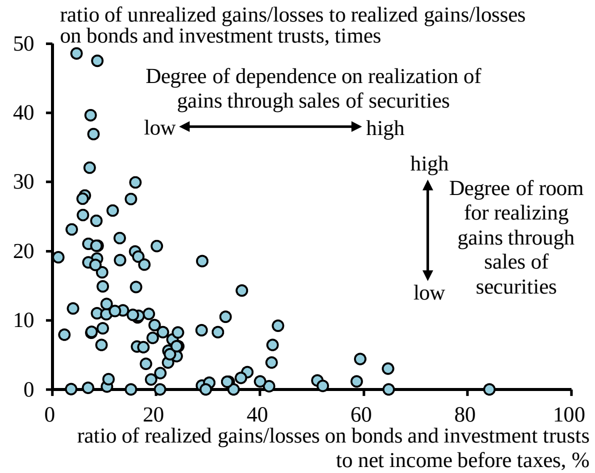


Chart B5-4: Dependence on realization of gains and room for realizing gains



Estimated equation:

$$\Delta(\text{Ratio of risky assets to total assets}_{i,t}) = \mu \cdot \Delta(\text{Lending margin}_{i,t}) + \text{Constant, etc.}$$

The parameter μ is divided into three groups based on the amount of unrealized gains/losses on securities holdings and each μ is assumed to be different.

Chart B5-5: Estimation results (estimated value of μ)

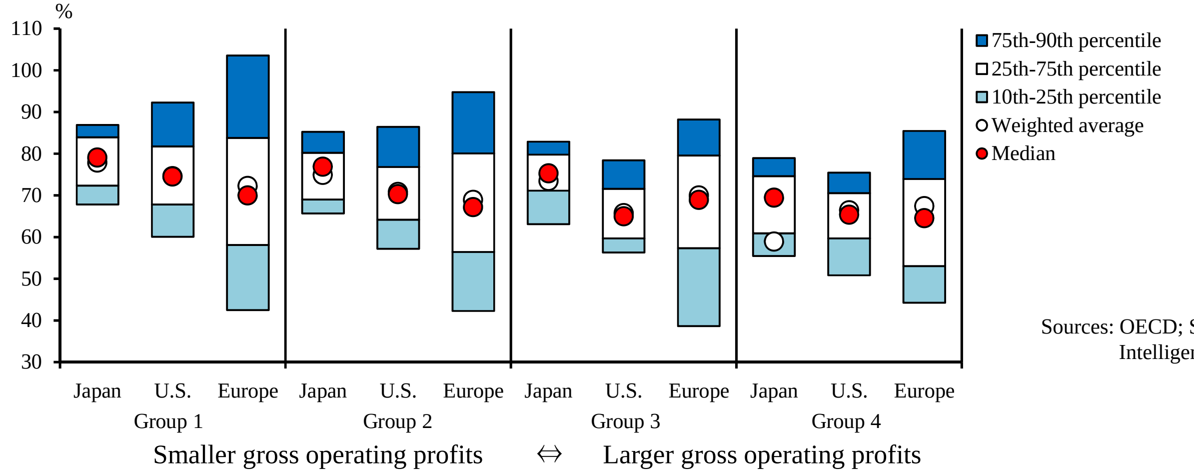
Level of unrealized gains/losses on securities holdings		
High	Middle	Low
-5.08 ***	-3.31 ***	-0.83

Note: *** indicates statistical significance at 1 percent levels.

3.4. Assessment of financial institutions' profitability: International comparison of financial institutions' overhead cost ratios (1)

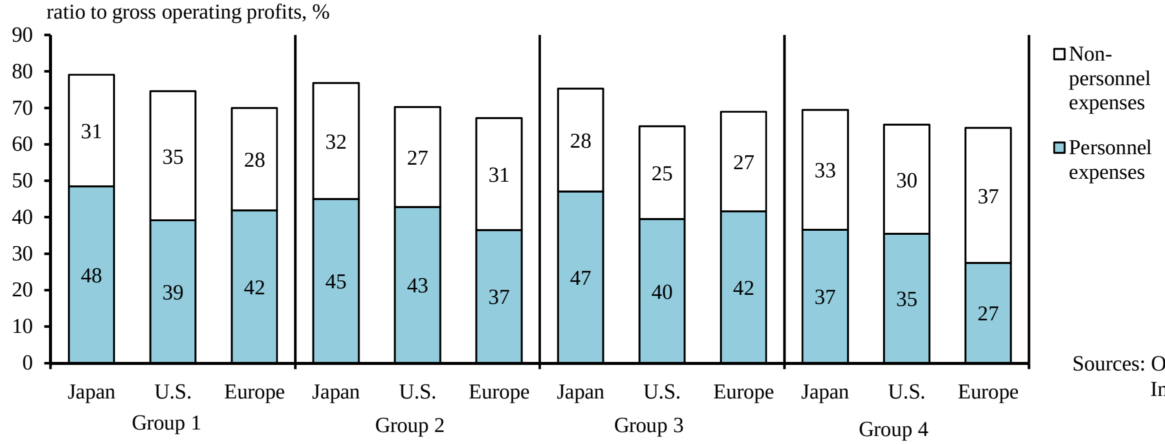
- Cost reduction is a way to improve the profitability of financial institutions. We conduct an international comparison of financial institutions' overhead cost ratios.
  - — Financial institutions are divided into four groups based on their size of gross operating profits. Then, the three regions are compared within each group.
- With regard to the distribution of overhead cost ratios (OHR = overhead costs/gross operating profits), Japanese financial institutions are characterized in that their OHRs are less widely dispersed and the median is higher than those of their U.S. and European counterparts. Decomposing the OHRs into personnel expenses and non-personnel expenses (e.g., equipment costs) shows that Japanese financial institutions' high OHRs are attributed mainly to their high personnel expenses ratio.

