BOJ Reports & Research Papers

Financial System Report

BANK OF JAPAN

OCTOBER 2014

The total of 10 major banks, 105 regional banks, and 258 *shinkin* banks covered in this *Report* is as follows (as of September 30, 2014).

The 10 major banks comprise Mizuho Bank, The Bank of Tokyo-Mitsubishi UFJ, Sumitomo Mitsui Banking Corporation, Resona Bank, Saitama Resona Bank, Mitsubishi UFJ Trust and Banking Corporation, Mizuho Trust and Banking Company, Sumitomo Mitsui Trust Bank, Shinsei Bank, and Aozora Bank. The 105 regional banks comprise the 64 member banks of the Regional Banks Association of Japan (Regional banks I) and the 41 member banks of the Second Association of Regional Banks (Regional banks II). The 258 *shinkin* banks are the *shinkin* banks that hold current accounts at the Bank of Japan.

This *Report* basically uses data available as of September 30, 2014.

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Preface

Objective of the Financial System Report

The Bank of Japan publishes the *Financial System Report* semiannually, with the objective of comprehensively analyzing and assessing the stability of Japan's financial system and facilitating communication with concerned parties in order to ensure such stability. The Bank uses the results of the analysis set out in the *Report* in planning measures to ensure stability in the financial system and for providing guidance and advice to individual financial institutions through on-site examinations and off-site monitoring. Moreover, the Bank makes use of the results in international regulatory and supervisory discussions. In relation to monetary policy, the macro assessment of financial system stability is also an important input for the Bank in assessing risks in economic and price developments from a medium- to long-term perspective.

The *Report* assesses the stability of Japan's financial system from a macroprudential perspective. The macroprudential framework is used to devise institutional designs and policy measures based on analyses and assessments of risks in the financial system, together with the interconnectedness of the real economy, financial markets, and financial institutions' behavior, to ensure the stability of the overall financial system.

Features of this Report

This issue of the *Report* introduces Chapter VII entitled "Toward ensuring financial stability in the future." By looking into the future, this chapter raises possible factors that may affect the stability and the functioning of the financial system, and describes key management challenges for financial institutions as well as actions by the Bank of Japan. Chapter IV entitled "Risks borne by financial institutions" not only provides assessments of the current state of each risk, but also presents some issues that should be taken into account by financial institutions upon their conduct of risk management. Chapter V entitled "Risks observed in financial markets" provides an enriched analysis on global financial markets in addition to that on Japanese financial markets. Furthermore, the main sentence of each section or paragraph is provided in bold text so as to enable readers to grasp the essence of the *Report* by following the respective parts.

On the analytical side, the contents have been enriched, notably in the following areas: (1) detailed examination of the situation in the real estate market; (2) empirical study on changes in financial institutions' portfolios; (3) enhancement of analysis on financial institutions' funding liquidity risk; and (4) refinement of macro stress testing regarding the determination of overseas loans and financial institutions' credit risk assets.

The Bank will continue to enhance the *Report* to contribute further to ensuring financial system stability.

Contents

I. Comprehensive assessment of the financial system

Japan's financial system has been maintaining stability. Financial intermediation has operated more smoothly than before.

Functioning of the financial system

Financial institutions have continued to adopt more proactive lending attitudes both at home and abroad. In Japan, they are now geared toward taking more risks in their business operations by, for example, extending loans to firms with relatively low credit ratings. They are also steadily engaging in the fostering of growing businesses and the revitalization of firms. Financial institutions' domestic loans have grown at a somewhat faster pace, and they have gradually extended loans to a wider range of regions and industries. Meanwhile, the narrowing of interest rate spreads on loans has continued reflecting the fact that the pace of increase in demand for funds remains moderate. The rate of increase in overseas loans has remained high, as financial institutions are actively supporting Japanese firms' international operations. As for securities investment, financial institutions have increasingly taken on risks, albeit to a small extent, particularly by increasing their holdings of investment trusts while maintaining their outstanding amount of yen-denominated bonds at a high level. Regarding financial intermediation through financial markets, favorable issuing conditions have been maintained, as evidenced by sustained high levels of equity financing. Under these circumstances, financial conditions among firms and households have become more accommodative.

Stability of the financial system

Regarding developments in the above-mentioned financial intermediation, no indication of overheating has been observed, including a significant divergence in the amount of credit from its trend. In global financial markets, while volatility has remained at a low level, "search for yields" by investors has been increasingly notable, accompanied by capital inflows into risky assets and a narrowing of risk premiums. As for Japanese markets, long-term interest rates have remained at low levels as a generally low-volatility environment has continued, and stock and credit markets have remained firm. However, there is no indication of excessively bullish expectations.

Capital bases of financial institutions have been adequate on the whole. Their capital adequacy ratios are sufficiently above regulatory levels. Although market risk

associated with stockholdings and interest rate risk borne by financial institutions have increased somewhat since the time of the previous *Report*, financial institutions have achieved higher levels of capital mainly due to their accumulation of profits. Significant developments in the accumulation of risks relative to capital have not been observed. Under these circumstances, financial institutions generally have strong resilience against stresses arising from shocks including a significant economic downturn or a substantial rise in interest rates. However, attention should be paid to the possibility that an economic or financial shock will have an impact on the stability of the financial system, depending on its speed and extent, as well as the factors behind it. With respect to funding liquidity, financial institutions have sufficient funding liquidity in yen funds. The funding structure for foreign currencies is characterized by a high share of market funding, but thanks to efforts by financial institutions to lengthen the maturities of foreign-currency funding instruments, financial institutions have secured a sufficient amount of liquidity to cover fund shortages even if they face difficulties in funding for a certain period of time.

Toward ensuring financial stability in the future

Looking into the future, as the on-going globalization of the economy and the transformation of industrial structures -- at both the national and regional levels -- progress further, the financial intermediation function of and risks borne by the financial system will change both in terms of quality and quantity. Japan's growth potential and the future course of its economic and price developments will affect financial institutions' stance and performance in securities investment through interest rates and stock prices. In addition, intensification of search for yields by investors in global financial markets could affect Japanese markets, depending on future developments. As such, the financial and economic environment will continue to change constantly both at home and abroad, transforming the financial system's risk profile.

At the same time, if the narrowing trend in financial institutions' interest rate spreads on domestic loans and the declining trend in their profitability are prolonged, financial institutions' capacity to take risks and absorb losses could be constrained. Moreover, progress is being made with fundamental international financial regulatory reforms as well as in structural changes to the global financial system, as Japan's financial system has been strengthening its overseas connections due to the globalization of the economy. These factors could affect the stability and functioning of Japan's financial system in the medium term.

Based on the above considerations and from the viewpoint of ensuring financial stability in the future, the following three points can be raised as key management challenges for financial institutions. How they tackle these challenges will serve as a key factor for determining financial institutions' future soundness and profitability.

First, financial institutions are expected to respond appropriately to demand for funds associated with economic recovery as well as to contribute to enhancing the vitality of national and regional industries. They need to enhance their financial intermediation function -- as demonstrated by engagement in active efforts such as investments and loans in growing businesses, revitalization of firms, and the spurring of industrial restructuring -- and strengthen financial tools as well as risk management to make this possible.

Second, financial institutions are expected to continue expanding their overseas operations with progress in the globalization of Japan's economy. Given the high share of market funding for foreign-currency funds, they need to secure a stable funding base and strengthen credit management and other functions in step with expanding operations. At the same time, large financial institutions that conduct business operations globally need to attain higher levels of soundness and business management, including appropriate responses to international regulatory reforms, given that they have a significant impact on the stability and functioning of the financial system as a whole.

Third, securities investment in asset-liability management (ALM) continues to hold great significance under the continued "deposit surplus" situation. Since 2013, financial institutions have been reviewing their risk balance by, for example, increasing investment in investment trusts and foreign securities. Nevertheless, yen-denominated bonds continue to hold the central position in financial institutions' securities investment, and the risk associated with yen interest rates is still at a relatively high level compared with past ones. Financial institutions need to establish clear guidelines for the ALM and appropriately execute risk taking as well as management.

The Bank will deepen dialogue with financial institutions through daily off-site monitoring and on-site examinations, particularly on their actions to deal with the challenges described above as well as their profitability, while encouraging them to improve their business and risk management. It will also exchange views with financial institutions on the actual situation surrounding national and regional industries as well as firms, challenges toward enhancing their vitality, and on possible actions from the financial side. Furthermore, it will promote the sharing of awareness of issues and knowhow by holding seminars on themes that would contribute to enhancing the

functioning of financial intermediation and risk management.

In order to ensure the stability of the financial system as a whole, the Bank will continue to examine the stability and functioning of the system from a macroprudential perspective. Based on the examination, as necessary, it will work to share a common understanding and to hold discussions with a wide range of participants in the financial system on matters including where risks lie, what issues to tackle, and how to respond appropriately to given circumstances.

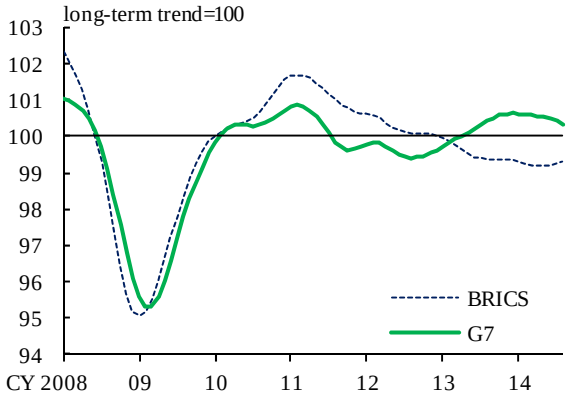
II. Examination of the external environment

This chapter examines the external environment surrounding Japan's financial system, mainly during the first half of fiscal 2014. It summarizes developments in overseas economies, global financial markets, Japan's economy, and fiscal conditions in Japan.

A. Developments in overseas economies and global financial markets

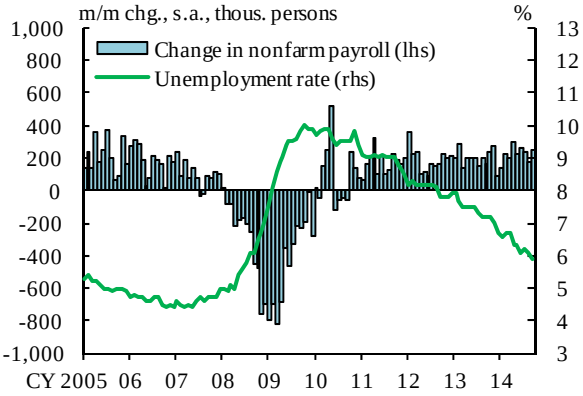
Overseas economies -- mainly advanced economies -- have been recovering, albeit with a lackluster performance still seen in part (Chart II-1-1). On the monetary policy front, the pace of large-scale asset purchases has continued to be reduced in the United States, and additional monetary easing packages have been introduced in Europe in September, following June.

Chart II-1-1: OECD composite leading indicators[1]



Note: *1*. The latest data are as of August 2014. BRICS calculations are simple averages of Brazil, Russia, India, China, and South Africa.
Source: OECD.

Chart II-1-2: Employment situation in the United States[1]

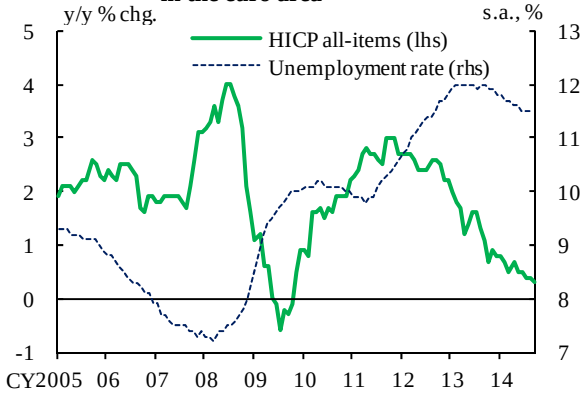


Note: *1*. The latest data are as of September 2014.
Source: U.S. Bureau of Labor Statistics.

In the United States, the moderate economic recovery has started to take hold, as the firmness in the household sector has been feeding through to the corporate sector (Chart II-1-2). In this situation, the Federal Reserve Board has continued to reduce its pace of asset purchases since December 2013. The European economy has been recovering moderately, although its improvement has paused recently. The unemployment rate remains at a high level and the inflation rate has been on a declining trend (Chart II-1-3). There still exist some concerns over the financial system, with nonperforming loan (NPL) ratios in some countries still rising. Under these circumstances, the European Central Bank has introduced successive monetary easing packages, such as a policy interest rate cut, purchases of private assets, and the provision of funds at low interest

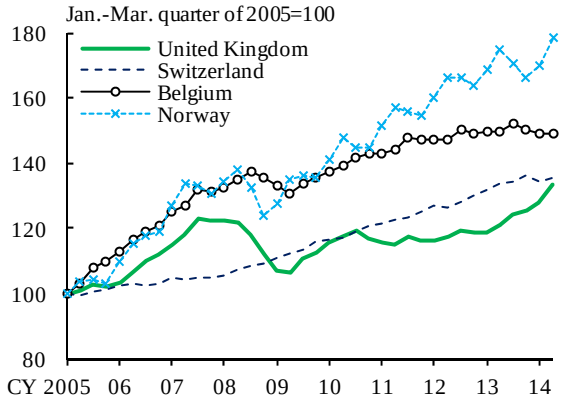
rates and with long maturities aimed at promoting an increase in loans. However, real estate prices have been rising significantly in some countries mainly against the background of continued monetary easing, forcing financial authorities to activate macroprudential policy measures intended to restrain overheating in the real estate market (Chart II-1-4, see Box 1 for activation of macroprudential policy measures in advanced countries).

Chart II-1-3: Unemployment rate and inflation rate in the euro area[1,2,3]



Notes: *1*. Regarding the euro area, the inflation rate is based on the area's composition at each period, and the unemployment rate comprises 18 countries.
2. The unemployment rate excludes conscripts on compulsory military.
3. The latest data for the inflation rate are as of September 2014, and those for the unemployment rate are as of August 2014.
Source: Eurostat.

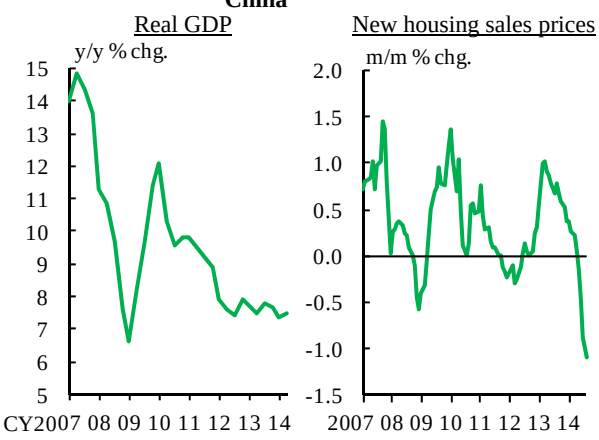
Chart II-1-4: Real estate prices in Europe[1,2]



Notes: *1*. The latest data are as of the April-June quarter of 2014.
2. Switzerland, Belgium, and Norway data are limited to single-family houses.
Sources: BIS, "Property price statistics"; Office for National Statistics.

Emerging economies have continued to lose pace as a whole. As for the Chinese economy, stable growth has continued as a trend; recently, however, growth momentum has slowed with downward pressure from an overhang in supply in the manufacturing sector and adjustments in the real estate market (Chart II-1-5).

Chart II-1-5: Real GDP and housing prices in China[1,2]



Notes: *1*. In the left-hand chart, the latest data are as of the April-June quarter of 2014.
2. In the right-hand chart, 70 major cities are counted. The latest data are as of August 2014. Figures show simple averages of month-to-month changes in each city.
Source: CEIC.

Box 1: Activation of macroprudential policy measures in advanced countries

In some advanced countries including New Zealand and the United Kingdom, real estate prices are rising at a faster pace, and financial authorities have activated macroprudential policy measures in order to prevent the overheating in the real estate market.[1] In this box, we summarize which indicators these countries have focused on and what kind of policy measures they have implemented.

In New Zealand, housing prices had continued to rise since 2012, particularly in metropolitan areas, as the debt burden on households remained at a historically high level (Chart B1-1). In this situation, signs that banks had eased their lending standards were observed, as seen in the fact that the percentage of new housing loans with high loan-to-value (LTV) ratios (one of the indicators of lending standards, obtained by dividing the amount of housing loans extended by the market value of houses) had climbed to the level that prevailed prior to the financial crisis (Chart B1-2). Based on the judgment that there was a high risk of these housing loans turning into NPLs in the event of a sharp rise in interest rates, thereby causing major strains in the financial system, the authority in October 2013 imposed restrictions on loans with high LTV ratios, stipulating that banks would be required to restrict new residential mortgage lending at LTV ratios of over 80 percent to no more than 10 percent of the dollar value of their new residential mortgage lending.

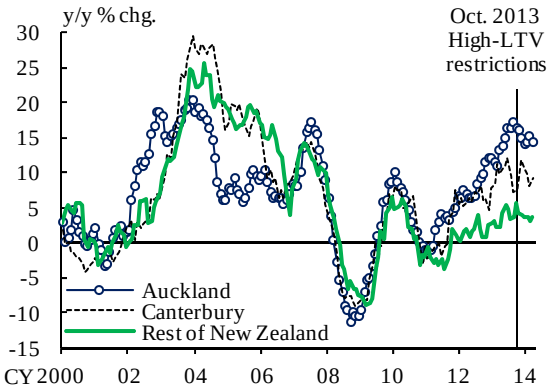
In the United Kingdom, the rise in housing prices -- originally limited mostly to London -- spread across the country, and the average year-on-year rate of increase in housing prices nationwide reached almost 10 percent in March 2014 (Chart B1-3). In addition, the percentage of new housing loans with high loan-to-income (LTI) ratios (one of the indicators of the debt burden, obtained by dividing the amount of credit extended by income) rose beyond the level that prevailed before the time of the financial crisis, and the view that housing loans could easily turn into NPLs if interest rates rose has prevailed (Charts B1-4 and B1-5). Against this background, in October 2014, the authorities activated a policy measure to restrict the ratio of the number of new residential mortgages -- with an LTI ratio of or greater than 4.5 -- to no more than 15 percent of the total number of new residential mortgages.

In addition to New Zealand and the United Kingdom, authorities have also activated

[1] In emerging economies, macroprudential policy measures have been activated more frequently than in advanced economies from the past. For specific examples of such activations, see, for instance, Lim et al., "Macroprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences," IMF Working Paper, WP11/238, October 2011.

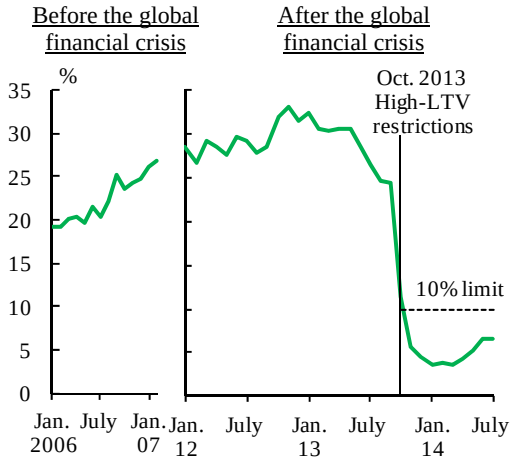
macroprudential policy measures in countries such as Belgium, Norway, and Switzerland. In doing so, the authorities in all of these countries have paid attention to indicators including those that show changes in real estate prices and those that show an increase in the debt burden on economic entities such as households. At the same time, they have made the necessary preparations for a comprehensive assessment of how the accumulation of risks would spread to and materialize in the real economy as well as the financial system.

Chart B1-1: Housing prices in New Zealand[1,2,3]



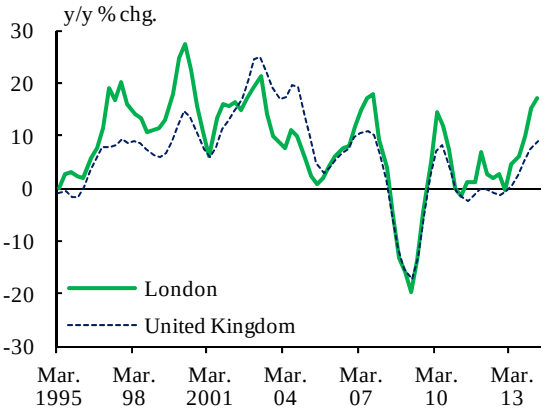
Notes: *1*. The latest data are as of March 2014.
2. 3-month moving averages of year-on-year changes.
3. The vertical line indicates the introduction of high-LTV restrictions.
Source: RBNZ.

Chart B1-2: Ratio of new mortgage loans with an LTV (loan-to-value) ratio of above 80% in New Zealand[1,2,3]



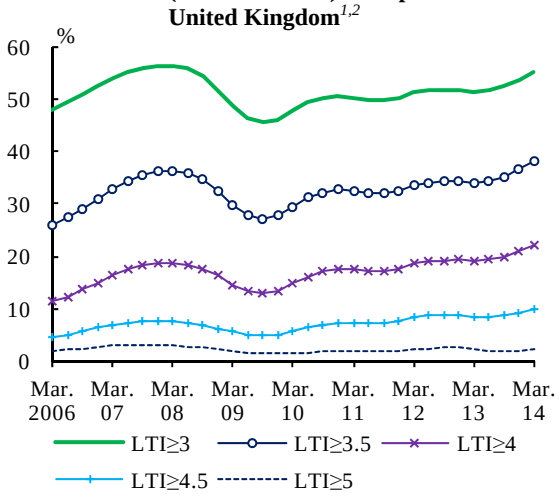
Notes: *1*. The latest data are as of July 2014. The data include exemptions of high-LTV restrictions until July 2013.
2. LTV ratio = the amount of housing loans / the market value of houses.
3. The vertical line indicates the introduction of high-LTV restrictions.
Source: RBNZ.

Chart B1-3: Housing prices in the United Kingdom[1]



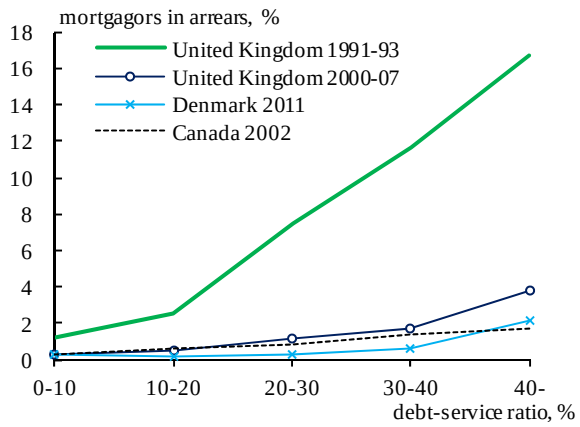
Note: *1*. The latest data are as of March 2014.
Source: BOE.

Chart B1-4: Ratio of new mortgages with LTI (loan-to-income) multiples in the United Kingdom[1,2]



Notes: *1*.The latest data are as of March 2014.
2. LTI ratio = the amount of mortgage loans / income.
Source: BOE.

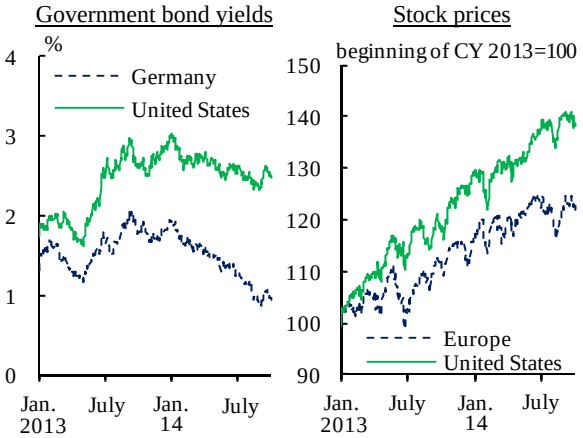
Chart B1-5: Mortgages with DSRs (debt-servicing ratios) and payment difficulties[1,2]



Notes: *1*. DSR= monthly mortgage payment / income.
2. The definitions of mortgage payment and income vary among countries.
Source: BOE.

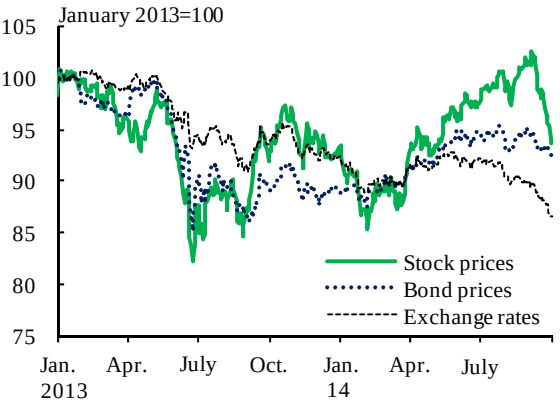
Under this macroeconomic environment, the volatility of interest rates, stock prices, and exchange rates has been declining in global financial markets, and search for yields by global investors has been increasingly notable. Long-term interest rates have declined and stock prices have remained firm in advanced countries (Chart II-1-6). There was an inflow of funds to a broad range of assets. Various credit spreads have contracted, and stock and bond prices have remained firm in emerging economies (Chart II-1-7). However, since summer 2014, concerns over geopolitical risks have heightened reflecting developments in some emerging economies. More recently, stock prices have been declining and currencies have been depreciating, particularly in emerging economies, due to increased awareness of economic developments.

Chart II-1-6: Government bond yields and stock prices in advanced countries[1,2]



Notes: *1*. The latest data are as of September 30, 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 and the STOXX Europe 600 for Europe.
Source: Bloomberg.

Chart II-1-7: Stock prices, bond prices, and exchange rates in emerging markets[1,2]

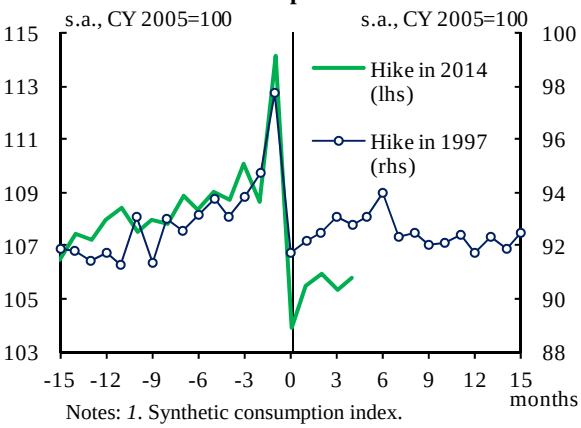


Notes: *1*. The latest data are as of September 30, 2014. The MSCI Emerging Markets Index is used for stock prices, and price indexes for emerging markets calculated by J.P. Morgan are used for bond prices and exchange rates.
2. Higher exchange rates indicate the appreciation of emerging economies' currencies.
Source: Bloomberg.

B. Domestic economy and fiscal conditions

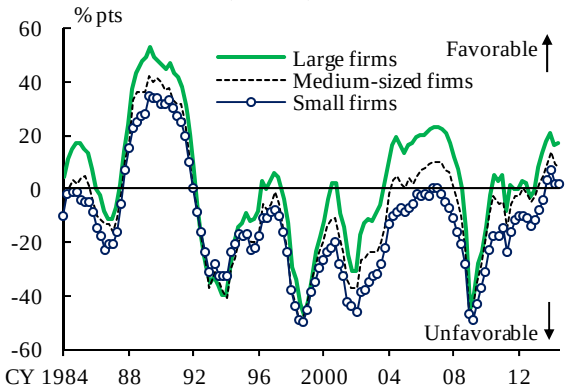
Japan's economy has continued to recover moderately as a trend, although some weakness particularly on the production side has been observed due mainly to the effects of the subsequent decline in demand following the front-loaded increase prior to the consumption tax hike. Private consumption has remained resilient as a trend with the employment and income situation improving steadily, and the effects of the decline in demand following the front-loaded increase have been waning on the whole, albeit unevenly (Chart II-2-1). Business sentiment has generally stayed at a favorable level, although its improvement has paused due mainly to the effects of the consumption tax hike (Chart II-2-2). Under this environment, the year-on-year rate of increase in consumer prices (all items less fresh food), excluding the direct effects of the consumption tax hike, is around 1¼ percent. The Bank of Japan continues to conduct quantitative and qualitative monetary easing (QQE), which was introduced in April 2013.

Chart II-2-1: Developments in domestic consumption[1,2,3]



Notes: *1*. Synthetic consumption index.
2. The latest data are as of August 2014.
3. Month 0 indicates April 1997/2014, concurrent with the rise in the consumption tax rate.
Source: Cabinet Office, "Synthetic consumption index."

Chart II-2-2: DI of business conditions (*Tankan*)[1]

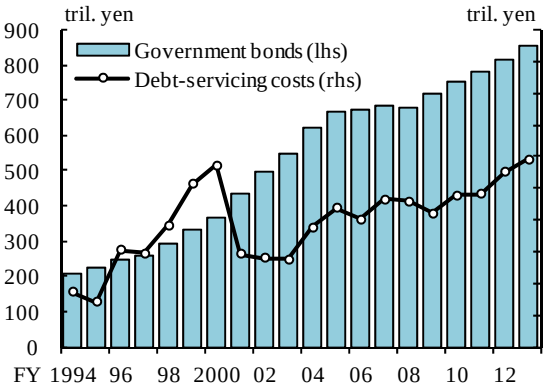


Note: *1*. The latest data are September forecasts for December 2014.
Source: BOJ, "*Tankan*."

Regarding fiscal conditions, government debt has continued to increase, and national debt service expenditure (the sum of redemption fees and interest payments) has also increased (Chart II-2-3). As for the fiscal balance, according to a statement on economic and fiscal projections for medium- to long-term analysis presented by the government in July 2014, primary deficits are expected to persist for a certain period, mainly because of increasing social security expenditure against the

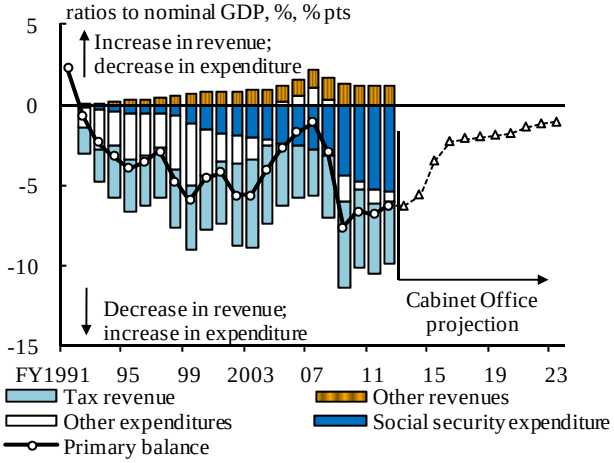
backdrop of factors such as the aging population (Chart II-2-4).[2]

Chart II-2-3: Government debt outstanding and debt-servicing costs[1,2]



Notes: *1*. The data are final results until fiscal 2012 and the revised budget for fiscal 2013.
2. The data include FILP bonds.
Source: Ministry of Finance.

Chart II-2-4: Primary balance[1,2,3]



Notes: *1*. The primary balance figures are ratios to nominal GDP. Breakdown figures show cumulative changes from fiscal 1991. The data are for the central and local governments.
2. "Social security expenditure" comprises the following items: social benefits other than social transfers in kind; social transfers in kind; and current transfers from the central and local governments to social security funds.
3. The primary balances from fiscal 2013 to fiscal 2023 are Cabinet Office estimates (Economic revitalization case). Breakdown figures are the Bank of Japan's estimates.
Sources: Cabinet Office, "Economic and fiscal projections for medium to long term analysis," "National accounts"; BOJ.

[2] In Japan, the fiscal year starts in April and ends in March of the following year.

III. Examination of financial intermediation

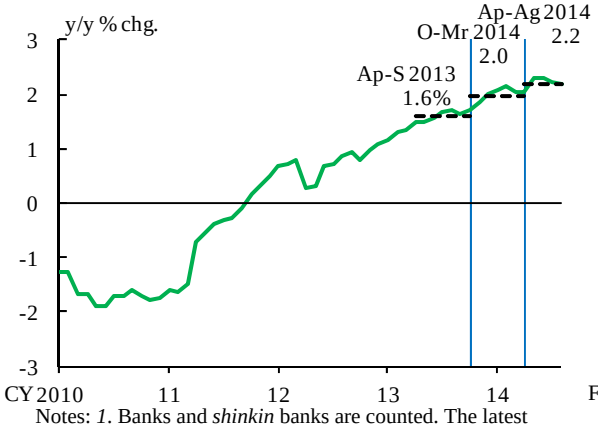
This chapter examines the functioning of the financial system, mainly based on financial information for the first half of fiscal 2014. First, we highlight developments in financial intermediation among financial institutions such as banks and *shinkin* banks, and in investment by institutional investors. We then look at financial intermediation through financial markets, before summarizing financial conditions among firms and households.

A. Financial intermediation by financial institutions

1. Domestic loans

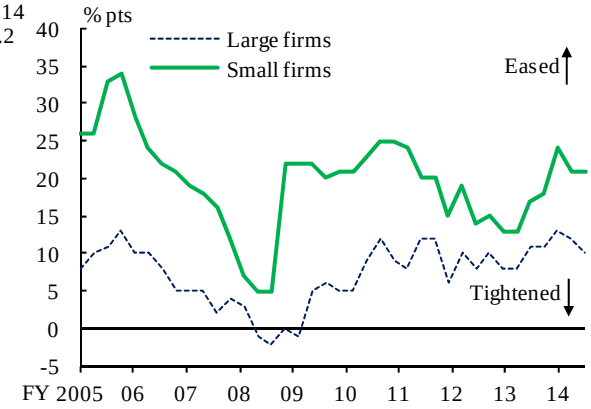
The amount of financial institutions' domestic loans outstanding has grown slightly faster in the first half of fiscal 2014 than in the second half of fiscal 2013 (Chart III-1-1).

