

Financial
System
Report

Visual Summary

April 2014
Bank of Japan



Contents of the *Financial System Report*

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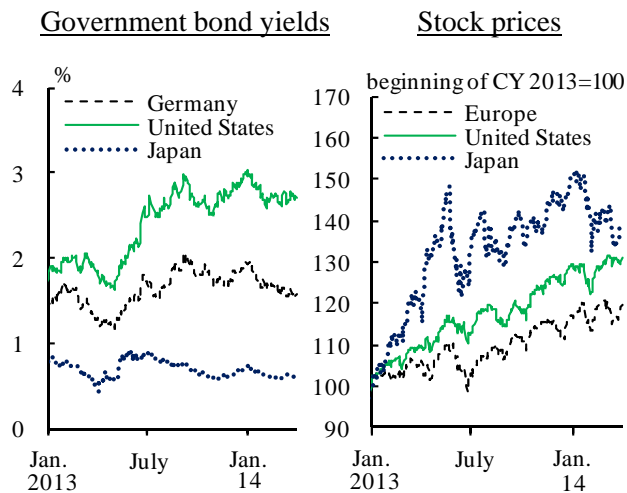
I. Comprehensive assessment of the financial system and overview

- Japan's financial system as a whole has been maintaining stability.
- Judging from developments in financial markets and financial institutions' behavior, there is no indication warning of financial imbalances such as excessively bullish expectations.
- The volatility of stock prices temporarily increased from the beginning of 2014, but volatility has generally been low in the Japanese government bond (JGB) and foreign exchange markets.
- Capital bases of financial institutions such as banks and *shinkin* banks have been adequate on the whole, and these institutions have sufficient funding liquidity.
 - ✓ Financial institutions generally have strong resilience against various shocks such as a significant economic downturn and a substantial rise in interest rates. However, the impacts of an economic downturn and an interest rate rise may spread to the financial system, depending on the speed and extent of the economic downturn and the rise in interest rates, as well as the factors behind them.
 - ✓ Some financial institutions have relatively weak capital bases, and are behind the curve in improving asset quality. These institutions need to steadily strengthen their capital.
- Financial intermediation has operated more smoothly than it did at the time of the previous *Report*. In this situation, financial conditions among firms and households have become more accommodative.
 - ✓ Financial institutions have adopted more proactive lending attitudes, and their loans have grown at a faster pace, particularly those to small and medium-sized firms. They have extended loans to a wider range of industries and regions. Some of them have increasingly taken on risks associated with securities investment, albeit to a small extent.
 - ✓ Financial intermediation through financial markets has become prevalent.
- The recent economic recovery has had positive effects on the profits of financial institutions. However, the core profitability has remained on a downtrend.
 - ✓ The declining trend in core profitability is a challenge that should be resolved because it may constrain financial institutions' ability to absorb losses and take on risks in the medium to long term.

Developments in global financial markets and overseas economies

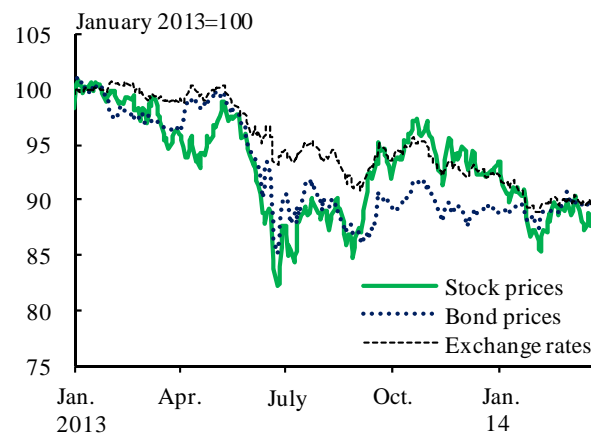
- Overseas economies -- mainly advanced economies -- are starting to recover, although a lackluster performance is still seen in part.
- While concerns over the European debt problem have abated further, global financial markets have remained susceptible to developments in U.S. monetary policy and emerging economies.

Chart II-1-1: Government bond yields and stock prices in advanced countries^{1,2}



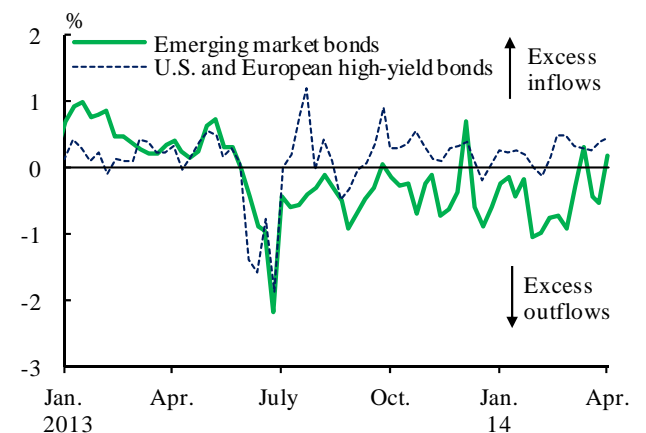
Notes: 1. The latest data are as of March 31, 2014.
 2. The left-hand chart shows 10-year government bond yields. In the right-hand chart, the S&P 500 is used for the United States, the STOXX Europe 600 for Europe, and the TOPIX for Japan.
 Source: Bloomberg.

Chart II-1-2: Stock prices, bond prices, and exchange rates in emerging markets^{1,2}



Notes: 1. The latest data are as of March 31, 2014. The MSCI Emerging Markets Index is used for stock prices, and price indexes of emerging markets calculated by J.P. Morgan are used for bond prices and exchange rates.
 2. Higher exchange rates indicate appreciation of emerging economies' currencies.
 Source: Bloomberg.

Chart II-1-5: Capital flows into bond funds¹

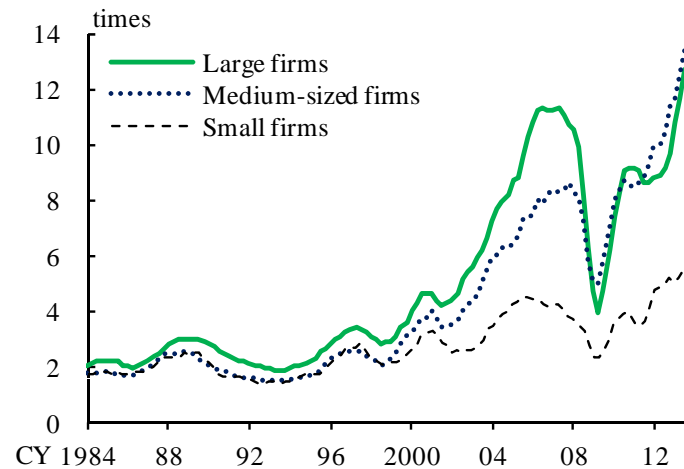


Note: 1. The latest data are from March 27 to April 2, 2014. Capital flows are ratios to total assets.
 Source: EPFR Global.

Domestic economy, financial conditions among firms and households, and fiscal conditions

- Japan's economy has continued to recover moderately as a trend, albeit with some fluctuations due to the consumption tax hike, and financial conditions among firms and the employment and income situation in the household sector have generally improved.
- The ratio of risky assets including investment trusts has risen among households.

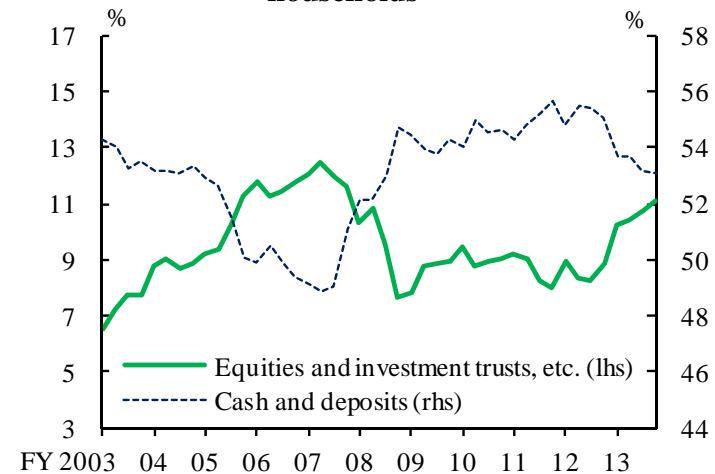
Chart II-2-3: Interest coverage ratios (ICRs)^{1,2,3}



- Notes: 1. The latest data are as of the October-December quarter of 2013; 4-quarter moving averages.
 2. Large firms: capital of 1 billion yen or more. Medium-sized firms: capital of 100 million yen to less than 1 billion yen. Small firms: capital of 10 million yen to less than 100 million yen.
 3. $ICR = (\text{operating profits} + \text{interest and dividends received, etc.}) / \text{interest payments, etc.}$

Source: Ministry of Finance, "Financial statements statistics of corporations by industry."

Chart II-2-5: Ratios of "cash and deposits" and "equities and investment trusts, etc." among households^{1,2,3}



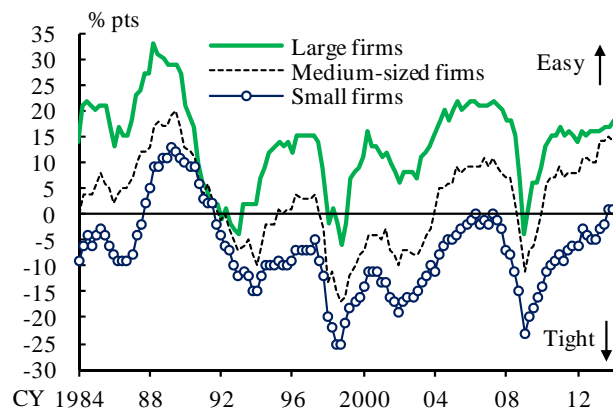
- Notes: 1. The latest data are as of end-December 2013.
 2. The data for "equities and investment trusts, etc." are the sum of equities, investment trusts, outward investments in securities, and foreign currency deposits. Figures indicate the ratio to total financial assets of households.
 3. Changes in the outstanding amount of financial assets are partly attributable to movements in market value.

Source: BOJ, "Flow of funds accounts."

Financial conditions among firms and households

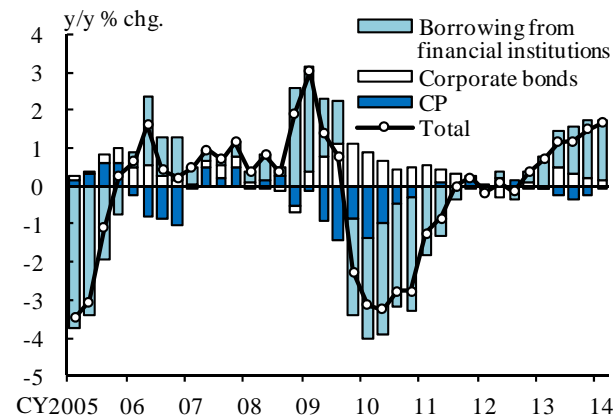
- Financial conditions among firms and households have become more accommodative under quantitative and qualitative monetary easing (QQE) compared with those at the time of the previous *Report*.
- Funding conditions have improved not only for large and medium-sized firms, but also for small firms, and interest rates on housing loans have declined.

Chart III-1-2: DI of financial positions¹



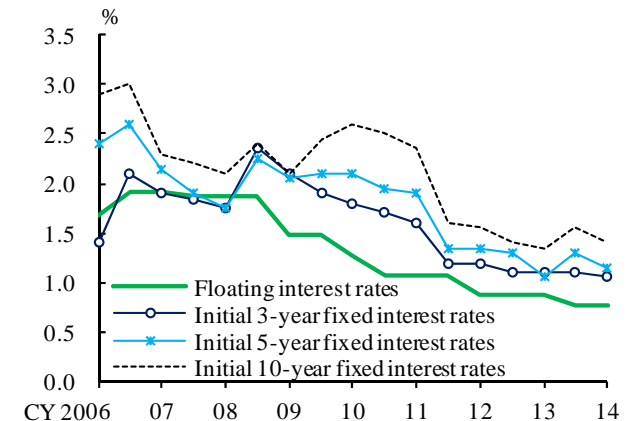
Note: 1. The latest data are as of March 2014.
Source: BOJ, "Tankan."

Chart III-1-4: Outstanding amount of firm funding^{1,2}



Notes: 1. The latest data are as of end-February 2014.
2. CP issued by banks is excluded. Corporate bonds issued by banks and those issued in overseas markets are included. The latest data of "borrowing from financial institutions" include borrowing from banks, financial institutions for cooperative organizations, and insurance companies.
Sources: I-N Information Systems; Japan Securities Dealers Association; Japan Securities Depository Center; BOJ, "Deposits, vault cash, and loans and bills discounted," "Loans and bills discounted by sector."

Chart III-1-5: Housing loan rates^{1,2}

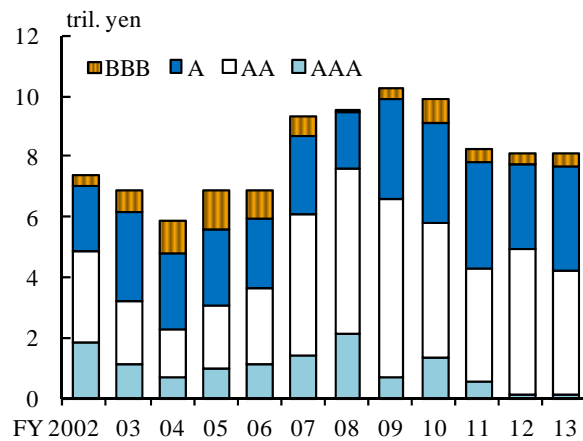


Notes: 1. Mizuho Bank, The Bank of Tokyo-Mitsubishi UFJ, Sumitomo Mitsui Banking Corporation, Resona Bank, and Saitama Resona Bank are counted. The data are as of April and October of each year. The latest data are as of April 2014.
2. Housing loan rates are preferential rates. Median.
Sources: Japan Financial News, "Nikken report"; Published accounts of each bank.

Financial intermediation through financial markets

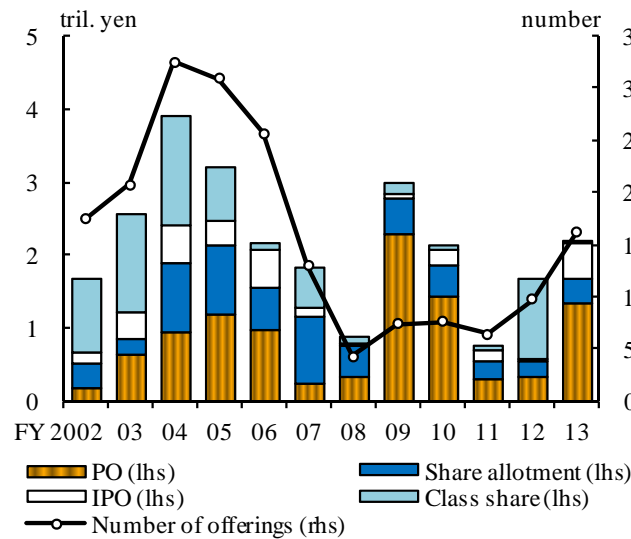
➤ Financial intermediation through financial markets has become prevalent, particularly in equity financing.

Chart III-2-3: Amount of corporate bonds issued^{1,2}



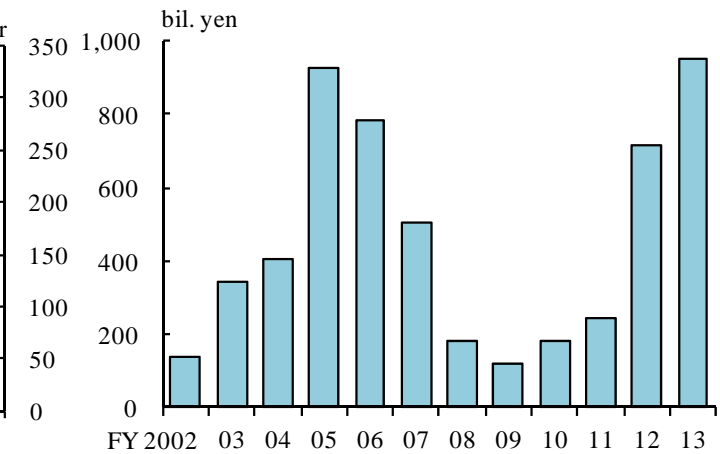
Notes: 1. Based on the launch date.
 2. Classified by the highest rating among JCR, Moody's, R&I, and S&P.
 Sources: Capital Eye; I-N Information Systems.

Chart III-2-5: Equity financing¹



Note: 1. Based on the issuance or effective date.
 Source: I-N Information Systems.

Chart III-2-7: Financing through POs and IPOs by J-REITs¹

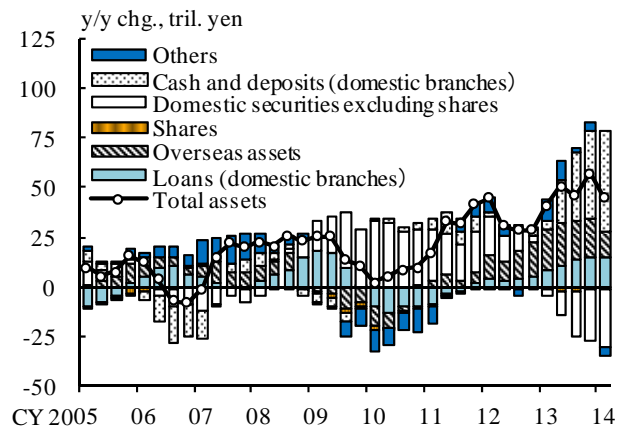


Note: 1. Based on the issuance or effective date.
 Source: I-N Information Systems.

Developments in investment by financial intermediaries

- At financial institutions such as banks and *shinkin* banks, the outstanding amount of investment has exhibited higher growth as a whole, albeit with some fluctuations.
 - ✓ As the Bank of Japan's JGB purchases under QQE have expanded, financial institutions have increased their holdings of relatively high-risk assets, including loans.
- No major changes have been observed in investment by financial intermediaries other than financial institutions, such as institutional investors.