Chart B7-2: Distributions of OHR



Sources: OECD; S&P Global Market Intelligence; BOJ.

Chart B7-3: Decompositions of OHR



Sources: OECD; S&P Global Market Intelligence; BOJ.

3.4. Assessment of financial institutions' profitability: International comparison of financial institutions' overhead cost ratios (2)

- Decomposing personnel expenses into personnel expenses per employee and the number of employees per financial institution shows that while personnel expenses per employee are low, the number of employees per financial institution is high in Japan. As a result, gross operating profits per employee (i.e., labor productivity) are lower in Japan than in the United States and Europe.
- While the prolonged low interest rate environment has reduced gross operating profits, in addition to their low gross operating profits per employee, the variation is small compared to their U.S. and European counterparts. On the other hand, there seem to be more types of revenue sources and business models in the United States and Europe, as non-interest income accounts for a larger portion of gross operating profits on average and the variation in the share of non-interest income is also high among financial institutions.
- In order to fundamentally improve their gross operating profits and labor productivity, it is essential for them to develop and implement business strategies that utilize their core competence, such as differentiation of their services.

Chart B7-4: Distributions of personnel expenses per employee

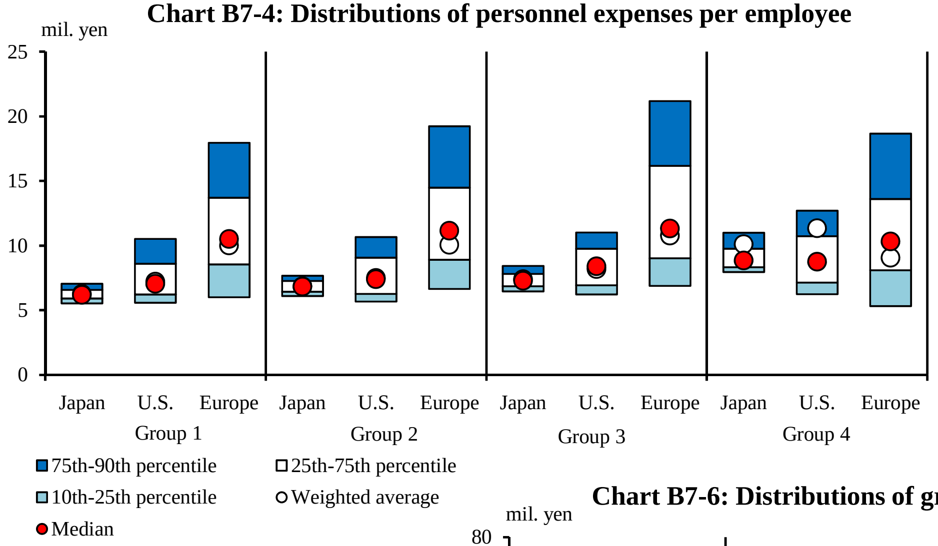


Chart B7-5: Distributions of the number of employees per financial institution

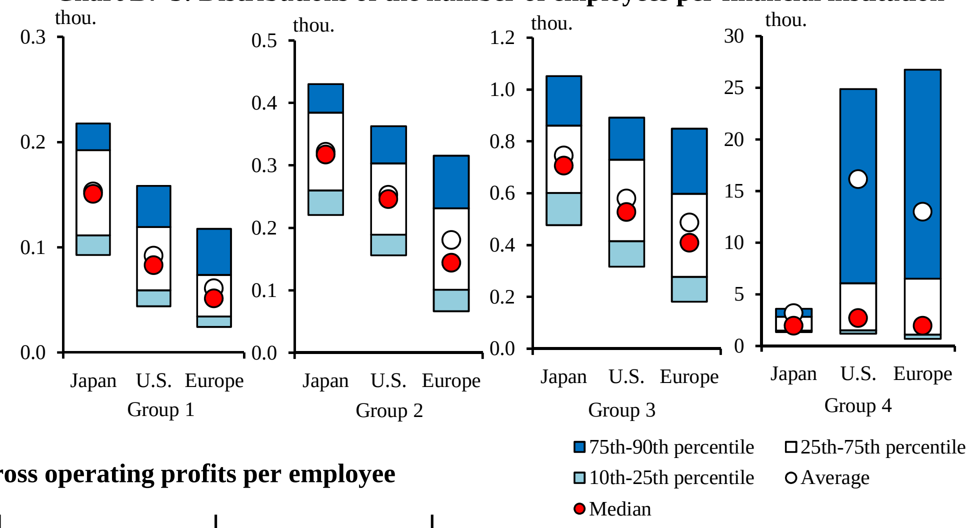
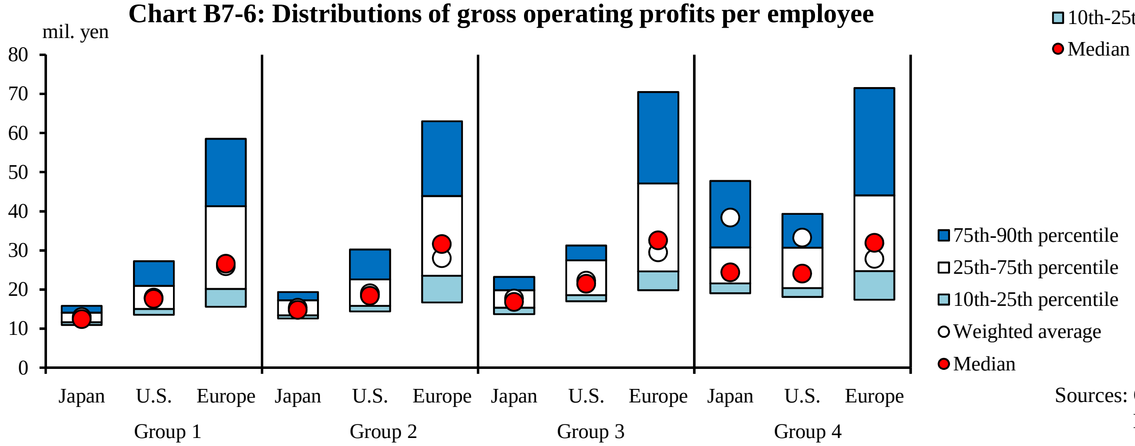


Chart B7-6: Distributions of gross operating profits per employee



Sources: OECD; S&P Global Market Intelligence; BOJ.

4. Toward ensuring financial stability in the future

Challenges for financial institutions

(1) Individual financial institutions need to develop and implement business strategies that utilize their core competence by formulating business plans toward raising their profitability, while taking into account the medium- and long-term outlook for the regional economies and their own business bases.

(2) Financial institutions need to strengthen their ability to respond to risks in areas where they are proactively stepping up their risk taking.

(3) Large financial institutions need to respond to their increasing systemic importance.