Chart III-1-1: Domestic loans outstanding among financial institutions[1,2,3]



Notes: *1*. Banks and *shinkin* banks are counted. The latest data are as of August 2014.
2. The vertical lines indicate September 2013 and March 2014. The horizontal lines indicate semiannual averages.
3. Bank loans are the average amounts outstanding after adjustment for special items which are composed of adjustment for exchange rate changes, adjustment for loan write-offs and related items, and adjustment for securitization of loans.
Source: BOJ, "Principal figures of financial institutions."

Chart III-1-2: DI of credit standards[1,2]

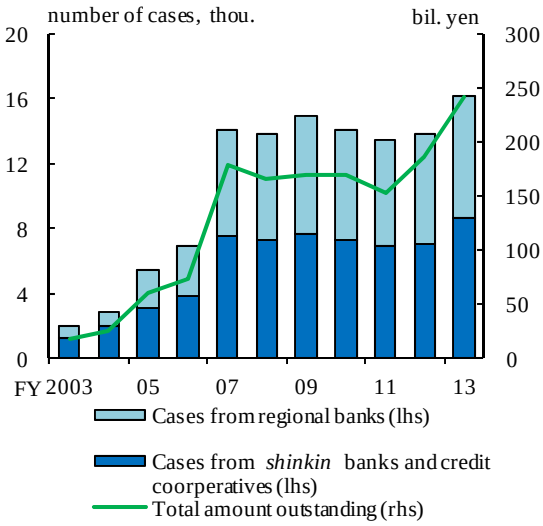


Notes: *1*. The latest data are as of July 2014.
2. DI of credit standards = (percentage of respondents selecting "eased considerably" + percentage of respondents selecting "eased somewhat" * 0.5) - (percentage of respondents selecting "tightened considerably" + percentage of respondents selecting "tightened somewhat" * 0.5).
Source: BOJ, "Senior loan officer opinion survey on bank lending practices at large Japanese banks."

Financial institutions have further eased their credit standards since the beginning of fiscal 2014. In their lending plans for fiscal 2014, many of them plan to accelerate their loan growth. To meet their targets, they are headed in the direction of increasingly taking risks by (1) launching or expanding low-yield medium- to long-term funds aimed

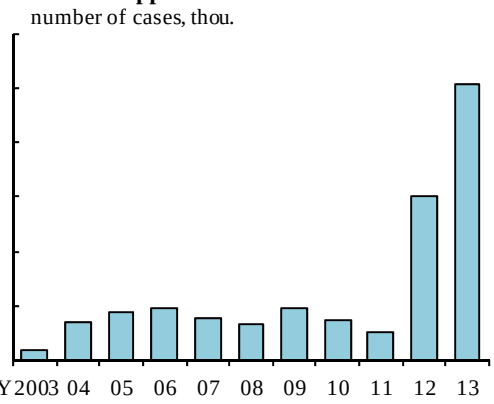
at supporting fixed investments and growing business areas; (2) giving greater decision-making authority to branch managers and increasing the credit line per borrower; and (3) extending the target of loan increase to borrowers with low credit ratings in "normal" loans or in "need attention" loans. The Bank of Japan's fund-provisioning measures to stimulate bank lending and to support strengthening the foundations for economic growth have been increasingly utilized. Some financial institutions are seeking to expand their businesses on credit card loans and other consumer credits. Reorganization of customer segments and management structures as well as increases in the number of sales staff, in order to strengthen their sales capacity for business and individual customers, are widely observed (Chart III-1-2).

Chart III-1-3: Loans for start-ups and new projects[1,2,3]



Notes: *1*. Achievement during the term.
2. Before fiscal 2006, specific loans with financial products that support start-ups are counted. From fiscal 2007 onward, exclusive and ordinal loans for start-ups are counted.
3. Regional banks I, Regional banks II, *shinkin* banks, and shinyo kumiai are counted for the total amount outstanding.
Sources: Community Bank Shinyo Kumiai; Financial Services Agency; National Association of Shinkin Banks; Regional Banks Association of Japan; Second Association of Regional Banks.

Chart III-1-4: Number of completed business revitalization support projects by small and medium enterprise revitalization support councils



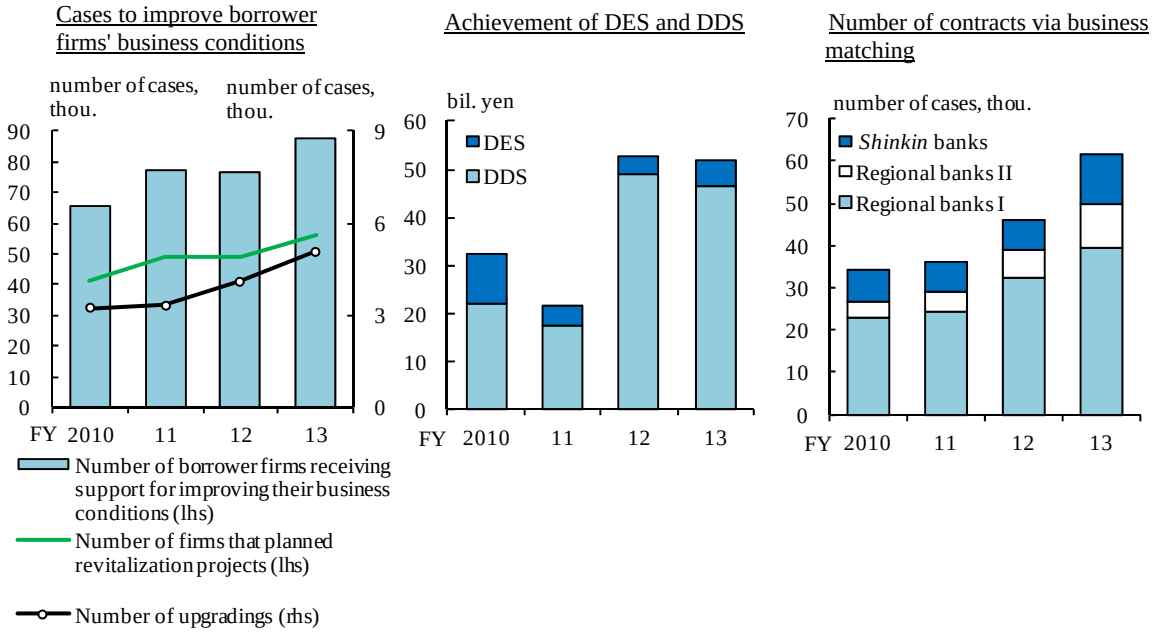
Source: Small and Medium Enterprise Agency.

The easing of credit standards among financial institutions is considered attributable to factors including the following: (1) overall improvement in borrowing firms' financial and business performance alongside economic recovery; (2) increase in the number of financial institutions that are wary of the risks of interest rate rises and are hesitant about carrying out large-scale accumulation of yen-denominated bonds as a means of

securing their profits; and (3) growing awareness, particularly among regional financial institutions, of the importance of securing and enhancing future revenue and customer base.

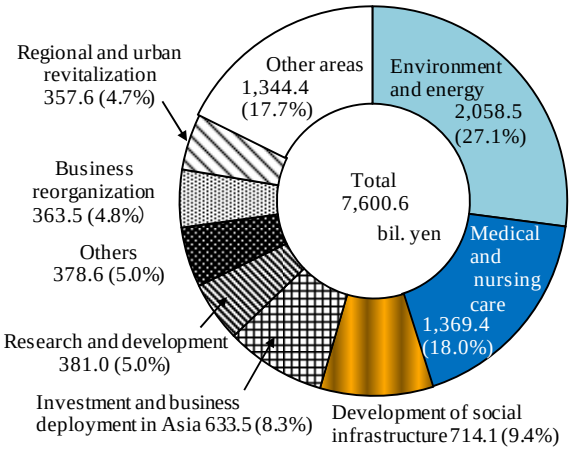
Financial institutions are making steady progress in terms of supporting efforts to enhance the vitality of industries by (1) contributing to the restructuring or M&A activities of large firms, (2) assisting the revitalization and succession of small and medium-sized firms, (3) fostering growth businesses, (4) offering new financial intermediary schemes such as asset-based lending (ABL), (5) supporting firms' overseas business expansion, and (6) engaging in efforts such as the Private Finance Initiative (PFI) and the Public Private Partnership (PPP) (Charts III-1-3 to III-1-5). Looking at the utilization of the Bank of Japan's fund-provisioning measure to support strengthening the foundations for economic growth, the measure has been utilized for loans extended to a wide range of growing business areas, such as those related to environment and energy as well as medical and nursing care (Chart III-1-6).

Chart III-1-5: Support for small and medium-sized firms' business conditions by regional financial institutions[1,2]



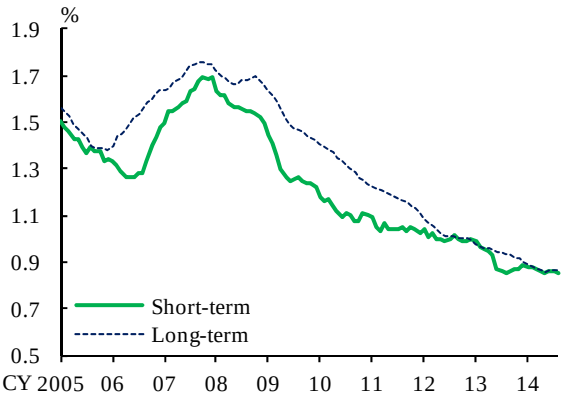
Notes: *1*. DES (debt equity swap) is a transaction in which the debt of a firm is exchanged for stocks. DDS (debt debt swap) is a transaction in which the debt of a firm is exchanged for subordinated loans.
2. For the number of upgradings in the left chart and for figures for the DES in the middle chart, regional banks I and *shinkin* banks are counted. For the rest of the data, regional banks I, regional banks II, and *shinkin* banks are counted.
Sources: National Association of Shinkin Banks; Regional Banks Association of Japan; Second Association of Regional Banks.

Chart III-1-6: BOJ's loan disbursements under the fund-provisioning measure to support the strengthening of foundations for economic growth by area[1]



Note: *1*. Distribution of individual investment or lending in April 2010 - June 2014 by area for strengthening the foundations for economic growth. Main rules are counted.
Source: BOJ.

Chart III-1-7: Average contract interest rates on new loans and discounts[1]



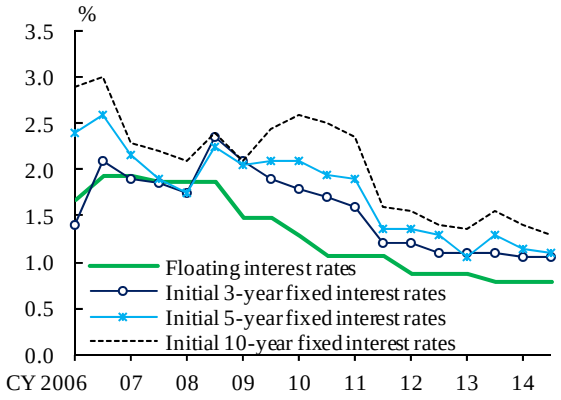
Note: *1*. Domestically licensed banks are counted. The latest data are as of August 2014; 6-month moving averages.
Source: BOJ, "Average contract interest rates on loans and discounts."

Demand for funds has increased alongside the economic recovery, and the increase in demand is gradually spreading out over various regions and industries. Nevertheless, the increase remains modest since the corporate sector as a whole maintains a large cash buffer.

Against this backdrop, the narrowing trend in interest rate spreads on loans has continued, as pressure exerted by the supply of funds remains stronger than that by demand. Interest rates on new loans and discounts have been declining (Chart III-1-7). Competition in the housing loan market has intensified. The profitability of housing loans has continued to decline, with preferential rates on initial 5-year and 10-year fixed-rate mortgages declining further (Charts III-1-8 and III-1-9).[3]

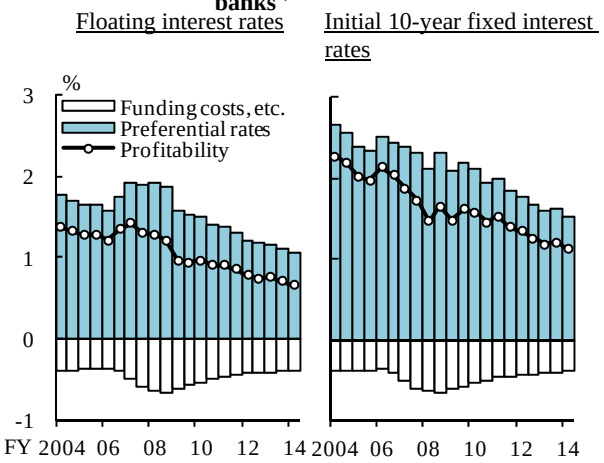
[3] The profitability of housing loans discussed here is calculated by deducting funding interest rates and group credit insurance premiums from interest rates on housing loans. The ratio of general and administrative expenses to deposits and the credit cost ratio are not deducted from interest rates on housing loans.

Chart III-1-8: Housing loan rates among banks[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 October 2014.
2. Housing loan rates are preferential rates. Median.
Sources: Japan Financial News, "Nikkin report"; published accounts of each bank.

Chart III-1-9: Profitability of housing loans among banks[1,2]



Notes: *1*. Major banks and regional banks are counted. The latest data are as of April 2014. 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.

Recent features of domestic loan growth

Several features can be identified from the recent developments in domestic loans of financial institutions.

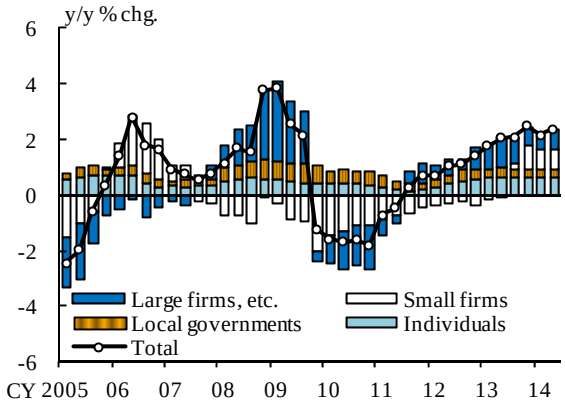
First, loans to small and medium-sized firms have been contributing to overall domestic loan growth to a certain extent (Chart III-1-10). Contribution to overall loan growth from loans to small and medium-sized firms increased in the second half of fiscal 2013, and a more or less equivalent amount of contribution has continued in the first half of fiscal 2014.

In the meantime, loans to large firms have maintained their growth momentum as a trend, although they have slowed somewhat than before, partly due to the fact that loans to large firms are subject to variations including those in large-lot loans for M&A projects or electric power companies.[4] Japanese firms continue to actively engage in M&A transactions, as can be inferred from the growing number of cases, albeit with some fluctuations in transaction amounts (Chart III-1-11). Loans to individuals -- particularly housing loans -- have recently been increasing at a slower pace, due to the subsequent decline in demand following a front-loaded increase prior to the

[4] Another major reason for the deceleration in the growth of loans to large firms is the subsequent decline in the growth rate of the yen-based value of foreign currency-denominated impact loans following the large increase in value due to the yen's significant depreciation a year ago.

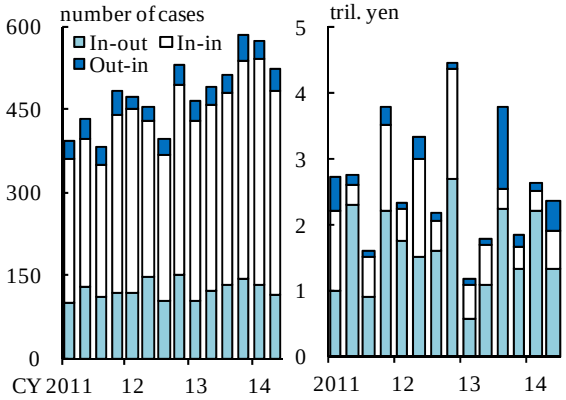
consumption tax hike (Charts III-1-12 and III-1-13).

Chart III-1-10: Loans outstanding among financial institutions by sector[1]



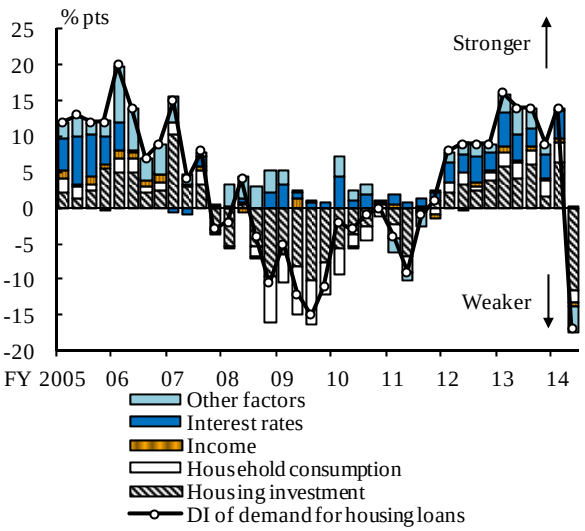
Note: *1*. Banks and *shinkin* banks are counted. The latest data are as of end-June 2014.
Source: BOJ.

Chart III-1-11: M&A among Japanese companies[1,2]



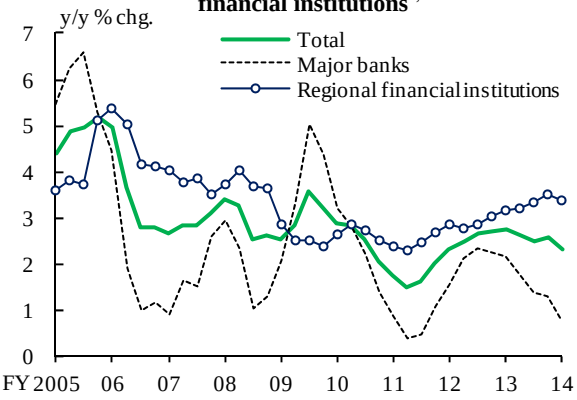
Notes: *1*. The latest data are as of the April-June quarter of 2014.
2. "In-out" means the acquirer is a Japanese company and the target company is a foreign company. "In-in" means the acquirer is a Japanese company and the target company is a Japanese company. "Out-in" means the acquirer is a foreign company and the target company is a Japanese company.
Source: RECOF.

Chart III-1-12: DI of demand for housing loans[1,2]



Notes: *1*. The latest data are as of July 2014.
2. DI of demand for housing 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."

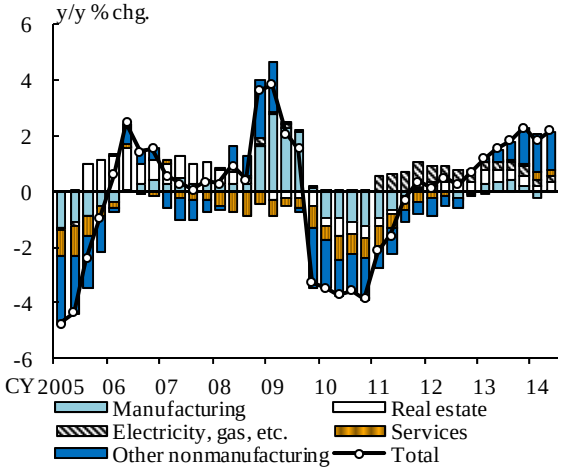
Chart III-1-13: Housing loans outstanding among financial institutions[1,2]



Notes: *1*. Regional financial institutions are composed of regional banks and *shinkin* banks. The latest data are as of end-June 2014.
2. Housing loans outstanding are loans for fixed investment in consumer credit.
Source: BOJ.

Second, the increase in the amount of loans outstanding is gradually spreading out over various regions and industries. A breakdown of loans to firms by industry indicates that a relatively large increase in volume can be observed in growing business areas, such as those related to medical care and welfare as well as environment and energy, including solar power generation, in addition to real estate-related areas.[5] Loans to electric power companies that are incurring higher costs for energy and raw materials maintain a relatively high contribution. In addition, loans to nonmanufacturing industries such as wholesale and retail industries as well as service industries are also increasing their contributions.[6] The improvement in lending seems to be spreading out over other industries, as the magnitude of negative figures for year-on-year growth rates has been shrinking in those industries (Chart III-1-14). Similar features can be observed from developments in loans for fixed investments by industry (Chart III-1-15).

Chart III-1-14: Corporate loans outstanding among financial institutions by industry[1]

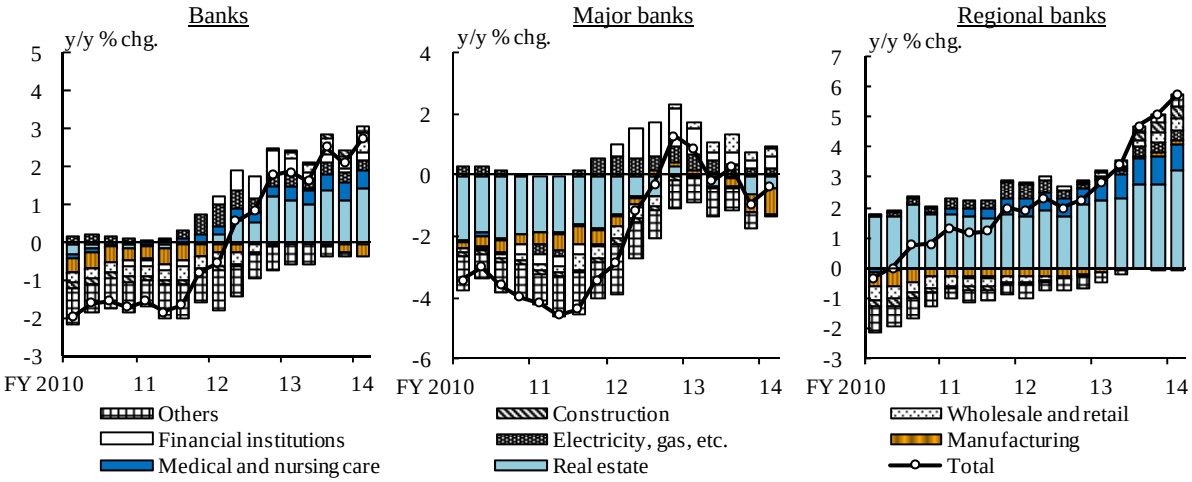


Note: *1*. Banks and *shinkin* banks are counted. The latest data are as of end-June 2014.
Source: BOJ.

[5] Fixed investments in environment and energy-related business areas, such as solar power generation, have been made by various industries. In loan statistics, loans for those investments are classified not only in the electricity industry but also in various other industries.

[6] Loans to "other nonmanufacturing" include loans to electric power companies through trust banks (these loans are classified in "finance industry," which is a component of "other nonmanufacturing").

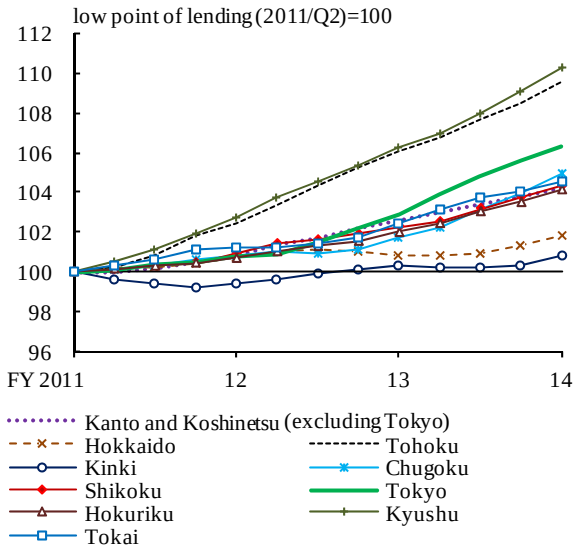
Chart III-1-15: Loans outstanding among banks for business fixed investment by industry[1]



Note: *1*. The latest data are as of end-June 2014. Overseas yen loans, and domestic loans transferred overseas are excluded.
Source: BOJ.

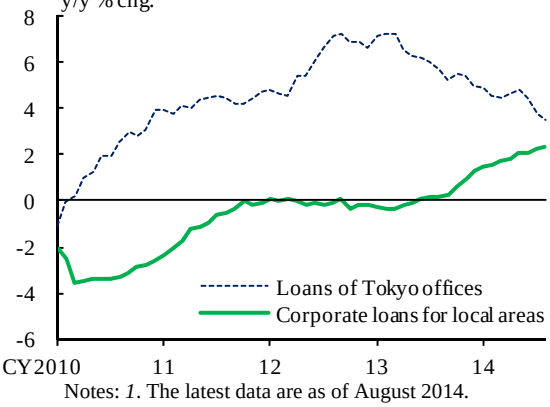
Looking at developments in loans by region, loans have been growing in a wide range of regions, even faster than Tokyo in some cases (Chart III-1-16). For regional banks, loans in Tokyo, mainly for large firms, were the major driving force of their loan growth until the first half of 2013. Thereafter, however, loans to local firms have been growing at a faster pace (Chart III-1-17).

Chart III-1-16: Regional loans among banks[1]



Note: *1*. Major banks and regional banks are counted. The latest data are as of end-June 2014; 4-quarter moving averages.
Source: BOJ.

Chart III-1-17: Regional banks' corporate loans for local areas and loans of Tokyo offices[1,2]

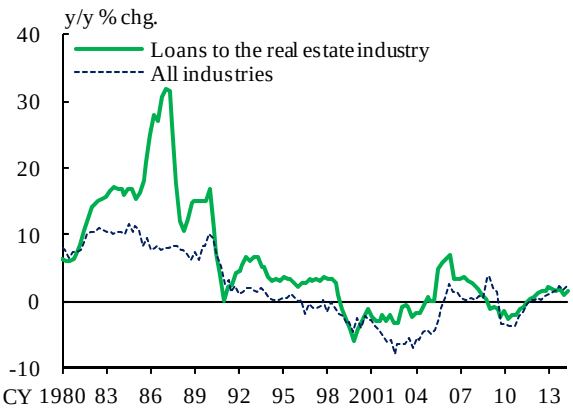


Notes: *1*. The latest data are as of August 2014.
2. Corporate loans for local areas are calculated by subtracting loans for local governments, housing loans, and loans of Tokyo offices from total loans.
Source: BOJ.

Third, the rate of growth in loans to the real estate industry remains moderate. As

noted, while the contribution to overall loan growth has continued to be considerable, the rate of growth per se remains quite lower than that around 2006, the most recent phase of an increase in loans to the real estate industry (Chart III-1-18). While demand conditions in the real estate market for central Tokyo and in some metropolitan areas have tightened and some high-value transactions have been observed, regional spreads, which were seen from around 2006 to 2007, have not been apparent so far. Developments in other related indicators, such as the number of large-scale transactions and capitalization rates, have not reached the level marked from around 2006 to 2007. Developments in loans to the real estate industry are largely consistent with the overall market conditions in the real estate market (see Box 2 for the situation in the real estate market).

Chart III-1-18: Loans to the real estate industry among financial institutions[1]

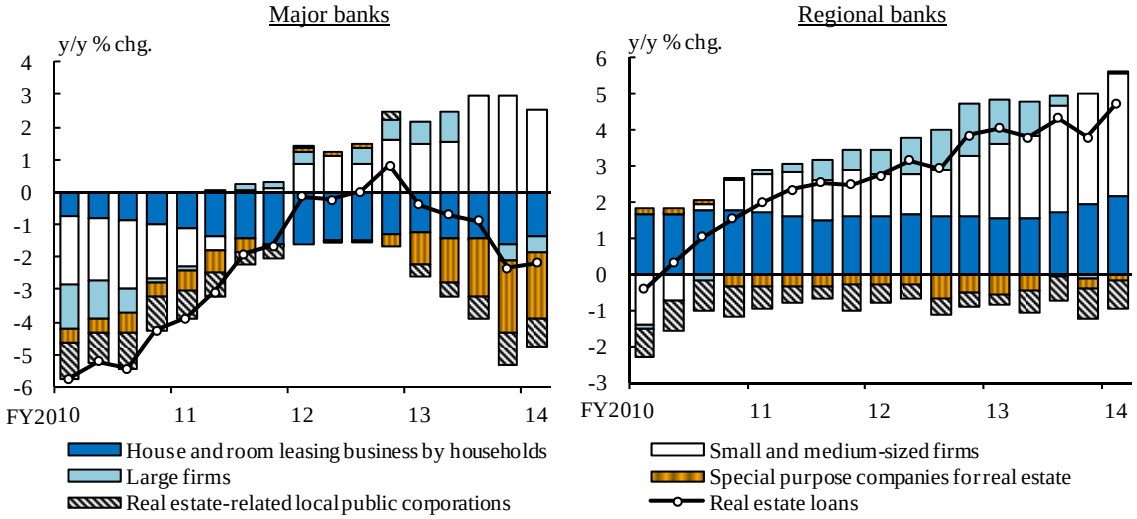


Note: *1*. Banks and *shinkin* banks are counted. The latest data are as of end-June 2014.
Source: BOJ.

The growth rates of loans to the real estate industry are heterogeneous among types of financial institutions and regions. The loan growth of regional banks and that to nonmetropolitan areas are relatively high. These tendencies have been unchanged since the last *Report*. Regional banks' loans to the house and room leasing business by individuals and their asset management companies have increased at a faster pace, while loans outstanding at major banks have continued to be lower than their previous year's level (Chart III-1-19). Possible demand side factors for the increase in loans to the room leasing business include the rise in moving demand to urban areas, led by population aging and the increase in the number of single-person households. Possible supply side factors include an increased awareness of the effective use of assets, particularly among landowners, with factors including the scheduled implementation of the amended inheritance tax system borne in mind. By region, the amount of contribution to overall growth in loans to the real estate industry has recently been increasing among regional

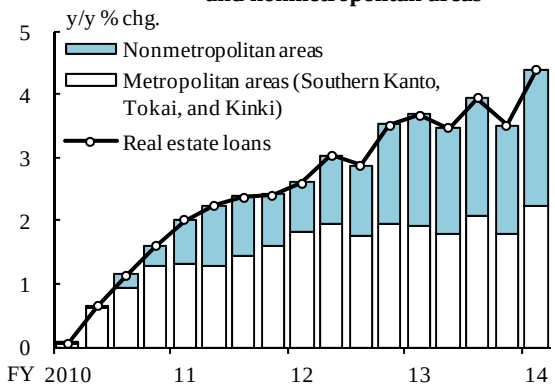
areas compared with three major cities (Chart III-1-20). In the Kyushu region, loans for office buildings, commercial facilities, and housing have increased due to a population inflow to urban areas, while in the Tohoku region loans mainly reflecting demand for housing transfers and redevelopment of urban areas have increased.

Chart III-1-19: Real estate loans by type of bank[1]



Note: *1*. The latest data are as of end-June 2014.
Source: BOJ.

Chart III-1-20: Real estate loans among regional financial institutions in metropolitan and nonmetropolitan areas[1,2]



Notes: *1*. Regional banks and *shinkin* banks are counted. The latest data are as of end-June 2014.
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.

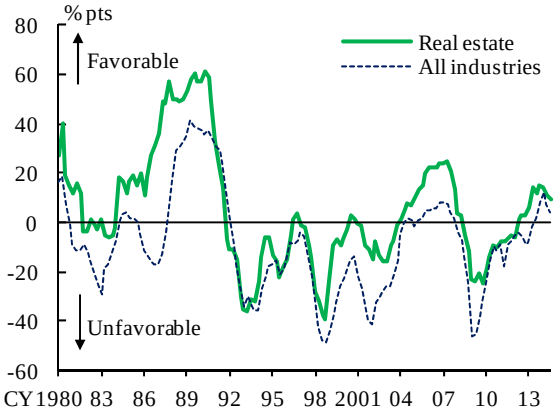
Box 2: The situation in the real estate market

In this box, we examine recent developments in the real estate market, which provide the background to loans to the real estate industry.

Business conditions in the real estate industry have been almost the same as those in other industries, and do not stand out prominently like they did in past periods of real estate booms (Chart B2-1). Looking at the number of large-scale land transactions to check developments in real estate transactions, such transactions have increased,

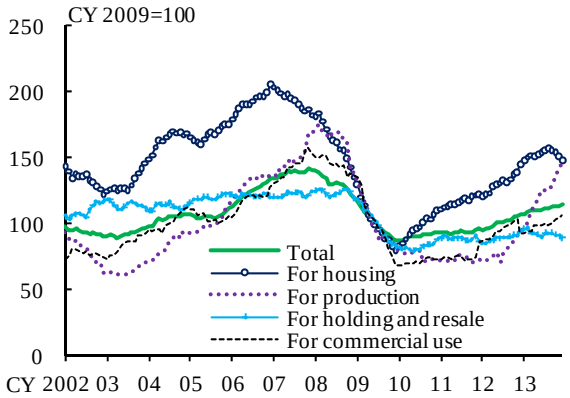
particularly those related to production facilities including distribution and power generation facilities, but there have been no significant increases to date in land transactions for asset holding or resale purposes (Chart B2-2).

Chart B2-1: DI of business conditions for real estate[1]



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

Chart B2-2: Number of large-scale land transactions[1,2]



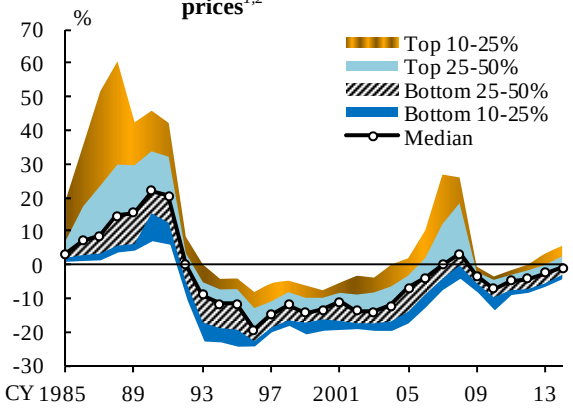
Notes: *1*. Urban areas covering more than 2,000 square meters, other town planning areas covering more than 5,000 square meters, and other areas covering more than 10,000 square meters are counted.
2. The latest data are as of December 2013; 12-month moving averages.
Source: Ministry of Land, Infrastructure, Transport and Tourism.

Next, we take a look at real estate prices. Regarding the distribution of rates of increase in commercial land prices by prefecture, the recent level of the median has been approaching that observed during the real estate boom in the mid-2000s, but the overall distribution at present does not show an upward shift like it did in the latter half of the 1980s or in the mid-2000s (Chart B2-3). So far there is no evidence of a rise in commercial land prices limited to some metropolitan areas, as was commonly the case during past real estate booms. Nevertheless, the distribution of transaction prices of individual commercial real estate properties (land and buildings) in Tokyo confirms that transactions in high-priced properties have increased somewhat, although not as prominently as they did in 2006-2007 (Chart B2-4).