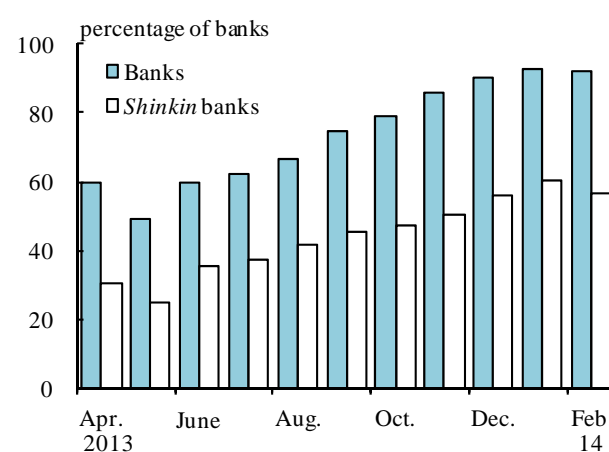
Chart III-3-1: Asset investment outstanding among banks and *shinkin* banks^{1,2,3}



- Notes: 1. The data are the sum of domestic and overseas branches. The data for domestic branches are based on the average amount outstanding. The data for overseas branches are based on the amount outstanding at month-end.
2. The chart shows changes from the quarterly average of the previous year. The latest data represent changes from January-February 2013 to January-February 2014.
3. Overseas assets are the sum of foreign securities and loans of overseas branches.

Source: BOJ.

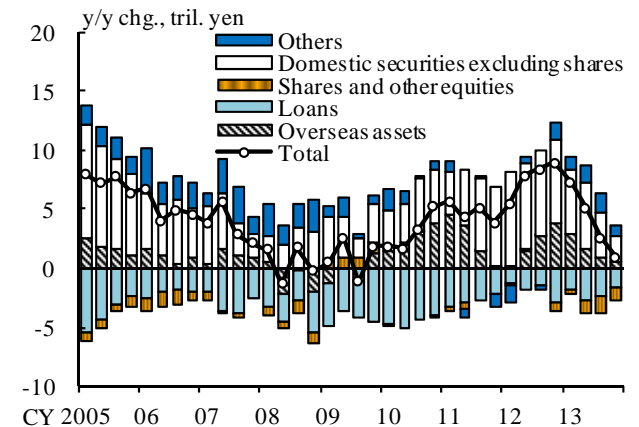
Chart III-3-3: Percentage of banks and *shinkin* banks that increased risky assets^{1,2,3}



- Notes: 1. The data are the sum of domestic and overseas branches. The data for domestic branches are based on the average amount outstanding. The data for overseas branches are based on the amount outstanding at month-end.
2. The chart shows the percentage of banks that increased their risky assets compared to March 2013.
3. The data for risky assets are the sum of loans and securities other than JGBs and municipal bonds.

Source: BOJ.

Chart III-3-5: Asset investment outstanding among life insurance companies^{1,2}



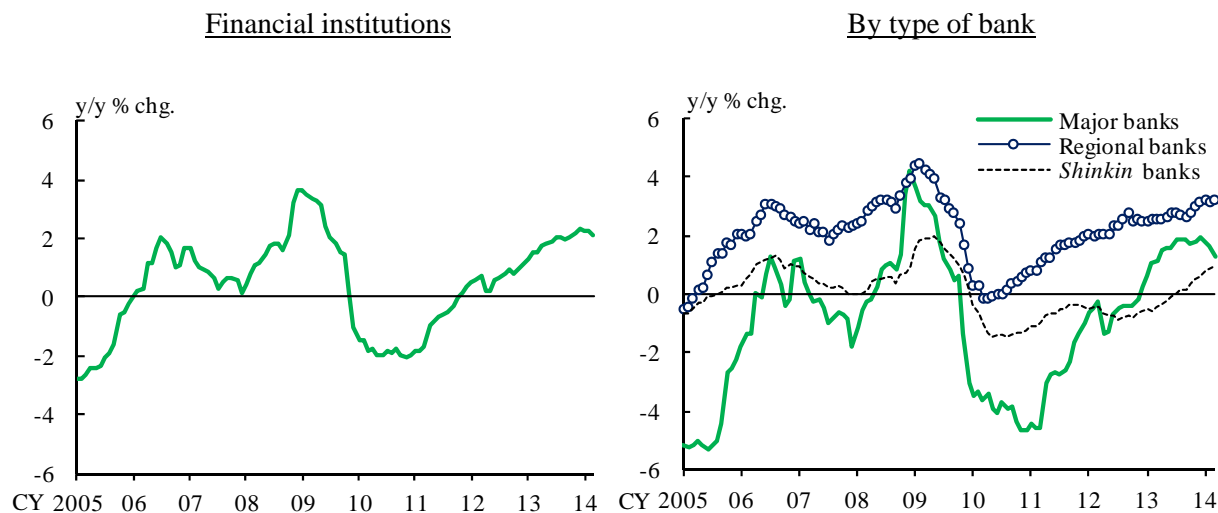
- Notes: 1. The latest data are as of December 2013. The chart shows the sum of financial transactions in the last 4 quarters.
2. "Others" include cash and deposits. "Loans" exclude repurchase agreements and securities lending transactions.

Source: BOJ, "Flow of funds accounts."

Domestic loans

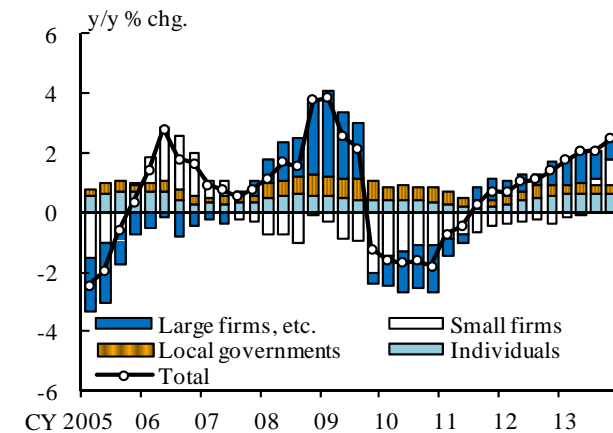
- The amount of financial institutions' domestic loans outstanding has continued to grow at a faster pace.
 - ✓ The year-on-year rate of increase in loans outstanding has remained positive at major banks, although the pace of growth has recently slowed somewhat.
 - ✓ The year-on-year rate of increase in loans outstanding for regional and *shinkin* banks has accelerated since autumn 2013.
- Growth in loans to small and medium-sized firms has risen recently.
- Growth in loans to individuals, such as housing loans, has also remained relatively high.

Chart III-4-1: Domestic loans outstanding among financial institutions¹



Note: 1. The latest data are as of March 2014.
Source: BOJ, "Principal figures of financial institutions."

Chart III-4-2: Loans outstanding among financial institutions by sector¹

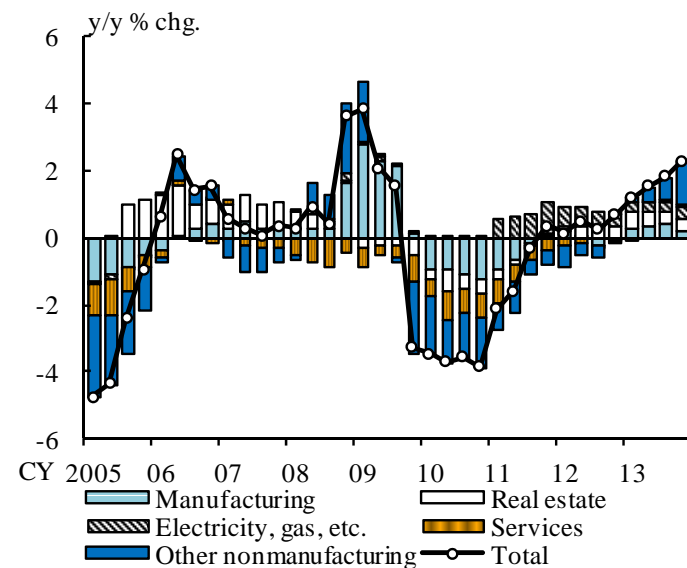


Note: 1. Banks and *shinkin* banks are counted. The latest data are as of end-December 2013. Figures include loans to the finance and insurance industries.
Source: BOJ.

Corporate loans

- The increase in growth of corporate loans has been observed in a wider range of industries compared with the situation at the time of the previous *Report*.
 - ✓ Loans to electric power companies and real estate companies have continued to increase, and loans to nonmanufacturing industries such as the medical care and welfare, and wholesale and retail industries have also increased.
- The breakdown by region also shows that loan growth has risen in a wide range of regions.

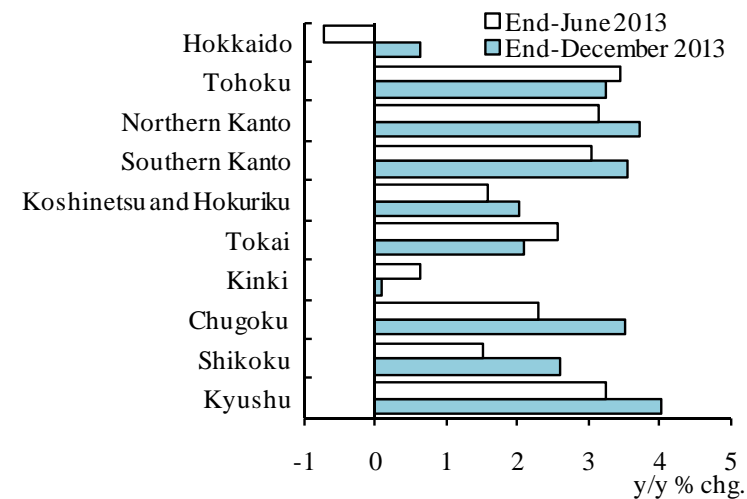
Chart III-4-7: Corporate loans outstanding among financial institutions by industry¹



Note: 1. Banks and *shinkin* banks are counted. The latest data are as of end-December 2013. Figures include loans to the finance and insurance industries.

Source: BOJ.

Chart III-4-9: Loans outstanding by region¹



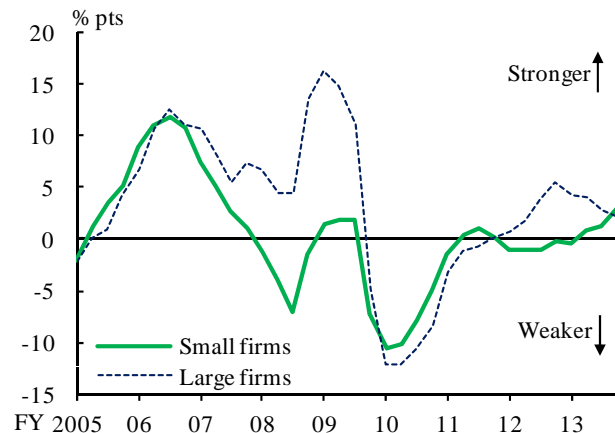
Note: 1. Domestically licensed banks are counted.

Source: BOJ, "Deposits, vault cash, and loans and bills discounted by prefecture (domestically licensed banks)."

Corporate loans (continued)

- The recent increase in corporate loans has been caused by the uptrend on both the supply and demand sides.
 - ✓ Demand for funds has risen at a faster pace, particularly among small and medium-sized firms. Financial institutions' lending attitudes have become more accommodative.
- However, competition for the extension of loans has remained intense among financial institutions. Therefore, the diminishing trend in interest rate spreads on loans has not yet come to a halt.

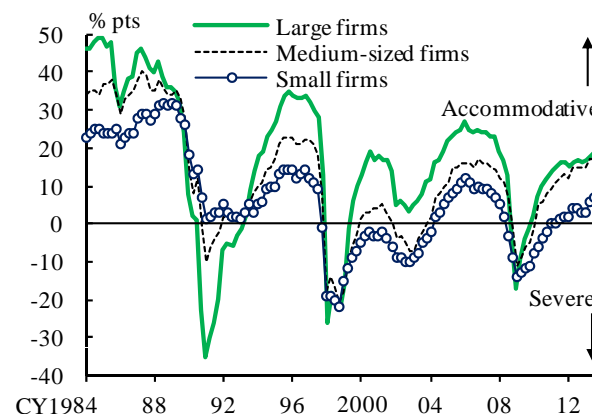
Chart III-4-10: DI of firms' demand for loans^{1,2}



- Notes: 1. The latest data are as of January 2014; 4-quarter moving averages.
 2. DI of firms' demand for loans = (percentage of respondents selecting "substantially stronger" + percentage of respondents selecting "moderately stronger" * 0.5) - (percentage of respondents selecting "substantially weaker" + percentage of respondents selecting "moderately weaker" * 0.5).

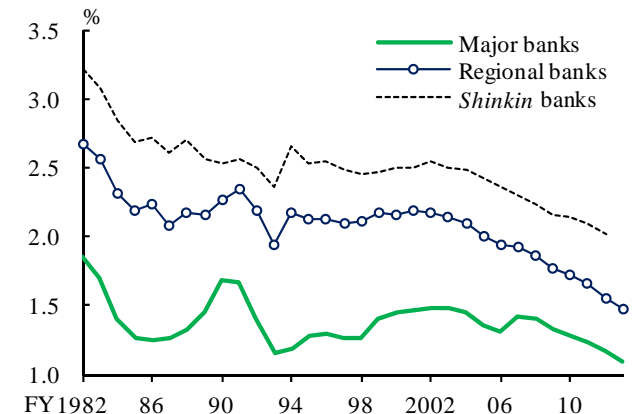
Source: BOJ, "Senior loan officer opinion survey on bank lending practices at large Japanese banks."

Chart III-1-1: DI of lending attitudes of financial institutions¹



- Note: 1. The latest data are as of March 2014.
 Source: BOJ, "Tankan."

Chart III-4-12: Interest rate spreads on loans in the domestic business sector¹

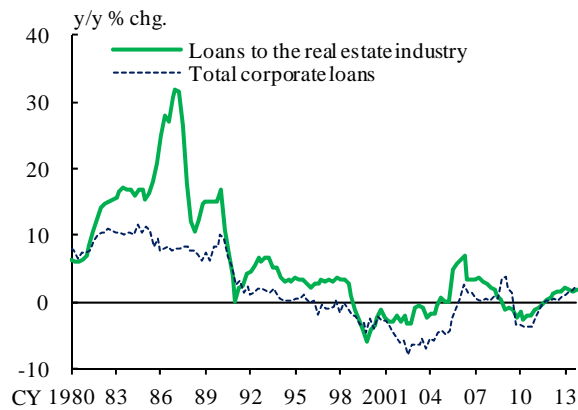


- Note: 1. The latest data for major banks and regional banks are as of the first half of fiscal 2013 (annualized), and those for *shinkin* banks are as of fiscal 2012.
 Source: BOJ.

Real estate-related loans

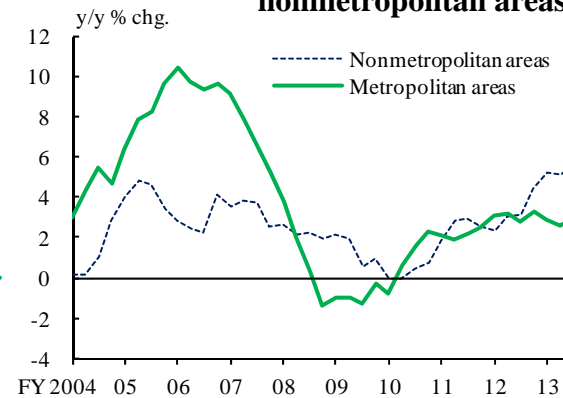
- The rate of growth in real estate-related loans extended by financial institutions remains generally the same as that observed in overall corporate loans.
- It is notable that real estate-related loans have been growing at a faster pace among regional banks and in nonmetropolitan areas.
 - ✓ Regional banks' loans to house and room leasing business by households have continued to increase, and those to small and medium-sized real estate companies have increased at a faster pace.

Chart III-4-13: Loans outstanding to the real estate industry¹



Note: 1. Banks and *shinkin* banks are counted. The latest data are as of end-December 2013.
Source: BOJ.

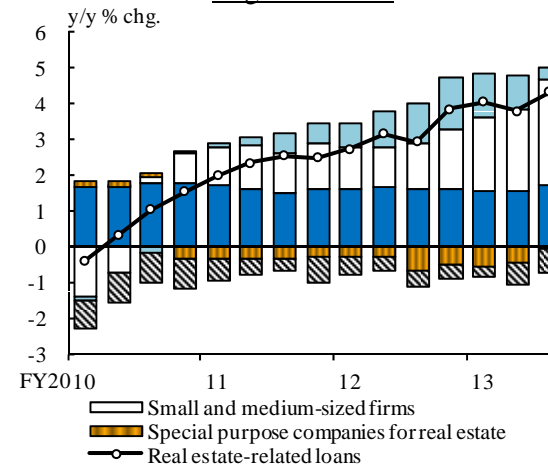
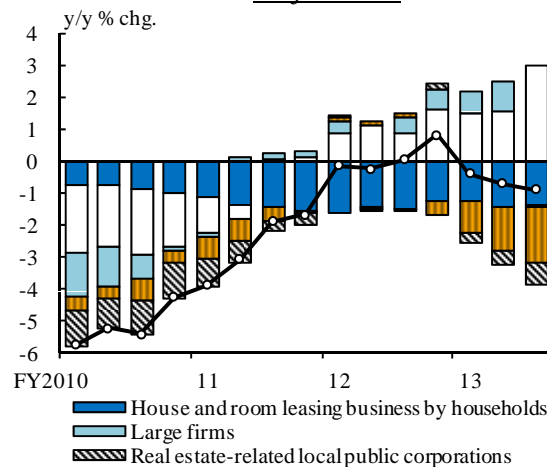
Chart III-4-19: Real estate-related loans in metropolitan and nonmetropolitan areas^{1,2}



Notes: 1. Regional banks are counted. The latest data are as of end-December 2013.
2. For metropolitan areas, banks with head offices located in the Southern Kanto region, the Tokai region, and the Kinki region are counted, and for nonmetropolitan areas, banks with head offices located in other areas are counted.

Source: BOJ.