Actions by the Bank of Japan

- Through its off-site monitoring and on-site examinations, the Bank will ensure individual financial institutions' soundness and encourage them to deal with the above-mentioned challenges, securing a sound understanding of their business conditions and the accumulation of macro risks. In particular, with regard to the structural decline in profitability among regional financial institutions, the Bank will continue to strengthen its dialogue with relevant institutions, utilizing its off-site monitoring in tandem with its on-site examinations, with the recognition that making efforts to improve profitability is an issue of high importance and urgent priority. This includes implementing not only regular on-site examinations but also new targeted ones, focusing on profitability, and following up on banks' efforts -- to develop and implement their business strategies and conduct operational reforms -- in its off-site monitoring.
- At seminars for financial institutions, the Bank will also engage in themes that will lead to the strengthening of the financial intermediation function, such as enhancement of their assessments of firms, and those that will contribute to improvement in financial institutions' profits through enhancing productivity by such means as operational reforms.
- Through its financial system research, the Bank will make progress in its dialogue with financial institutions, including collaborative research, for further advancement and utilization of stress testing. In addition, the Bank will strengthen its analysis from a macroprudential perspective, bearing in mind developments including the increased interconnectedness of financial institutions.
- As part of its efforts to respond to financial globalization, the Bank will strengthen its coordination with overseas central banks and other organizations further, while enhancing its understanding of developments in the overseas financial system. With regard to international financial regulations, the Bank will contribute proactively to international discussions on topics including the implementation of regulations and the assessment of their effects, with a view to striking a fine balance between the financial system's resilience and its smooth functioning. As for measures related to transaction activities, the Bank will act to ensure financial system stability, including by demonstrating its lender-of-last-resort function when deemed appropriate.