Regarding supply and demand conditions in the real estate market, vacancy rates for offices in Tokyo still remain at a high level relative to that which prevailed prior to the Lehman shock. However, a downtrend has recently become evident, and office rents have been rising, particularly for new buildings, against the background of the improvement in the supply and demand conditions (Chart B2-5). Meanwhile, the prices of properties acquired by real estate funds have risen, reflecting the future rental income, and the capitalization rate of Japan real estate investment trusts (J-REITs) --

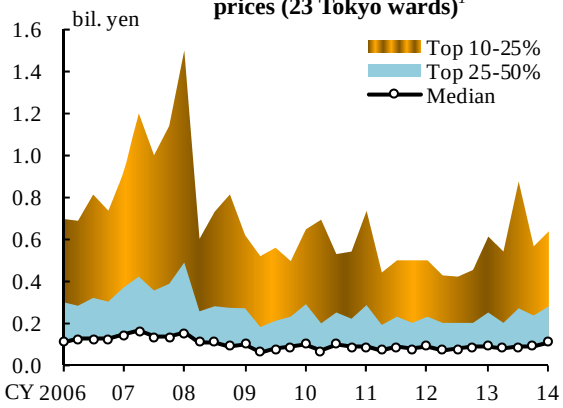
which is calculated by dividing the dividend such as rental income by investment price (the market value of J-REITs) -- has been at a low level (Chart B2-6). When decomposing the capitalization rate, however, its determinants indicate that the current rate of increase in the dividend factor and that in the investment price factor are not so high in comparison with those around 2006-2007, and the capitalization rate has not declined to a level as low as that observed at that time.

Chart B2-3: Distribution of year-on-year rates of change in prefectural commercial land prices[1,2]



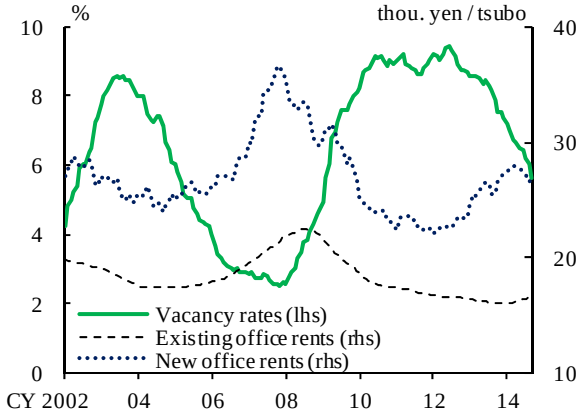
Notes: *1*. The latest data are as of January 2014.
2. Year-on-year rates of change in the highest land prices in commercial areas; distribution of prefectures.
Source: Ministry of Land, Infrastructure, Transport and Tourism, "Public notice of land prices."

Chart B2-4: Distribution of individual commercial property transaction prices (23 Tokyo wards)[1]



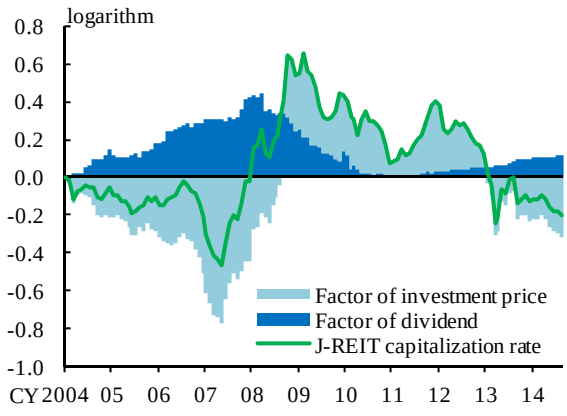
Note: *1*. The latest data are as of the January-March quarter of 2014.
Source: Ministry of Land, Infrastructure, Transport and Tourism, "Real estate transaction-price information."

Chart B2-5: Vacancy rates and office rents in Tokyo area[1,2,3]



Notes: *1*. The latest data are as of September 2014.
2. Offices in the Tokyo business district (Chiyoda-City, Chuo-City, Minato-City, Shinjyuku-City, and Shibuya-City in Tokyo) are counted.
3. A tsubo = about 3.3m^2.
Source: Miki Shoji Co., Ltd.

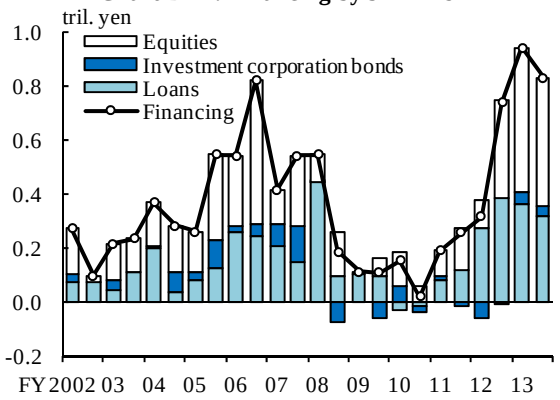
Chart B2-6: J-REIT capitalization rate[1,2,3,4]



Notes: *1*. The latest data are as of August 2014.
2. The figures show the cumulative changes from January 2004.
3. The J-REIT capitalization rate is the J-REIT expected distribution yield.
4. The factor of investment price is calculated by using Tokyo Stock Exchange REIT Index.
Sources: Association for Real Estate Securitization; Bloomberg.

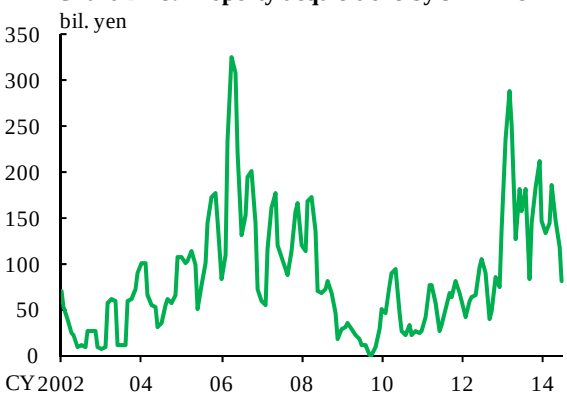
With regard to financing by J-REITs, both capital funding and borrowing from financial institutions have increased, and the amount of funds raised has been at a high level (Chart B2-7). Backed by this large amount of funding, property acquisitions by J-REITs have increased substantially since 2013, reaching almost the same level as their peak around 2006 (Chart B2-8). However, the overall market size of real estate funds has not increased significantly -- unlike the 2006-2007 period -- as many of the recent acquisitions by J-REITs are existing property from private offering funds (Chart B2-9).

Chart B2-7: Financing by J-REITs[1,2,3]



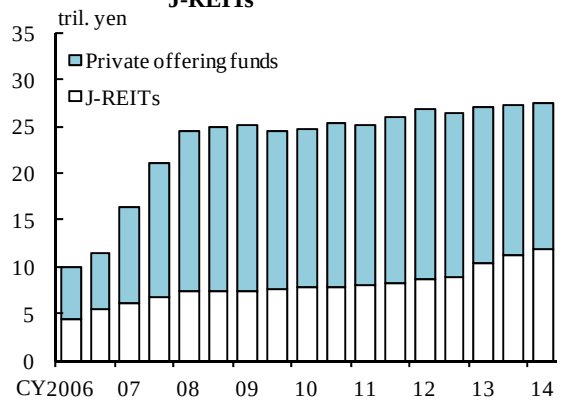
Notes: *1*. The latest data are as of the second half of fiscal 2013.
2. Financing is the sum of loans, investment corporation bonds, and equities.
3. The amount of financing for each firm is aggregated for the month during which its account is published. This chart indicates the total volume of funds raised by firms on a semiannual basis.
Source: Nikkei Needs.

Chart B2-8: Property acquisitions by J-REITs[1]



Note: *1*. The latest data are as of July 2014; 3-month moving averages.
Source: Association for Real Estate Securitization.

Chart B2-9: Market size of private offering funds and J-REITs[1]



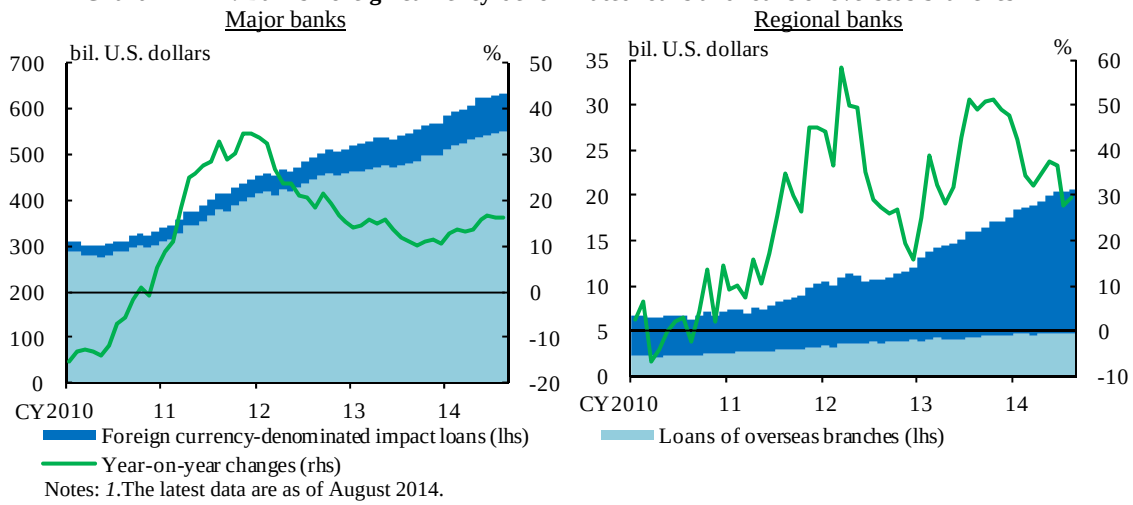
Note: *1*. The latest data are as of end-June 2014.
Source: Sumitomo Mitsui Trust Research Institute.

These developments suggest that in the real estate market no signs of overheating have been observed thus far on the whole, although transactions of some individual properties, such as high-priced ones, have been on an increasing trend.

2. Overseas loans

Banks' overseas loans have continued to show high growth (Chart III-1-21).[7] Statistics with larger coverage, which include bond investment as well as loans, confirm that the presence of Japanese banks in terms of international claims has been on an increasing trend in all regions, particularly with their share of claims on the United States increasing by around 10 percentage points since 2005 (Chart III-1-22).[8] The share of three major Japanese financial groups in the syndicated loan market has also been increasing (Charts III-1-23 and III-1-24).[9] The weight of loans to borrowers with higher credit risk has been increasing in syndicated loans to North America (Chart III-1-25).

Chart III-1-21: Banks' foreign currency-denominated loans and loans of overseas branches[1,2,3,4]



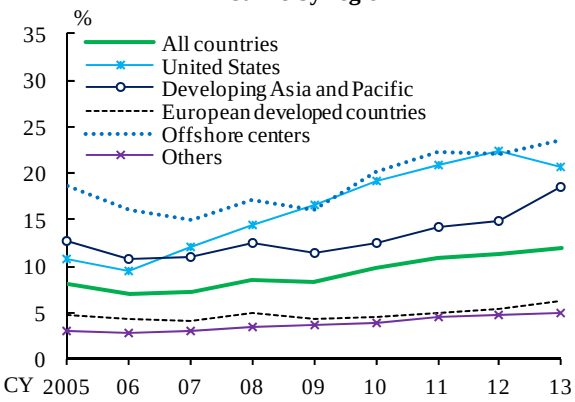
Notes: *1.*The latest data are as of August 2014.
2. Loans of overseas branches partly include foreign currency-denominated impact loans in accounts held overseas.
3. Foreign currency-denominated impact loans indicate banks' foreign currency-denominated loans for residence.
4. Year-on-year changes represent the growth rate of loans of overseas branches and foreign currency-denominated impact loans.
Source: BOJ.

[7] In addition to loans of overseas branches, which represent exposures to overseas economies, funding liquidity of foreign currencies will be examined in Chapter IV. For that purpose, foreign currency impact loans are also presented here.

[8] On a consolidated basis. Cross-border claims of domestic head offices and branches, overseas branches, and overseas subsidiaries of the relevant financial institutions are counted. Bond investment is included.

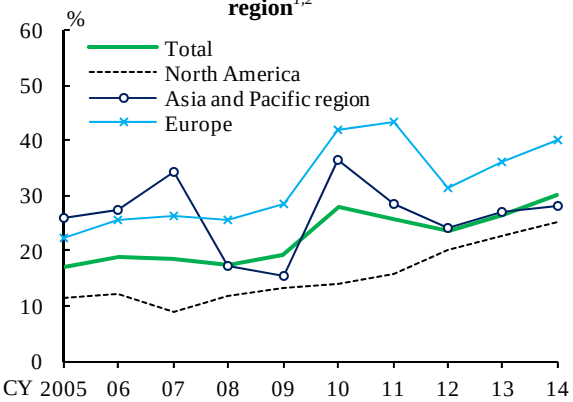
[9] The total issuance of loans in the relevant syndicated loan market, in which the three major financial groups participated as lead banks, is counted. It should be noted, however, that the amount of issuance may differ from the actual amount of loans extended by Japanese banks, taking into account that there are cases in which multiple financial institutions serve as lead banks and that financial institutions other than the lead banks participate in the syndicated loan market.

Chart III-1-22: Foreign claims share among Japanese banks by region[1,2]



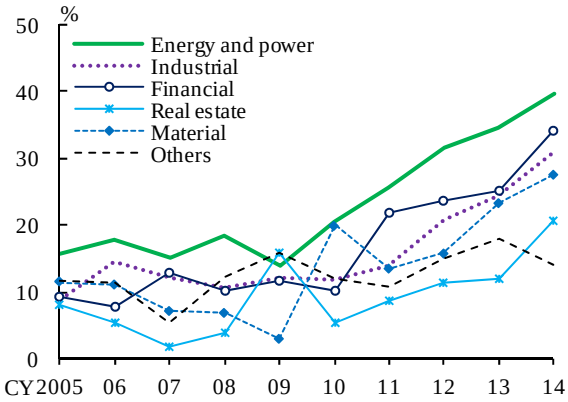
Notes: *1*. The latest data are as of end-December 2013.
2. This chart is based on foreign claims in the non-bank private sector (ultimate risk basis).
Sources: BIS, "Consolidated banking statistics"; BOJ, "The results of BIS international consolidated banking statistics in Japan."

Chart III-1-23: Syndicated loans share of three major financial groups by region[1,2]



Notes: *1*. The latest data are as of the first half of 2014.
2. The figures represent syndicated loans for which the lead managers are three major financial groups as a share of all syndicated loans issued by foreign companies whose head offices are located in each area.
Source: Thomson Reuter Markets.

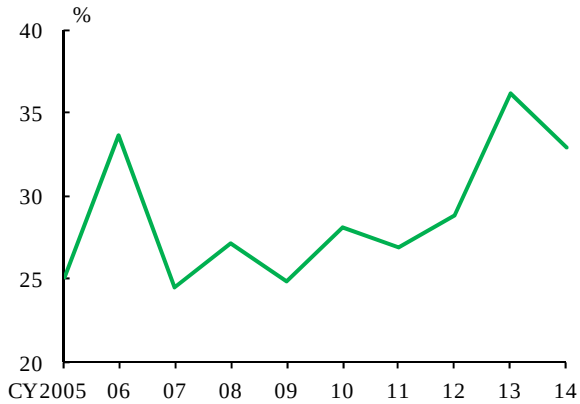
Chart III-1-24: Syndicated loans share to North America by industry[1,2]



Notes: *1*. The latest data are as of the first half of 2014.
2. The figures represent syndicated loans for which the lead managers are three major financial groups as a share of all syndicated loans issued by foreign companies whose head offices are located in North America.
Source: Thomson Reuter Markets.

Banks have actively engaged in overseas lending to support global expansion of Japanese firms and to capture financial needs of Asian or other countries with high growth potential. According to banks' business plans, they generally plan to achieve higher growth in their overseas loans than the previous fiscal year. Against this backdrop, major banks have also worked to expand their supply of financial services at local areas by increasing the number of staff working at their foreign branches or acquiring and investing in foreign banks and financial firms (Charts III-1-26 and III-1-27).

Chart III-1-25: Ratio of high credit risk syndicated loans to North America[1,2]



Notes: *1*. The latest data are as of the first half of 2014.
2. The ratio of high credit risk borrowers. For loans, high credit risk is defined as issues with an initial pricing of 300bps above the base rate or issues for unrated borrowers.
Source: Thomson Reuter Markets.

Chart III-1-26: Overseas branch employees of major banks[1,2]

Notes: *1*. The latest data are as of end-March 2014.
2. Temporary employees, and transferring employees are excluded.
Source: BOJ.

Chart III-1-27: Recent major overseas acquisitions and equity investment by three major financial groups

	Announcement		Counterparty	
			Country	Name
Mizuho FG	2010	Nov.	United States	BlackRock, Inc.
	2011	Aug.	Indonesia	PT Balimor Finance
		Sep.	Vietnam	Vietcombank
	2012	June	Brazil	Banco WestLB do Brasil S.A.
Mitsubishi UFJ FG	2010	Nov.	United Kingdom	Royal Bank of Scotland Group
	2012	Dec.	Vietnam	Vietnam Joint Stock Commercial Bank for Industry and Trade
	2013	July	Thailand	Bank of Ayudhya Public Company Limited
Sumitomo Mitsui FG	2010	June	India	Kotak Mahindra Bank Limited
	2012	Jan.	United States	Moelis & Company
		Mar.	Indonesia	PT Indonesia Infrastructure Finance
		Apr.	China	China Post & Capital Fund Management Co., Ltd.
	2013	May	Indonesia	PT Bank Tabungan Pensiunan Nasional Tbk
	2014	Aug.	Cambodia	ACLEDA Bank Plc.

Sources: Disclosures of each bank.

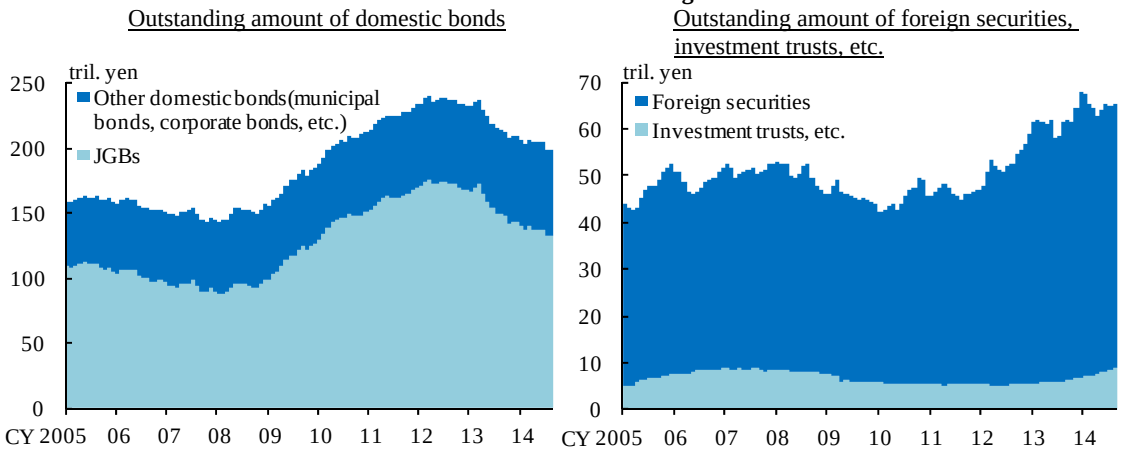
3. Securities investment

Financial institutions have gradually been enhancing their risk-taking stance by, for example, accumulating their holdings of investment trusts and other assets while maintaining a high level of yen-denominated bond investment.

The outstanding amount of domestic bondholdings -- including JGBs, municipal bonds, and corporate bonds -- showed a relatively large drop from end-March 2013 to end-June 2013 partly because financial institutions became more concerned about a possible upward shift in yen interest rates (Chart III-1-28). It has been on a moderate declining

trend since end-June 2013. Nevertheless, the outstanding amount of domestic bondholdings is still at a high level compared with the past. A breakdown of domestic bondholdings by type of financial institutions shows that major banks are dominantly contributing to the drop. Although regional financial institutions have ceased to accumulate domestic bonds as had been observed until around spring 2013, their outstanding amount has been largely unchanged. Since the beginning of this fiscal year, long-term interest rates have continued to be stable at low levels. And as a substantial gap between deposits and loans remains, a greater number of banks have gradually accumulated domestic bondholdings, and as a result, the growth rate of the outstanding amount of bondholdings by regional and *shinkin* banks has turned to a positive, albeit slightly (Chart III-1-29).[10] Increases in the outstanding amounts of municipal and corporate bonds that earn higher yields compared to JGBs are the main factors behind the increase in the bondholdings. Major banks' bondholdings, especially their JGB holdings, continue to decrease, but the pace has become slower than before.

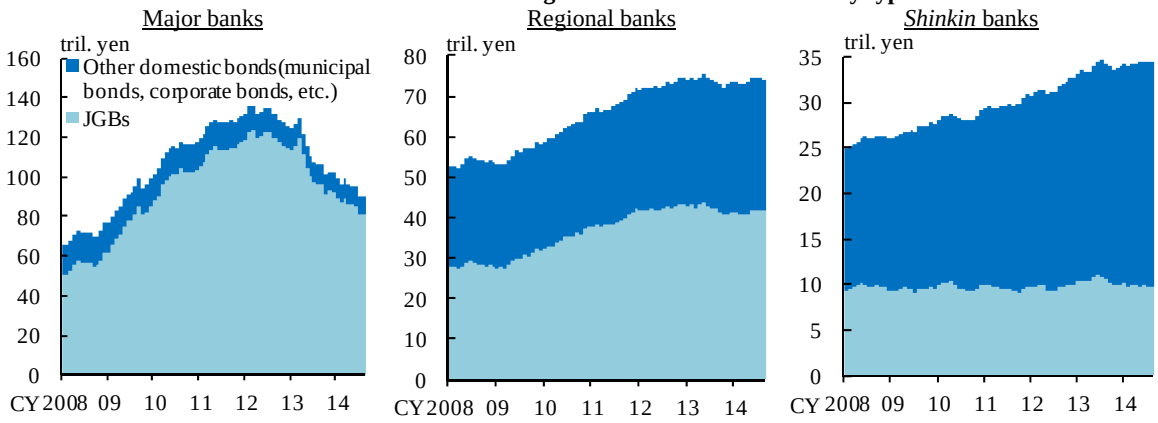
Chart III-1-28: Securities investment among financial institutions[1,2]



Notes: *1*. Banks and *shinkin* banks are counted. The latest data are as of August 2014.
2. The data are the sum of figures for 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.
Source: BOJ.

[10] While some financial institutions have increased their domestic bondholdings, they have become conscious of potential risks of higher interest rates. Some financial institutions have reclassified their bondholdings including foreign bonds into the hold-to-maturity category based on the accounting standard in order to avoid capital losses on their balance sheets in the event that interest rates rise. Furthermore, some financial institutions have increased their positions in interest rate swaps with fixed receipts in order to increase their profits.

Chart III-1-29: Outstanding amount of domestic bonds by type of bank[1,2]

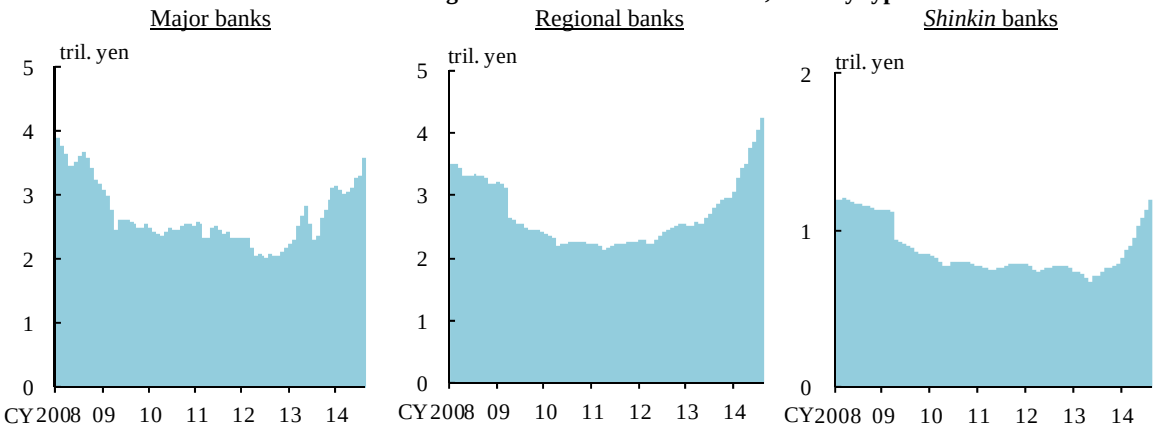


Notes: *1*. The latest data are as of August 2014.
2. The data are the sum of figures for domestic and overseas branches. The data for domestic branches are based on the average amount outstanding. The data for overseas branches are based on the amount outstanding at month-end.
Source: BOJ.

The outstanding amount of investment trusts and other assets has been on an upward trend for all types of banks (Chart III-1-30). And regional banks' holdings of their investment trusts have been around their historical high. Investment in foreign securities has substantially increased for regional banks, while it has shown somewhat large fluctuations for major banks (Chart III-1-31). Financial institutions have maintained their basic stance for accumulating profits by investing in foreign bonds as the level of interest rates is still higher than that of domestic interest rates. However, as U.S. and European long-term interest rates are currently considerably low compared with past levels, and as economic conditions have been improving in the United States, which may contribute to a continued reversal of monetary policy stance, financial institutions may find it difficult to accumulate foreign interest rate risks substantially.

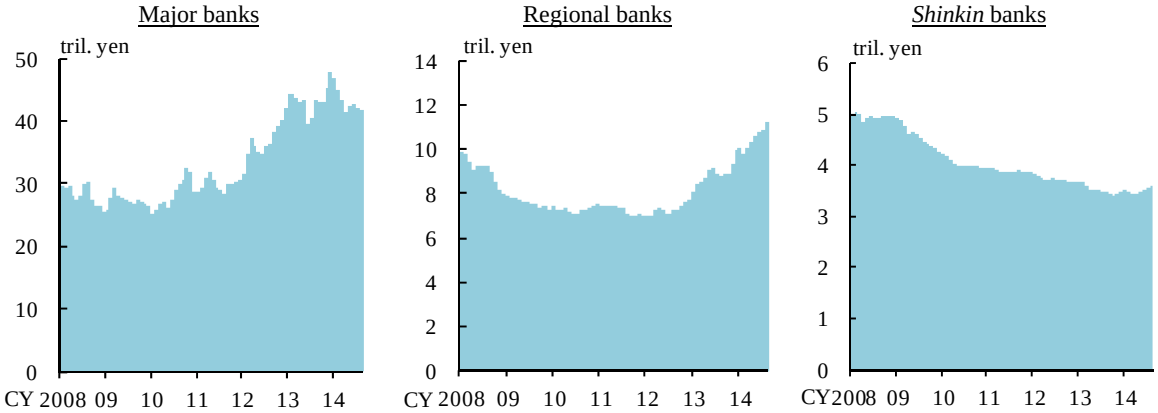
Meanwhile, financial institutions' stockholdings are on a quite moderate downward trend, as they continue to reduce their stockholdings with the aim of maintaining business ties with firms (strategic stockholdings, Charts III-1-32 and III-1-33).

Chart III-1-30: Outstanding amount of "investment trusts, etc." by type of bank[1,2]



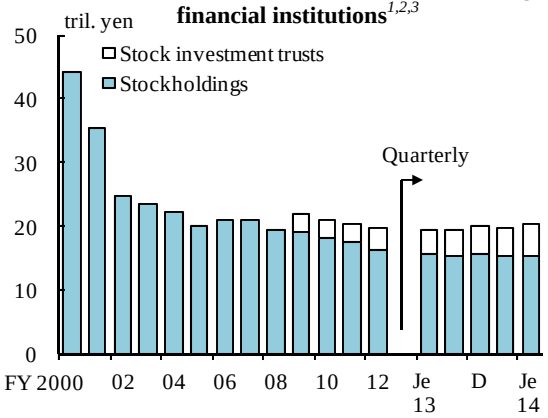
Notes: *1*. The latest data are as of August 2014.
2. The data are the sum of figures for domestic and overseas branches. The data for domestic branches are based on the average amount outstanding. The data for overseas branches are based on the amount outstanding at month-end.
Source: BOJ.

Chart III-1-31: Outstanding amount of foreign securities by type of bank[1,2]



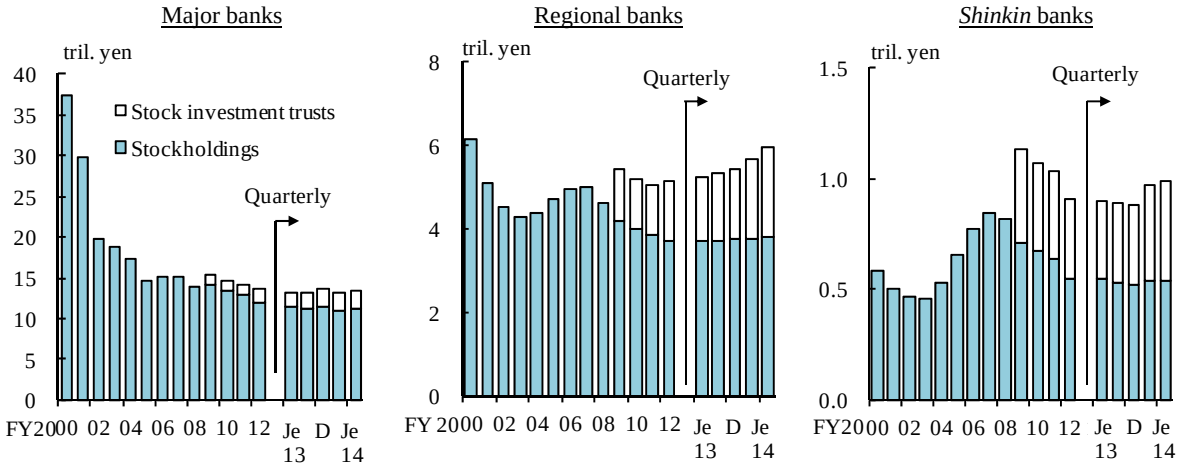
Notes: *1*. The latest data are as of August 2014.
2. The data are the sum of figures for domestic and overseas branches. The data for domestic branches are based on the average amount outstanding. The data for overseas branches are based on the amount outstanding at month-end.
Source: BOJ.

Chart III-1-32: Outstanding amount of stockholdings 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.

Chart III-1-33: Outstanding amount of stockholdings and stock investment trusts by type of bank[1,2]



Notes: *1*. These charts are based on book value.
2. 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.

4. Financial institutions' balance sheet changes since the implementation of QQE

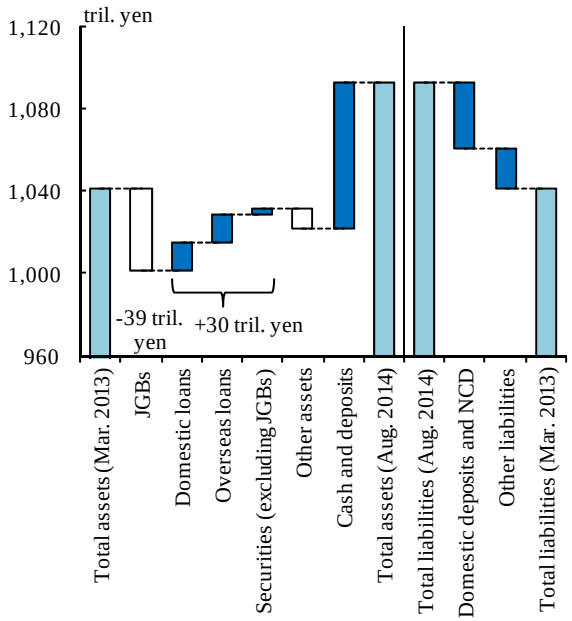
Based on the developments in loans and securities investment examined above, **if we look back on the changes in balance sheets of financial institutions since the introduction of QQE**, **total assets and liabilities of financial institutions have substantially increased.**

Total assets and liabilities of financial institutions have increased by 52.2 trillion yen from March 2013 to August 2014 (Chart III-1-34). On the asset side, JGB holdings decreased by 39.3 trillion yen, whereas cash and deposits (including BOJ current account deposits), domestic loans, overseas loans, and securities investment excluding JGBs increased by 71.7 trillion yen, 13.1 trillion yen, 13.3 trillion yen, and 3.6 trillion yen, respectively. The amount of increase in risky assets -- the latter three classes of assets -- reached 30.0 trillion yen, slightly less than the reduction in JGB holdings in absolute value. Given the difference in the size of risks, however, the increase may suggest that a relatively large shift from JGBs to other types of risky assets, including credit, stock, and overseas interest rate risk, has proceeded. Meanwhile, on the liability side, domestic deposits including negotiable certificate of deposits (NCD) increased by 32.8 trillion yen and other liabilities by 19.4 trillion yen.

Developments of individual financial institutions also confirm the reductions in the amount of JGB holdings (yen interest rate risk) and increases in that of loans (mainly credit risk). Panel data of individual financial institutions show that JGB holdings had increased while the amount of loans had decreased in many financial institutions prior

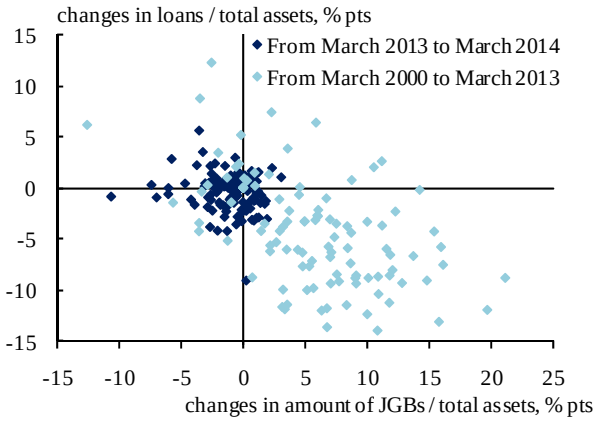
to the introduction of QQE (indicated as data being concentrated in the fourth quadrant on the bottom right, Chart III-1-35). Since the introduction of QQE, the data have generally shifted to the upper left and the amount of loans has been increasing at a considerable number of financial institutions, while the amount of JGB holdings has been decreasing (see Box 3).