Chart III-4-18: Real estate-related loans outstanding by type of bank¹

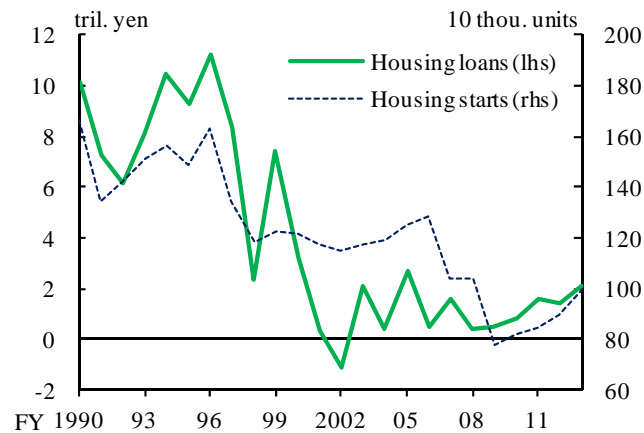


Note: 1. The latest data are as of end-December 2013.
Source: BOJ.

Housing loans

- Housing loans extended by financial institutions have remained on an uptrend.
 - ✓ This is because housing investment has expanded, partly due to a front-loaded increase in demand prior to the consumption tax hike, and financial institutions have adopted more proactive lending attitudes, as seen in the decline in interest rates on housing loans.
- In these circumstances, the profitability of housing loans has been on a downtrend.

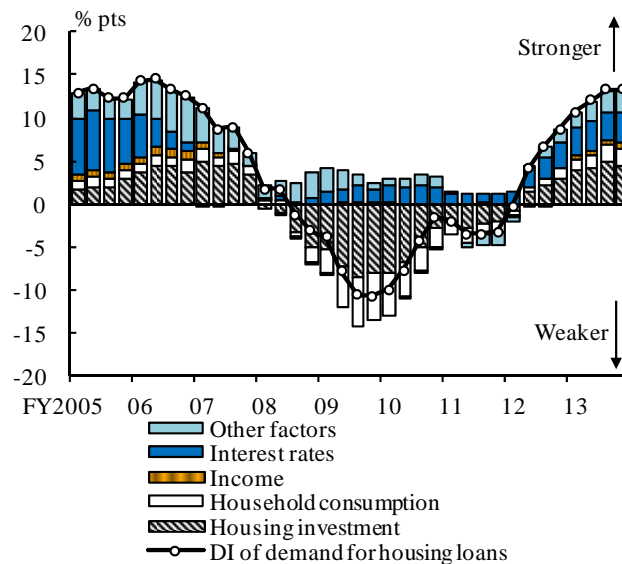
Chart III-1-6: Housing loans and housing starts^{1,2}



- Notes: 1. Housing loans extended to households from both private and public financial institutions are included on a flow basis.
2. The figure on housing loans for fiscal 2013 is calculated using the average year-on-year rate of change in the period from April 2013 to December 2013. The figure on housing starts for fiscal 2013 is calculated using the average year-on-year rate of change in the period from April 2013 to February 2014.

Sources: Ministry of Land, Infrastructure, Transport and Tourism, "Statistics on building construction starts"; BOJ, "Flow of funds accounts."

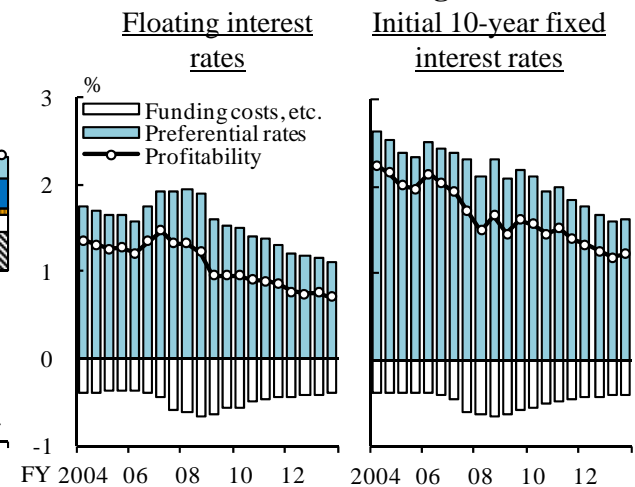
Chart III-4-22: DI of demand for housing loans^{1,2}



- Notes: 1. The latest data are as of January 2014; 4-quarter moving averages.
2. $DI \text{ of demand for housing loans} = (\text{percentage of respondents selecting "substantially stronger"} + \text{percentage of respondents selecting "moderately stronger"} * 0.5) - (\text{percentage of respondents selecting "substantially weaker"} + \text{percentage of respondents selecting "moderately weaker"} * 0.5)$.

Source: BOJ, "Senior loan officer opinion survey on bank lending practices at large Japanese banks."

Chart III-4-25: Profitability of housing loans^{1,2}



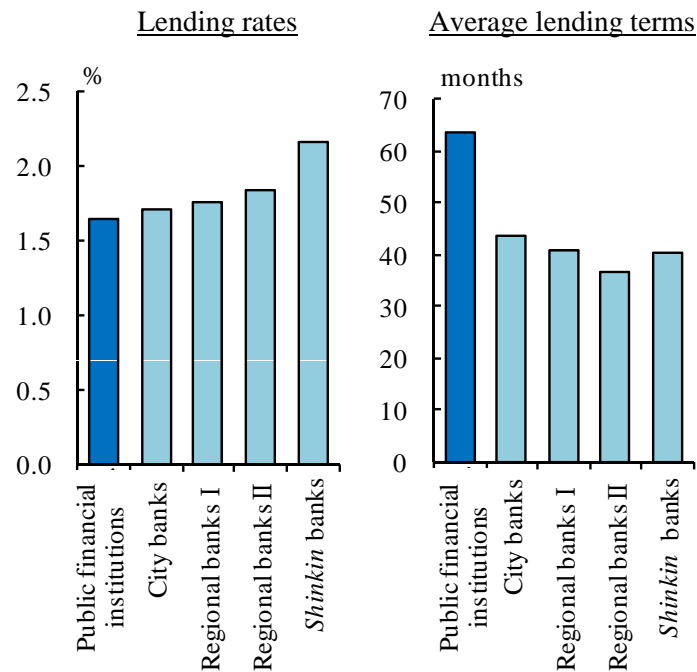
- Notes: 1. Major banks and regional banks are counted. The latest data are as of October 2013. Profitability at the time of extension.
2. "Funding costs, etc." are the sum of the funding rate and the group credit life insurance premium (assumed to be 0.3 percent).

Sources: Japan Financial News, "Nikkin report"; BOJ.

Developments in loans extended by public financial institutions

- In comparison with private financial institutions, public financial institutions have extended loans at low interest rates and with long maturities.
- Loans extended by public financial institutions as a proportion of the outstanding amount of loans to small and medium-sized firms have gradually peaked out following the Great East Japan Earthquake in 2011.
 - ✓ Various emergency measures taken since the Lehman shock have served to underpin corporate activity, especially among small and medium-sized firms, but the decline in the proportion of public financial institutions' loans reflects the fact that the significance of these measures has gradually begun to decline as Japan's economy has recovered.

Chart III-4-29: Lending rates and average lending terms^{1,2}

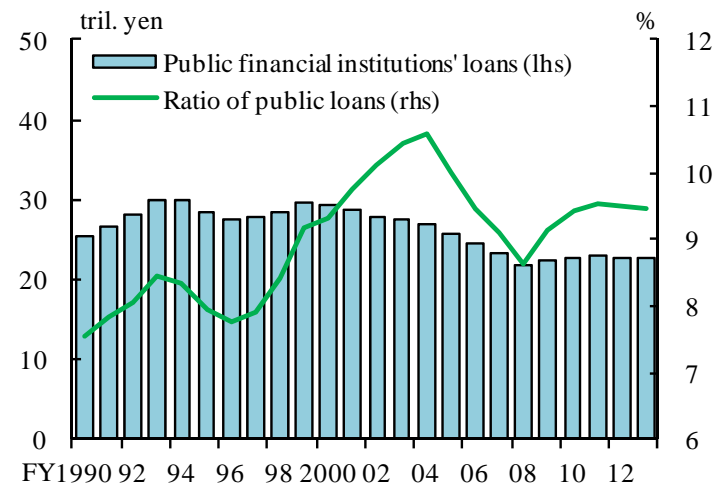


Notes: 1. Averages for 2013.

2. Public financial institutions include Japan Finance Corporation, Japan Housing Finance Agency, and Shoko Chukin Bank, etc.

Source: Japan Finance Corporation.

Chart III-4-28: Ratio of public loans in the total loans to small and medium-sized firms^{1,2}



Notes: 1. Public financial institutions' loans are defined as the sum of those made by Japan Finance Corporation and Shoko Chukin Bank. The latest data are as of the first half of fiscal 2013.

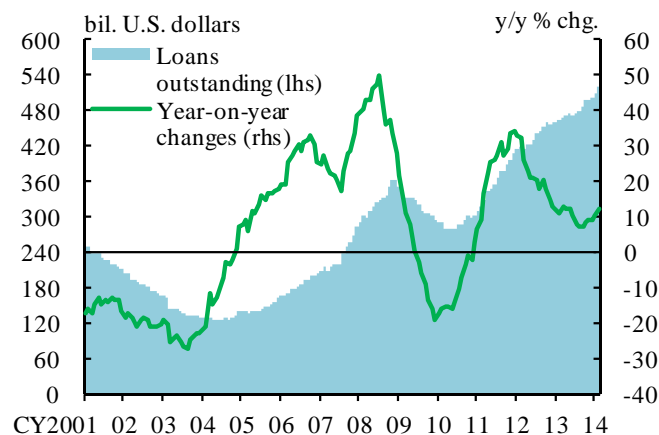
2. The ratio of public loans is defined as the sum of loans made by public financial institutions' in the total amount lent to small and medium-sized firms.

Sources: Published accounts of each institution; BOJ, "Loans and bills discounted by sector."

Overseas loans

- Financial institutions' overseas loans have continued to show relatively high growth, particularly among major banks.
- Since the profitability of overseas loans has continued to be higher than that of domestic loans, overseas loans have contributed to underpinning bank profitability.
 - ✓ However, in Asian regions with high growth potential, interest rate spreads on loans are relatively low for Japan's banks relative to those of U.S. and European financial institutions or local financial institutions.

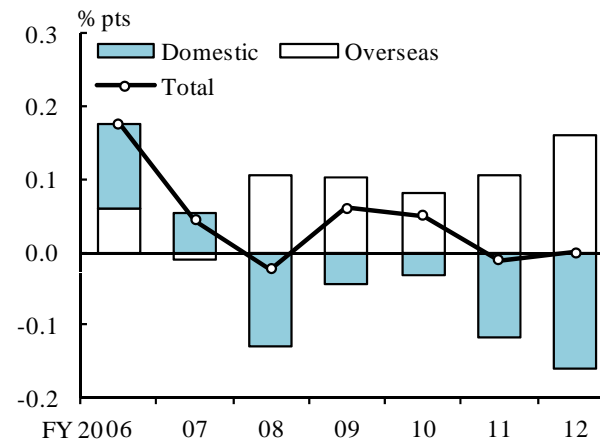
Chart III-4-32: Overseas loans of major banks¹



Note: 1. The latest data are as of end-February 2014. The loans outstanding of overseas branches of major banks, which are converted into U.S. dollars at each month-end.

Source: BOJ.

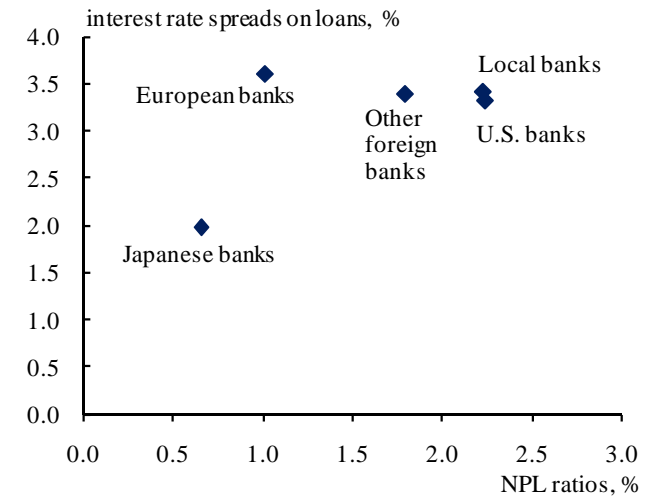
Chart V-1-11: ROA of major banks¹



Note: 1. The figures represent cumulative changes in gross operating profit ROA from fiscal 2005. The three major financial groups are counted on a consolidated basis.

Sources: Published accounts of each group.

Chart V-1-12: Interest rate spreads on loans and NPL ratios in Asia¹

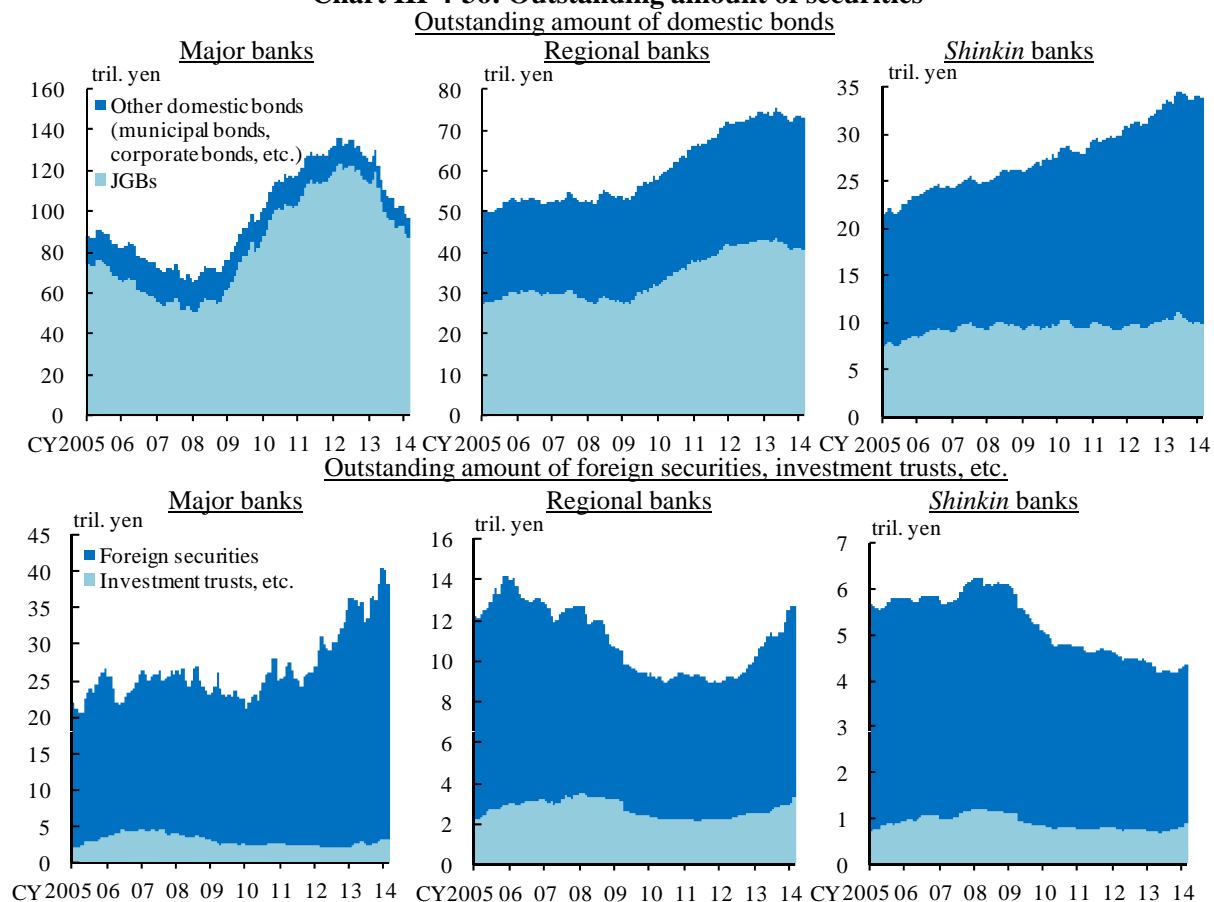


Note: 1. Overseas subsidiaries and branches in China, Indonesia, Malaysia, and Thailand for which financial information is available are counted. Figures are averages from fiscal 2010 to fiscal 2012.

Source: Bureau Van Dijk, "Bankscope."

- Turning to overall securities investment among financial institutions, a greater number of financial institutions have adopted a prudent stance on accumulating more risk associated with yen interest rates, while gradually increasing investment in securities other than yen-denominated bonds.
 - ✓ Through around autumn 2013, major banks significantly reduced their outstanding investment in yen-denominated bonds, and outstanding amounts invested started to decline slightly among regional and *shinkin* banks. Since then, some restored outstanding amounts invested in yen-denominated bonds to previous levels in order to secure security interest income, whereas others continued to reduce their outstanding yen-denominated bondholdings.
 - ✓ The outstanding amount invested in foreign securities and investment trusts converted into yen rose, especially among major and regional banks, around the end of 2013. Financial institutions' stance toward investment in foreign securities and investment trusts has become somewhat cautious from the beginning of 2014, but more financial institutions plan to increase their investment in these assets compared with the situation in the first half of 2013.

Chart III-4-36: Outstanding amount of securities¹⁾



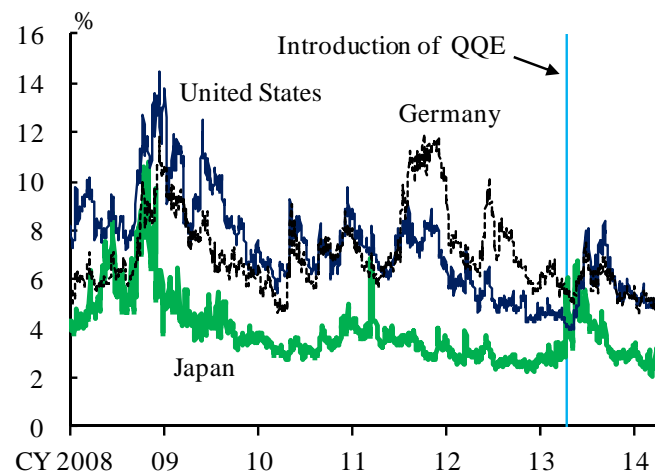
Note: 1. The latest data are as of February 2014. The data are based on the average amount outstanding.

Source: BOJ.

Risks implied in government bond markets

➤ JGB yields have been stable due to factors such as the continued tightening of supply and demand conditions in the JGB market prompted by the Bank's large-scale JGB purchases.