Chart III-1-34: Changes in assets and liabilities among financial institutions (from March 2013 to August 2014)[1,2]



Notes: *1*. Banks and *shinkin* banks are counted.
2. The data are the sum of figures for 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.
Source: BOJ.

Chart III-1-35: Changes in loans and JGB holdings before and after QQE[1]



Note: *1*. Major banks and regional banks are counted.
Source: BOJ.

Box 3: Relationship between the amount of interest rate risk on bonds and bank lending observed from major banks' panel data

Since the Bank of Japan introduced QQE, developments in Japan's economic activity and prices have improved and nominal long-term interest rates have remained at low levels, albeit with some fluctuations. Under these circumstances, major banks have reduced their bondholdings while increasing their risky assets including loans and investment trusts. In this box, using major banks' panel data, we quantitatively examine how the banks have chosen their asset portfolios -- particularly with regard to their loans -- in accordance with their levels of risk tolerance and profit targets.

Generally speaking, when financial institutions increase their capital, their level of risk tolerance rises. In such a situation, they would have a greater incentive to hold relatively high-risk, high-return assets, if their profit targets were high. As loans involve a higher degree of both risks and returns relative to those of assets such as cash or government bonds, financial institutions would more actively make loans with higher levels of capital, which give them larger room to take risks.

However, financial institutions may not regard their levels of capital as their sole constraints when determining their asset portfolios. Rather, it is more probable that they determine their asset portfolios by taking into account risks and returns on various types of assets, given their current conditions and projections for loan demand -- which fluctuates in response to business conditions and price developments -- as well as for interest rates, such as nominal long-term interest rates, and their spreads.

The amount of interest rate risk on financial institutions' bondholdings has declined significantly, as major banks in particular have sold off large amounts of JGBs under QQE. Basically, there were two options for financial institutions which sold JGBs: holding the cash (current accounts at the Bank of Japan), or increasing their holdings of risky assets, expecting higher returns. In addition, if multiple classes of risky assets including loans, bonds, and stocks are mutually substitutable, financial institutions *ceteris paribus* will increase one class of risky assets such as loans when they reduce their holdings of other classes of risky assets such as bonds and stocks.

In sum, given the developments in loan demand and various interest rates, the extent to which financial institutions change their amount of loans in accordance with fluctuations in the amount of interest rate risk on their bondholdings could depend on their assessment of the following factors: (1) how much risky assets they wish to hold relative to their capital, taking into account their regulatory constraints; (2) how much risky assets they wish to hold given their profit targets; and (3) their preference on

optimal portfolio allocation among the different classes of risky assets. These notions are all captured in Equation (1) below.

$$\left(\frac{Loans}{Total\ assets}\right)_{i,t} = \alpha\left(\frac{Capital}{Risk\ assets}\right)_{i,t-1} + \gamma\ Profit\ target_{i,t} + \beta_1\left(\frac{Interest\ rate\ risk\ on\ bondholdings}{Risk\ assets}\right)_{i,t-1} + \beta_2\left(\frac{Market\ risk\ associated\ with\ stockholdings}{Risk\ assets}\right)_{i,t-1} + \delta\left(\frac{Housing\ loans}{Loans}\right)_{i,t} + Const. + Cross\ section\ dummy_i + Time\ dummy_t + Residuals_{i,t} \quad (1)$$

Equation (1) assumes that, the greater the risk-taking capacity relative to capital and the higher the profit target, the more actively financial institutions will increase their credit risks, thereby increasing their loans, if α and γ are positive. The Equation also suggests that loans and other risky assets, such as bonds and stocks are mutual substitutes, if the estimates for β_1 and β_2 are found to be negative.[11]

Equation (1) is estimated using data on individual major banks from 2000 onward. Profit targets are proxied by the ratio of operating profits from core business to total assets. The results show that estimated values including β_1 are all statistically significant under the assumed sign conditions (Chart B3-1).[12] This result not only suggests that the amount of interest rate risk on bonds and the amount of loans are inversely related, but also implies that loans as a share of major banks' assets are determined by factors including risk-taking capacity, profit targets, and the amount of risk resulting from asset allocation of other risky assets.

[11] Housing loans typically have lower risk weights compared to business loans. Therefore, the amount of credit risk could differ, depending on the type of loan that increases. In order to control the facts that (1) the share of housing loans in total lending varies from bank to bank and (2) such shares can change over time, the ratio of housing loans is added as an independent variable in Equation (1). δ is assumed to be positive since the share of loans increases as the share of housing loans increases given other things equal.

[12] Equation (1) includes time dummy variables and cross section dummy variables. Time dummy variables are used for controlling the risk-taking capacity and the loan demand of the banking sector as a whole, which change over time. Cross section dummy variables are used for controlling the differences in risk-taking capacity and loan demand among individual banks.

Chart B3-1: Estimation results for Equation (1)[1,2,3]

Dependent variable : Loans/Total assets

	Capital adequacy ratios (t-1)	Ratio of operating profits from core business to total assets	Interest rate risk on bondholdings (100 bpv) / Risk assets (t-1)	Market risk associated with stockholdings (99%VaR)/ Risk assets (t-1)	Housing loans/ Loans	Const.
Coef.	0.21 **	5.21 ***	-4.41 ***	-0.81 ***	0.21 ***	49.62 ***
t-value	2.15	4.06	-7.66	-4.40	4.48	25.14

Notes: *1*. Estimations based on quarterly data for major banks. Estimation period is from March 2000 through March 2014.
2. Estimated model has fixed effects for individual banks and time dummy variables for all banks. The t values are calculated using the White robust standard errors.
3. *** and ** indicate that the figures are statistically significant at the 1 percent and 5 percent levels, respectively.
Source: BOJ.

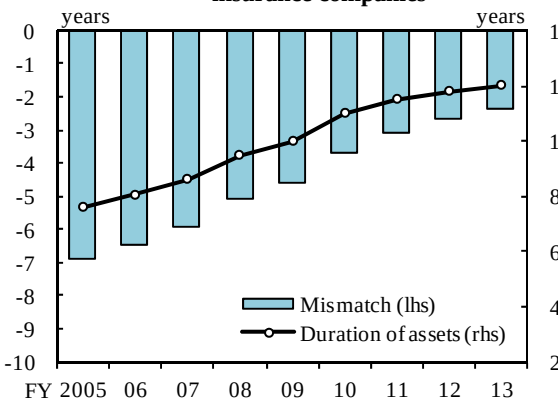
B. Developments in investment by institutional investors

Institutional investors such as life insurance companies and pension funds have not changed their basic investment strategies and have mainly invested in domestic, long-term bonds. However, since the beginning of fiscal 2014, they have increased their holdings of stocks or foreign bonds in their portfolios, albeit slightly.

Life insurance companies have basically maintained their stance to invest in long-term bonds to resolve the duration mismatch -- the extent to which the duration of liabilities exceeds that of assets -- particularly in view of a possible tightening of regulations (Charts III-2-1 and III-2-2).[13] However, because of the fairly low level of long-term interest rates in the current environment, they have restrained the pace of purchasing the long-term bonds and have steadily increased their investment in overseas assets, such as foreign bonds (Chart III-2-3). Public pension funds, including Government Pension Investment Fund (GPIF), whose portfolio management strategies are reviewed, reduce weights on domestic bond and increase weights on foreign bonds and those on domestic and overseas stocks in their portfolio. In addition, corporate pension funds have also increased investment in stocks. These movements indicate some signs of changes in the trend of pension funds' investment strategies that have been observed during the previous year (Chart III-2-4).

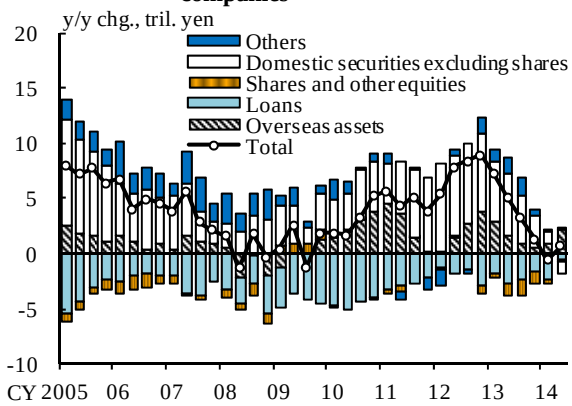
[13] In recent years, in view of progress made in deliberations on tightening various financial regulations, insurance companies have been working to reduce their holdings of stocks, the risks of which tend to be estimated larger than those of other assets, taking account of a possible tightening of regulations in Japan.

Chart III-2-1: Duration mismatch at life insurance companies[1]



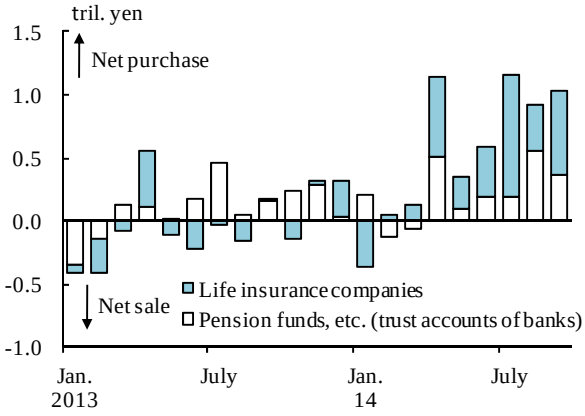
Note: *1*. Data for the 9 major life insurance companies are counted. The latest data are as of end-March 2014.
Sources: Japan Institute of Life Insurance, "Life insurance survey"; Ministry of Internal Affairs and Communications, "Population census"; National Institute of Population and Social Security Research, "Population projections for Japan"; Published accounts of each life insurance company; BOJ.

Chart III-2-2: Asset investments among life insurance companies[1,2]



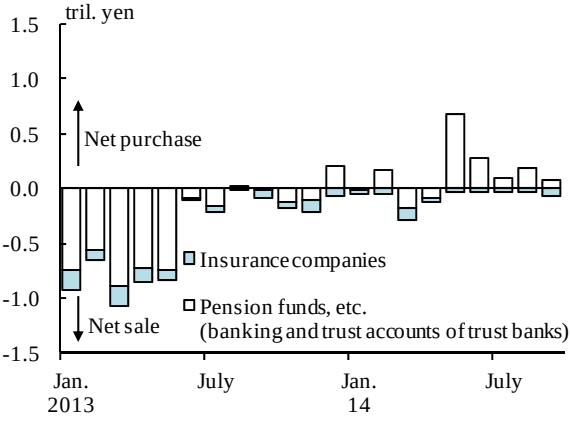
Notes: *1*. The latest data are as of June 2014. The chart shows the sum of financial transactions in the last 4 quarters.
2. "Others" include cash and deposits. "Loans" exclude repurchase agreements and securities lending transactions.
Source: BOJ, "Flow of funds accounts."

Chart III-2-3: Outward investment among pension funds, etc. and insurance companies (medium- and long-term bonds)[1]



Note: *1*. "Pension funds, etc." indicate trust accounts of banks and trust banks. The latest data are as of September 2014.
Source: Ministry of Finance.

Chart III-2-4: Trading volume in Japanese stocks by insurance companies and pension funds, etc.[1]



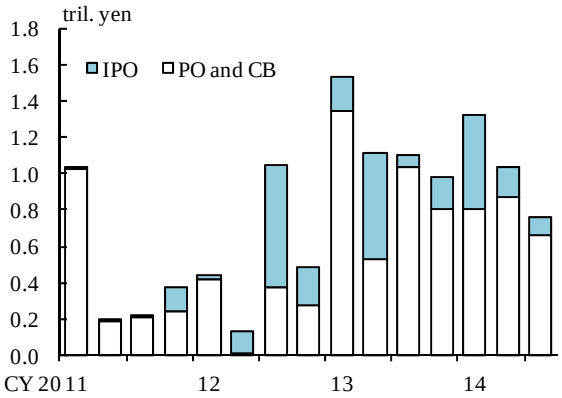
Note: *1*. The latest data are as of September 2014.
Source: Tokyo Stock Exchange.

C. Financial intermediation through financial markets

Equity financing through the stock market remains at a high level (Chart III-3-1). Meanwhile, firms have set a significantly larger allowance for their stock buybacks compared with that which they set in the previous year (Chart III-3-2). The fundamental background for this is firms' increased awareness of the return on equities and shareholder return under their cash-rich environment. Introduction of Japan's

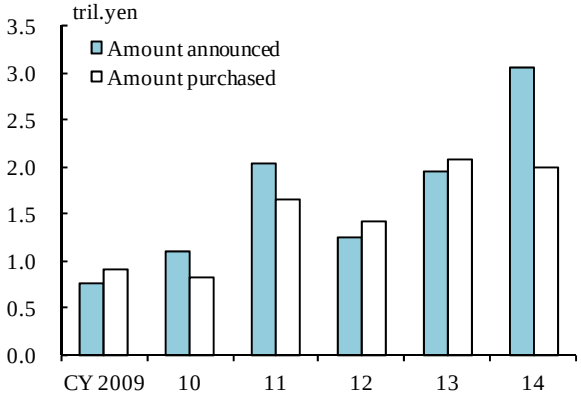
Stewardship Code and/or the JPX-Nikkei Index 400 to help support the enhancement of corporate governance may have also contributed to the increased awareness.[14]

Chart III-3-1: Equity financing[1]



Note: *1*. The latest data are as of the July-September quarter of 2014.
Source: I-N Information Systems.

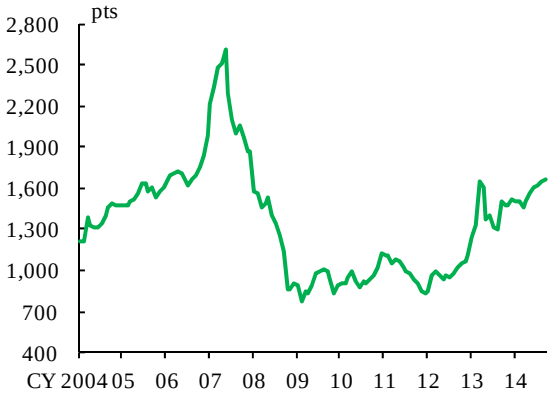
Chart III-3-2: Amount of stock buybacks[1,2]



Notes: *1*. Stocks listed on the First Section of the Tokyo Stock Exchange. Based on the announcement date.
2. The latest data are from January 1 to September 30, 2014.
Source: I-N Information Systems.

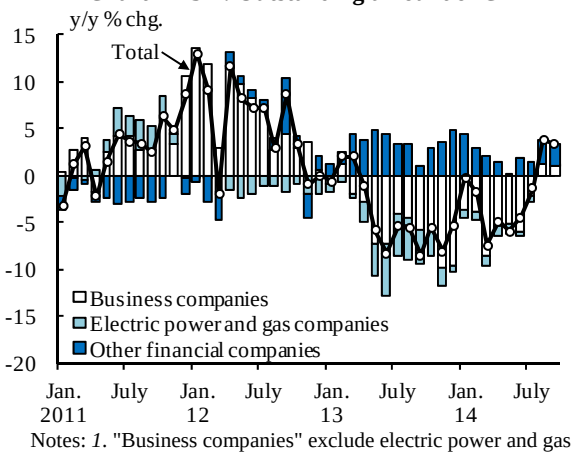
New listings and public offerings of Japan real estate investment trusts (J-REITs) have been actively undertaken on the whole (see Box 2). Demand for J-REITs among investors is strong, and investment prices have been increasing moderately due to the improvements in the real estate market (Chart III-3-3).

Chart III-3-3: Tokyo Stock Exchange REIT Index[1]



Note: *1*. The latest data are as of end-September 2014.
Source: Bloomberg.

Chart III-3-4: Outstanding amount of CP[1,2,3]



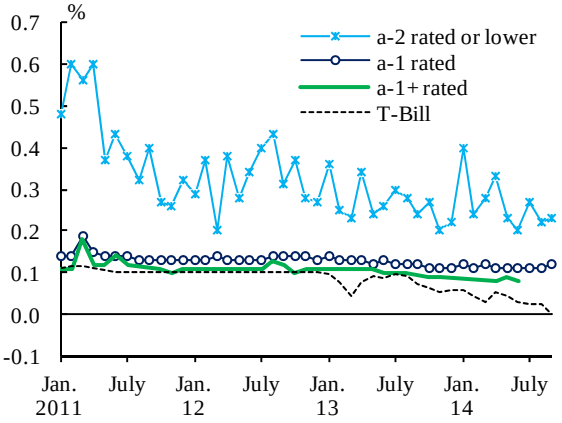
Notes: *1*. "Business companies" exclude electric power and gas companies and other financial companies.
2. "Other financial companies" include leasing companies, credit card companies, consumer finance companies, and securities finance companies.
3. The latest data are as of end-September 2014.
Source: Japan Securities Depository Center.

[14] The constituents of the JPX-Nikkei Index 400 are selected in consideration of factors such as the 3-year average ROE and cumulative operating profit, the appointment of independent outside directors, and the adoption of IFRS.

Issuing conditions for CP and corporate bonds have continued to be favorable and the amount issued slightly exceeds that of the previous year. Demand for these credit assets remains strong, and issuance rates are stable at low levels.

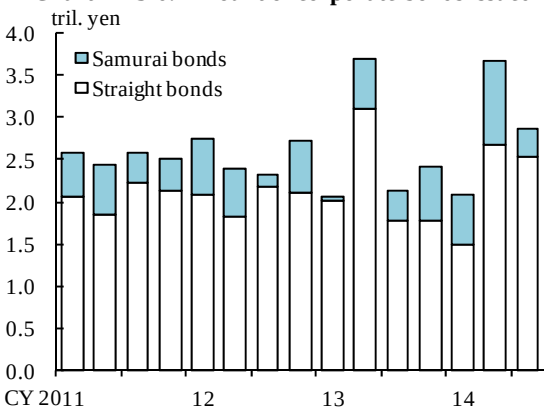
By type of product, the year-on-year rate of change in the amount outstanding of CP has been slightly positive (Chart III-3-4). Issuance rates on CP have been stable at low levels (Chart III-3-5).

Chart III-3-5: CP issuance rates[1,2]



Notes: *1*. Monthly average 3-month rates weighted by issuance volume.
2. The latest data are as of September 2014.
Sources: Japan Bond Trading; Japan Securities Depository Center.

Chart III-3-6: Amount of corporate bonds issued[1]



Note: *1*. The latest data are as of the July-September quarter of 2014.
Source: I-N Information Systems.

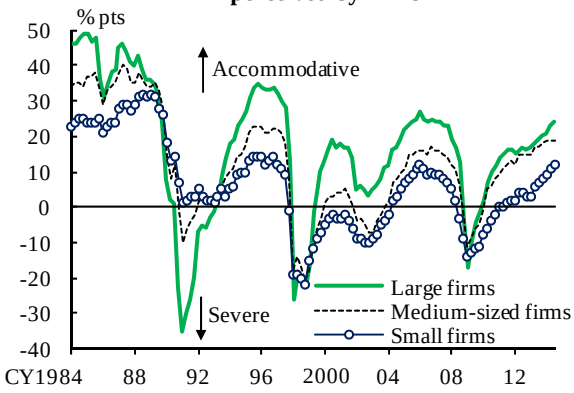
Issuance of corporate bonds has been somewhat above the year-ago level (Chart III-3-6). Nevertheless, the amount outstanding has slightly declined partly because firms, under the cash-rich environment, have redeemed some of the corporate bonds that were issued in great quantities after the financial crisis rather than rolling them over. Yield spreads between various corporate bonds and JGBs have been narrowing quite moderately.

D. Financial conditions among firms and households

Financial conditions among firms and households have become more accommodative against the backdrop of financial intermediary activities stated above. Funding costs for firms and households, including the average contract interest rates on new loans and discounts, have continued to exhibit a downward trend (Chart III-1-7). Preferential rates for housing loans, particularly long-term fixed interest rates, have declined further due to the decline in long-term interest rates and the intensified competition among financial institutions compared with those at the time of the previous *Report* (Chart III-1-8). Lending attitudes of financial institutions as perceived by firms have become more accommodative, and firms' financial positions have

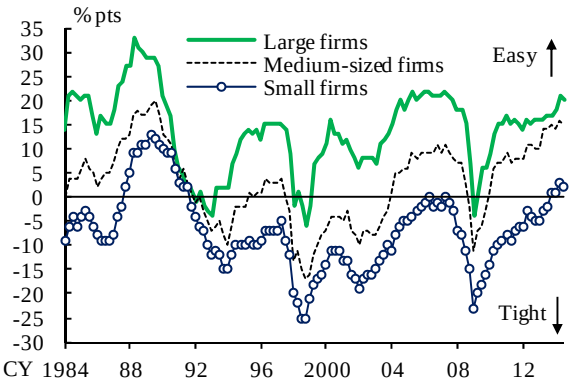
continued to improve, regardless of firm size (Charts III-4-1 and III-4-2). The year-on-year rate of change in the amount of firms' funding has been positive at 1.0-1.5 percent, mainly due to the increase in equity financing as well as in bank borrowing (Chart III-4-3). Housing loans have recently been increasing at a slower pace, due to the decline in demand following a front-loaded increase prior to the consumption tax hike (Chart III-1-13).

Chart III-4-1: DI of lending attitudes of financial institutions as perceived by firms[1]



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

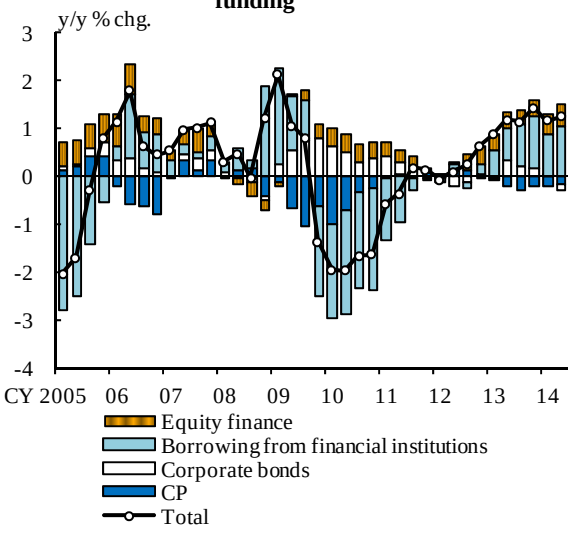
Chart III-4-2: DI of financial positions of firms[1]



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

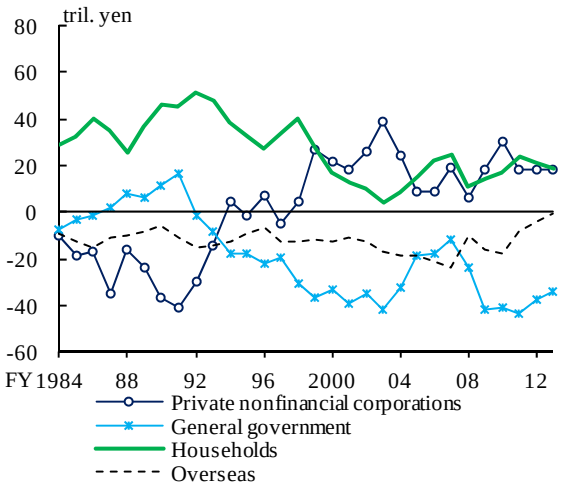
Meanwhile, the investment-saving balance of the private non-financial corporate sector continues to demonstrate excess savings on a fiscal-year basis, as profits have continued to improve although firms' business fixed investment has recently been increasing moderately (Chart III-4-4). Therefore, firms' retained earnings have remained at a high level and firms' leverage ratio has been at its lowest level in the past 30 years on a book value basis (Chart III-4-5). Firms' debt to cash flow ratio has also been declining (Chart III-4-6). On the one hand, this kind of firms' stance on financial management has enhanced their financial soundness, improved the quality of assets held by financial institutions, and reduced their credit costs. On the other hand, it constitutes a cause of restraining the demand for funds and the growth of loans by financial institutions. This basic tendency observed for some time has not changed so far. Meanwhile, the amount of housing loans relative to household disposal income has been on an increasing trend (Chart III-4-7).

Chart III-4-3: Total outstanding amount of firms funding[1,2,3]



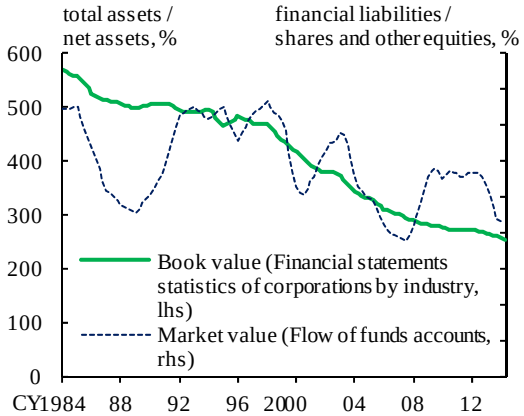
Notes: *1*. The latest data are as of end-June 2014.
2. CP issued by banks is excluded. Corporate bonds issued by banks and those issued in overseas markets are included. "Borrowing from financial institutions" excludes borrowing from banks, financial institutions for cooperative organizations, and insurance companies.
3. Equity finance is shares and other equities of private nonfinancial corporations based on book value.
Sources: I-N Information Systems; Japan Securities Dealers Association; Japan Securities Depository Center; BOJ, "Flow of funds accounts," "Loans and bills discounted by sector."

Chart III-4-4: Investment and saving balance by sector[1]



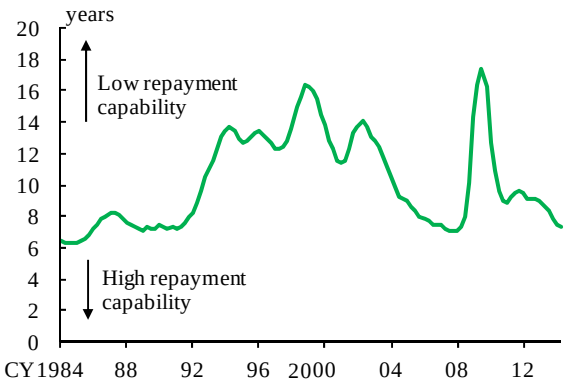
Note: *1*. The latest data are as of fiscal 2013.
Source: BOJ, "Flow of funds accounts."

Chart III-4-5: Firms' leverage ratio[1,2,3]



Notes: *1*. Data based on book value = total assets / net assets. Data based on market value = financial liabilities / shares and other equities.
2. Book value data are based on non-financial firms whose capital is more than 10 million yen. Market value data from the January-March quarter of 1984 to the July-September quarter of 1997 are calculated by applying year-on-year rates of changes on the old basis data in those periods.
3. The latest data are as of end-June 2014; 4-quarter moving averages.
Sources: Ministry of Finance, "Financial statements statistics of corporations by industry"; BOJ, "Flow of funds accounts."

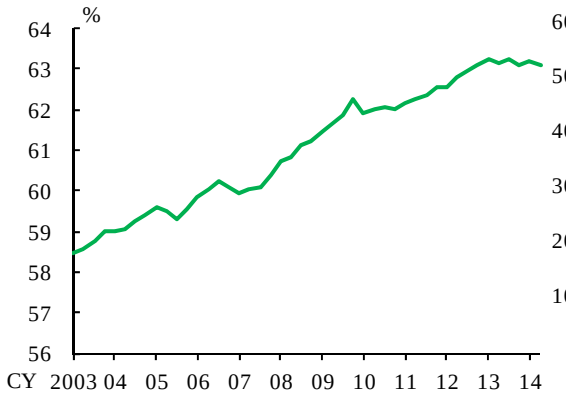
Chart III-4-6: Firms' debt / cash flow[1,2]



Notes: *1*. The latest data are as of the April-June quarter of 2014; 4-quarter moving averages.
2. Repayment capability = interest-bearing liabilities / (operating profits + interest and dividends received, etc.). The data are based on non-financial firms whose capital is more than 10 million yen.
Source: Ministry of Finance, "Financial statements statistics of corporations by industry."

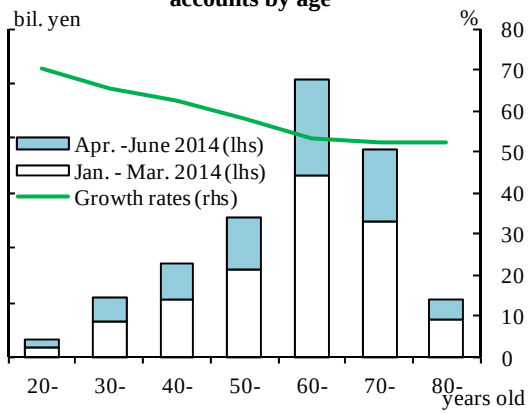
Deposits continue to be the largest component in households' financial assets. Recently, however, the share of risky assets in households' financial assets has gradually been increasing, as seen in the increase in the amount of Nippon Individual Savings Accounts (NISAs) and the number of wrap accounts opened (Charts III-4-8 to III-4-10).

Chart III-4-7: Household debt / disposable income[1,2]



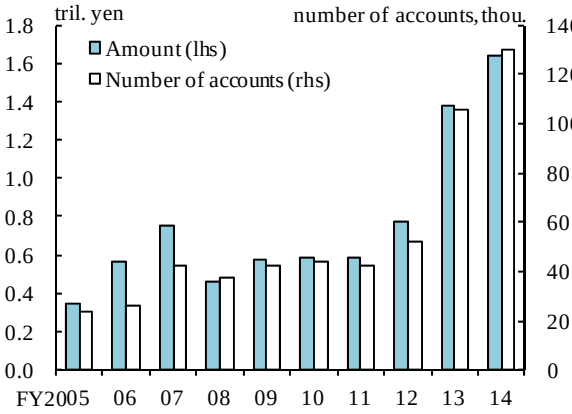
Notes: *1*. The latest data are as of the April-June quarter of 2014; 4-quarter moving averages.
2. The data are housing loans to disposable income ratio; disposable income from the April-June quarter of 2013 to the April-June quarter of 2014 are calculated applying year-on-year rates of changes of compensation of employee in those periods.
Sources: Cabinet Office, "National accounts"; BOJ, "Flow of funds accounts."

Chart III-4-8: Purchases through NISA accounts by age[1,2]



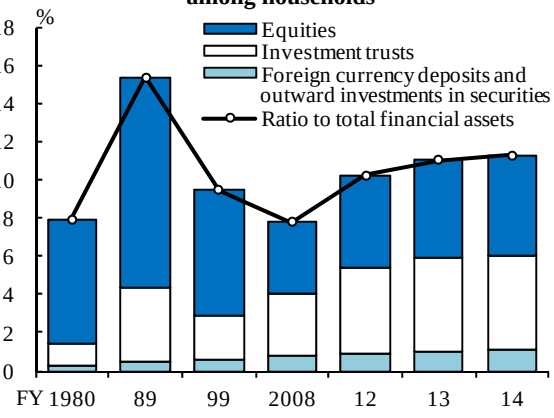
Notes: *1*. All 717 financial institutions dealing with the NISA are counted.
2. Growth rates are changes from end-March to end-June 2014.
Source: Financial Services Agency.

Chart III-4-9: Wrap accounts[1]



Note: *1*. The latest data are as of end-June 2014. Assets under management of wrap accounts by investment management members.
Source: Japan Investment Advisers Association.

Chart III-4-10: Compositions of financial assets among households[1,2]



Notes: *1*. The latest data are as of end-June 2014.
2. This chart is based on market value.
Source: BOJ, "Flow of funds accounts."

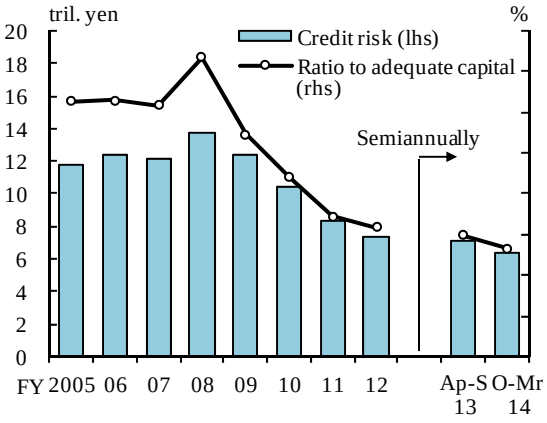
IV. Risks borne by financial institutions

In this chapter, we examine the extent to which financial institutions, such as banks and *shinkin* banks, have accumulated risks and how they have changed their risk profiles since the release of the previous issue of this *Report* through the process of financial intermediation described in Chapter III. It should be noted that most data used in our analysis -- the sections on credit risk and bank capital adequacy in particular -- are as of the end of fiscal 2013 (the end of March 2014). Regarding market risk and liquidity risk, however, data for the first half of fiscal 2014 are used where possible.

A. Credit risk

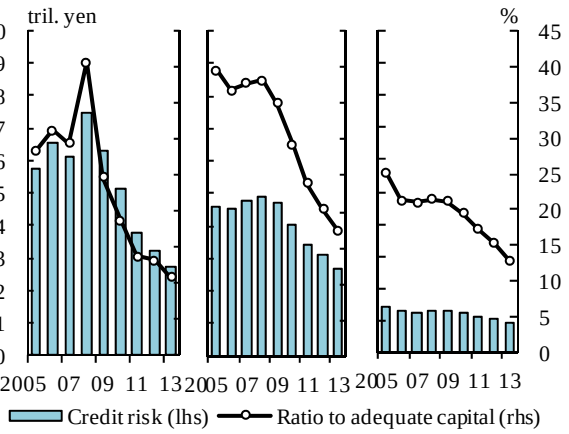
Financial institutions' credit risk has continued a declining trend against the background of their improved asset quality (Chart IV-1-1).[15] The same holds true for each type of bank (Chart IV-1-2).

Chart IV-1-1: Credit risk among financial institutions[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. Adequate capital for internationally active banks from fiscal 2012 is CET I. Adequate capital for domestic banks from fiscal 2013 is core capital. The data do not take account of the phase-in arrangements. Adequate capital preceding the respective periods is Tier I.
Source: BOJ.

Chart IV-1-2: Credit risk by type of bank[1,2]

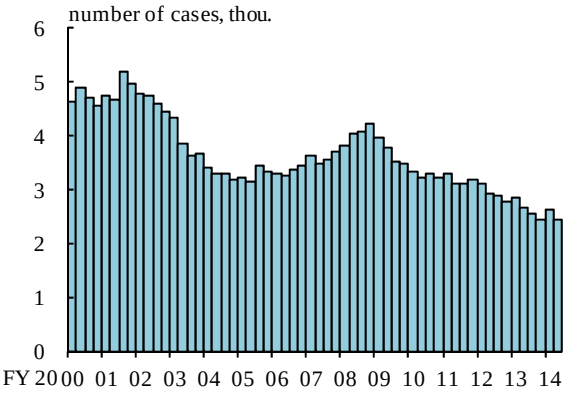


Notes: *1*. Credit risk is unexpected losses with a 99 percent confidence level.
2. Credit risk includes foreign currency-denominated assets.
Source: BOJ.

[15] Credit risk as defined here corresponds to unexpected losses. Unexpected losses are estimated by deducting the average amount of losses in 1 year (expected losses) from the maximum amount of losses with a 99 percent probability of occurrence in 1 year. We use default probability, calculated based on data on borrower classification of bank loans, and the rate of recovery of bank loans when losses occur.

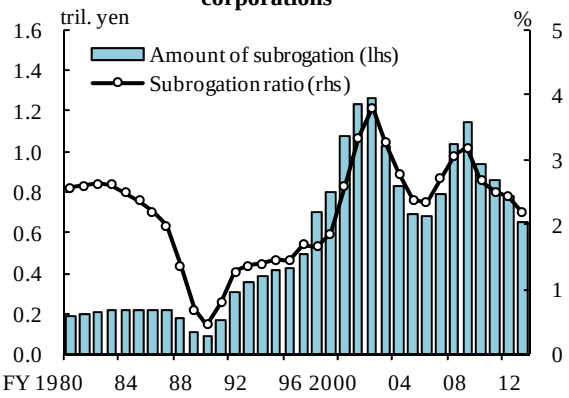
As seen in Chapter III, financial institutions are trying to take on greater risk in domestic and overseas lending, and have increased their outstanding amount of loans. Nevertheless, the amount of credit risk has declined basically due to the significantly positive effects of an improvement in the quality of assets, reflecting the economic recovery as well as improved financial conditions among firms.Meanwhile, the number of corporate bankruptcies has remained at a low level and the use of subrogation by credit guarantee corporations has been decreasing (Charts IV-1-3 and IV-1-4).

Chart IV-1-3: Corporate bankruptcies[1]



Note: *1*. The latest data are as of the July-September quarter of 2014.
Source: Tokyo Shoko Research Ltd.

Chart IV-1-4: Subrogation by credit guarantee corporations[1,2]

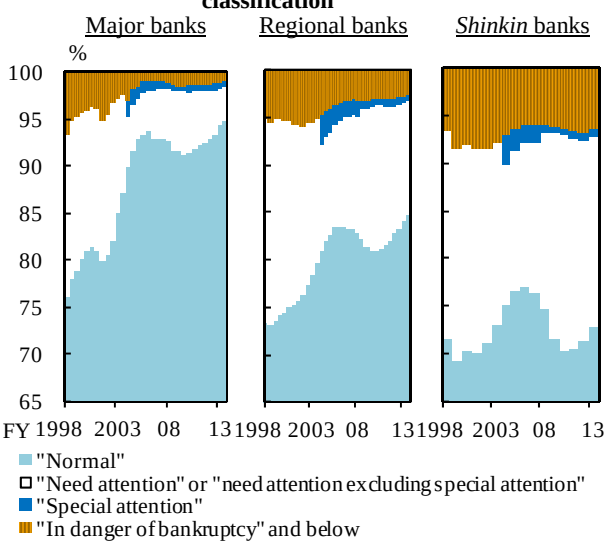


Notes: *1*. Subrogation is a legal doctrine where a credit guarantee corporation pays an insured financial institution for losses due to a bankruptcy of the borrower.
2. Subrogation ratio = amount of subrogation / outstanding guaranteed liabilities.
Sources: National Federation of Credit Guarantee Corporations; BOJ.

Quality of loans and credit costs

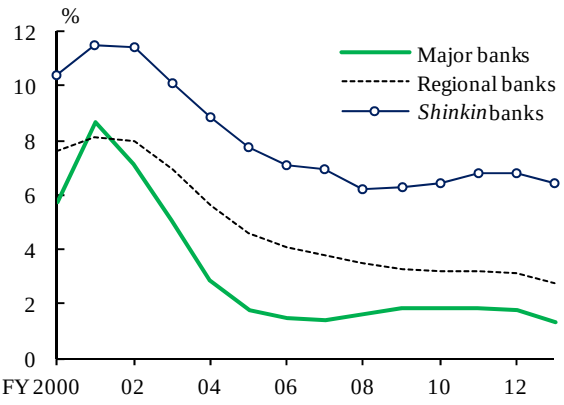
The quality of loans of financial institutions has continued to improve. The borrower classification shows that the ratio of normal loans to total loans has exceeded the peak level reached prior to the Lehman shock for major banks and regional banks, and has also risen for *shinkin* banks (Chart IV-1-5). The NPL ratio of each type of bank has declined (Chart IV-1-6).

Chart IV-1-5: Loans outstanding by borrower classification[1,2]



Notes: *1*. The latest data are as of end-March 2014.
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.

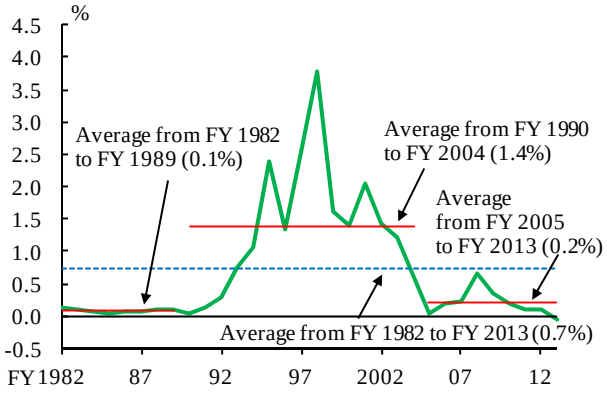
Chart IV-1-6: NPL ratios[1]



Note: *1*. The latest data are as of end-March 2014.
Source: BOJ.

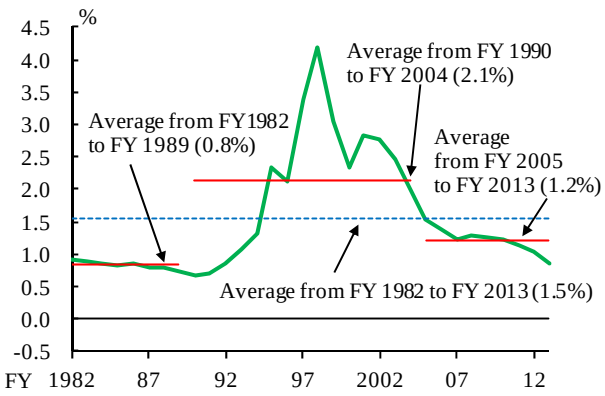
Under these circumstances, the credit cost ratio (the ratio of costs incurred by credit extension to loans outstanding) and the loan-loss ratio (the ratio of loan-loss provisions to loans outstanding) of financial institutions have continued to decline (Charts IV-1-7 and IV-1-8). By type of bank, for major banks in particular, the credit cost ratio turned negative owing to an increase in reversals of loan-loss provisions (Chart IV-1-9).

Chart IV-1-7: Credit cost ratio of banks[1]



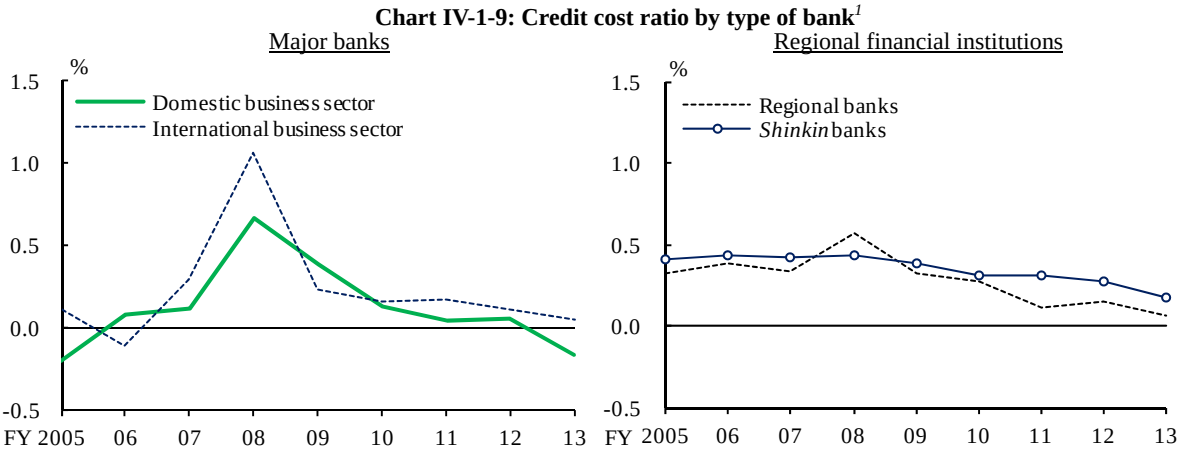
Note: *1*. Major banks and regional banks are counted. The latest data are as of fiscal 2013.
Source: BOJ.

Chart IV-1-8: Loan-loss ratio of banks[1,2]



Notes: *1*. Major banks and regional banks are counted. The latest data are as of end-March 2014.
2. Loan-loss ratio = total loan-loss provisions / total loans outstanding.
Source: BOJ.

Chart IV-1-9: Credit cost ratio by type of bank[1]



Note: *1*. The latest data are as of fiscal 2013.
Source: BOJ.

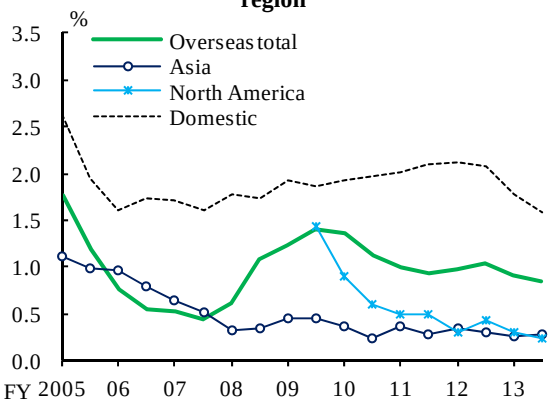
Credit risk associated with overseas loans

Credit risk associated with overseas loans has generally been restrained.[16] Major banks' NPL ratios have remained stable at low levels in each region and have been lower than those of domestic loans (Chart IV-1-10). This is because a large portion of their overseas loans is toward large Japanese-affiliated firms or good global non-Japanese-affiliated firms, while banks have recently increased their overseas loans substantially, as shown in Chapter III. The credit cost ratio of Japanese banks in the international business sector has remained quite low even compared to U.S. and Asian commercial banks (Chart IV-1-11).

Japanese firms' overseas expansion is expected to continue in the future, and such expansion has already spread to small and medium-sized firms. It is highly probable that Japanese firms' demand for overseas funding will expand for both major banks and regional banks. In addition, Japanese financial institutions -- particularly major banks -- plan to lend actively to local overseas firms, by expanding their range of transaction counterparties.

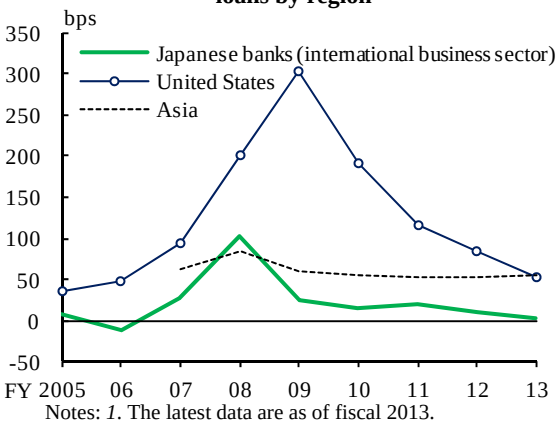
[16] The analyses of credit risks, loans outstanding by borrower classification, and credit cost ratios presented above include overseas loans, but the analysis here picks up overseas loans.

Chart IV-1-10: NPL ratio of major banks by region[1]



Note: *1*. The three major financial groups are counted on a non-consolidated basis. The latest data are as of end-March 2014.
Sources: Published accounts of each group.

Chart IV-1-11: Credit cost ratio of overseas loans by region[1,2]



Notes: *1*. The latest data are as of fiscal 2013.
2. The data on Asian credit costs are weighted averages by loans outstanding. Asian commercial banks in China, India, Indonesia, South Korea, Malaysia, Taiwan, and Thailand for which financial information is available are counted .
Sources: Bureau Van Dijk, "Bankscope"; FDIC; BOJ.

Issues on credit risk

As explained above, financial institutions' credit risk has generally been restrained. However, the following three points should be noted in terms of risk management.

First, credit costs have been at a considerably low level from a long-term perspective. It is possible that the loan-loss ratio and the amount of credit risk have been underestimated, as their recent levels reflect this trend (Charts IV-1-7 and IV-1-8). Because the credit cost ratio in Japan has been subject to large fluctuations since the bursting of the bubble in the 1990s, it is difficult to estimate the ratio's through-the-cycle level after leveling out fluctuations. Financial institutions need to manage credit risks appropriately while bearing this in mind.

Second, it is probable that financial institutions' credit risk and loan-loss ratio will rise, through the process in which they take further measures to support efforts to enhance the vitality of industries, such as the fostering of growth businesses or the revitalization of firms. In the medium term, these measures will enhance the profitability of and improve the quality of financial institutions' loan portfolios. During this process, however, factors including the materialization of business risk in lending or equity investments toward growing business areas, financial support for business revitalization or reconstruction, and industrial restructuring could give rise to an increase in credit costs.

Growing business areas with a relatively strong demand for funds until recently

included the environment and energy-related business, such as solar power generation, and the medical and welfare-related business. These growing business areas have characteristics that differ from those of existing industries as well as area-specific risks, including their cash flow characteristics and institutional environment. Therefore, in not a few cases these loans have long maturities. Financial institutions need to steadily enhance their analysis and improve their ability to assess lending and equity investments in order to support growing business areas. From a similar viewpoint, risk management is also considered necessary with regard to lending to the house and room leasing business, which has recently continued to exhibit relatively high growth.

With respect to poorly performing firms, financial institutions have been engaged in business revitalization and the improvement of business conditions, in addition to providing funding support through the easing of lending standards. The fall seen in credit costs in recent years is partly attributable to the reduction of corporate bankruptcies owing to various support measures, including the aforementioned measures taken by financial institutions as well as the expansion of credit guarantees and public financial institutions' loans. However, public support such as the Credit Guarantee Program has been gradually returning to normal levels, and the revised version of the Japan Revitalization Strategy introduced by the Japanese government has raised reform of the regional economy's industrial structure as one of its agendas. Concerning support for poorly performing firms, the focus will gradually shift from providing support through funding to fundamental business reconstruction or support for borrowers' main business. Financial institutions must work toward business revitalization of borrowing firms, and appropriately reflect progress made in these activities as well as the need for financial support in their assessment of risks.

In addition, overseas lending is an area on which financial institutions have concentrated, and is expected to continue growing at a relatively high rate. Although credit costs arising from overseas loans have been restrained so far, the composition of loan portfolios and the nature of risks assumed will change due to an increase in new borrowers or changes in the composition of borrowing countries and regions. Overseas loans are associated with country risks, and risks owing to institutional or infrastructural differences among countries, which are different in nature compared with risks surrounding domestic loans. Financial institutions need to develop their ability to manage credit risk in response to business expansion, taking into account their respective business operation guidelines.

Third, the assessment of risk and return in loans has become important as interest

rate spreads on loans have continuously narrowed. Competition for the extension of loans has intensified among financial institutions. Although profitability depends on the time horizon of assessments or the concept of total profitability, financial institutions need to make appropriate assessments of profitability, based on their respective business guidelines.

B. Interest rate risk

Amount of interest rate risk associated with bond investment

Financial institutions have a wide range of assets and liabilities, including loans and deposits, which bear interest rate risk. With respect to bondholdings, in addition to realized gains/losses on trading, unrealized capital gains/losses on bondholdings are disclosed through information on financial results, and can directly affect financial or regulatory figures, such as distributable profits and capital adequacy ratios (in the case of internationally active banks).[17] Therefore, of the total amount of interest rate risk, the analysis presented below first focuses solely on the interest rate risk on bondholdings. Unless otherwise noted, the analysis here uses capital losses on bondholdings in the case of a parallel shift (100bpv) -- in which interest rates for all maturities rise by 1 percentage point -- as an indicator of interest rate risk.

The amount of interest rate risk associated with bondholdings at financial institutions as of the end of June 2014 reached 7.6 trillion yen (see the parallel shift scenario in Charts IV-2-1 and IV-2-2). **Compared to 8.6 trillion yen during the recent peak at the end of March 2013, the amount has decreased by 12.5 percent** (Chart IV-2-3). By type of bank, the amount of interest rate risk was 2.6 trillion yen for major banks, 3.0 trillion yen for regional banks, and 2.0 trillion yen for *shinkin* banks (Charts IV-2-1 and IV-2-4).[18] Under a steepening scenario in which long-term interest rates (10-year rates) rise by 1 percentage point and short-term interest rates do not rise significantly, the amount was 4.8 trillion yen for financial institutions as a whole: 1.3 trillion yen for major banks, 1.9 trillion yen for regional banks, and 1.5 trillion yen for *shinkin* banks.

[17] For details on the accounting standards for financial institutions' bondholdings, see Box 9 in the October 2012 issue of the *Report*.

[18] In Chart IV-2-1, we do not take into account the effects of off-balance-sheet transactions in estimating changes in the market value of bond prices.

Chart IV-2-1: Effects of a rise in interest rates on capital losses on bondholdings[1]

Upward shift by 1 percentage point

tril. yen

	Parallel shift scenario			Steepening scenario		
	End-Dec. 2013	End-Mar. 2014	End-June 2014	End-Dec. 2013	End-Mar. 2014	End-June 2014
Financial institutions	-7.5	-7.5	-7.6	-4.7	-4.7	-4.8
Banks	-5.6	-5.6	-5.6	-3.3	-3.3	-3.3
Major banks	-2.6	-2.6	-2.6	-1.3	-1.4	-1.3
Regional banks	-3.0	-3.0	-3.0	-2.0	-1.9	-1.9
Shinkin banks	-1.9	-1.9	-2.0	-1.4	-1.4	-1.5

Upward shift by 2 percentage points

tril. yen

	Parallel shift scenario			Steepening scenario		
	End-Dec. 2013	End-Mar. 2014	End-June 2014	End-Dec. 2013	End-Mar. 2014	End-June 2014
Financial institutions	-13.2	-13.2	-13.4	-8.0	-8.0	-8.2
Banks	-10.0	-10.0	-10.0	-5.6	-5.6	-5.7
Major banks	-4.7	-4.7	-4.6	-2.3	-2.4	-2.3
Regional banks	-5.3	-5.2	-5.4	-3.3	-3.2	-3.4
Shinkin banks	-3.2	-3.3	-3.4	-2.3	-2.4	-2.5

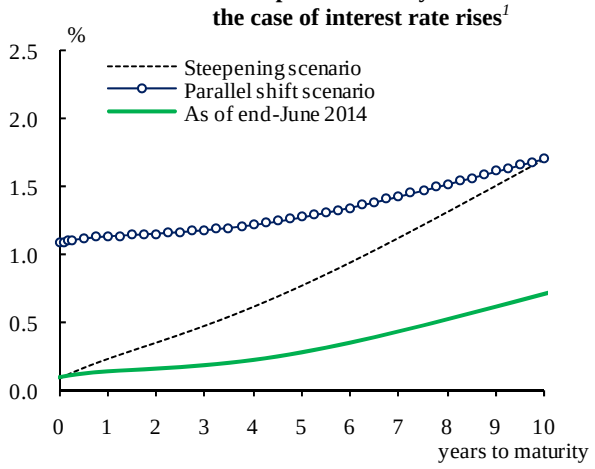
Upward shift by 3 percentage points

tril. yen

	Parallel shift scenario			Steepening scenario		
	End-Dec. 2013	End-Mar. 2014	End-June 2014	End-Dec. 2013	End-Mar. 2014	End-June 2014
Financial institutions	-19.0	-19.0	-19.3	-11.4	-11.5	-11.7
Banks	-14.4	-14.4	-14.5	-8.1	-8.0	-8.1
Major banks	-6.8	-6.8	-6.7	-3.3	-3.4	-3.3
Regional banks	-7.7	-7.5	-7.8	-4.8	-4.6	-4.8
Shinkin banks	-4.6	-4.7	-4.9	-3.3	-3.4	-3.6

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

Chart IV-2-2: Assumptions for the yield curve in the case of interest rate rises[1]

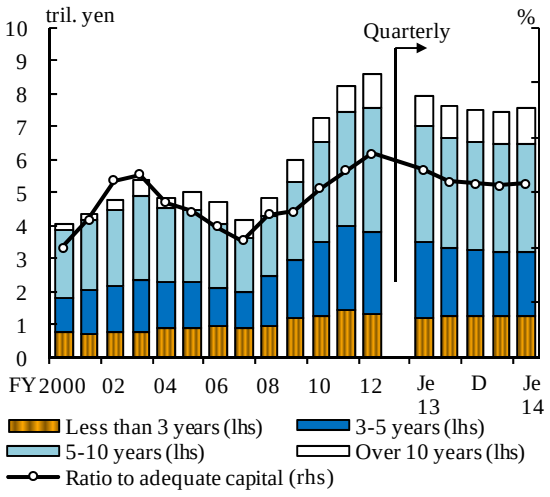


Note: *1.* A parallel shift scenario represents a situation in which yields on all maturities shift upward from the baseline by 1 percentage point. A steepening scenario represents a situation in which the 10-year interest rate shifts upward from the baseline by 1 percentage point.
Sources: Bloomberg;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

However, from the beginning of fiscal 2014, the amount of interest rate risk has turned to an increase, albeit very slightly, reflecting the increase in domestic bond investment particularly among regional financial institutions.

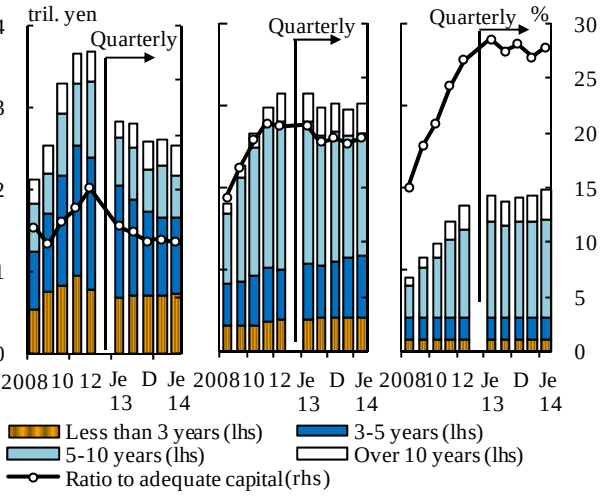
Looking back at movements during this period over a relatively long timeframe, the amount of interest rate risk decreased somewhat significantly from the end of March to the end of June 2013, after which it continued to decrease moderately until the end of March 2014 (Chart IV-2-3). The decrease in the amount of risk has been observed mainly in the 3- to 5-year maturity zones.[19] The breakdown by type of bank shows that a large part of the decrease in the amount of risk has been brought about by major banks (Chart IV-2-4). As for regional banks and *shinkin* banks, there has been no significant decrease in the amount of risk, although the fact that the increasing trend observed until the end of March 2013 came to a halt was a significant change in itself.

Chart IV-2-3: Interest rate risk associated with bondholdings among financial institutions[1,2,3]



Notes: *1*. Banks and *shinkin* banks are counted.
2. Interest rate risk: 100 basis point value in the banking book.
3. Interest rate risk excludes risk associated with foreign currency-denominated bondholdings.
Source: BOJ.

Chart IV-2-4: Interest rate risk associated with bondholdings by type of bank[1,2]



Notes: *1*. Interest rate risk: 100 basis point value in the banking book.
2. Interest rate risk excludes risk associated with foreign currency-denominated bondholdings.
Source: BOJ.

From the beginning of fiscal 2014, the amount of risk turned to an increase until the end of June, albeit slightly, mainly in long-term maturity zones of 10 years or more. The breakdown by type of bank shows that major banks have continued to reduce their

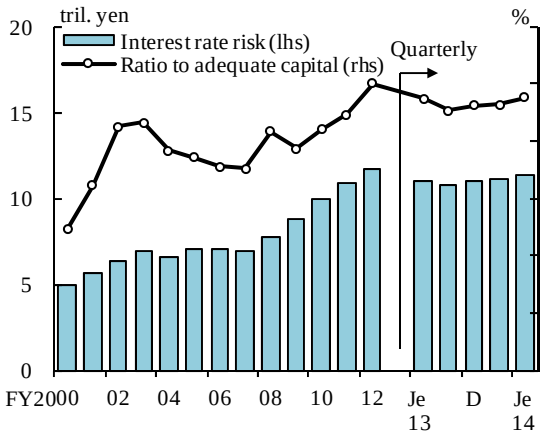
[19] The interest rate risk (the grid point sensitivity [GPS]) shown in Charts IV-2-3 and IV-2-4 indicates capital losses on bondholdings when interest rates for all maturities rise individually by 1 percentage point. The aggregate of GPS matches the 100 basis point value. The effects of off-balance-sheet transactions are not taken into account in the estimation of GPS.

amount of risk, but the pace of decrease has recently slowed. Regional banks and *shinkin* banks have slightly increased their amount of risk, by gradually accumulating long-term bonds and other types of bonds to secure profits, although their generally prudent stance on accumulating a substantial amount of interest rate risk has remained unchanged.

Amount of interest rate risk on balance sheets as a whole

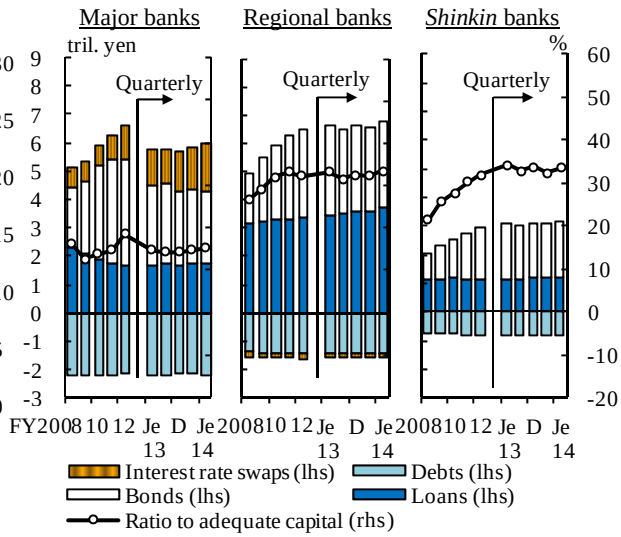
The amount of interest rate risk on financial institutions' balance sheets as a whole, including bond investments as well as loans and deposits, has reached 11.4 trillion yen. By type of bank, it has reached 3.8 trillion yen for major banks, 5.2 trillion yen for regional banks, and 2.4 trillion yen for *shinkin* banks (Charts IV-2-5 and IV-2-6).[20]

Chart IV-2-5: Interest rate risk among financial institutions[1,2,3]



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.
Source: BOJ.

Chart IV-2-6: Interest rate risk by type of bank[1,2]

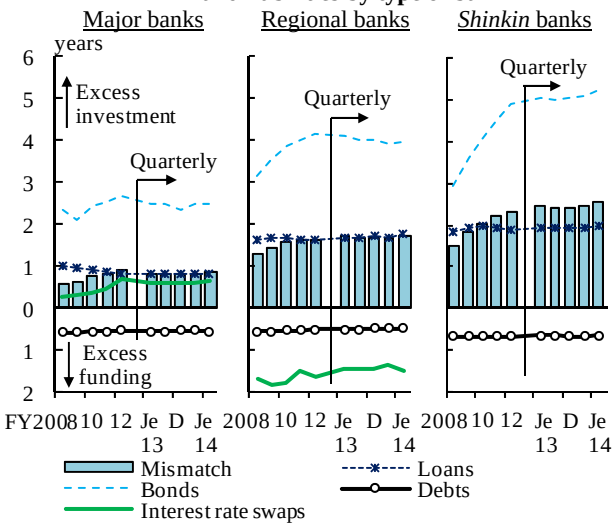


Notes: *1*. Interest rate risk: 100 basis point value in the banking book. For banks, off-balance-sheet transactions (interest rate swaps) are included.
2. Interest rate risk excludes risk associated with foreign currency-denominated assets and liabilities.
Source: BOJ.

[20] The 100 basis point value estimates losses in economic value associated with all assets and liabilities under a parallel shift in the yield curve in which interest rates for all maturities increase by 1 percentage point. When the average remaining maturity of assets is longer than that of liabilities, a widening of maturity mismatch (the difference between the average remaining maturities of assets and liabilities) leads to a greater amount of interest rate risk. Nevertheless, the 100 basis point value is calculated only for the interest rate risk associated with yen-denominated assets (loans and bonds), yen-denominated liabilities, and yen interest rate swaps (only banks are counted). It does not reflect the risk associated with foreign currency-denominated assets and liabilities and off-balance-sheet transactions other than yen interest rate swaps. Yen interest rate swaps are covered only for banks. We set the remaining maturity of demand deposits within 3 months in calculating the 100 basis point value of liabilities and do not take into account core deposits. On the effects of core deposits on the amount of interest rate risk, see the October 2013 issue of the *Report*.

The total amount of interest rate risk decreased by 2.1 percent compared with 11.7 trillion yen during the recent peak of end-March 2013. The pace of decrease is slower than that seen in the amount of interest rate risk on bondholdings (12.5 percent) partly because (1) the duration of loans has been lengthened somewhat, due to an increase in the amount of medium- and long-term loans with an increase in lending as a whole; and (2) the development of positions in interest rate swaps with fixed receipts has been somewhat strengthened from the viewpoint of securing profits (Chart IV-2-7).

Chart IV-2-7: Average remaining maturity of assets and liabilities by type of bank[1,2]



Notes: *1*. The mismatch is the difference between the average remaining maturity of assets and that of liabilities. The average remaining maturity of assets is the weighted average of loans, bonds, and interest rate swaps with interest receipts. The average remaining maturity of liabilities is the weighted average of debts and interest rate swaps with interest payments. The average remaining maturity of interest rate swaps is the difference between interest rate swaps with interest receipts and those with interest payments.
2. The data exclude foreign currency-denominated assets and liabilities.
Source: BOJ.

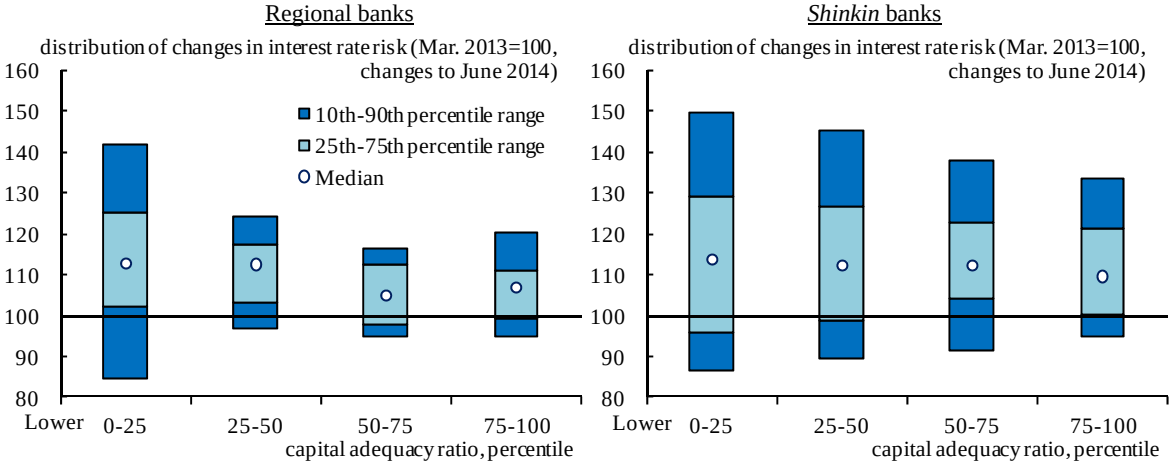
Issues on interest rate risk

As shown in the above analysis, the amount of interest rate risk held by financial institutions is at a relatively low level compared with that observed during the period until the end of March 2013. Nevertheless, due attention should be paid to the following two issues regarding risk management.

First, the amount of interest rate risk is still at a relatively high level compared to the past, even though it has decreased somewhat, and there are considerable dispersions in risk taking among individual financial institutions. Financial institutions as a whole have maintained a prudent stance on further accumulation of a substantial amount of interest rate risk, mainly reflecting the introduction of QQE and the experience of the rise in long-term interest rates during the April-June period of 2013. However, not a small number of financial institutions, including those with weak capital strength, have increasingly accumulated interest rate risk in a situation in which the declining trend in fundamental profitability has continued. The relationship between

the level of capital adequacy ratio and the amount of interest rate risk shows that not a small number of financial institutions with relatively low capital adequacy ratios have significantly expanded their amount of interest rate risk (Chart IV-2-8).