Chart IV-1-3: MFIVs of government bond prices^{1,2}

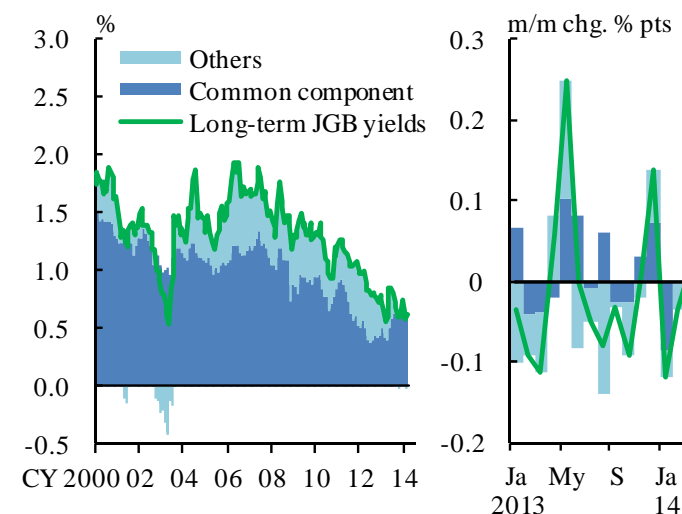


Notes: 1. Options on JGB futures traded on the Tokyo Stock Exchange for Japan; options on U.S. Treasury futures traded on the Chicago Board of Trade for the United States; options on Euro-Bund futures traded on Eurex for Germany.

2. The latest data are as of March 31, 2014.

Sources: Bloomberg; BOJ.

Chart IV-1-6: Decomposition of long-term JGB yields^{1,2,3}



Notes: 1. "Common component" is extracted from a principal component analysis and is defined as the first principal component of U.S., German, U.K., and Japanese government bond yields (the contribution ratio is 0.89).

2. "Others" is the sum of the constant term and residuals from regression of JGB yields on "common component" and the constant term.

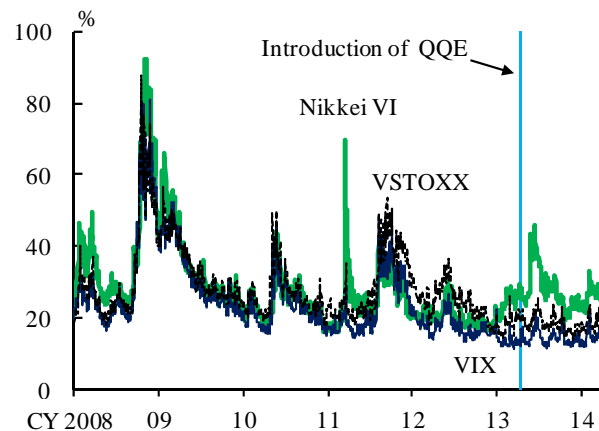
3. The estimation uses month-end data from January 2000 to March 2014.

Sources: Bloomberg; BOJ.

Risks implied in stock markets and foreign exchange markets

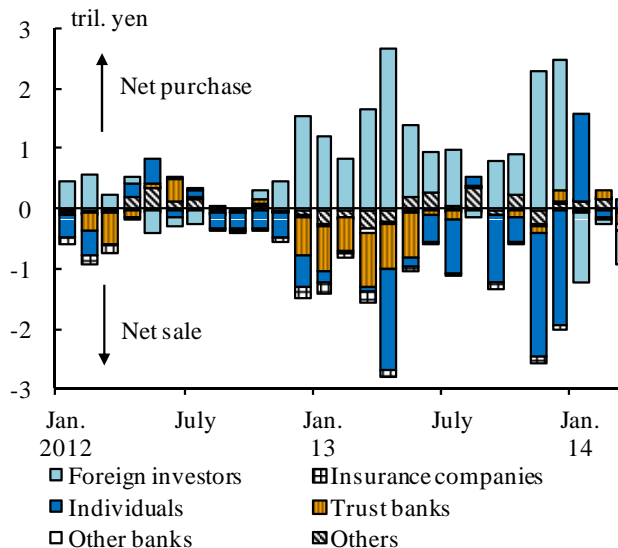
- In stock markets, a temporary increase was seen in the volatility of stock prices from the beginning of 2014. This is because investors became increasingly risk averse given nervousness in some emerging markets and a decline in stock prices globally.
 - ✓ Looking at trading by type of investor, foreign investors, who were large net buyers when stock prices rose from autumn 2012, have become net sellers since the beginning of 2014. This is because, since the beginning of 2014, some foreign investors who conduct short-term trading seem to have to some degree unwound their positions -- long positions in stocks combined with short positions in the yen -- which were accumulated as Japanese stock prices rose in tandem with depreciation of the yen.
- In foreign exchange markets, the volatility of the yen's exchange rates has generally declined moderately.

Chart IV-2-2: MFIVs of stock prices¹



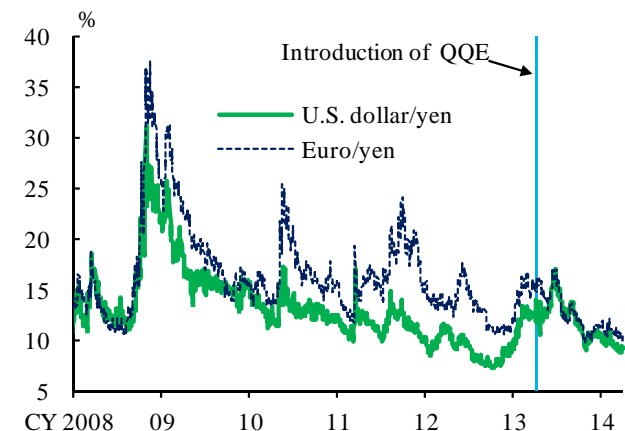
Note: 1. The latest data are as of March 31, 2014.
Source: Bloomberg.

Chart III-3-8: Trading volume of Japanese stocks by type of investor¹



Note: 1. The latest data are as of March 2014.
Source: Tokyo Stock Exchange.

Chart IV-3-2: MFIVs of U.S. dollar/yen and euro/yen rates^{1,2}

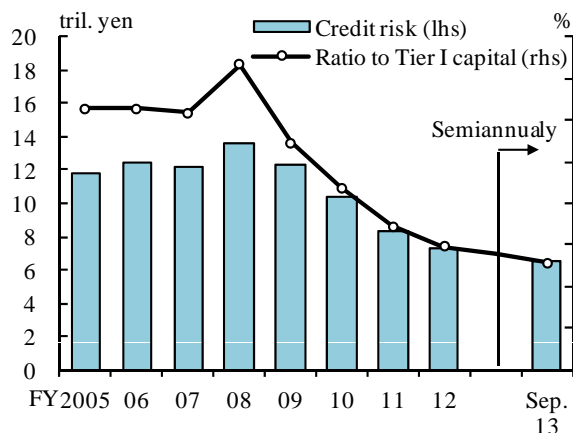


Notes: 1. MFIVs are calculated by using data on 3-month over-the-counter option prices.
2. The latest data are as of March 31, 2014.
Sources: Bloomberg; BOJ.

Credit risk

- Credit risk at financial institutions such as banks and *shinkin* banks declined due to factors such as improvement in the quality of assets reflecting the economic recovery.
 - ✓ The borrower classification shows that the quality of loans has continued to improve recently, particularly among major and regional banks.
- The credit cost ratio turned negative at major banks, and regional banks also saw a decline in the credit cost ratio.

Chart V-1-1: Credit risk^{1,2,3,4}

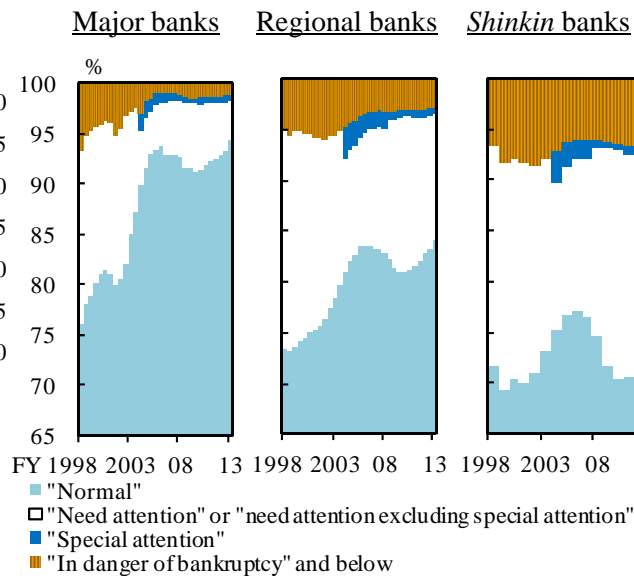


- Notes: 1. Banks and *shinkin* banks are counted.
 2. Credit risk is unexpected losses with a 99 percent confidence level.
 3. Credit risk includes foreign currency-denominated assets.
 4. For *shinkin* banks, figures for Tier I capital and credit risk in the first half of fiscal 2013 are assumed to be unchanged from end-March 2013.

Source: BOJ.

Unexpected losses: the maximum amount of losses with a certain probability of occurrence minus the average amount of losses.

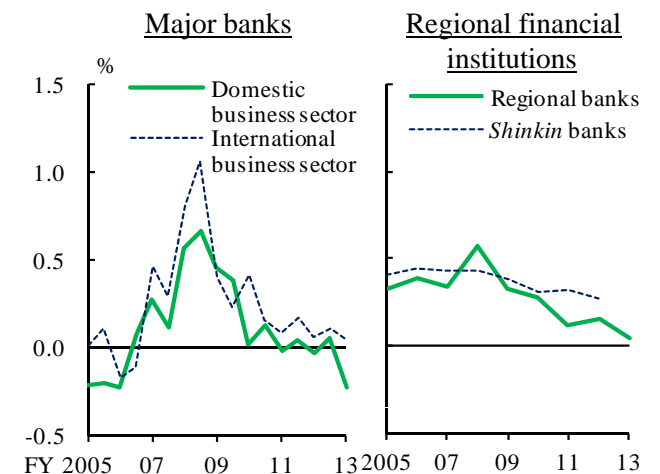
Chart V-1-7: Loans outstanding by borrower classification^{1,2}



- Notes: 1. The latest data for major banks and regional banks are as of end-September 2013, and those for *shinkin* banks are as of end-March 2013.
 2. "Need attention" or "need attention excluding special attention" indicates "need attention" until fiscal 2003 and "need attention excluding special attention" from fiscal 2004.

Source: BOJ.

Chart V-1-3: Credit cost ratio by type of bank¹



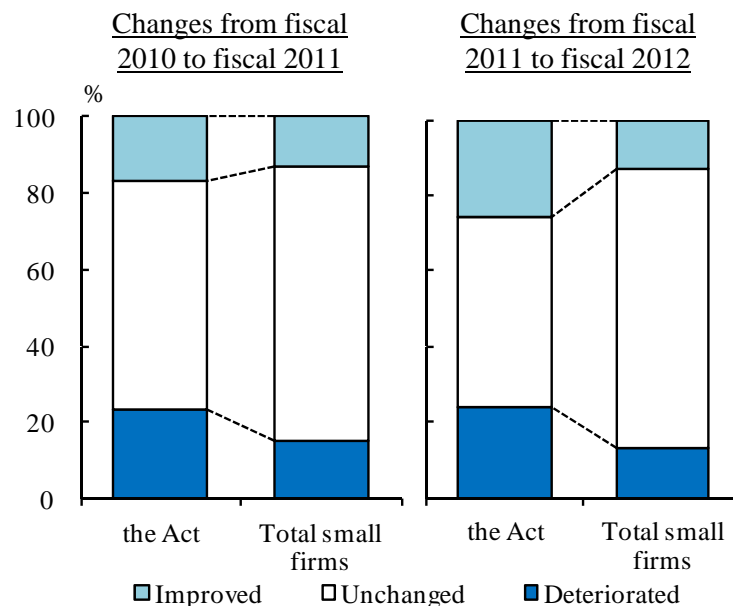
- Note: 1. The latest data for major banks and regional banks are as of the first half of fiscal 2013 (annualized), and those for *shinkin* banks are as of fiscal 2012.

Source: BOJ.

Firms' business conditions under the SME Financing Facilitation Act

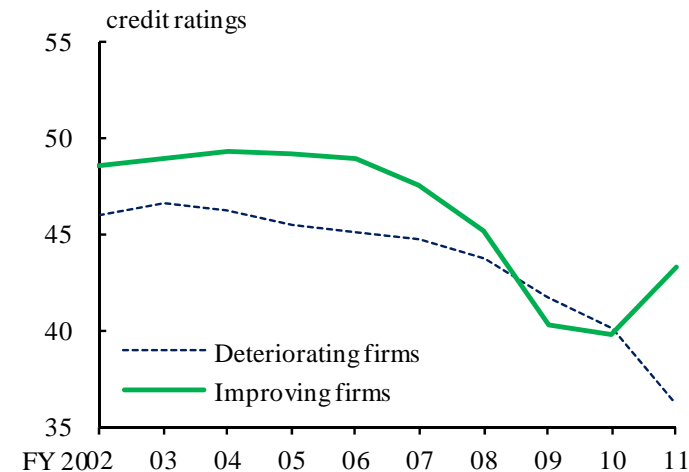
- The improvement in the asset quality among financial institutions and the decline in credit costs seem to reflect the economic recovery and the assistance extended by financial institutions to firms in distress under the SME Financing Facilitation Act.
- The proportions of firms whose credit scores improved and deteriorated were larger among firms that were likely to have benefited from the SME Financing Facilitation Act than were those of firms to which it was not applied.
- The group of firms whose credit scores worsened had relatively low scores prior to the Lehman shock, and their scores were following a moderate downtrend. This trend could not be stemmed even by application of the SME Financing Facilitation Act.
 - ✓ It will be worth observing whether the effects of the upturn in the economic and price situation spread to the business conditions of firms in the latter group, and whether these firms can enhance their corporate value by proceeding with financial and business restructuring under continued support from financial institutions.

Chart V-1-8: Credit rating changes for firms to which the SME Financing Facilitation Act applies¹



Note: 1. Firms with capital less than 100 million yen are counted.
Source: Teikoku Databank, "SPECIA."

Chart V-1-9: Credit ratings for groups of deteriorating and improving firms¹



Note: 1. Firms to which the SME Financing Facilitation Act appear to have been applied in fiscal 2010 and for which data are consecutively available from fiscal 2002 to fiscal 2011 are counted.

Source: Teikoku Databank, "SPECIA."

Interest rate risk

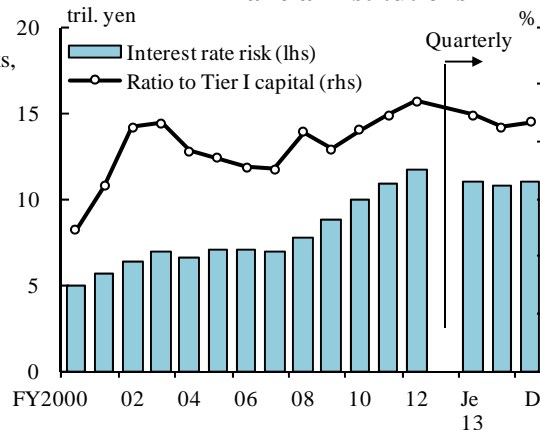
- The amount of interest rate risk continued to decline toward the end of September 2013, but increased somewhat toward the end of December 2013.
- Interest rate risk tends to increase when financial institutions' core profitability is low.
 - ✓ Financial institutions need to appropriately conduct risk management in accordance with their capital strength, comprehensively taking account of other risks such as credit risk and market risk associated with stockholdings.

Notes: 1. Banks and *shinkin* banks are counted.

2. Interest rate risk: 100 basis point value in the banking book. For banks, off-balance-sheet transactions (interest rate swaps) are included.
3. Interest rate risk excludes risk associated with foreign currency-denominated assets and liabilities.
4. For banks, figures for Tier I capital as of end-June 2013 and end-December 2013 are assumed to be unchanged from end-March 2013 and end-September 2013, respectively. For *shinkin* banks, figures for Tier I capital in fiscal 2013 are assumed to be unchanged from end-March 2013.

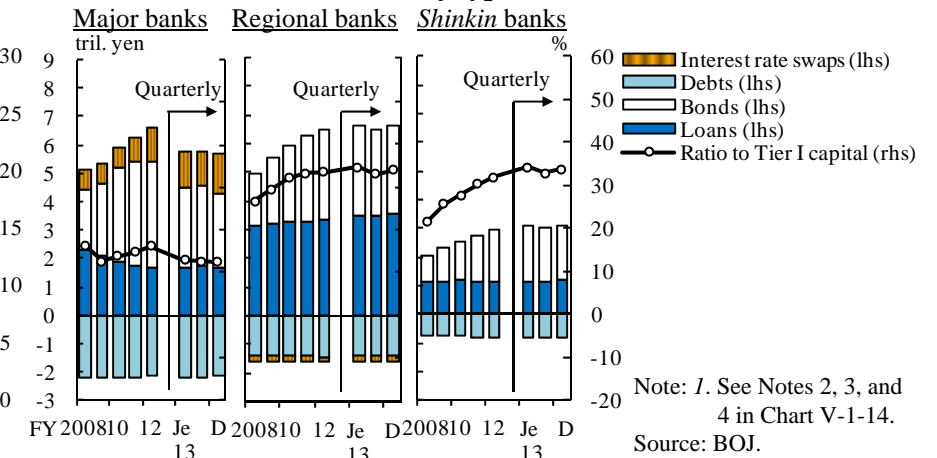
Source: BOJ.