Chart IV-2-8: Changes in interest rate risk and capital adequacy ratios among regional financial institutions[1,2,3,4]



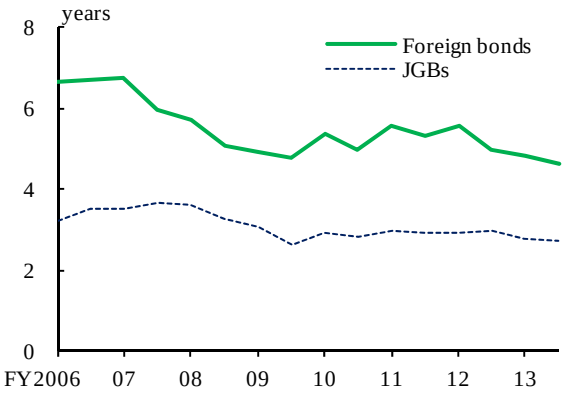
Notes: *1*. Regional banks and *shinkin* banks with negative interest rate risks are excluded.
2. Interest rate risk: 100 basis point value in the banking book. For regional banks, off-balance-sheet transactions (interest rate swaps) are included.
3. Interest rate risk excludes risk associated with foreign currency-denominated assets and liabilities.
4. The capital adequacy ratio is the Tier I capital ratio as of end-March 2013.
Source: BOJ.

Second, the volatility of interest rates has recently been at an extremely low level compared with the past and such low volatility might be one of the factors behind the increase in domestic bond investment. In addition to macroeconomic stability and accommodative financial conditions in Japan, the low volatility broadly observed in the global market -- as shown in Chapter V -- may also be contributing to the current low volatility of long-term interest rates.

Given these two issues, financial institutions need to set clear guidelines for their investment and management of interest rate risk, taking account of (1) the relationship between interest rate risk and their capital strength or profitability and (2) the balance with other risks.

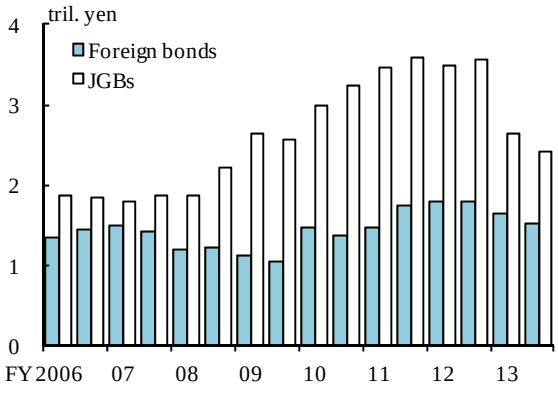
As seen in Chapter III, some financial institutions have increased their investment in foreign bonds, and as a result, financial institutions' foreign currency interest rate risk has increased. Major banks' foreign currency interest rate risk (100bpv-based, estimated by using disclosed durations and other data) has been approaching an amount not necessarily small compared with that for yen interest rates (Charts IV-2-9 and IV-2-10). Regional financial institutions' foreign currency interest rate risk is also increasing as a trend, although it is still fairly small compared with that of yen interest rates.

Chart IV-2-9: Average remaining maturity of foreign bonds and JGBs among major banks[1,2]



Notes: *1*. The latest data are as of end-March 2014.
2. Maturity basis.
Sources: Published accounts of each group.

Chart IV-2-10: Interest rate risk on foreign bonds and JGBs among major banks[1,2]



Notes: *1*. The latest data are as of end-March 2014.
2. Interest rate risk: 100 basis point value. Maturity basis.
Sources: Published accounts of each group.

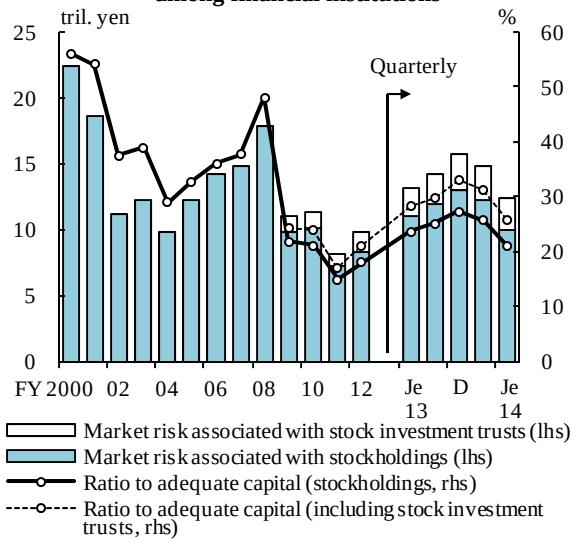
C. Market risk associated with stockholdings

The amount of market risk associated with stockholdings at financial institutions as of the end of June 2014 was 12.3 trillion yen (Charts IV-3-1 and IV-3-2).[21] **Compared to 9.8 trillion yen as of the end of March 2013, the amount has increased by 25.4 percent. This increase is basically due to the rise in the market value of total stocks held by them.** The fact that financial institutions have increased their investment in stock investment trusts, aiming to increase their market return, has also led to the increase in the amount of market risk associated with stockholdings. The decrease in the amount of risk since the beginning of 2014 is mainly due to the decline in volatility of stock prices.

Developments in market risk associated with stockholdings among individual financial institutions since the end of March 2013 indicate that, as is the case with interest rate risk, some financial institutions with relatively low capital adequacy ratios have somewhat significantly increased their amount of market risk associated with stockholdings (Chart IV-3-3).

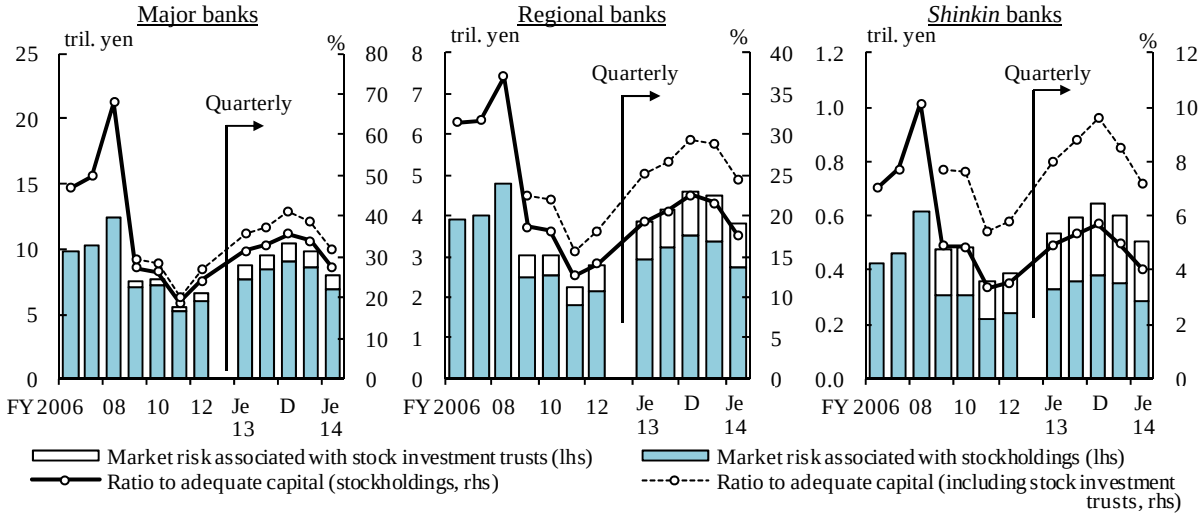
[21] The market risk associated with stockholdings presented here is estimated using a VaR with a 99 percent confidence level and 1-year holding period. It includes the risk associated with stock investment trusts.

Chart IV-3-1: Market risk associated with stockholdings among financial institutions[1,2,3]



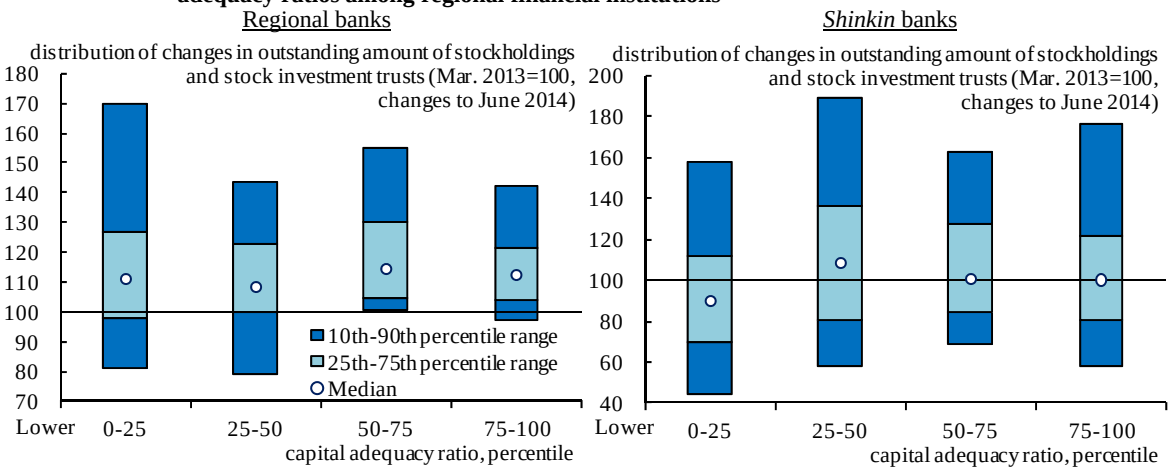
Notes: *1*. Banks and *shinkin* banks are counted.
2. Market risk associated with stockholdings and stock investment trusts: value-at-risk with a 99 percent confidence level and 1-year holding period.
3. Market risk associated with stockholdings and stock investment trusts excludes risk associated with foreign currency-denominated stockholdings and stock investment trusts. Data for stock investment trusts before fiscal 2008 are excluded from the figures.
Source: BOJ.

Chart IV-3-2: Market risk associated with stockholdings by type of bank[1,2]



Notes: *1*. Market risk associated with stockholdings and stock investment trusts: value-at-risk with a 99 percent confidence level and 1-year holding period.
2. Market risk associated with stockholdings and stock investment trusts excludes risk associated with foreign currency-denominated stockholdings and stock investment trusts. Data for stock investment trusts before fiscal 2008 are excluded from the figures.
Source: BOJ.

Chart IV-3-3: Changes in outstanding amount of stockholdings and stock investment trusts, and capital adequacy ratios among regional financial institutions[1,2,3,4]

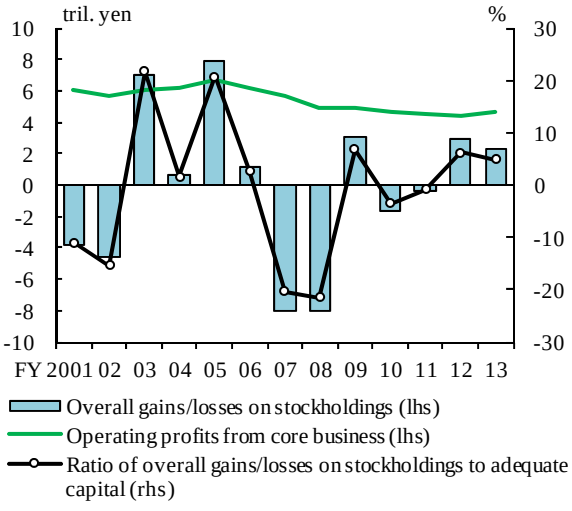


Notes: *1*. Regional banks and *shinkin* banks with stockholdings and stock investment trusts are excluded.
2. This chart is based on book value.
3. Stockholdings and stock investment trusts exclude foreign currency-denominated assets.
4. The capital adequacy ratio is the Tier I capital ratio as of end-March 2013.
Source: BOJ.

Issues on market risk associated with stockholdings

As shown above, **the amount of market risk associated with stockholdings has substantially decreased compared with past levels. Its volatility is still large, however. Financial institutions therefore need to manage their risks, taking into account the possibility that market risk associated with stockholdings will have considerable effects on their capital strength or profitability.** Overall gains/losses on stockholdings (the sum of realized gains/losses on stockholdings and changes in unrealized gains/losses on stockholdings) vary with significant magnitude compared with capital level and profitability (Chart IV-3-4).

Chart IV-3-4: Overall gains/losses on stockholdings and operating profits from core business among financial institutions[1,2]



Notes: *1*. Banks and *shinkin* banks are counted.
2. Overall gains/losses on stockholdings are defined as the sum of realized gains/losses on stockholdings and changes in unrealized gains/losses on stockholdings.
Source: BOJ.

A large portion of market risk associated with stockholdings is those of strategic stockholdings by banks. Since the end of the 1990s when concerns over the stability of Japan's financial system emerged, banks have endeavored to reduce the amount of strategic stockholdings. As a result, the ratio of outstanding stockholdings to capital has declined from 1.3 at the end of fiscal 2000 to 0.4 at the end of fiscal 2013. However, the pace of reduction has moderated somewhat in recent years.

The abovementioned increase in market risk associated with stockholdings has not directly led to a heightening of banks' financial vulnerability, since it has been brought about by a rise in the market value of stockholdings and accompanied by an increase in capital gains. However, strategic stockholdings are different from pure investment in stocks in that it is difficult for these to be sold flexibly in order to limit capital losses. Taking into account these aspects, banks are required to continue efforts to steadily reduce the related risk, by appropriately assessing the relationship between market risk associated with stockholdings and capital condition, and the purpose of strategic stockholdings.[22]

D. Funding liquidity risk

Financial institutions have sufficient funding liquidity in yen funds. As for foreign currency-based funding, they have funding structures with a large portion of market funding, but hold a liquidity reserve that can cover funding shortages even if market funding becomes difficult for a certain period.

In this section, we analyze funding liquidity risk in the order of the yen and foreign currencies from two perspectives: (1) the stability of the structure of investment and funding; and (2) the resilience against short-term stress.[23] The focus is on major banks. Resilience against short-term stress is assessed by assuming a stress scenario in which market funding comes to a complete halt for 1 month while there is a partial outflow of deposits and by checking whether financial institutions hold liquidity buffers to cover

[22] Some banks have hedged price volatility risks of strategic stockholdings by using derivatives.

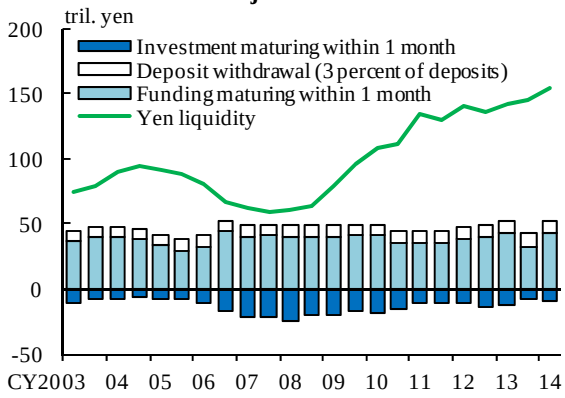
[23] The turbulence in global financial markets in and after the summer of 2007 as well as the subsequent financial crisis have left an important lesson that the tightening of liquidity conditions could well shake the foundation for financial institutions' business conditions. The central banks of advanced countries took extraordinary measures to jointly counter the increase in foreign currency liquidity risk when faced with a significant impairment of the functioning of foreign exchange swap markets. Based on these lessons, the Basel III plans to introduce new regulations to enhance liquidity risk management by financial institutions in terms of both (1) the stability of the structure of the investment-funding balance (the net stable funding ratio, NSFR) and (2) resilience against a short-term stress situation (the liquidity coverage ratio, LCR).

the outflow of funds during the period, by applying a concept akin to "the liquidity coverage ratio."

With respect to the structure of investment and funding of the yen, stability is quite high, mainly because the majority of the funding source is a stable retail deposit, the outstanding amount of deposits is far larger than total loans outstanding, and a large part of the loan-to-deposit difference is invested in highly liquid securities such as JGBs or current account deposits at the Bank of Japan.

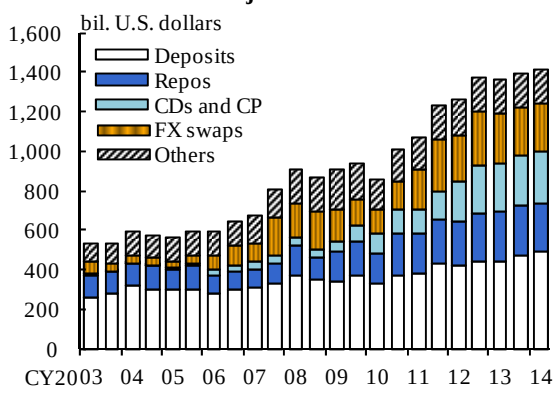
As for the resilience of yen-based funding against short-term stress, it is assessed that financial institutions hold liquid assets far more than the expected fund outflows under stress situations, and that they have a sufficiently high level of resilience (Chart IV-4-1).[24] The Bank's continuous provision of massive liquidity under QQE is also considered useful for guaranteeing the availability of funds under stress situations.

Chart IV-4-1: Resilience to yen liquidity among major banks[1,2,3]



Notes: *1*. Major banks are counted. The latest data are as of end-March 2014.
2. It is assumed that 3 percent of deposits are withdrawn.
3. Yen liquidity = cash and deposits + JGBs.
Source: BOJ.

Chart IV-4-2: Foreign currency funding among major banks[1,2]



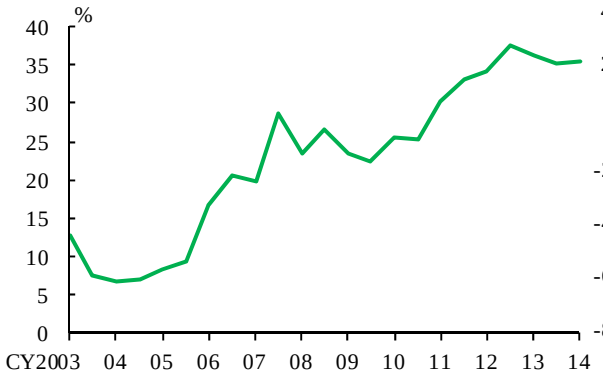
Notes: *1*. Major banks are counted. The latest data are as of end-March 2014.
2. The data include Euroyen fundings.
Source: BOJ.

With respect to the structure of investment and funding of foreign currencies, a large part of foreign currencies is invested in loans with a relatively long maturity and in foreign bonds, and a large part of funding is raised by short-term market funding, such as repos, foreign exchange swaps, and CDs and CP, although approximately 30 percent of funding is raised by deposits (Charts IV-4-2 to IV-4-4). Under this situation, financial

[24] In compliance with the concept of the LCR, here we assume an outflow of market funding with a maturity of 1 month or less and amounting to 3 percent of total deposits. In calculating the LCR, more complex stress situations than the one used here are assumed, such as the withdrawal of the lines of credit committed to customers, downgrading of credit, and outflow of collateral for margin calls. Thus, it should be noted that the assumption does not match the definition used here.

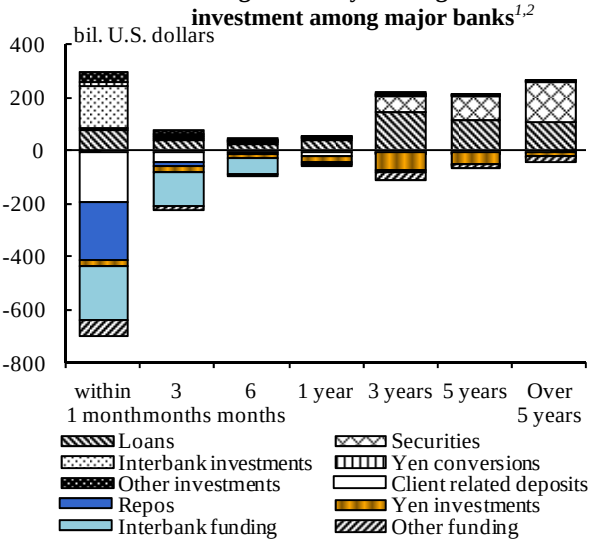
institutions have recently been taking measures to stabilize funding, such as issuing foreign currency-denominated corporate bonds, extending the maturity of market funding such as currency swaps, and broadening funding counterparties.

Chart IV-4-3: Major banks' dependence of FX swaps, and CDs and CP[1,2]



Notes: *1*. Major banks are counted. The latest data are as of end-March 2014.
2. The ratio of the sum of FX swaps, and CDs and CP to total funding in the international business sector.
Source: BOJ.

Chart IV-4-4: Structure of remaining maturity of foreign currency funding and investment among major banks[1,2]



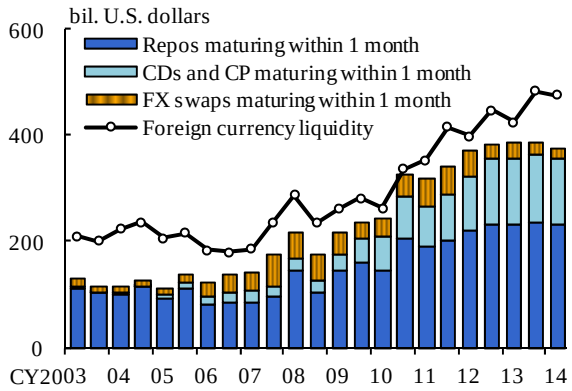
Notes: *1*. Major bases of major banks are counted. The data are as of end-April 2014.
2. Maturity basis.
Source: BOJ.

As for the resilience of foreign currency-based funding against short-term stress, financial institutions hold liquid assets to cover the outflow of funds expected under stress situations, which is the funding by repos, foreign exchange swaps, and CDs and CP with a maturity of less than 1 month (Chart IV-4-5).[25] In addition, because the Bank of Japan currently conducts weekly dollar funds-supplying operations, foreign currencies can be obtained by using JGBs as collateral, and such a measure is considered to work as a backstop under stress situations.[26]

[25] We include repo borrowings with remaining maturities of 1 month or less as liquid assets, by assuming that the collateral being used is of high quality and that the total amount of funding with a maturity of 1 month or less can be rolled over using the same collateral.

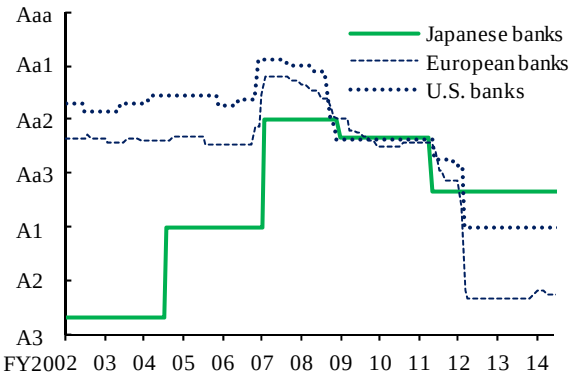
[26] U.S. dollar funds-supplying operations allow for the extension of U.S. dollar-denominated loans at a fixed interest rate and for an unlimited amount within the amount of eligible collateral provided.

Chart IV-4-5: Resilience to foreign currency liquidity among major banks[1,2]



Notes: *1*. Major banks are counted. The latest data are as of end-March 2014.
2. Foreign currency liquidity = cash and deposits + unencumbered U.S. treasuries + repos maturing within 1 month.
Source: BOJ.

Chart IV-4-6: Long term debt ratings of large banks[1]



Note: *1*. G-SIBs are counted. The latest data are as of end-September 2014.
Source: Moody's.

Issues on funding liquidity risk

As shown above, there is no significant concern regarding financial institutions' funding liquidity of yen and foreign currencies. The following two issues, however, should be noted in terms of management of foreign currency liquidity risk.

First, the stability of Japanese financial institutions' foreign currency funding is largely determined by the liquidity or functioning of funding markets. As explained above, financial institutions have developed some measures to enhance the stability of their foreign currency funding. The current ratings of Japanese banks are higher than those of major foreign financial institutions, and the market environment for foreign currency funding is favorable (Chart IV-4-6). Therefore, the likelihood of liquidity risk materializing due to individual banks' creditworthiness is currently considered to be not so high. However, the ratio of market funding in Japanese banks' foreign currency-based funding is high, and there exists a tendency in funding markets -- including the interbank market, the foreign exchange swap market, and the repo market -- for most of the transactions to be made by a relatively small number of major financial institutions. It has also been pointed out that the introduction and implementation of various international financial regulations -- such as the Basel III regulatory requirements and derivatives regulations -- and regulations by individual countries -- such as the Volcker rule and regulations on foreign banks in the United States -- might affect market liquidity in the future. In addition, during the Lehman shock period, the functioning of a wide range of funding markets remained significantly impaired for a prolonged period.

Bearing these points in mind, financial institutions need to continuously assess liquidity conditions of foreign currency funding markets as well as their own funding ability in view of these conditions, and to continue with their efforts to secure stable funding bases and enhance their ability to respond flexibly to possible stresses that arise in markets.

Second, in reality, liquidity risks for each foreign currency, such as the euro or Asian currencies, exist although the analysis here has converted all foreign currency-based liquidity into U.S. dollars. Basically, securing U.S. dollar-based liquidity is important so far, because Japanese banks' investment and funding are mainly U.S. dollar-based, and the exchange from the U.S. dollar to other currencies can be made in a relatively short period, as long as markets, such as the foreign exchange swap market, function properly. However, considering that many Japanese banks plan to expand their business operations in Asia, and that there exist some risks of deterioration in market functions, such as in the foreign exchange swap market between the U.S. dollar and local currencies, financial institutions need to enhance their ability to appropriately manage the liquidity of individual currencies.

V. Risks observed in financial markets

This chapter examines the risks observed in financial markets at home and abroad, mainly during the first half of fiscal 2014.

A. Global financial markets

Looking at global financial markets, volatility followed a declining trend in a wide range of financial markets such as bond, stock, and foreign exchange markets, particularly from the beginning of 2014. It remained at a low level on the whole in these markets during the first half of fiscal 2014, despite such events as the rise in geopolitical risks in Eastern Europe and the Middle East (Chart V-1-1).[27]

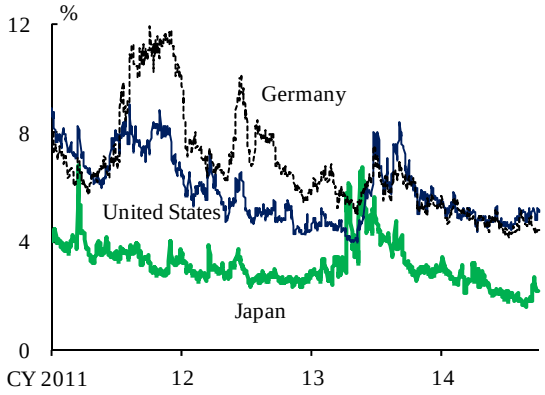
In this situation, search for yields by investors became increasingly notable, and yields and credit spreads on a wide range of assets such as corporate bonds, government bonds issued by some peripheral European countries, and emerging market bonds remained on a declining trend (Chart V-1-2). This seems to be because market participants expected that extremely accommodative financial conditions would remain for the time being in major advanced countries, while the global economy followed a recovery trend with reduced uncertainty compared to the time of the financial crisis and the European sovereign debt crisis (Chart V-1-3). Since the middle of September, however, volatility has been rising and prices of risky assets have been declining slightly, amid increased awareness of the difference in the pace of recovery and monetary policy stance of each country and region.

As for the outlook, the risk that market sentiment would change, thereby affecting the low-volatility environment seen on a global scale in the first half of fiscal 2014, warrants caution. The first factor that may bring about such situation is the change in the outlook for the global real economy and monetary policy stance. In addition, market participants pay particular attention to the following three points.

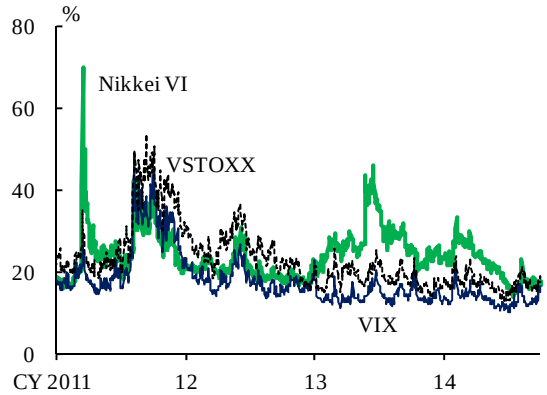
[27] Model-free implied volatility (MFIV) is calculated by using price information from various futures options. Unlike standard implied volatility, MFIVs capture the recognition of tail risks. MFIVs of government bond prices and foreign exchange rates (U.S. dollar/yen and euro/yen rates) correspond to options market participants' expected change in government bond prices and foreign exchange rates for the next 3 months. The volatility index (VIX) of the Chicago Board Options Exchange, the VSTOXX of Eurex, and the Nikkei Stock Average Volatility Index (VI) of Nikkei Inc. are MFIVs that correspond to options market participants' expected rate of change in stock prices for the next month.

Chart V-1-1: Volatility in global financial markets[1,2,3]

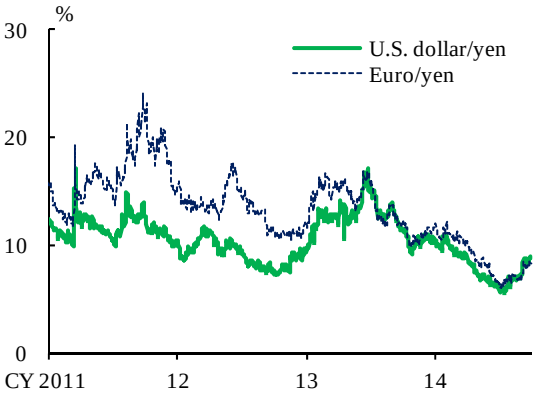
MFIVs of government bond prices



MFIVs of stock prices



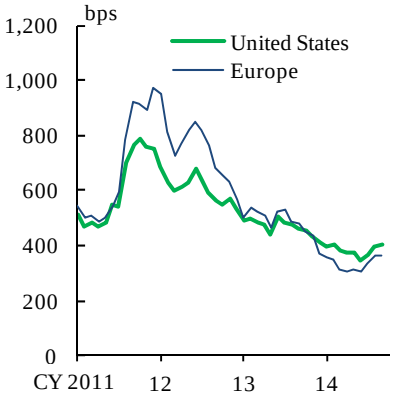
MFIVs of U.S. dollar/yen and euro/yen rates



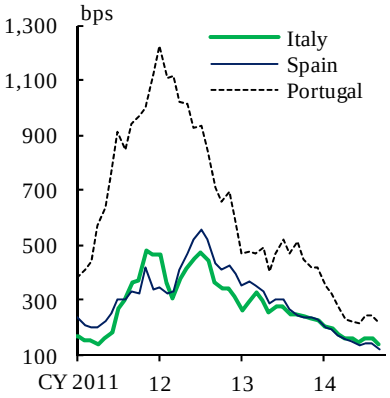
Notes: *1*. MFIVs of government bond prices are calculated by using the following data: options on JGB futures traded on the Tokyo Stock Exchange before March 24, 2014 and on the Osaka Exchange from March 24, 2014 for Japan; options on U.S. Treasury futures traded on the Chicago Board of Trade for the United States; and options on Euro-Bund futures traded on Eurex for Germany. The results correspond to changes in government bond prices for the next 3 months.
2. MFIVs of foreign exchange rates are calculated by using data on 3-month over-the-counter option prices.
3. The latest data are as of September 30, 2014.
Sources: Bloomberg; BOJ.

Chart V-1-2: Credit spreads in global financial markets[1,2]

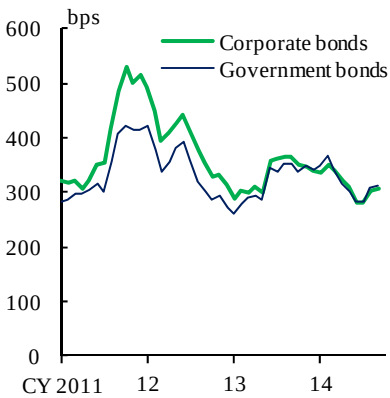
Spreads between high-yield bonds and government bonds



Spreads between selected peripheral European government bonds and German Bunds

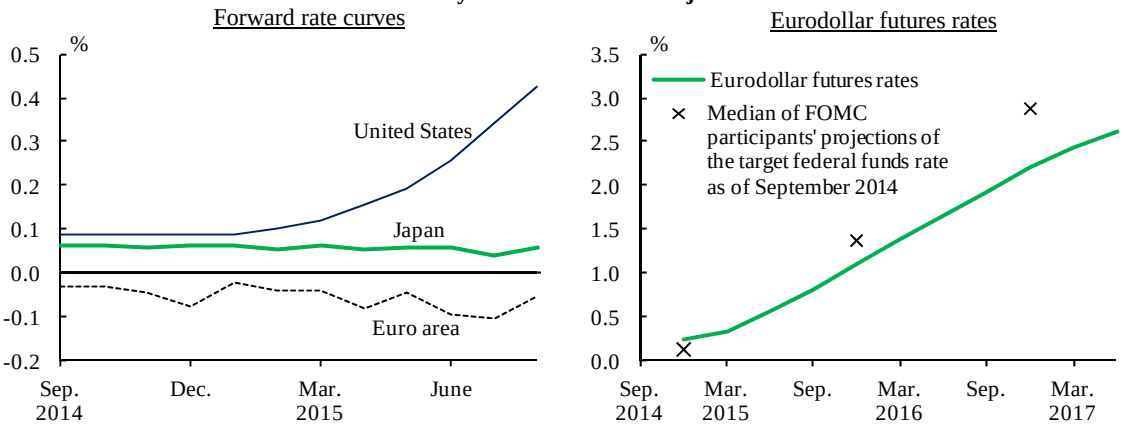


Spreads between emerging market bonds and U.S. Treasuries



Notes: *1*. Option-adjusted spreads on high-yield bonds and corporate bonds issued in emerging countries are calculated by Bank of America Merrill Lynch, and those on government bonds issued in emerging countries are calculated by J.P. Morgan. Emerging market bonds include only U.S. dollar-denominated bonds.
2. Monthly average. The latest data are as of September 2014.
Source: Bloomberg.

Chart V-1-3: Policy rate forecasts for major advanced countries[1,2]

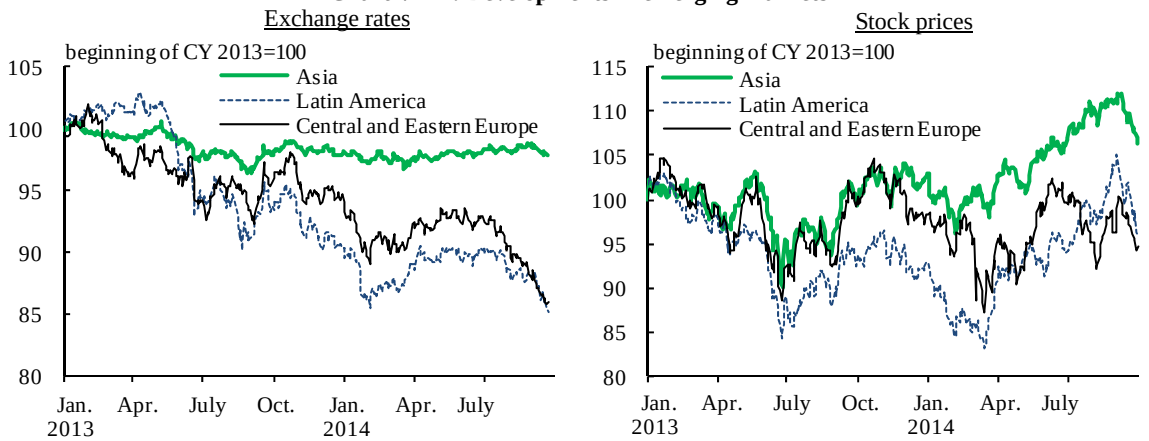


Notes: *1*. The forward rate curves for Japan and the euro area shown in the left-hand chart are derived from 1-month OIS forward rates. Those for the United States are derived from federal fund futures.
2. The data are as of September 30, 2014.
Sources: Bloomberg; FRB.

Effects of geopolitical risks

Since summer 2014, given the situation in Ukraine and in the Middle East, developments reflecting some concern over geopolitical risks were seen in financial markets, particularly those in emerging countries and Europe. Thus far, financial markets in emerging Asian countries have remained stable on the whole, while somewhat large declines in currency values and stock prices were temporarily observed in Central and Eastern Europe (Chart V-1-4). Commodity markets such as crude oil have also generally remained stable. On the whole, the effects of geopolitical risks on global financial markets are judged to have been limited and local to date.

Chart V-1-4: Developments in emerging markets[1,2,3]



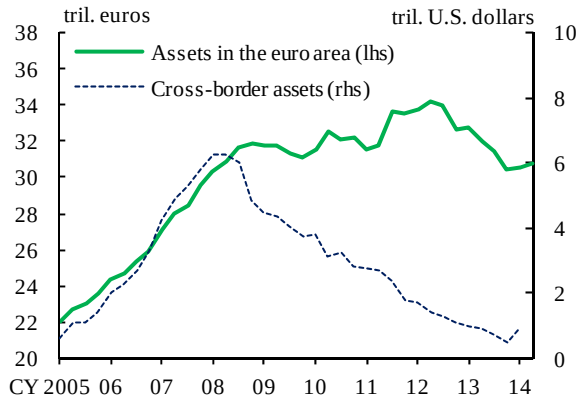
Notes: *1*. Exchange rates are indexed against the U.S. dollar. Stock prices are denominated in local currencies.
2. The exchange rate for Central and Eastern Europe is calculated based on Central and Eastern European countries' exchange rates.
3. The latest data are as of September 30, 2014.
Sources: Bloomberg; BOJ.

Nevertheless, the outlook for international developments is highly uncertain. Depending on future developments, investors' risk aversion might heighten abruptly, thereby causing large fluctuations in global financial markets, including Japanese financial markets.

Deleveraging by banks in the euro area and prospects for the debt problem

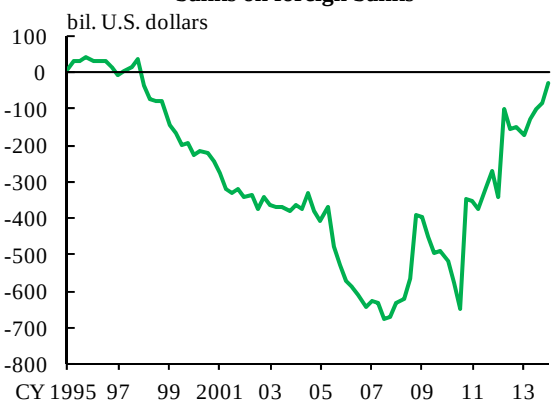
In response to the worsening of the European debt problem from 2011 to 2012, banks in the euro area have been rapidly deleveraging by reducing their domestic and cross-border assets. They have continued to do so as a trend, although the pace of deleveraging has slowed somewhat (Chart V-1-5). Net borrowing by banks in the euro area, which increased significantly in the 2000s, has continued to decrease as a trend in the U.S. dollar interbank market (Chart V-1-6). Due to the strengthening of capital bases by banks in addition to such adjustments, financial conditions among banks in the euro area generally seem to be improving.

Chart V-1-5: Assets of banks in the euro area[1,2]



Notes: *1*. The latest data for assets in the euro area are as of end-June 2014. The latest data for cross-border assets are as of end-March 2014.
2. The data for cross-border assets are cumulative exchange-rate adjusted flows from 2005.
Sources: BIS, "Locational banking statistics"; ECB.

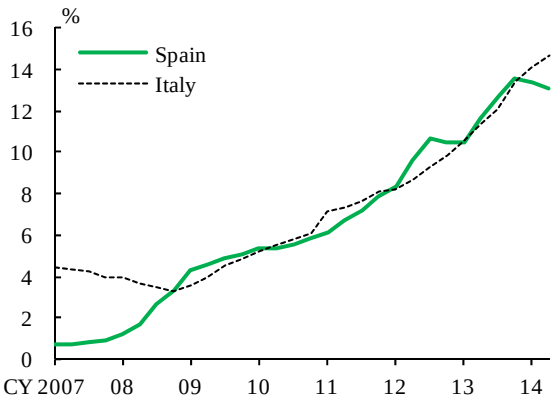
Chart V-1-6: Net U.S. dollar claims of euro area banks on foreign banks[1,2]



Notes: *1*. The latest data are as of end-March 2014.
2. The data indicate the net U.S. dollar claims of all reporting banks in the locational banking statistics owed to euro area banks.
Source: BIS, "Locational banking statistics."

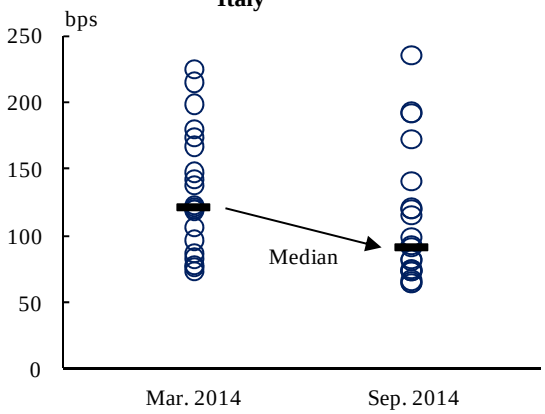
In countries such as Italy and Spain, however, the NPL ratio is still on an uptrend (Chart V-1-7). Credit default swap (CDS) premiums of banks in major euro area countries have been decreasing on the whole, but those of some banks have remained at relatively high levels (Chart V-1-8). Also considering that the momentum of economic recovery in the euro area is somewhat weak, there still seems to be a risk that, depending on future developments, market participants' concerns over the stability of the economy of and the financial system in the euro area will heighten once again.

Chart V-1-7: NPL ratios[1,2]



Notes: *1*. NPLs are defined based on each country's criteria.
2. The latest data are as of June 2014.
Source: Haver Analytics.

Chart V-1-8: CDS premiums of banks in Germany, France, Spain, and Italy[1]



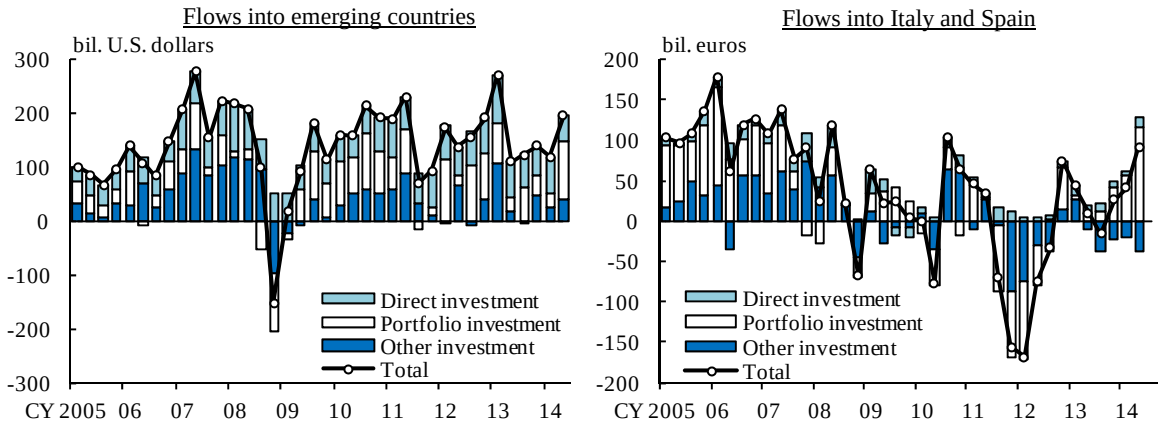
Note: *1*. The sample includes the components of the STOXX 600 Banks index. Banks for which 5-year CDS premiums are not quoted are excluded.
Source: Bloomberg.

International capital flows and an increase in leverage observed in some areas

In addition to the above, attention should be paid to the risk of changes in investors' search for yields, which encouraged the declines in the yield and credit spreads on risky assets (high-yield corporate bonds and government bonds issued by some emerging and peripheral European countries) during the first half of fiscal 2014.

First, global capital flows obtained from balance of payments statistics confirm that securities investment in countries such as emerging and peripheral European countries (Italy and Spain) had been increasing until at least April-June 2014 (Chart V-1-9).

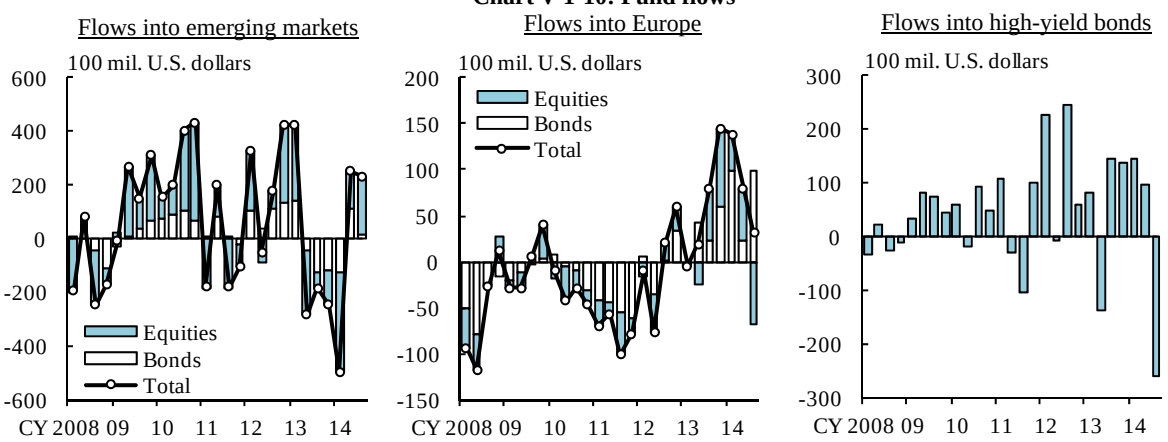
Chart V-1-9: International capital flows based on balance of payments statistics[1,2]



Notes: *1*. The left-hand chart shows the sum of 18 major emerging countries excluding China. In the right-hand chart, "other investment" excludes transactions via central banks.
2. The latest data are as of the April-June quarter of 2014. Missing values are imputed with the previous quarter's values.
Source: Haver Analytics.

Second, capital flows into funds (mutual funds and ETFs) -- which capture more recent developments -- show capital inflows to a wide range of risky assets until April-June 2014, as reflected in balance of payments statistics. However, capital flows in July-September 2014 showed mixed developments, as capital continued to flow into emerging market and European funds while flowing out of high-yield bond funds (Chart V-1-10).

Chart V-1-10: Fund flows[1,2]



Notes: *1*. Flows into Europe exclude those into the United Kingdom.
2. The latest data are from July 1 to September 24, 2014.
Source: EPFR Global.

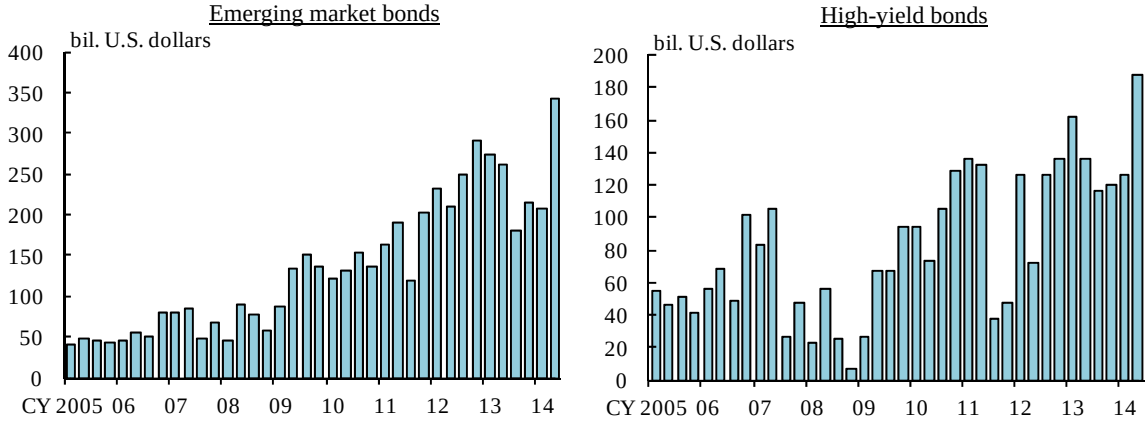
Such capital flows and the aforementioned developments in spreads seem to show a continuing trend for investors' search for yields. Nevertheless, there is a possibility that investors' concern about uncertainty over global financial markets has recently started to grow, reflecting geopolitical risks surrounding the situation in Ukraine and in the Middle East, weaker-than-expected economic indicators in Europe, and speculation about the future conduct of monetary policy by major advanced countries.

The impact on the market when the risk factor becomes a reality would be increased accordingly, if the aforementioned low volatility leads market participants to underestimate risks, thereby pushing up the prices of risky assets. It is necessary to carefully follow market developments and various risk factors, taking those points into consideration.

Amid investors' continued search for yields and strengthened demand for corporate bonds and other risky assets, the amount of corporate bonds issued globally increased significantly in April-June 2014 (Chart V-1-11). In particular, issuance of high-yield bonds and emerging market corporate bonds increased notably, and a rise in syndicated loans has been noted. So far, the default rate has remained low in the United States

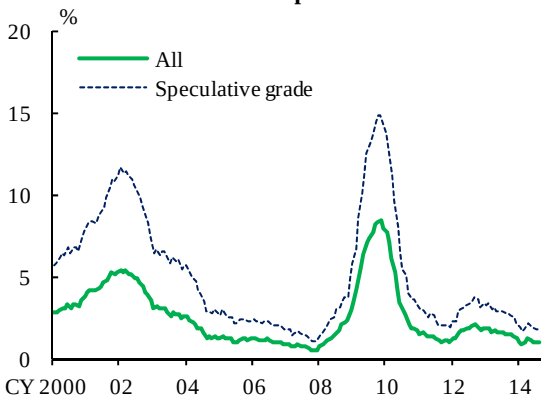
under the continued low interest rate environment and strong corporate earnings (Chart V-1-12). In the United States, firms have been increasing their leverage to a moderate extent, while maintaining a high level of financing through corporate bonds (Chart V-1-13). It has also been noted that leverage by the private nonfinancial sector has recently started to increase in some emerging countries and regions, and attention should be paid to future developments in the economies concerned, together with global financial conditions and capital flows.[28]

Chart V-1-11: Amount of corporate bonds issued[1,2]



Notes: *1*. Based on the launch date.
2. The latest data are as of the April-June quarter of 2014.
Source: Dealogic DCM Analytics.

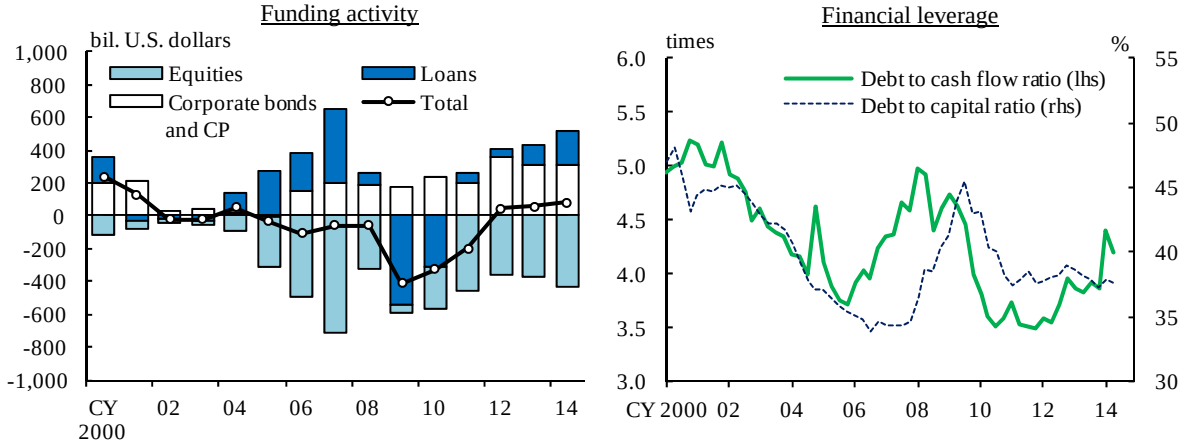
Chart V-1-12: U.S. corporate default rate[1,2]



Notes: *1*. The latest data are as of August 2014.
2. Default rates are calculated based on the number of defaults in the past year.
Source: Moody's.

[28] For example, the April 2014 issue of the IMF *Global Financial Stability Report* stated that households and firms in Asia and parts of Latin America increased their debt levels after the global financial crisis in 2008, and, in particular, that firms increased their external debt in some countries.

Chart V-1-13: Funding activity and financial leverage in the U.S. corporate sector[1,2]



Notes: *1*. In the left-hand chart, the 2014 data are the seasonally adjusted annualized amounts for January-June 2014. In the right-hand chart, the latest data are as of June 2014.
2. Nonfinancial corporations are counted. In the right-hand chart, cash flow is defined as total internal funds in "Financial accounts of the United States."
Source: FRB.

B. Japanese financial markets

Taking account of the discussions on developments in global financial markets, this section summarizes notable developments in the government bond, stock, credit, and foreign exchange markets in Japan, and examines the risks observed in these markets.

1. Government bond markets

In the JGB market, long-term yields have been stable at low levels. The volatility of government bond prices rose somewhat toward the end of September 2014, but has continued to be at a relatively low level.

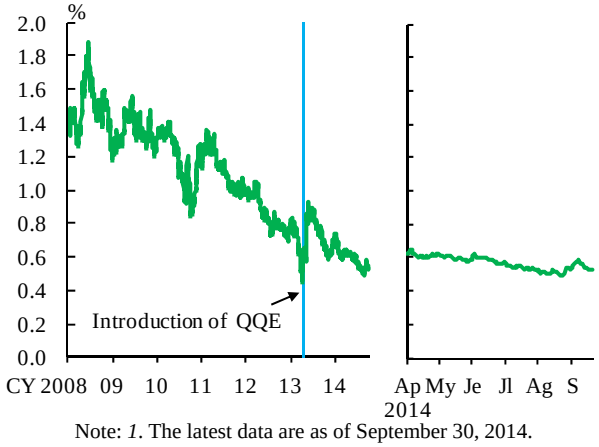
A close look at yields on 10-year JGBs shows that toward the middle of August 2014, they temporary declined to below the 0.5 percent level when U.S. and European long-term yields were also falling. However, they rose somewhat thereafter reflecting factors such as the rise in U.S. interest rates, the depreciation of the yen against the U.S. dollar, and the rise in Japanese stock prices (Chart V-2-1).[29] Yields across the curve have declined to some extent (Chart V-2-2).

Meanwhile, various indicators, which provide clues for assessing liquidity in the JGB market, have on the whole remained within the average range of the past (Chart V-2-3).

[29] In this section, the vertical lines in the charts indicate the introduction of QQE (April 4, 2013) unless otherwise noted.

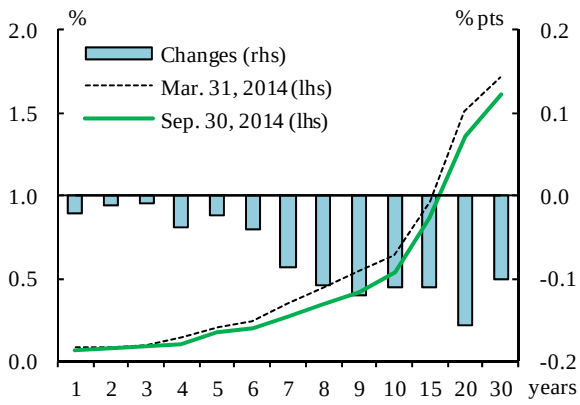
Transaction volume in JGB futures and newly issued 10-year JGBs has been more or less unchanged, albeit with some fluctuations. Bid-ask spreads for JGB markets have been at low levels on the whole. The daily price range to transaction volume ratio in both the JGB futures and the newly issued 10-year JGBs has declined to almost the same level recorded before the introduction of QQE, albeit with some fluctuations.

Chart V-2-1: Long-term JGB yields[1]



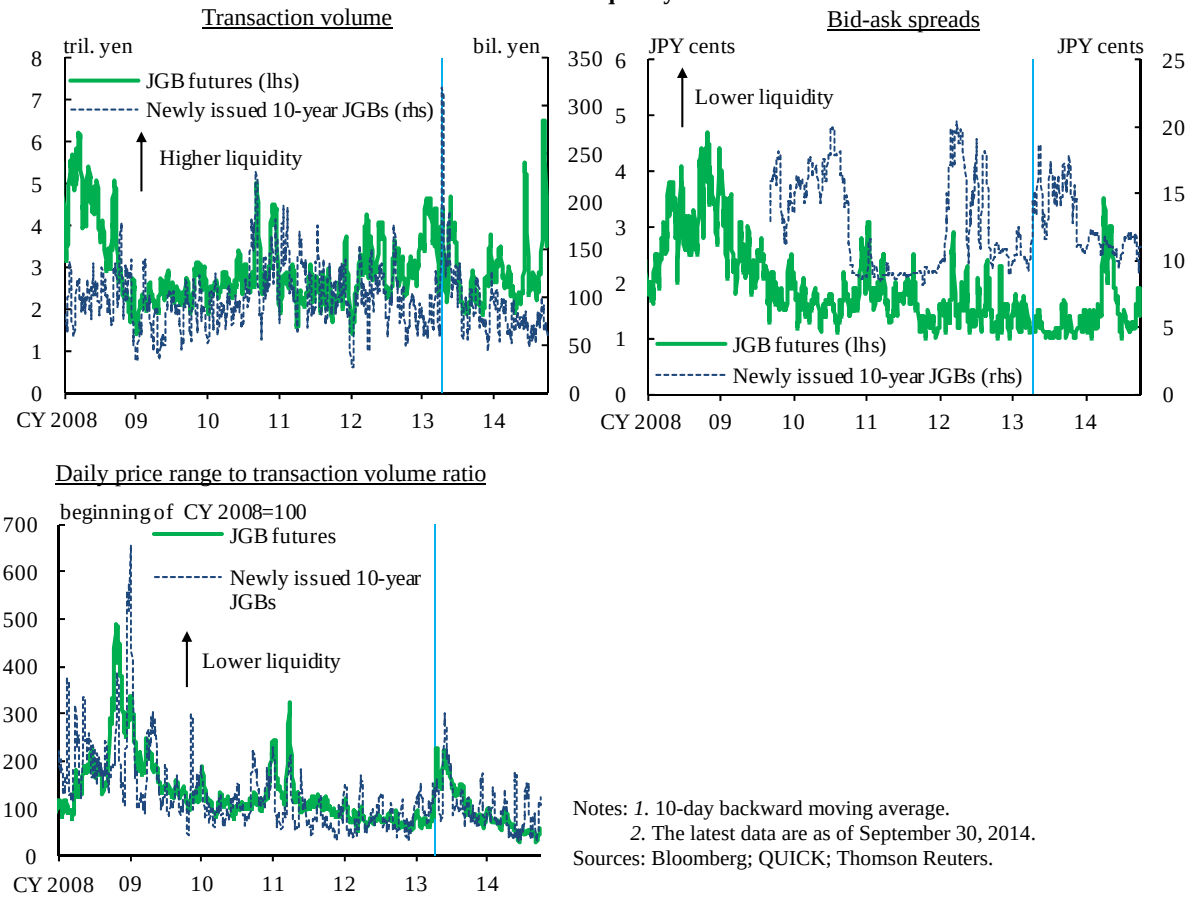
Note: *1*. The latest data are as of September 30, 2014.
Source: Bloomberg.

Chart V-2-2: Changes in the JGB yield curve[1]



Note: *1*. Changes are from March 31 to September 30, 2014.
Source: Bloomberg.

Chart V-2-3: Indicators of liquidity in the JGB market[1,2]

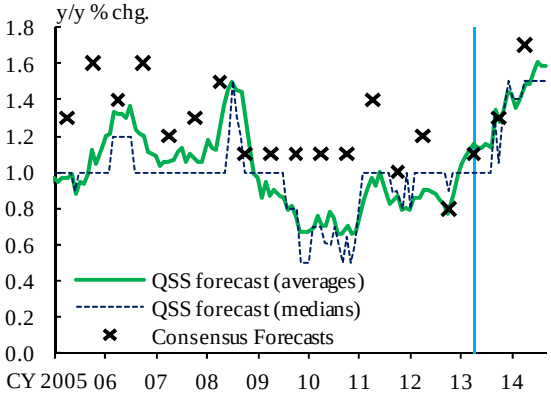


Notes: *1*. 10-day backward moving average.
2. The latest data are as of September 30, 2014.
Sources: Bloomberg; QUICK; Thomson Reuters.

Factors affecting long-term JGB yields

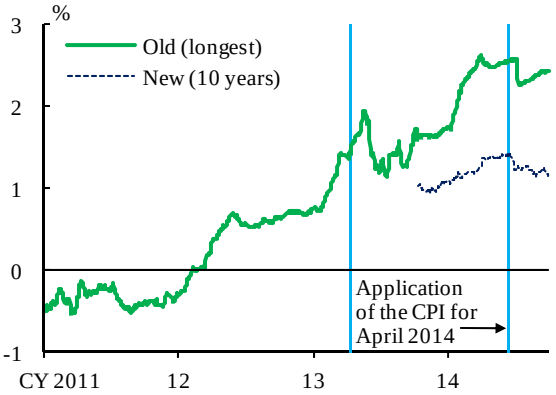
Regarding market participants' inflation expectations, survey-based long-term inflation expectations are rising (Chart V-2-4). Excluding the effects of the consumption tax hike in April 2014, the break-even inflation (BEI) rate -- calculated as the yield spread between fixed-rate coupon-bearing bonds and inflation-indexed bonds -- has most recently been more or less flat after following a moderate uptrend (Chart V-2-5).[30]

Chart V-2-4: Market participants' expectations of long-term price changes[1,2]



Notes: *1*. "QSS forecast" indicates the forecast for core CPI changes for the next 10 years. "Consensus Forecasts" indicates inflation expectations for 6 to 10 years ahead.
2. The latest data for "QSS forecast" are as of September 2014, and those for "Consensus Forecasts" are as of April 2014.
Sources: Consensus Economics Inc., "Consensus Forecasts"; QUICK, "QUICK Monthly Market Survey <Bonds>."

Chart V-2-5: BEI for inflation-indexed JGBs[1,2]



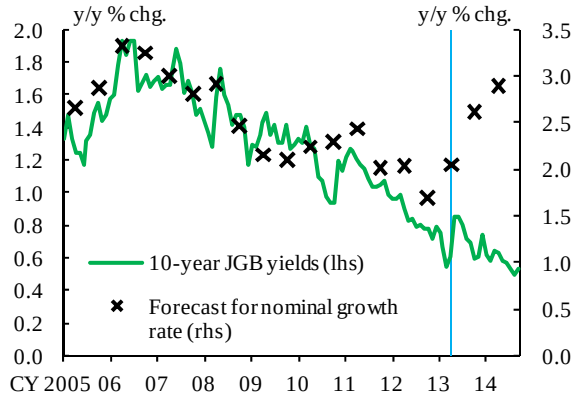
Notes: *1*. Yield spreads between fixed-rate coupon-bearing JGBs and inflation-indexed JGBs. Inflation-indexed JGBs issued since October 2013 are designated as "new," while others are designated as "old." Figures for "old (longest)" are calculated using yield data for issue No. 16 of inflation-indexed JGBs, which matures in June 2018.
2. The latest data are as of September 30, 2014.
Source: Bloomberg.

Mainly against the background of such rise in inflation expectations, market participants' medium to long-term expectations of the nominal growth rate appear to be on an improving trend. Long-term JGB yields have remained stable at low levels despite the fact that inflation expectations and the outlook for the nominal growth rate have been at higher levels (Chart V-2-6). In examining the background to these developments, the results of the survey conducted on market participants regarding factors affecting JGB yields provide some insights. They indicate that market participants are paying attention to "price trends" as a factor exerting upward pressure

[30] Yields on newly issued 10-year inflation-indexed JGBs from June to July are pushed up by about 0.2 percentage point (BEI rate is pushed down by about 0.2 percentage point) due to the change in the indexation coefficient reflecting the application of the CPI for April 2014. Changes in the BEI rate should be interpreted with some latitude given that the market liquidity of inflation-indexed bonds is lower than that of fixed-rate coupon-bearing bonds.

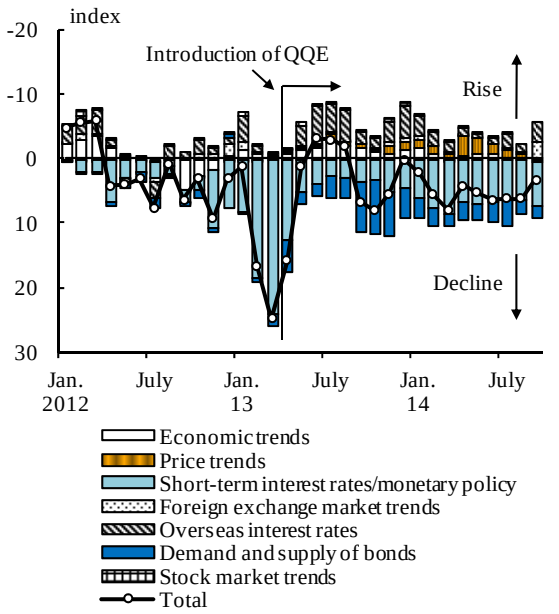
on JGB yields while being strongly aware of "short-term interest rates/monetary policy" and "demand and supply of bonds" as factors exerting downward pressure on JGB yields (Chart V-2-7). These survey results suggest that, in addition to factors such as overseas long-term interest rates remaining at low levels, the effects of the Bank's QQE on supply and demand conditions in the JGB market are exerting downward pressure on JGB yields.

Chart V-2-6: Economists' expectations of nominal growth rate and long-term JGB yields[1,2]



Notes: *1*. "Forecast for nominal growth rate" is calculated as the next 10-year averages of the sum of expectations of the real GDP growth rate and those of CPI changes in "Consensus Forecasts."
2. The latest data for 10-year JGB yields are as of September 2014, and those for the forecast for nominal growth rate are as of April 2014.
Sources: Bloomberg; Consensus Economics Inc., "Consensus Forecasts."

Chart V-2-7: Factors affecting JGB yields[1,2]



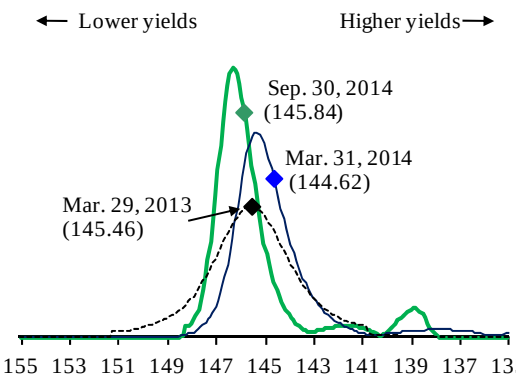
Notes: *1*. The calculation formula is as follows. Among valid responses, the percentage of each factor chosen by market participants as the most important factor for JGB yields is multiplied by the impact of the factor on JGB yields (indexed with strong downward pressure = 100, downward pressure = 75, neutral = 50, upward pressure = 25, strong upward pressure = 0, then subtracting 50, which is "neutral").
2. The latest survey was conducted from September 22 to 25, 2014.
Sources: QUICK, "QUICK Monthly Market Survey <Bonds>"; BOJ.

Implied distribution of JGBs and risk reversals

The implied distribution of JGB futures prices are thin-tailed on the whole, implying that market participants expect changes in interest rates to be limited for the time being (the next 3 months, Chart V-2-8). The mode of the distribution as of the end of September 2014 lies to the left of the current JGB futures prices shown with a marker (which almost matches the distribution average), and the right tail of the distribution is somewhat thicker. This indicates that market participants expect "a slight decline in long-term JGB yields" as the most likely scenario while being somewhat vigilant against the tail risk of a significant rise in long-term JGB yields as well. Risk reversals

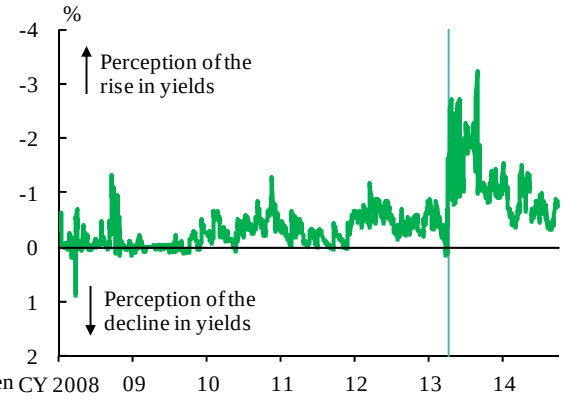
(the difference in implied volatilities between call and put options) -- which indicate the skew of market participants' recognition of future risks -- also show that market participants remain somewhat vigilant to interest rate rise risks (Chart V-2-9).