Chart V-1-14: Interest rate risk among financial institutions^{1,2,3,4}



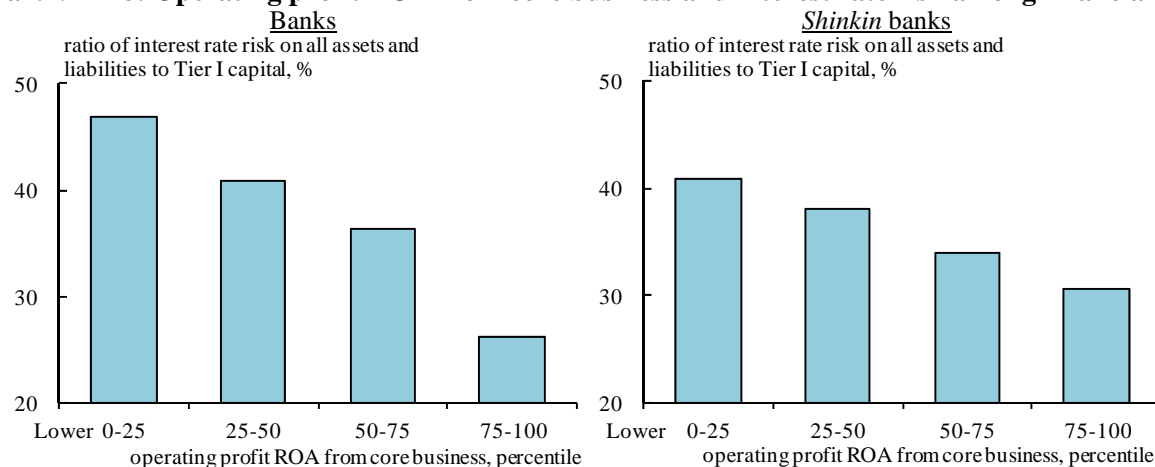
100 basis point value: the amount of losses when market interest rates for all maturities rise by 1 percentage point.

Chart V-1-15: Interest rate risk by type of bank¹



Note: 1. See Notes 2, 3, and 4 in Chart V-1-14.
Source: BOJ.

Chart V-1-18: Operating profit ROA from core business and interest rate risk among financial institutions^{1,2}



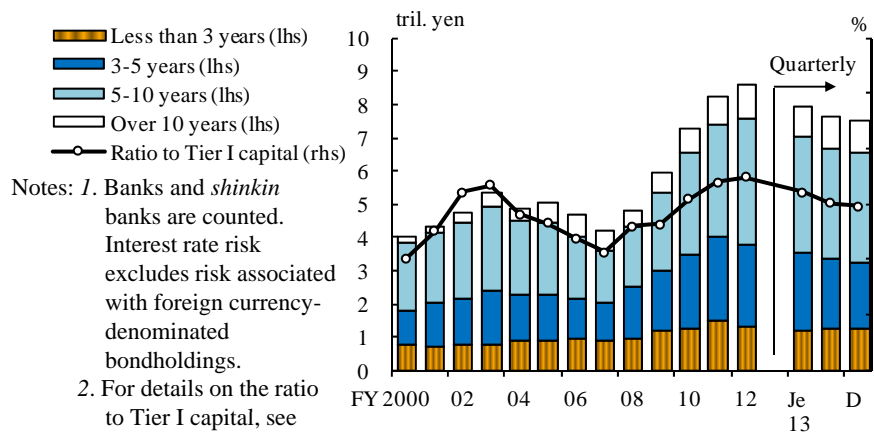
- Notes: 1. The data for interest rate risk are as of end-December 2013. Those for Tier I capital of banks are as of end-September 2013, and those for *shinkin* banks are as of end-March 2013. Operating profit ROA from core business is the average for the past 5 years.
2. For details on interest rate risk, see Notes 2 and 3 in Chart V-1-14.

Source: BOJ.

Interest rate risk (continued)

- The amount of interest rate risk associated with bondholdings at financial institutions as a whole has been decreasing since the beginning of fiscal 2013.
 - ✓ Major banks have significantly reduced their bondholdings in the medium-term maturity zone of 3 to 5 years.
 - ✓ Regional and *shinkin* banks reduced their holdings of yen-denominated bonds with maturities of 5 to 10 years toward the end of September 2013, but their holdings recovered somewhat toward the end of December 2013, mainly for the purpose of acquiring security interest income.

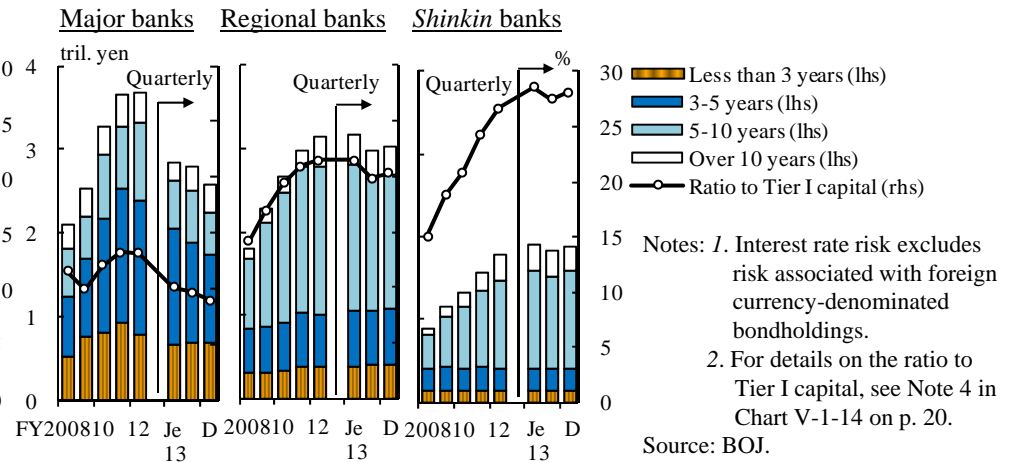
Chart V-1-21: Interest rate risk associated with bondholdings among financial institutions^{1,2}



Notes: 1. Banks and *shinkin* banks are counted. Interest rate risk excludes risk associated with foreign currency-denominated bondholdings.
2. For details on the ratio to Tier I capital, see Note 4 in Chart V-1-14 on p. 20.

Source: BOJ.

Chart V-1-22: Interest rate risk associated with bondholdings by type of bank^{1,2}



Notes: 1. Interest rate risk excludes risk associated with foreign currency-denominated bondholdings.
2. For details on the ratio to Tier I capital, see Note 4 in Chart V-1-14 on p. 20.

Source: BOJ.

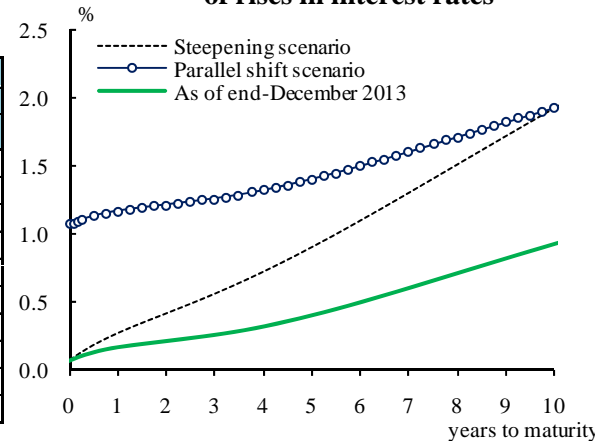
Chart V-1-19: Effects of a rise in interest rates on capital losses on bondholdings¹

		Upward shift					
		End-June 2013			End-December 2013		
		1 % pt	2 % pts	3 % pts	1 % pt	2 % pts	3 % pts
Financial institutions	Steepening scenario	-4.9	-8.3	-11.9	-4.7	-8.0	-11.4
	Parallel shift scenario	-7.9	-13.9	-19.9	-7.5	-13.2	-19.0
Banks	Steepening scenario	-3.5	-5.9	-8.5	-3.3	-5.6	-8.1
	Parallel shift scenario	-6.0	-10.6	-15.3	-5.6	-10.0	-14.4
Major banks	Steepening scenario	-1.4	-2.4	-3.5	-1.3	-2.3	-3.3
	Parallel shift scenario	-2.9	-5.2	-7.5	-2.6	-4.7	-6.8
Regional banks	Steepening scenario	-2.1	-3.5	-5.0	-2.0	-3.3	-4.8
	Parallel shift scenario	-3.2	-5.5	-7.8	-3.0	-5.3	-7.7
Shinkin banks	Steepening scenario	-1.5	-2.4	-3.4	-1.4	-2.3	-3.3
	Parallel shift scenario	-1.9	-3.2	-4.6	-1.9	-3.2	-4.6

Note: 1. The data exclude foreign currency-denominated bondholdings.

Source: BOJ.

Chart V-1-20: Assumptions for yield curve of rises in interest rates¹



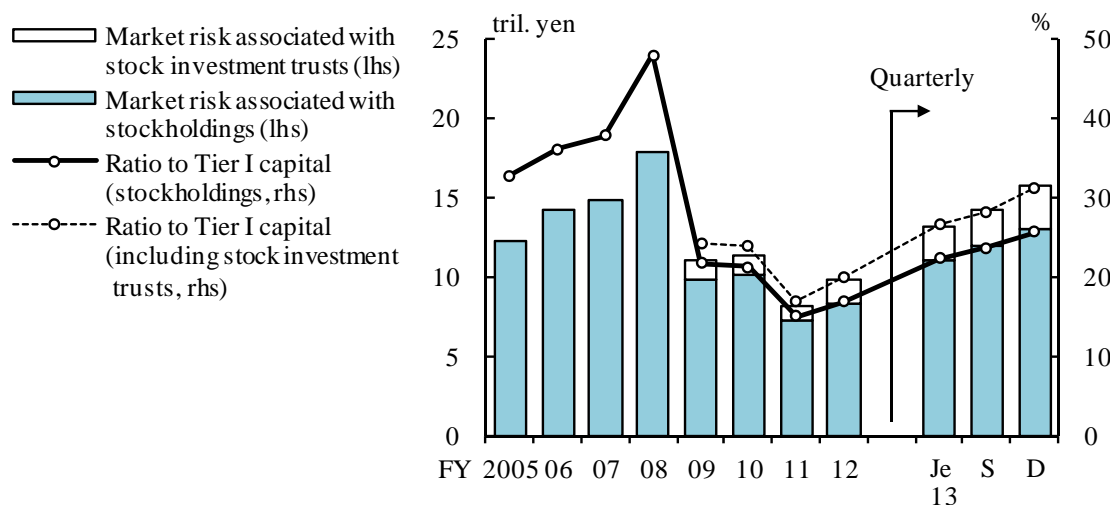
Note: 1. A parallel shift scenario represents the situation in which yields on all maturities shift upward from the baseline by 1 percentage point. A steepening scenario represents the situation in which the 10-year interest rate shifts upward from the baseline by 1 percentage point.

Sources: Bloomberg; BOJ.

Market risk associated with stockholdings

- The amount of market risk associated with stockholdings increased between the end of June 2013 and the end of December 2013.
 - ✓ This was mainly because the market value of total stocks held increased along with the rise in stock prices.
 - ✓ The fact that a wider range of financial institutions have increased, albeit slightly, their outstanding investment in stock investment trusts for the purpose of earning investment gains also led to the increase in the amount of risk.
- However, as financial institutions continued to reduce their stockholdings with the aim of maintaining business ties with firms (strategic stockholdings), their outstanding amount of stockholdings has remained more or less unchanged on a book value basis.

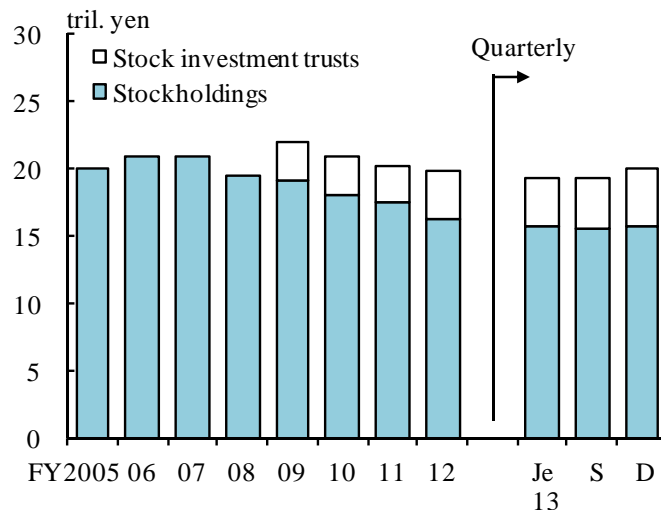
Chart V-1-23: Market risk associated with stockholdings among financial institutions^{1,2,3,4}



- Notes: 1. Banks and *shinkin* banks are counted.
 2. Market risk associated with stockholdings and stock investment trusts: value-at-risk with a 99 percent confidence level and 1-year holding period.
 3. Market risk associated with stockholdings and stock investment trusts excludes risk associated with foreign currency-denominated stockholdings and stock investment trusts. The data for stock investment trusts before fiscal 2008 are excluded from the figures.
 4. For details on the ratio to Tier I capital, see Note 4 in Chart V-1-14 on p. 20.

Source: BOJ.

Chart V-1-24: Outstanding holdings of stocks and stock investment trusts among financial institutions^{1,2,3}



- Notes: 1. Banks and *shinkin* banks are counted.
 2. This chart is based on book value.
 3. The data exclude foreign currency-denominated stockholdings and stock investment trusts. The data for stock investment trusts before fiscal 2008 are excluded from the figures.

Source: BOJ.

Value-at-risk: the maximum amount of losses with a certain probability of occurrence.

Bank capital and the amount of interest rate risk

- Financial institutions' capital bases have generally been adequate.
- While the amount of risk borne by financial institutions increased on the whole between the end of March 2013 and the end of September 2013, its pace of increase has been almost consistent with the rate of capital growth. Therefore, the ability of financial institutions to absorb losses and take on risks seems to remain high compared to the past.

Chart V-1-27: Risks and Tier I capital among financial institutions^{1,2,3,4}

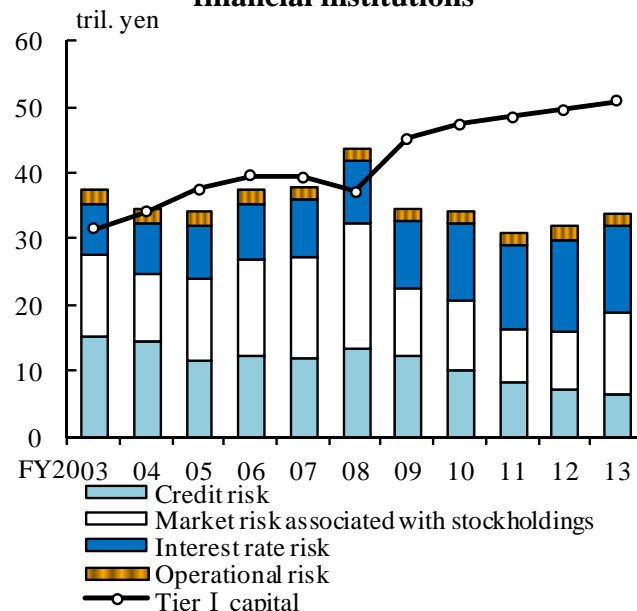
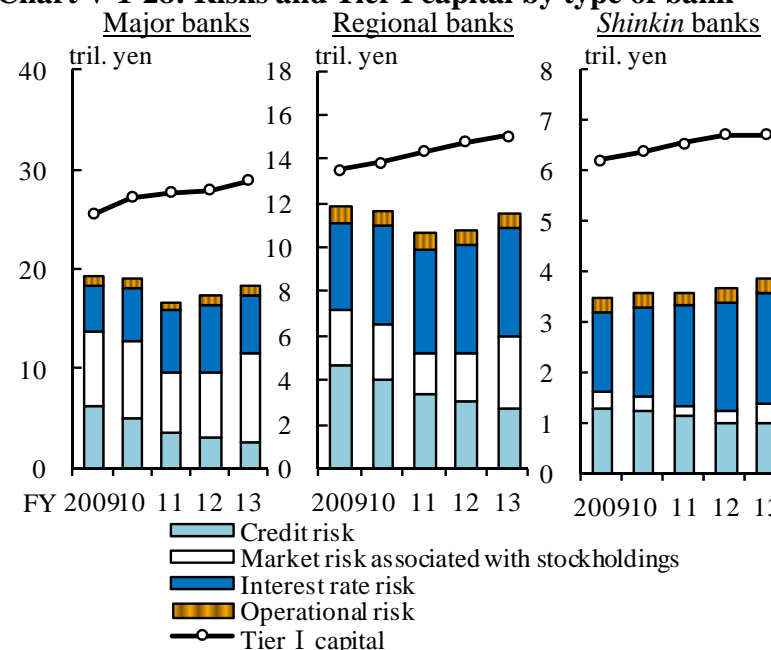


Chart V-1-28: Risks and Tier I capital by type of bank^{1,2,3,4}



Notes: 1. Banks and *shinkin* banks are counted in Chart V-1-27. The latest data are as of end-September 2013.

2. Credit risk: unexpected losses with a 99 percent confidence level. Market risk associated with stockholdings: value-at-risk with a 99 percent confidence level and 1-year holding period. Interest rate risk: 100 basis point value. Operational risk: 15 percent of gross profits. For banks, off-balance-sheet transactions (interest rate swaps) are included.

3. For *shinkin* banks, figures for Tier I capital and credit risk in fiscal 2013 are assumed to be unchanged from the levels of end-March 2013, and figures for gross profits in fiscal 2013 are assumed to be unchanged from fiscal 2012.

4. Market risk associated with stock investment trusts is excluded from that associated with stockholdings. Credit risk includes risk associated with foreign currency-denominated assets. Market risk associated with stockholdings and interest rate risk (on-balance-sheet transactions) at major banks include risk associated with foreign currency-denominated assets.

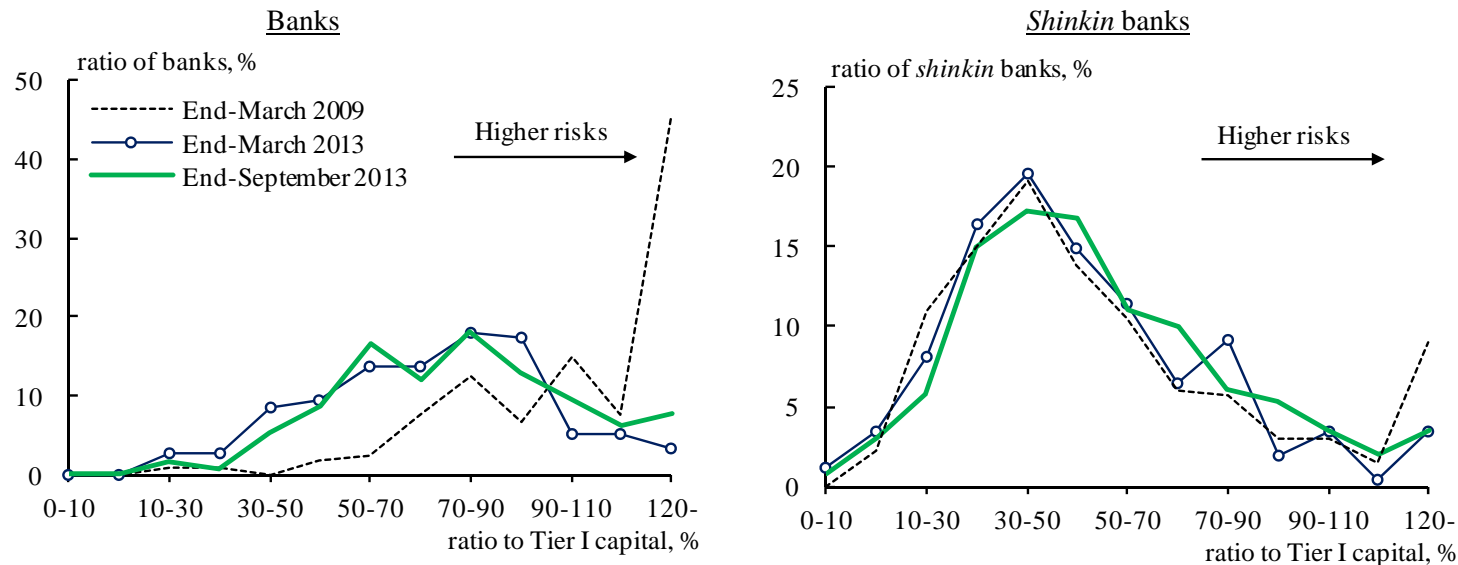
Source: BOJ.

Unexpected losses: the maximum amount of losses with a certain probability of occurrence minus the average amount of losses.
 Value-at-risk: the maximum amount of losses with a certain probability of occurrence.
 100 basis point value: the amount of losses when market interest rates for all maturities rise by 1 percentage point.

Bank capital and the amount of interest rate risk (continued)

- Looking at bank capital adequacy relative to the amount of risk borne by individual financial institutions as of the end of September 2013, many banks have improved their levels of capital relative to the amount of risk they bear compared to those seen immediately after the Lehman shock, although no major changes have been observed in capital levels among *shinkin* banks.
- Nevertheless, there are still some financial institutions with low levels of bank capital adequacy relative to the amount of risk they bear, and these institutions need to steadily strengthen their capital.

Chart V-1-29: Distribution of risks to Tier I capital among financial institutions^{1,2,3,4}



- Notes: 1. Credit risk: unexpected losses with a 99 percent confidence level. Market risk associated with stockholdings: value-at-risk with a 99 percent confidence level and 1-year holding period. Interest rate risk: 100 basis point value. For banks, off-balance-sheet transactions (interest rate swaps) are included.
2. For *shinkin* banks, figures for Tier I capital and credit risk in the first half of fiscal 2013 are assumed to be unchanged from the levels of end-March 2013.
3. Market risk associated with stock investment trusts is included in that associated with stockholdings. Credit risk includes risk associated with foreign currency-denominated assets. Market risk associated with stockholdings and interest risk exclude risk associated with foreign currency-denominated assets and liabilities.
4. The horizontal axes indicate the ratio of the sum of credit risk, interest rate risk, and market risk associated with stockholdings to Tier I capital.

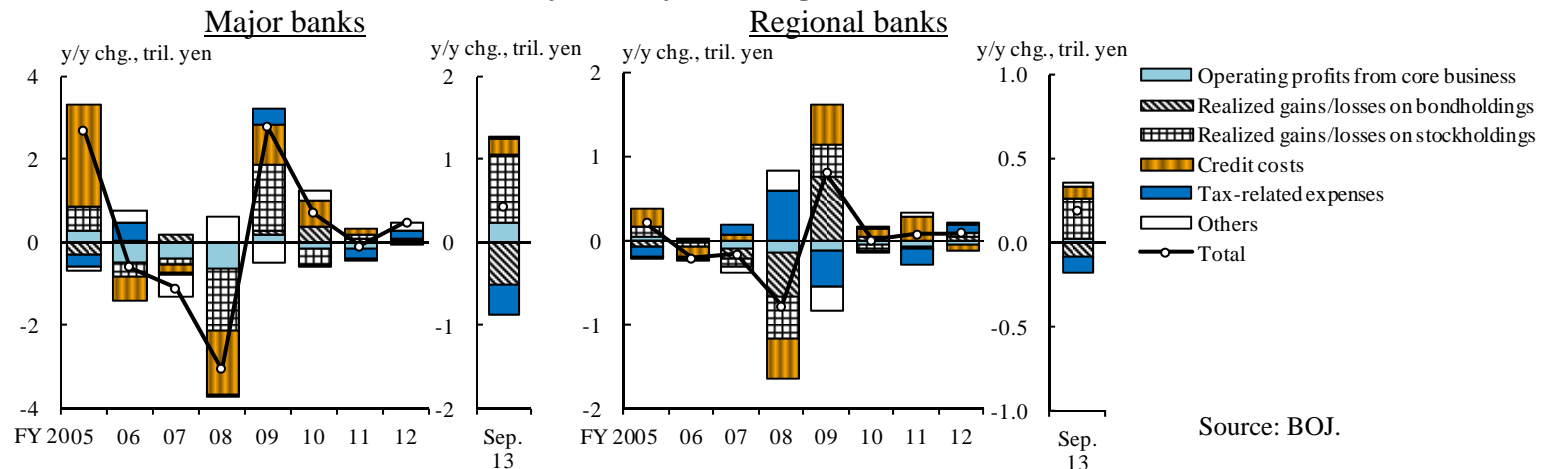
Source: BOJ.

Unexpected losses: the maximum amount of losses with a certain probability of occurrence minus the average amount of losses.
 Value-at-risk: the maximum amount of losses with a certain probability of occurrence.
 100 basis point value: the amount of losses when market interest rates for all maturities rise by 1 percentage point.

Developments in bank profitability

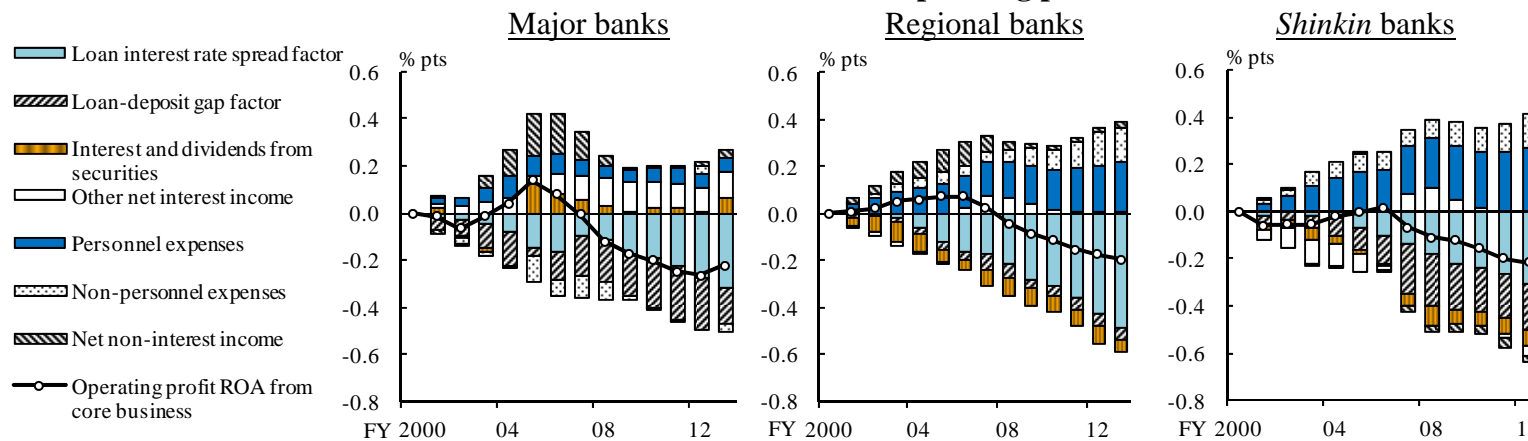
- The recent economic recovery and active financial intermediation have had positive effects on the profits of financial institutions.
 - ✓ Specifically, gains on stockholdings and fees and commissions from sales of investment trusts increased and credit costs decreased.
- However, core profitability (the ratio of operating profits from core business to total assets) has remained on a downtrend against the backdrop of ongoing narrowing of interest rate spreads on domestic loans and expansion of the deposit surplus.

Chart V-1-30: Determinants of the year-on-year change in net income/losses



Source: BOJ.

Chart V-1-32: Determinants of operating profit ROA from core business¹



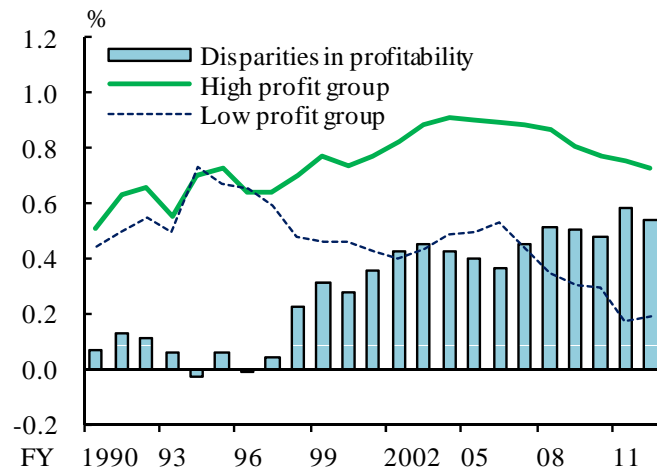
Note: 1. The figures represent cumulative changes from fiscal 2000. The latest data for major banks and regional banks are as of the first half of fiscal 2013 (annualized), and those for *shinkin* banks are as of fiscal 2012. Domestic business sector.

Source: BOJ.

Profitability of regional banks

- In terms of the ratio of operating profits from core business to total assets, the gap in regional banks' ratio of operating profits from core business to total assets in fiscal 2012 between banks in the top 10 percent (high profit group) and in the lowest 10 percent (low profit group) has continued to expand since around 1997.
- Several factors have contributed to the widening gap. Factor decomposition shows that differences in interest rate spreads on loans, gains on securities holdings, and net non-interest income were contributing factors from the early 2000s, but the difference in interest rate spreads on loans has become particularly pronounced since around 2007.

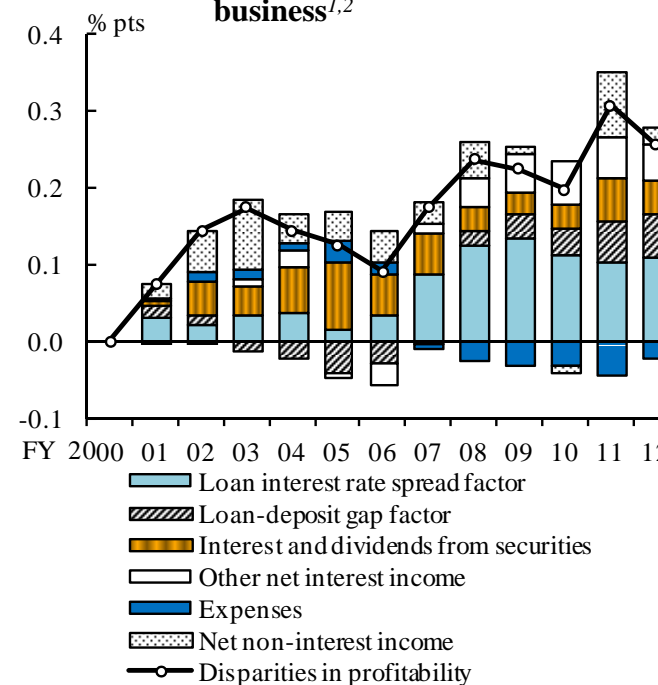
Chart V-1-33: Operating profit ROA from core business of regional banks^{1,2,3}



- Notes: 1. Regional banks that have not merged with other banks are counted.
 2. High profit group and low profit group are composed of regional banks with operating profit ROA from core business in the top 10th percentile range and the bottom 10th percentile range among regional banks in fiscal 2012, respectively.
 3. Disparities in profitability represent the difference between operating profit ROA from core business among high profit group and that among low profit group.

Source: BOJ.

Chart V-1-34: Determinants of disparities in operating profit ROA from core business^{1,2}



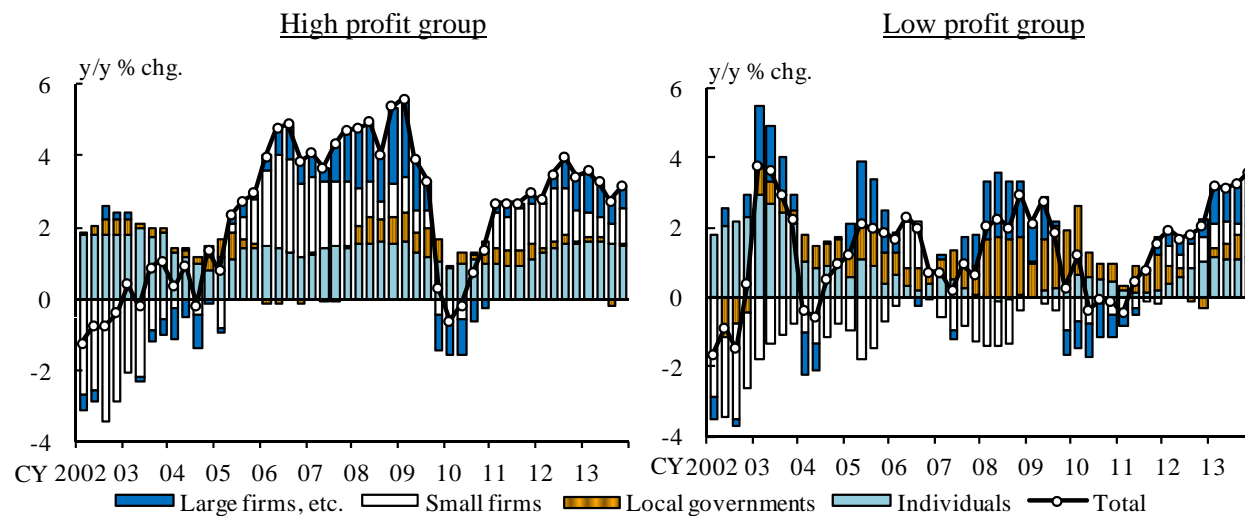
- Notes: 1. Regional banks that have not merged with other banks are counted.
 2. The figures represent cumulative changes from fiscal 2000. For details on the disparities in profitability, see Notes 2 and 3 in Chart V-1-33.

Source: BOJ.

Profitability of regional banks (continued)

- Regarding the low profit group, loans to small and medium-sized firms have been sluggish compared with those extended by the high profit group, and loans to individuals have been restrained since the middle of the 2000s. Meanwhile, loans extended to local governments by the low profit group have shown significant growth.
- Capital adequacy ratios in the high profit group are higher than those in the low profit group, and the gap has widened in the past few years. Some regional banks have maintained relatively high levels of profitability by appropriately managing risks and increasing loans based on adequate financial bases.

Chart V-1-35: Loans outstanding by sector¹

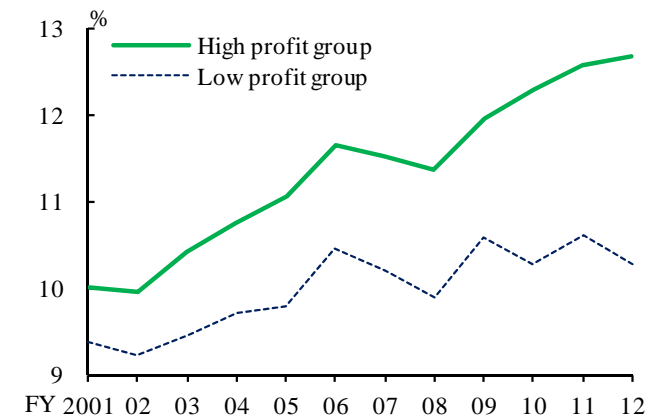


Note: 1. The latest data are as of end-December 2013. See Notes 1 and 2 in Chart V-1-33 on p. 26.

Figures include loans to the finance and insurance industries.

Source: BOJ.

Chart V-1-37: Capital adequacy ratio of regional banks¹



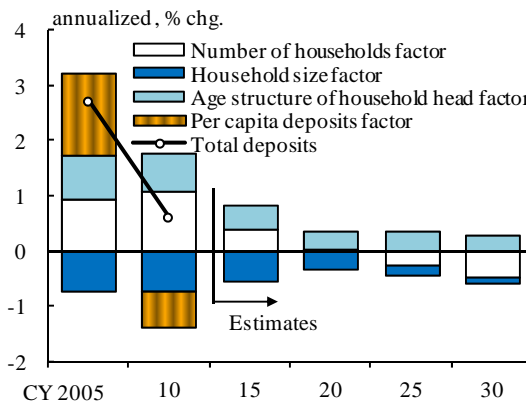
Note: 1. See Notes 1 and 2 in Chart V-1-33 on p. 26.

Source: BOJ.

Demographic changes and household deposits

- Demographic changes have contributed to an increase in household deposits as a whole thus far.
- Based on certain assumptions, our estimation process indicates that demographic changes will cause overall household deposits to decline during the late 2020s.
- The impacts of demographic changes differ substantially among regions. While the impacts of demographic changes are not expected to exert any downward pressure on household deposits in metropolitan areas for the time being, they are expected to gradually exert downward pressure on such deposits in nonmetropolitan areas.

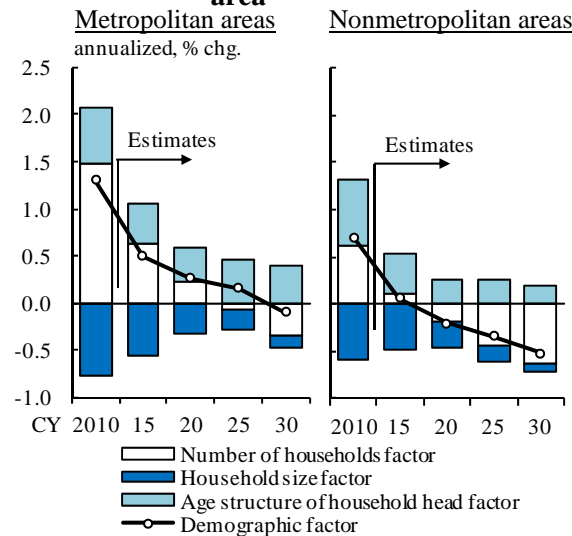
Chart B1-3: Determinants of household deposits^{1,2,3}



Notes: 1. The vertical axis shows annualized growth for the 5 years.
 2. The household size of multi-person households in the estimation period is estimated by the BOJ.
 3. The amount of deposits per one-person household and per capita deposits in multi-person households in 2005 and 2010 are calculated using "National survey of family income and expenditure" of 2004 and 2009, respectively. Those figure after 2010 are assumed to be unchanged in all age groups.

Sources: Ministry of Internal Affairs and Communications, "National survey of family income and expenditure," "Population census"; National Institute of Population and Social Security Research, "Household projection for Japan"; BOJ.

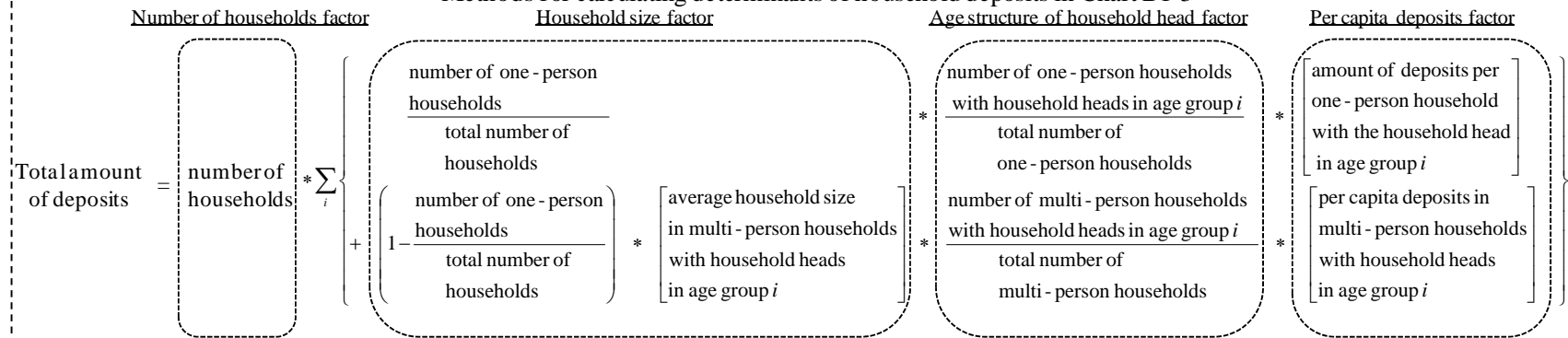
Chart B1-5: Demographic factors of household deposits by area^{1,2}



Notes: 1. The data used for these charts are calculated in the same manner as are those in Chart B1-3 using metropolitan and nonmetropolitan area data. "Demographic factor" consists of "number of households factor," "age structure of household head factor," and "household size factor." The amount of deposits per one-person household and the household size by age group for multi-person households are assumed to be the same as for the national data in Chart B1-3. The per capita deposits in multi-person households in 2010 are calculated using "National survey of family income and expenditure" of 2009, and after 2010 are assumed to be unchanged in all age groups.
 2. Metropolitan areas consist of the Southern Kanto region, the Tokai region, and the Kinki region. Nonmetropolitan areas are those other than metropolitan areas.

Sources: Ministry of Internal Affairs and Communications, "National survey of family income and expenditure," "Population census"; National Institute of Population and Social Security Research, "Household projection for Japan"; BOJ.

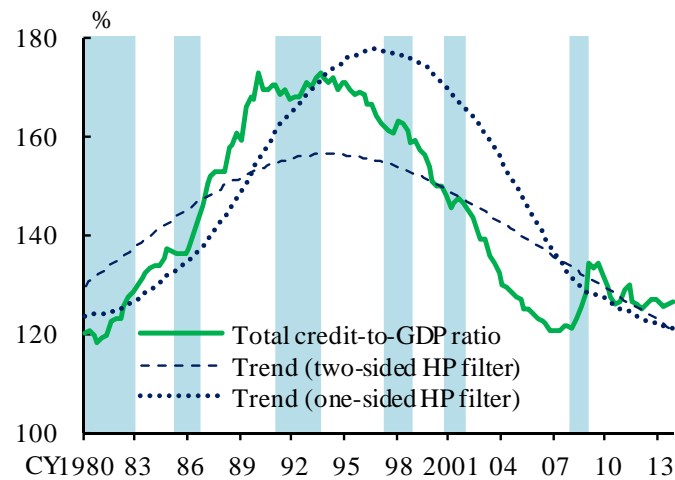
Methods for calculating determinants of household deposits in Chart B1-3



Macro risk indicators

- Financial risk indicators do not show any signs of overheating or instability in developments in financial markets and financial institutions' behavior that should be noted from a macroeconomic perspective.
 - ✓ The total credit-to-GDP ratio has been more or less unchanged, hovering around its long-term trend.
 - ✓ Most Financial Activity Indexes (FAIXs) do not show any signs of overheating.

Chart VI-1-1: Total credit-to-GDP ratio^{1,2}



Notes: 1. Shaded areas indicate economic recession periods. The latest data are as of the October-December quarter of 2013.
2. The two-sided HP filter is a method for extracting a trend from all available data using the Hodrick Prescott filter. The one-sided HP filter is a method for extracting a trend from the data available for a time period using the Hodrick Prescott filter.
Sources: Cabinet Office, "National accounts"; BOJ, "Flow of funds accounts."

Chart VI-1-3: Heat map of Financial Activity Indexes¹

		CY	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14		
Financial institutions	DI of lending attitudes of financial institutions																																						
	Growth rate of M2																																						
Financial markets	Equity weighting in institutional investors' portfolios																																						
	Stock purchases on margin to sales on margin ratio																																						
Private sector	Private investment to GDP ratio																																						
	Total credit-to-GDP ratio																																						
Household	Household investment to disposable income ratio																																						
	Household loans to GDP ratio																																						
Corporate	Business fixed investment to GDP ratio																																						
	Corporate credit to GDP ratio																																						
Real estate	Real estate firm investment to GDP ratio																																						
	Ratio of real estate loans to GDP																																						
Asset prices	Stock prices																																						
	Land prices to GDP ratio																																						

Note: 1. The latest data for the DI of lending attitudes of financial institutions, the stock purchases on margin to sales on margin ratio, and stock prices are as of the January-March quarter of 2014. Those for growth rate of M2 are as of January-February of 2014, and those for the land prices to GDP ratio are as of the July-September quarter of 2013. Those for other indicators are as of the October-December quarter of 2013.

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"; BOJ, "Flow of funds accounts," "Loans and bills discounted by sector," "Money stock," "Tankan."

Heat map of Financial Activity Indexes
 Red (darkest areas): overheating (a rise above the upper threshold).
 Blue (second darkest areas): overcooling (a decline below the lower threshold).
 Green (most lightly shaded areas): everything in between above.
 White: periods without data.

Reference: Revision of the Financial Activity Indexes

VI. Risk assessment of the financial system from a macroeconomic perspective

- Considering that progress has been made in studies on and practical applications of early warning indicators in other countries, we decided to revise the FAIXs in preparing this issue of the *Report*.
 - ✓ As a result of the revision, two of the ten financial indicators comprising the previous FAIXs were abandoned, one was retained, three were revised in terms of extraction methods, and four were revised in terms of data processing methods.
 - ✓ The 14 indicators, including these eight and six newly selected, now constitute the new FAIXs.
- The assessment of the present state of financial activities does not change even if it is based on the previous FAIXs: most indicators in the previous FAIXs do not show any signs of overheating, as in the assessment based on the new FAIXs.

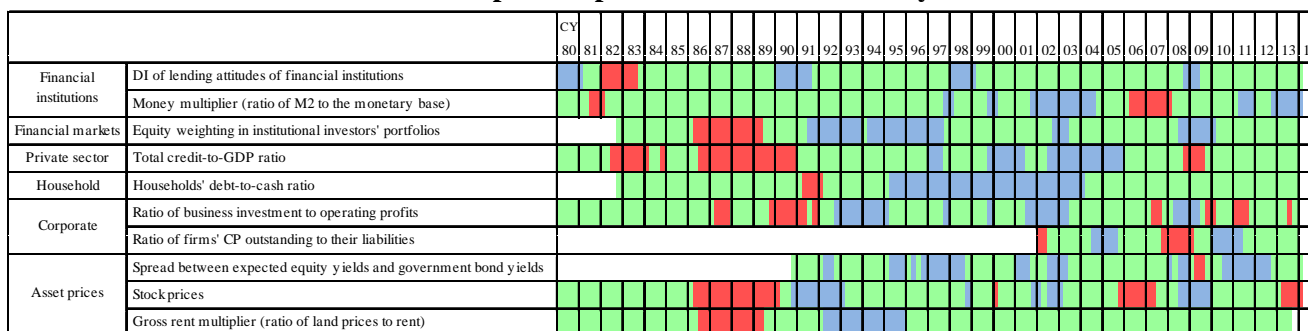
Chart B2-2: Comparison between the new FAIXs and the previous FAIXs^{1,2,3}

	New indicators		Previous indicators	
	Investment Activity	Funding Activity	Investment Activity	Funding Activity
Financial institutions	* DI of lending attitudes of financial institutions < <u>past averages</u> , 1σ >	• <u>Growth rate of M2</u> < <u>one-sided HP filter</u> , 1σ >	DI of lending attitudes of financial institutions < 3-year moving averages, 1σ >	Money multiplier < 3-year moving averages, 1σ >
Financial markets	‡ Equity weighting in institutional investors' portfolios < 3-year moving averages, 1σ >	† <u>Stock purchases on margin to sales on margin ratio</u> < 3-year moving averages, 1σ >	Equity weighting in institutional investors' portfolios < 3-year moving averages, 1σ >	
Private sector	† <u>Private investment to GDP ratio</u> < 3-year moving averages, 1σ >	* Total credit-to-GDP ratio < <u>one-sided HP filter</u> , 1σ >		Total credit-to-GDP ratio < 3-year moving averages, 1σ >
Household	† <u>Household investment to disposable income ratio</u> < 3-year moving averages, 1σ >	• <u>Household loans to GDP ratio</u> < 3-year moving averages, <u>1.25σ</u> >		Households' debt-to-cash ratio < 3-year moving averages, 1σ >
Corporate	• <u>Business fixed investment to GDP ratio</u> < <u>one-sided HP filter</u> , 1σ >	† <u>Corporate credit to GDP ratio</u> < 3-year moving averages, 1σ >	Ratio of business investment to operating profits < 3-year moving averages, 1σ >	Ratio of firms' CP outstanding to their liabilities < 3-year moving averages, 1σ >
Real estate	† <u>Real estate firm investment to GDP ratio</u> < <u>one-sided HP filter</u> , 1σ >	† <u>Ratio of real estate loans to GDP</u> < <u>one-sided HP filter</u> , 1σ >		

	New indicators		Previous indicators	
	Stock prices	Land prices	Stock prices	Land prices
Asset prices	* Stock prices < <u>one-sided HP filter</u> , <u>1.5σ</u> >	• <u>Land prices to GDP ratio</u> < 3-year moving averages, 1σ >	Stock prices < 3-year moving averages, 1σ > Spread between expected equity yields and government bond yields < 3-year moving averages, 1σ >	Gross rent multiplier < 3-year moving averages, 1σ >

Notes: 1. The underlined items show the points of modification. Trends and thresholds for each indicator are in parentheses.
 2. The symbol represent the following; ‡: unmodified, *: methods for extracting trends and thresholds modified, †: data processing methods modified, †: newly adopted.
 3. σ is a unit that represents the root mean square of deviation between actual and trend values.

Chart B2-1: Heat map of the previous Financial Activity Indexes¹



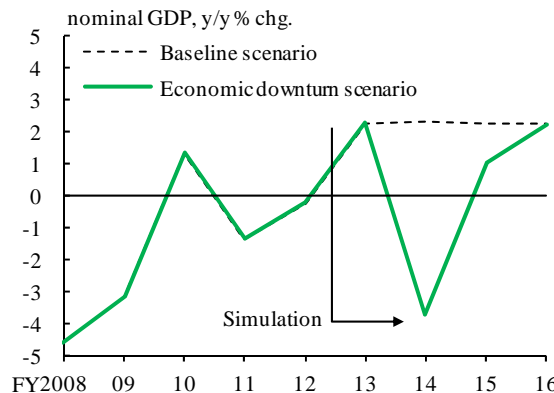
Note: 1. The latest data for the DI of lending attitudes of financial institutions, stock prices, and the spread between expected equity yields and government bond yields are as of the January-March quarter of 2014. Those for the money multiplier (ratio of M2 to the monetary base) are as of January-February of 2014, and those for the gross rent multiplier (ratio of land prices to rent) are as of the July-September quarter of 2013. Those for other indicators are as of the October-December quarter of 2013.

Sources: Bloomberg; Cabinet Office, "National accounts"; Japan Post Holdings, "The former Japan Post statistical data"; Japan Real Estate Institute, "Urban land price index"; Ministry of Finance, "Financial statements statistics of corporations by industry"; Ministry of Internal Affairs and Communications, "Consumer price index"; Ministry of Posts and Telecommunications, "Annual statistical report of postal services," "Annual statistical report of postal service administrations"; Thomson Reuters; BOJ, "Flow of funds accounts," "Monetary base," "Money stock," "Tankan."

Macro stress testing: Economic downturn scenario

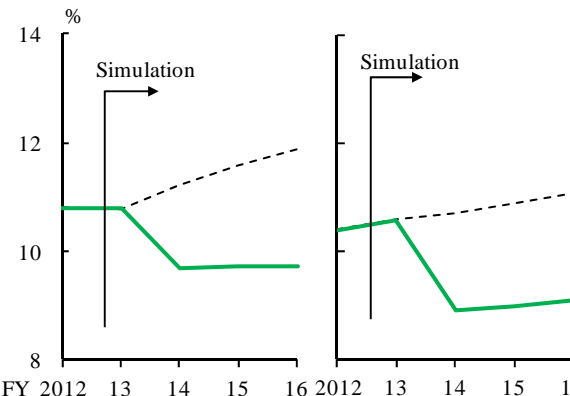
- Financial institutions on the whole would be able to maintain the levels of capital adequacy ratios above regulatory levels even if a significant economic downturn similar to the Lehman shock occurred.
- However, the distribution of individual bank capital adequacy ratios shows that some domestic banks' rates of decline in capital adequacy ratios are relatively large.
 - ✓ Particular attention should be paid to the fact that the rates of decline in capital adequacy ratios would be substantial for financial institutions with low loan quality.

Chart VI-2-1: Domestic economy



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

Chart VI-2-5: CET I capital ratio and Tier I capital ratio^{1,2,3}
Internationally active banks Domestic banks

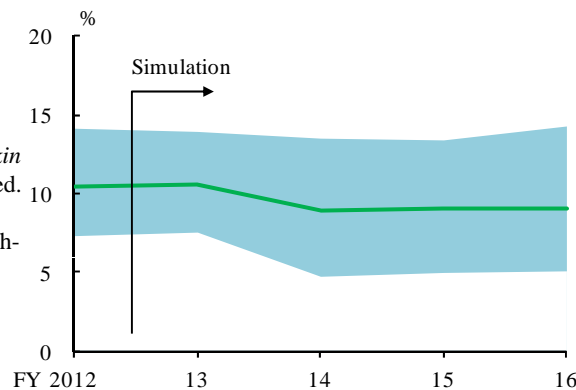


----- Baseline scenario
— Economic downturn scenario

Notes: 1. Banks and *shinkin* banks are counted.
2. The left-hand chart shows the CET I capital ratio of internationally active banks. The right-hand chart shows the Tier I capital ratio of domestic banks.
3. The CET I capital ratio of internationally active banks is based on the Basel III requirements (taking the phase-in arrangements into consideration).

Source: BOJ.

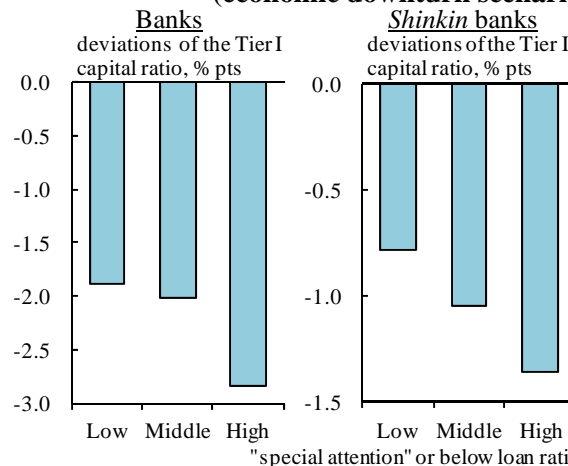
Chart VI-2-7: Domestic banks' Tier I capital ratio distribution (economic downturn scenario)^{1,2}



Notes: 1. Banks and *shinkin* banks are counted.
2. The shaded area indicates the 10th-90th percentile range measured by each bank's share of loans.

Source: BOJ.

Chart VI-2-8: Changes in the Tier I capital ratio and shares of loans to domestic bank borrowers classified "Special attention" or below (economic downturn scenario)^{1,2}



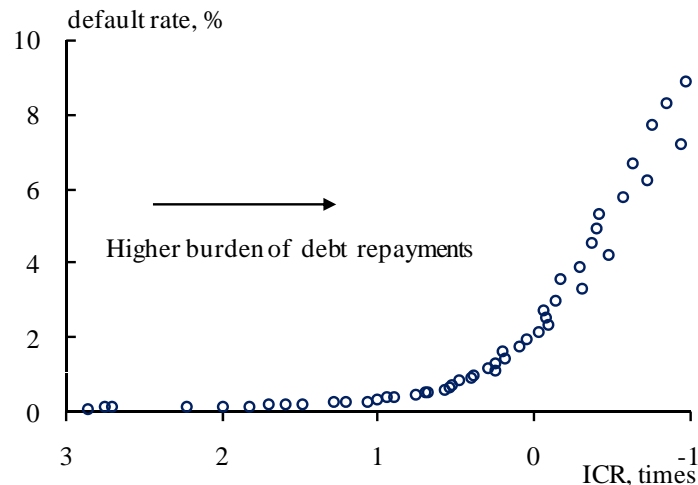
Notes: 1. The horizontal axes show "special attention" or below loans as a share of the total amount of loans outstanding as of end-March 2014. In the left-hand chart, "low" is less than 2.8 percent, "middle" is 2.8-3.8 percent and "high" is 3.8 percent or more. In the right-hand chart, "low" is less than 5.15 percent, "middle" is 5.15-7.75 percent and "high" is 7.75 percent or more.
2. The vertical axes show the average Tier I capital ratio deviation for each bank from the baseline scenario as of end-March 2015.

Source: BOJ.

Reference: Refinement of the Financial Macro-econometric Model

- A rise in market interest rates can increase borrowers' interest payment burden by causing a rise in borrowing rates, and in turn, this can lead to an increase in firms' defaults and financial institutions' credit costs.
- In order to better incorporate this mechanism into the framework and for our testing framework to capture the impacts of a rise in interest rates in a more comprehensive manner, we refined the Financial Macro-econometric Model (FMM) used in our macro stress testing.
 - ✓ Specifically, (1) we refined the credit cost-related equations so that default rates among borrowers are affected more directly by changes in firms' financial positions, and (2) we modified the equation used for determining the level of firms' financial position indicator so that changes in firms' interest payment burden are directly reflected in changes in the indicator.
- As a result of the refinement, the estimated magnitude of increases in credit cost ratios under upward interest rate shift scenarios has become larger than it was in the previous framework.

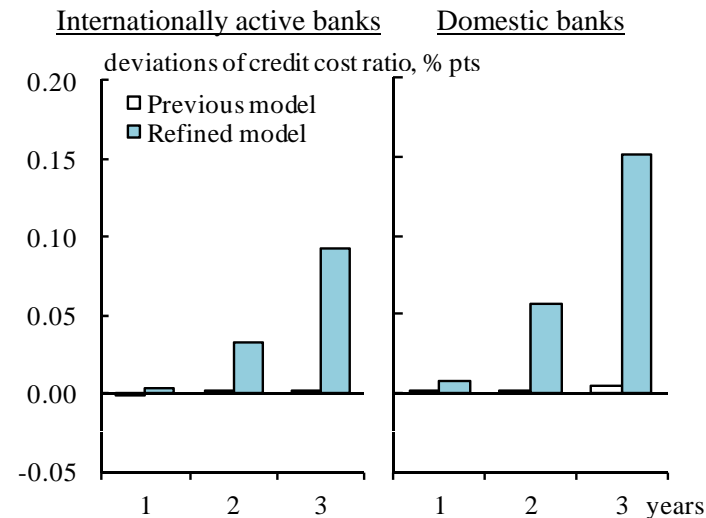
Chart B3-1: ICR and default rate of small and medium-sized firms^{1,2}



Notes: 1. The data are as of 2012. Defaults are defined as loans delinquent for 3 months or more, downgraded to de facto bankrupt or bankrupt, or subrogated by credit guarantee corporations.
2. $ICR = (\text{operating profits} + \text{interest and dividends received, etc.}) / \text{interest payments, etc.}$

Source: CRD.

Chart B3-2: Effects of an upward interest rate shift on credit cost ratio^{1,2}



Notes: 1. Banks and *shinkin* banks are counted.
2. A 2 percentage point steepening in interest rates for the first year is assumed. The vertical axes show deviations from the baseline scenario.

Source: BOJ.

Macro stress testing: Upward interest rate shift scenarios

- Financial institutions on the whole would be able to maintain the levels of capital adequacy ratios above regulatory levels even if interest rates rose substantially (a 2 percentage point steepening).
- Nevertheless, a rise in interest rates may cause a stronger adverse feedback loop between the real economy and financial activity via an increase in the burden of firms' interest payments, depending on the speed and extent of the rise in interest rates and the factors behind it. This may have impacts on financial institutions' profits and capital.

Chart VI-2-9: Domestic economy (upward interest rate shift scenarios)

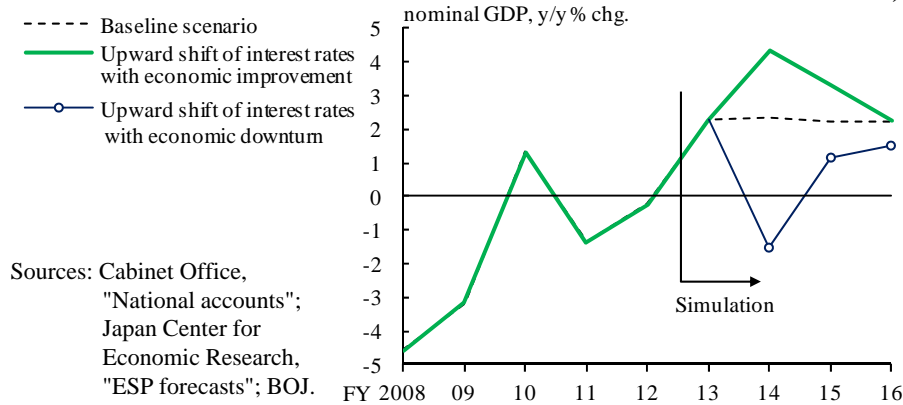


Chart VI-2-12: ICR (upward interest rate shift scenarios)¹

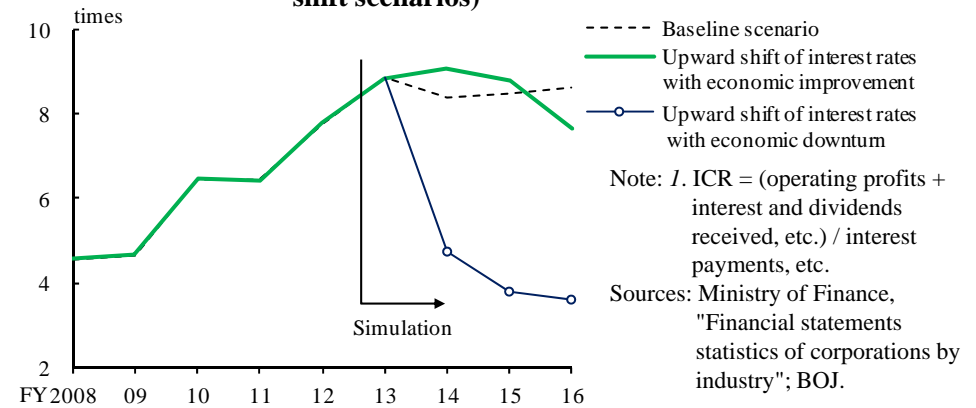


Chart VI-2-13: Credit cost ratio (upward interest rate shift scenarios)¹

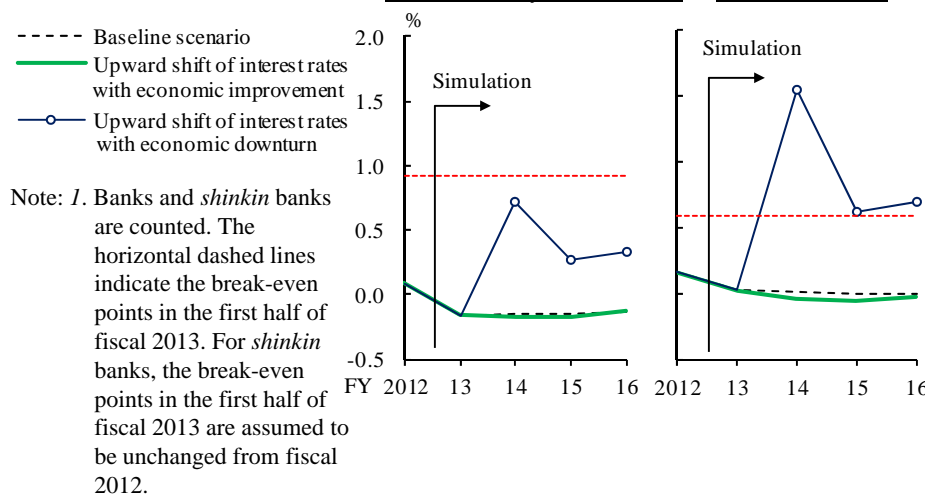
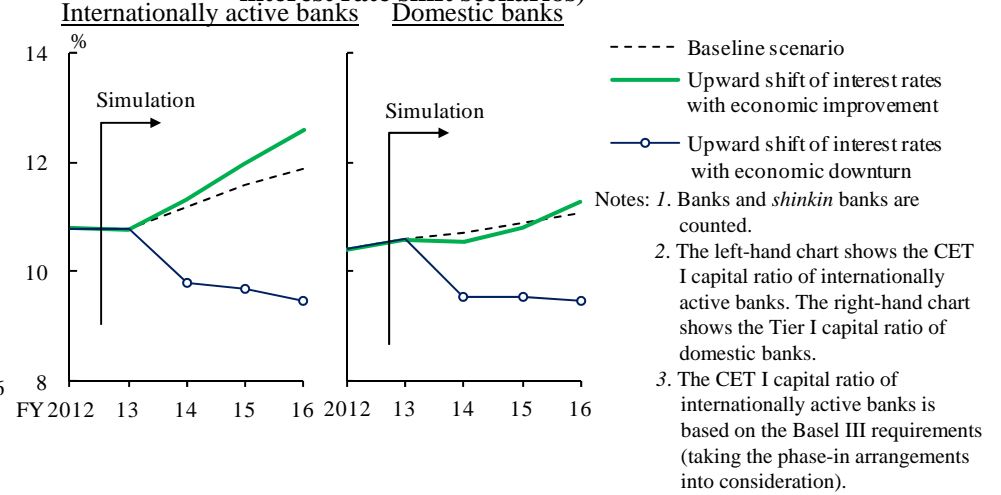


Chart VI-2-14: CET I capital ratio and Tier I capital ratio (upward interest rate shift scenarios)^{1,2,3}



Macro stress testing: Upward interest rate shift scenarios (continued)

- Although domestic banks' capital does not reflect unrealized losses on securities holdings, their capital adequacy ratios would deviate more significantly downward from the baseline scenario in line with a rise in interest rates, if unrealized losses on securities holdings became realized losses.
- The distribution of capital adequacy ratios by individual financial institution shows that some banks face relatively high rates of decline in their capital adequacy ratios, as in the case with the economic downturn scenario.
 - ✓ The degree of impacts on capital depends on the pass-through rates of lending and funding rates at individual institutions.

Chart VI-2-17: Tier I capital ratio of domestic banks (considering unrealized losses on securities holdings)^{1,2}

- - - - Baseline scenario
 —○— Without considering unrealized losses on securities holdings
 —*— Considering unrealized losses on securities holdings

Notes: 1. Banks and *shinkin* banks are counted.
 2. The stress scenario is an upward interest rate shift with an economic downturn.

Source: BOJ.

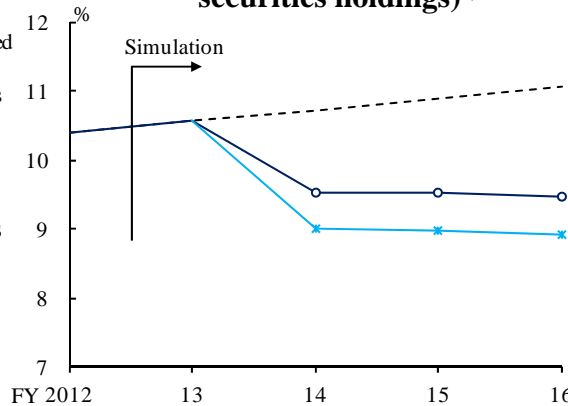
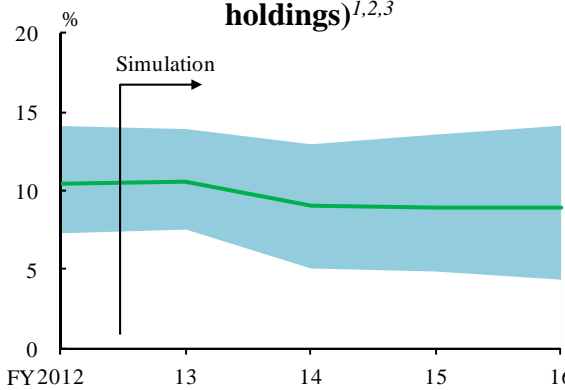


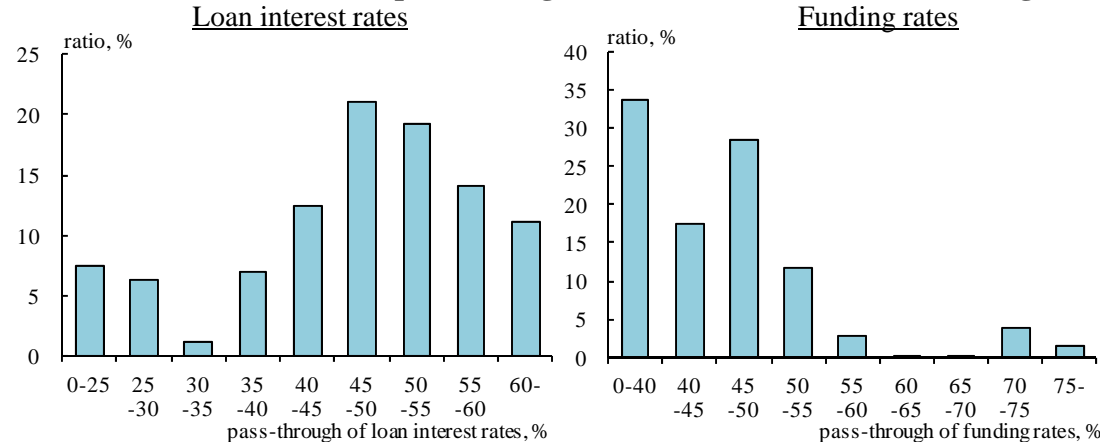
Chart VI-2-18: Domestic banks' Tier I capital ratio distribution (considering unrealized losses on securities holdings)^{1,2,3}



Notes: 1. Banks and *shinkin* banks are counted.
 2. The shaded area indicates the 10th-90th percentile range measured by each bank's share of loans.
 3. The stress scenario is an upward interest rate shift with an economic downturn.

Source: BOJ.

Chart B4-2: Distribution of pass-through of loan interest rates and funding rates^{1,2,3}



Notes: 1. Banks and *shinkin* banks are counted.
 2. The vertical axes show the share of loans outstanding and funding outstanding corresponding to the horizontal axis category. The data are as of end-September 2013.
 3. The horizontal axes indicate pass-through of loan interest rates and funding rates (a year after the market rate rise).

Source: BOJ.

Resilience against funding liquidity risk

- On the funding liquidity side, financial institutions have sufficient liquid assets to see themselves through stress events such as deposit outflows continuing for a certain period and a decline in the functioning of financial markets.
 - ✓ Under an assumption in which market funding in yen comes to a complete stop and deposits are withdrawn, many banks would have sufficient yen-denominated liquid assets to meet their funding needs.
 - ✓ Even under a stress scenario in which all of the foreign currency funding markets become unavailable for 1 month, banks' current foreign currency liquidity buffers would cover their funding shortages.

Chart VI-3-1: Stress testing against yen liquidity shock^{1,2,3}

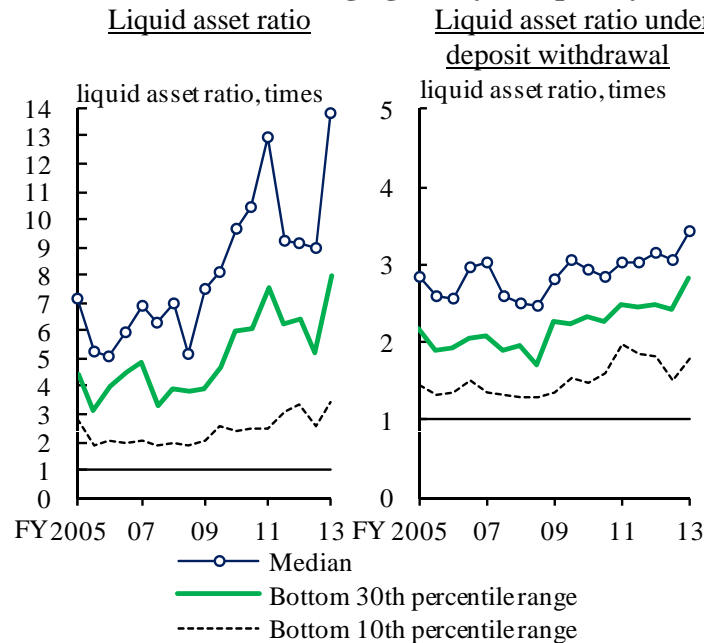
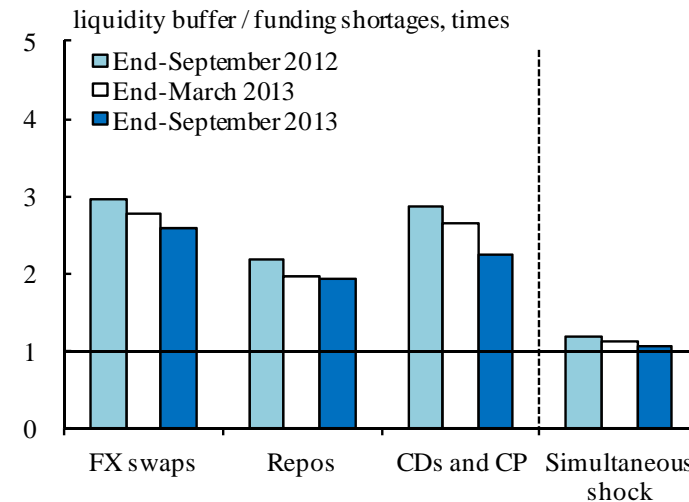


Chart VI-3-2: Stress testing against foreign currency liquidity shock^{1,2}



Notes: 1. Major banks and regional banks are counted. Banks whose market investment exceeds their market funding are excluded. The latest data are as of end-September 2013.

2. Liquid asset ratio = (current accounts held at the Bank of Japan + cash + government bonds) / (net market funding maturing within 3 months + expected withdrawal of deposits with a term until renewal of the deposit rate of 3 months or less).

3. In the left-hand chart, it is assumed that 0 percent of deposits are withdrawn. In the right-hand chart, it is assumed that 10 percent of deposits with a term until renewal of the deposit rate of 3 months or less are withdrawn.

Source: BOJ.

Notes: 1. Major banks and regional banks are counted.

2. The duration of funding shortages in each market is 1 month.

Sources: Published accounts of U.S. MMFs; BOJ.