Chart V-2-8: Implied distribution of JGB futures[1]



Note: *1*. For details on option prices used for calculation, see Note 1 in Chart V-1-1. Markers and figures in parentheses in the chart indicate the closing prices of JGB futures.
Sources: Bloomberg; BOJ.

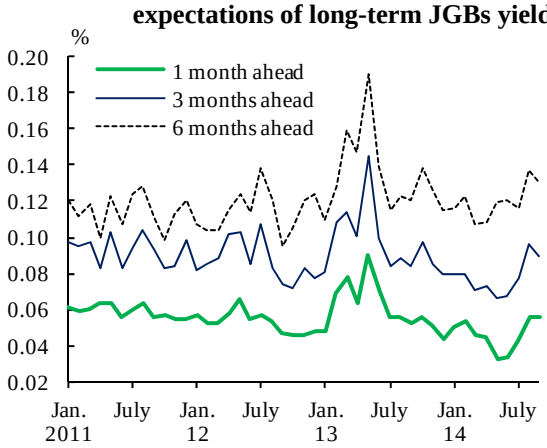
Chart V-2-9: Risk reversals of JGB futures[1,2]



Notes: *1*. For details on option prices used for calculation, see Note 1 in Chart V-1-1.
2. The latest data are as of September 30, 2014.
Sources: Bloomberg; BOJ.

In addition, market participants seem to be aware of the possibility that the current low-volatility environment is temporary and will gradually change. According to the results of the survey on market participants regarding expectations of long-term JGB yields, dispersions in their outlook for 3 months ahead narrowed to a significantly low level toward the summer of 2014, even when compared to that in the past. During this period, however, their outlook for 6 months ahead remained considerably dispersed, and that for 3 months ahead has recently begun to widen once again (Chart V-2-10).

Chart V-2-10: Dispersion of market participants' expectations of long-term JGBs yields[1,2]



Notes: *1*. Standard deviation of the responses.
2. The latest survey was conducted from September 22 to 25, 2014.
Source: QUICK, "QUICK Monthly Market Survey <Bonds>."

2. Stock and credit markets

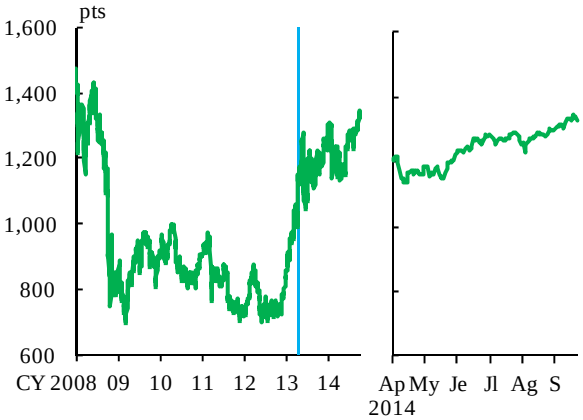
Developments in stock markets

Japanese stock prices followed a moderate rising trend throughout the first half of fiscal 2014. The volatility of stock prices in Japan remained at a somewhat high level relative to volatility in overseas markets from the beginning of 2013. From the beginning of the first half of fiscal 2014, however, volatility declined quite significantly and has recently been at almost the same level as volatility in overseas markets (Chart V-1-1).

Japanese stock prices rose toward summer 2014 due to expectations of a change in investment policy by some institutional investors in Japan, in addition to a lift in U.S. and European stock prices. Thereafter, although the heightening of geopolitical risks temporarily weighed on stock prices, they followed a rising trend again toward the end of September, mainly against the background of expectations of favorable corporate results among Japanese firms and depreciation of the yen against the U.S. dollar (Chart V-2-11).

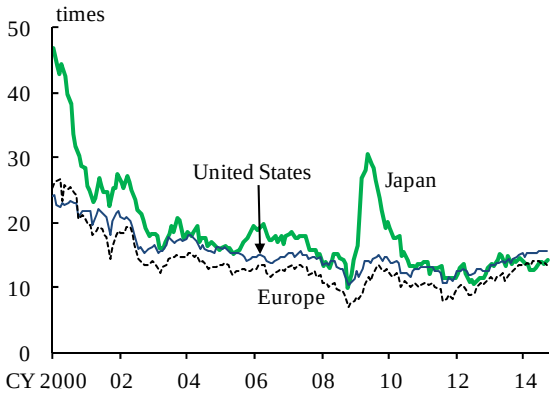
Meanwhile, the price earnings (P/E) ratio for Japanese stocks has been relatively low compared with the past, reflecting Japanese firms' improved profitability (Chart V-2-12). It has recently been at almost the same level as or somewhat lower than those for overseas stock prices. Risk reversals show that market participants have been less vigilant to the risk of declining stock prices, compared with the past (Chart V-2-13).

Chart V-2-11: Stock prices (TOPIX) *1*



Note: *1*. The latest data are as of September 30, 2014.
Source: Bloomberg.

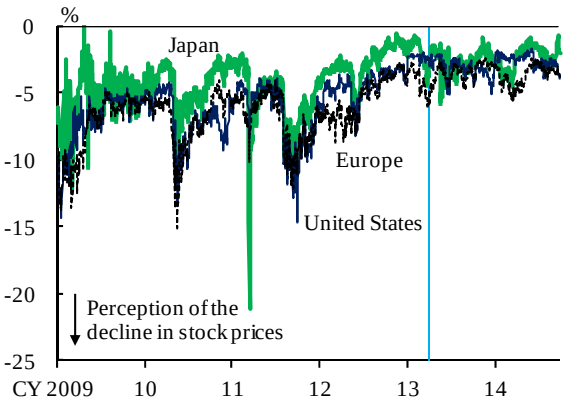
Chart V-2-12: P/E ratios *1,2*



Notes: *1*. S&P 500 for the United States; EURO STOXX for Europe; TOPIX for Japan. P/E ratios are calculated using expected EPS for the next 12 months.
2. The latest data are as of September 2014.
Source: Thomson Reuters.

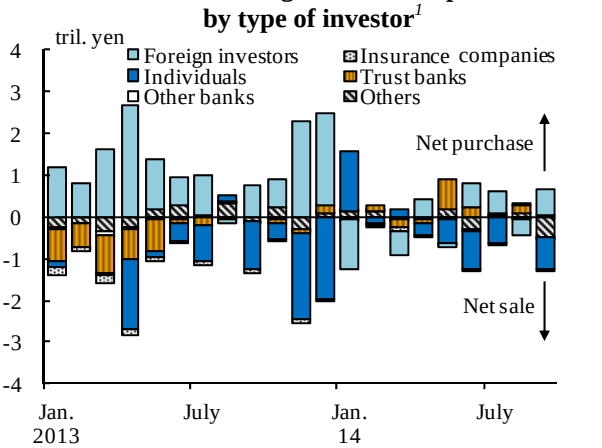
Looking at trading by type of investor for the first half of fiscal 2014, foreign investors have still been net buyers, albeit to a small degree compared with when stock prices rose from autumn 2012 (Chart V-2-14). Trust banks have become somewhat large net buyers for the first time in years. Meanwhile, individuals have been net sellers, mainly reflecting profit-taking sales when stock prices rose.

Chart V-2-13: Risk reversals of stock prices[1,2]



Notes: *1*. Nikkei 225 options for Japan; S&P 500 options for the United States; EURO STOXX 50 options for Europe.
2. The latest data are as of September 30, 2014.
Sources: Bloomberg; BOJ.

Chart V-2-14: Trading volume of Japanese stocks by type of investor[1]



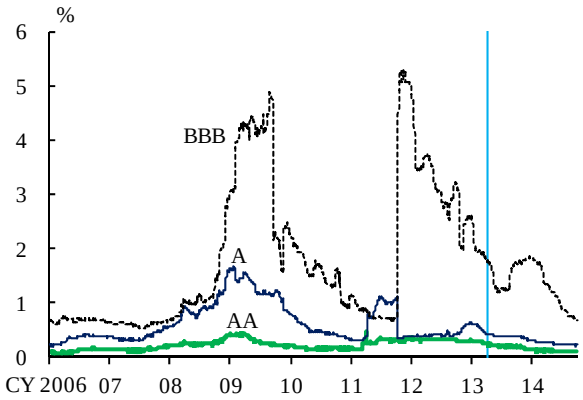
Note: *1*. The latest data are as of September 2014.
Source: Tokyo Stock Exchange.

Developments in corporate bond spreads

Credit spreads on corporate bonds, particularly on those rated BBB, have been following a narrowing trend (Chart V-2-15). Spreads have been narrowing on the whole, even when analyzed by issue, particularly for those that were high at the end of March 2014 (Chart V-2-16). Developments in long-term credit ratings confirm that financial conditions among firms and the market assessment of such conditions have generally improved further, as the number of upgrades has clearly exceeded that of downgrades (Chart V-2-17).

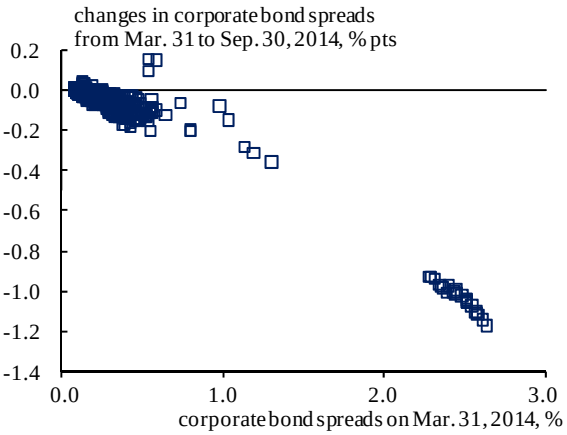
Regarding market participants' views on credit risk among major banks, credit spreads on senior bonds and subordinated bonds issued by banks have remained at low levels (Chart V-2-18). In June 2014, the first Basel III-compliant subordinated bonds were launched in the Japanese market, and these bonds were issued with tight spreads given strong demand from a wide range of investors strengthening their search for yield activity.

Chart V-2-15: Yield spreads between corporate bonds and JGBs[1,2]



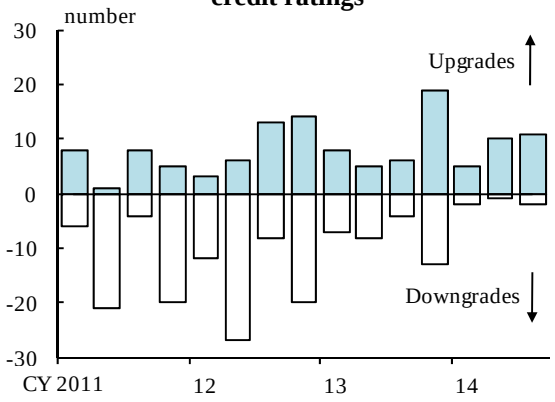
Notes: *1*. Average yield spreads of bonds with a residual maturity of between 3 years and 7 years. Rated by R&I.
2. The latest data are as of September 30, 2014.
Source: Japan Securities Dealers Association.

Chart V-2-16: Yield spreads by issue[1]



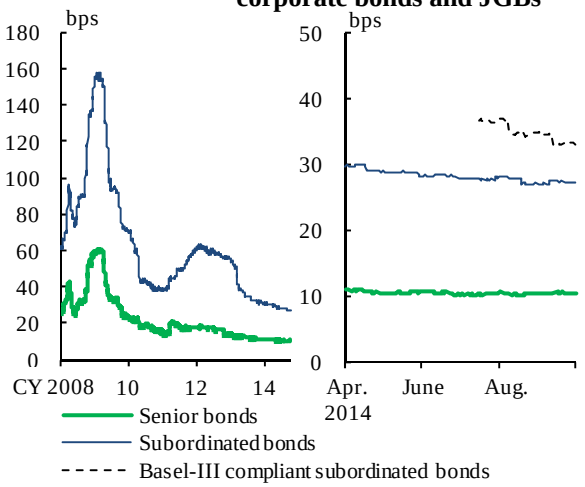
Note: *1*. Bonds with a residual maturity of between 3 years and 7 years and rated AA-BBB by R&I are counted.
Source: QUICK.

Chart V-2-17: Developments in long-term credit ratings[1]



Note: *1*. Rated by R&I.
Source: Bloomberg.

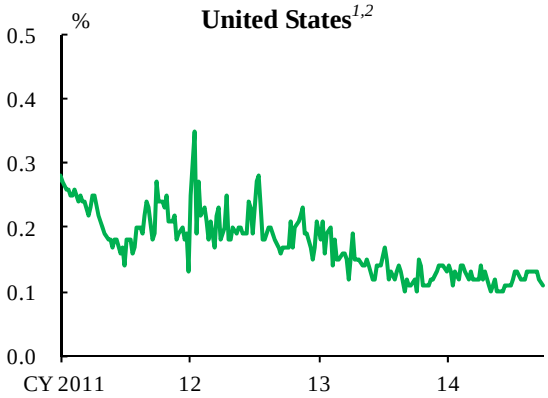
Chart V-2-18: Yield spreads between bank corporate bonds and JGBs[1,2,3]



Notes: *1*. Major banks are counted.
2. Yield spreads on "Basel-III compliant subordinated bonds" are calculated by QUICK.
3. The latest data are as of September 30, 2014.
Sources: Japan Securities Dealers Association; QUICK.

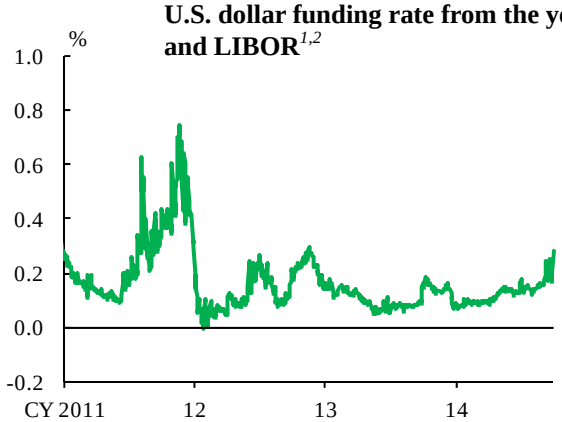
Regarding foreign currency (U.S. dollar) funding by banks, issuance rates on financial institutions' CP in the United States have remained stable at low levels (Chart V-2-19). Looking at dollar funding conditions through the foreign exchange swap market, spreads between dollar funding costs in exchange for the yen and dollar LIBOR have remained at low levels compared with the past, although they widened somewhat toward the end of September 2014 (Chart V-2-20). Meanwhile, dollar-denominated CDS premiums for banks have remained at low levels (Chart V-2-21).

Chart V-2-19: Issuance rates on financial institutions' CP in the United States[1,2]



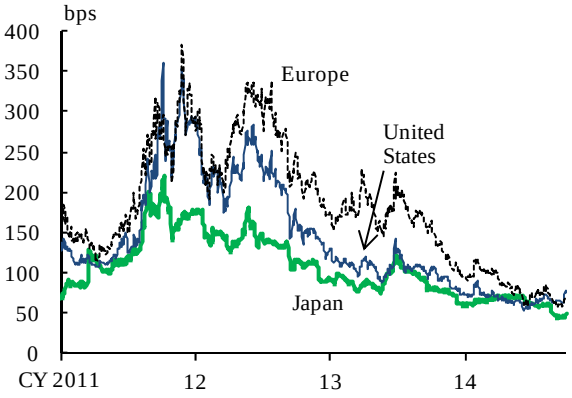
Notes: *1*. 3-month AA-rated financial CP.
2. The latest data are as of September 26, 2014.
Source: FRB.

Chart V-2-20: Spreads between FX swap-implied U.S. dollar funding rate from the yen and LIBOR[1,2]



Notes: *1*. 3-month rate.
2. The latest data are as of September 30, 2014.
Source: Bloomberg.

Chart V-2-21: CDS premiums for banks[1,2]



Notes: *1*. Figures calculated for Japan, the United States, and Europe are simple averages of CDS premiums for 3 major banks (Mizuho Bank, The Bank of Tokyo-Mitsubishi UFJ, and Sumitomo Mitsui Banking Corporation; in U.S. dollars), 6 financial institutions (Bank of America, Citibank, J.P. Morgan, Wells Fargo, Goldman Sachs, and Morgan Stanley; in U.S. dollars), and 9 financial institutions (Societe Generale, UniCredit Bank, Deutsche Bank, Banco Santander Central Hispano, UBS, BNP Paribas, Credit Suisse, Banco Bilbao Vizcaya Argentaria, and Barclays; in euros), respectively.
2. The latest data are as of September 30, 2014.
Source: Bloomberg.

3. Foreign exchange markets

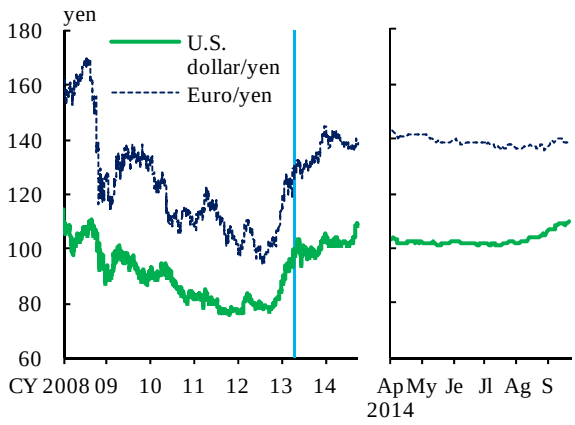
In foreign exchange markets, the yen depreciated against the U.S. dollar toward the end of September 2014. The volatility of the yen's exchange rates rose somewhat toward the end of September, but has continued to be at a low level (Chart V-1-1).

The yen traded within an extremely narrow range of 101-103 yen against the U.S. dollar until the end of August 2014 before depreciating toward the end of September (Chart V-2-22). The yen appreciated moderately against the euro toward early September reflecting additional monetary easing in Europe and speculation thereon, as well as awareness of geopolitical risks arising from the situation in Ukraine. Thereafter, the yen depreciated somewhat against the euro toward the end of September reflecting the

depreciation of the yen against the dollar mentioned above.

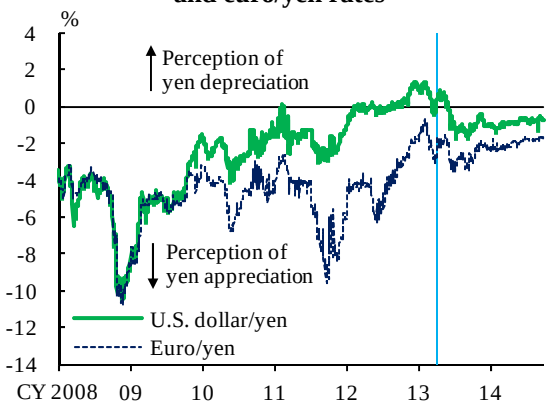
Meanwhile, market participants' concerns over the yen's appreciation against the dollar and euro shown in the U.S. dollar/yen and euro/yen risk reversals -- which indicate the skew of investors' recognition of future risks -- have remained more or less unchanged (Chart V-2-23).

Chart V-2-22: Foreign exchange rates[1]



Note: *1*. The latest data are as of September 30, 2014.
Source: Bloomberg.

Chart V-2-23: Risk reversals of U.S. dollar/yen and euro/yen rates[1]



Note: *1*. 1-year risk reversals. The latest data are as of September 30, 2014.
Source: Bloomberg.

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

In order to assess the stability of the financial system, in addition to examinations of member financial institutions in terms of the adequacy of their capital bases and the soundness of their risk management, investigations from a macroprudential perspective are necessary. This chapter outlines an assessment of stability based on three perspectives: "macro risk indicators;" "financial institutions' capital adequacy;" and "macro stress testing."

Macro risk indicators are used to show overheating in financial intermediation or instability in the financial system. In this chapter, we use four indicators: the total credit-to-GDP ratio, Financial Activity Indexes (FAIXs), Financial Cycle Indexes, and systemic risk indicators. The section on financial institutions' capital adequacy examines whether banks' capital adequacy ratios fulfill the regulatory requirements, and further, whether they have secured sufficient capital bases relative to the amount of various risks -- outlined in Chapter IV -- they bear. Macro stress testing models the interrelationship between the financial system and the real economy, and simulates the extent of the impact on financial system stability of negative shocks that hit the economy and financial markets. For example, to a certain extent, we can quantitatively assess a feedback loop between the financial system and the real economy in which a deterioration in economic conditions lowers financial institutions' capital adequacy ratios through a decline in stock prices, further dampening economic activity through a decline in lending. In other words, the second perspective -- bank capital adequacy -- is a static comparison of banks' capital and the amount of risk they bear at a certain point in time, while the third perspective -- macro stress testing -- is a dynamic examination of the adequacy of capital held by financial institutions, taking into account changes in their behavior under certain stressful conditions.[31]

A. Macro risk indicators

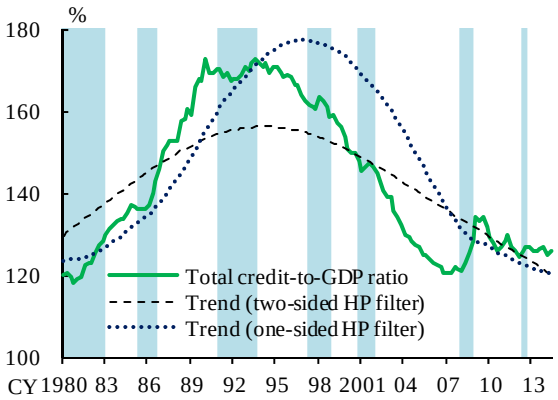
Total credit-to-GDP ratio

The representative indicator used for examining any overheating in financial activity is

[31] It should be noted that the scenarios assumed in the macro stress testing described in this chapter are not used to present the most likely projection for Japan's economy and asset prices. Rather, they are aimed at clarifying the characteristics of risks financial institutions face and assessing the resilience of the financial system. The stress testing results outlined in this chapter should be interpreted with some degree of latitude, as they are calculated based on certain assumptions and omit some elements.

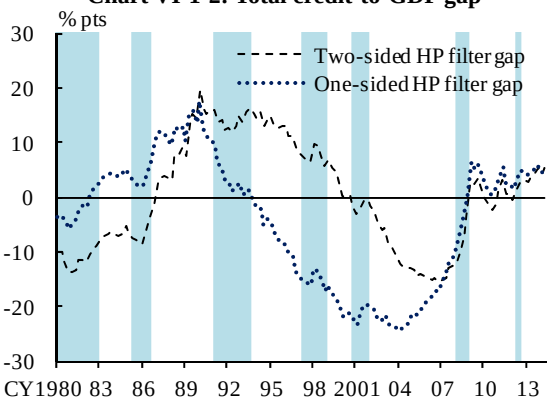
the total credit-to-GDP ratio.[32] The ratio has generally been hovering around its long-term trend. Based on the recent developments, credit extension by financial intermediaries does not currently show any signs of overheating (Charts VI-1-1 and VI-1-2).[33,34]

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 April-June quarter of 2014.
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-1-2: Total credit-to-GDP gap[1,2]



Notes: *1*. Shaded areas indicate economic recession periods. The latest data are as of the April-June quarter of 2014.
2. The total credit-to-GDP gap is the deviation from each trend of the total credit-to-GDP ratio.
Sources: Cabinet Office, "National accounts"; BOJ, "Flow of funds accounts."

Financial Activity Indexes

The Financial Activity Indexes (FAIXs), which include the total credit-to-GDP ratio mentioned above, are indicators used to gauge overheating in various financial activities. FAIXs identify signs of overheating by examining the deviation of individual indicators

[32] The total credit-to-GDP ratio is regarded as one of the key indicators that should be referred to by authorities worldwide in setting the level of the countercyclical capital buffer, which will be introduced under the Basel III requirements.

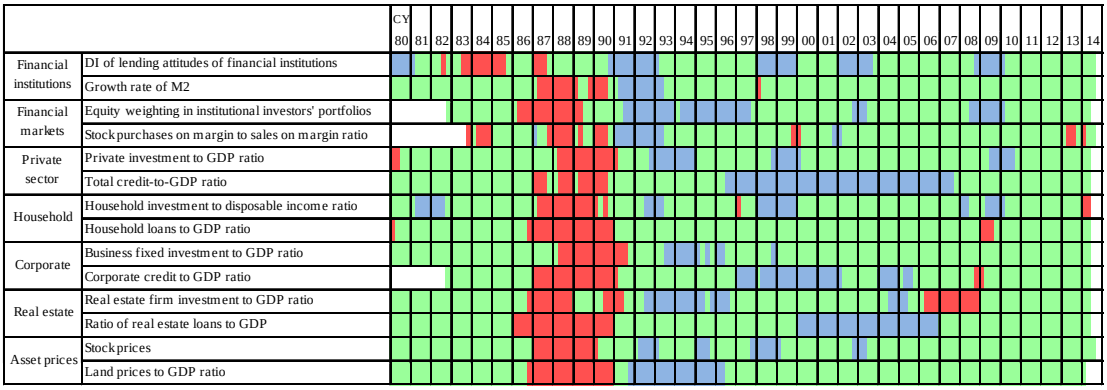
[33] Total credit includes loans extended by financial intermediaries and funding from capital markets such as corporate bonds. Borrowers of funds include households and firms.

[34] When gauging overheating or overcooling of total credit, it is necessary to examine how far the actual total credit-to-GDP ratio deviates from its long-term trend. Nevertheless, because there are various issues regarding methods used for estimating the long-term trend, the estimation results should be interpreted with some latitude regardless of which method is used. In this section, we use two methods commonly employed for estimating the trend: (1) the "two-sided HP filter," in which the Hodrick-Prescott (HP) filter is applied to data for the whole period; and (2) the "one-sided HP filter," in which the HP filter is applied to individual sets of data leading up to the beginning of each period and the most recently filtered value is plotted. We then show the deviation of the actual figure from the long-term trend estimated by these two methods. In both estimation methods, we set the smoothing parameter of the HP filter (i.e., λ) at 400,000.

from their trends. It is difficult to predict in which area of financial activities financial imbalances and overheating will actually arise. Therefore, it is necessary to regularly examine a wide range of indicators. In the *Report*, we select as FAIXs 14 indicators that are appropriate in assessing whether financial imbalances similar to those observed during Japan's bubble period have arisen.[35]

The FAIXs, including the total credit-to-GDP ratio, currently show no signs of overheating in financial intermediation (Chart VI-1-3).[36] Recent data for the household investment to disposable income ratio show "red." This is considered to be a temporary development as a result of the rapid increase in housing investment and durable goods consumption -- included in the numerator of the ratio -- in January-March 2014, due to the front-loaded increase in demand prior to the consumption tax hike.

Chart VI-1-3: Heat map of Financial Activity Indexes[1]



Note: *1*. The latest data for the DI of lending attitudes of financial institutions and stock prices are as of the July-September quarter of 2014. Those for the growth rate of M2 and the stock purchases on margin to sales on margin ratio are as of the July-August of 2014. Those for the land prices to GDP ratio are as of the January-March quarter of 2014. Those for other indicators are as of the April-June quarter of 2014.
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*."

Financial Cycle Indexes and systemic risk indicators

No solid evidence of instability in the financial system is currently observed in

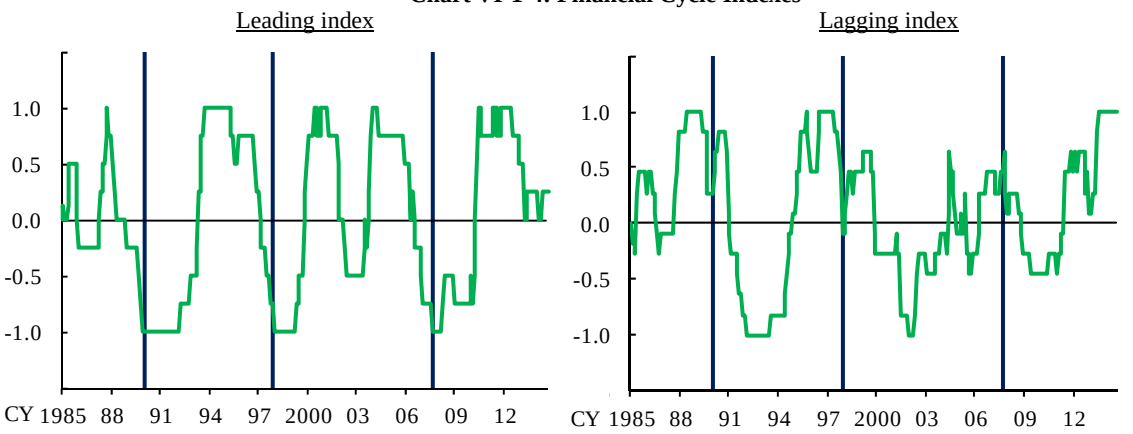
[35] For details on the FAIXs, see Yuichiro Ito, Tomiyuki Kitamura, Koji Nakamura, and Takashi Nakazawa, "New Financial Activity Indexes: Early Warning System for Financial Imbalances in Japan," Bank of Japan Working Paper, No. 2014-E-7, April 2014.

[36] The FAIXs consist of 14 financial indicators and measure whether financial activity is overheating or overcooling, based on how far individual indicators deviate from their historical trends. Shaded areas in Chart VI-1-3 represent the following: (1) areas shaded in red (the darkest shaded areas) show that an indicator has risen above the upper threshold, that is, it is tilted toward overheating; (2) areas shaded in blue (the second darkest shaded areas) show that an indicator has declined below the lower threshold, that is, it is tilted toward overcooling; (3) areas shaded in green (the most lightly shaded areas) show everything in between; and (4) areas shaded in white show the periods without data.

Financial Cycle Indexes and systemic risk indicators.

The financial system can become unstable not only due to the emergence of large-scale financial imbalances such as those observed during Japan's bubble period, but also because of the emergence of concerns about the soundness of financial institutions and a plunge in real economic activity. The indexes that gauge such instability in the financial system in advance are the Financial Cycle Indexes.[37] Both the leading and lagging Financial Cycle Indexes have been in a positive range, albeit with some fluctuations (Chart VI-1-4).

Chart VI-1-4: Financial Cycle Indexes[1]



Note: *1*. The latest data are as of September 2014. The left-hand, middle, and right-hand vertical lines indicate the collapse of Japan's asset price bubble, the default of Sanyo Securities, and the outbreak of the U.S. subprime problem, respectively.
Source: BOJ.

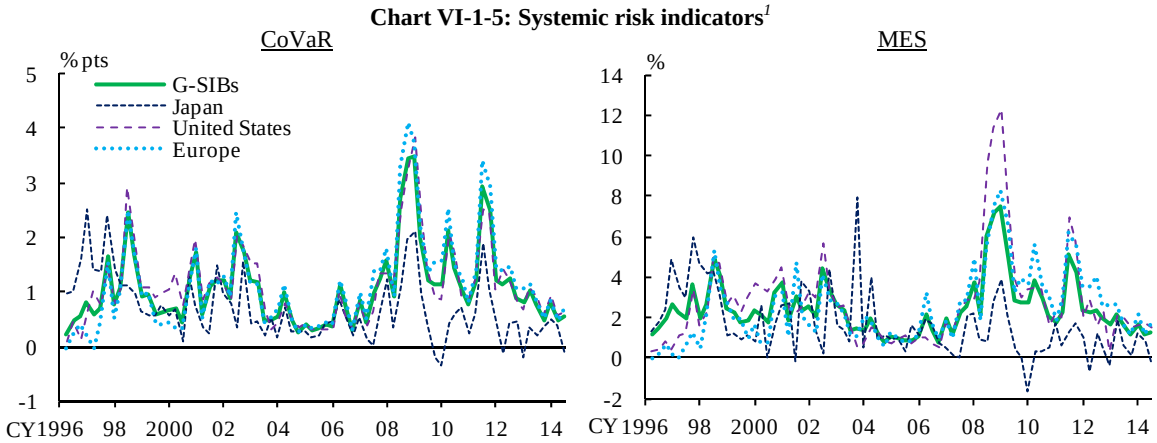
The correlation between stock prices of individual financial institutions and aggregate financial stock prices does not show any signs of an increase in systemic risk in the financial sector (Chart VI-1-5). Conditional value-at-risk (CoVaR), which measures the degree to which stresses occurring at individual financial institutions propagate through the entire financial sector, has been at an extremely low level for Japan's banks relative to U.S. and European banks.[38] The marginal expected shortfall (MES), which measures the

[37] The Financial Cycle Indexes are diffusion indexes used to identify signs of future instability in the financial system, and are constructed based on a method similar to that employed for the Cabinet Office's "Indexes of business conditions." A change in the leading index from a positive figure to a negative one indicates that the financial system may become unstable in the near future. The same movement in the lagging index indicates that the financial system might have already become unstable. For details on the indexes, see Koichiro Kamada and Kentaro Nasu, "The Financial Cycle Indexes for Early Warning Exercise," Bank of Japan Working Paper, No. 2011-E-1, April 2011.

[38] As CoVaR increases, the propagation of stresses occurring at individual financial institutions to the entire financial sector becomes stronger. CoVaR is estimated based on the VaR of stocks of 29 major banks around the world (i.e., G-SIBs as of November 2013). For details, see Tobias Adrian and Markus K. Brunnermeier, "CoVaR," Federal Reserve Bank of New York Staff Reports, No. 348, September 2011.

extent to which stresses in the entire financial sector have adverse effects on the corporate value of individual financial institutions, has been low, and it seems that the degree to which stresses occurring at overseas financial institutions propagate through Japan's banks is limited.[39]

Chart VI-1-5: Systemic risk indicators[1]



Note: *1*. G-SIBs are counted. The latest data are as of end-September 2014.
Sources: Bloomberg; BOJ.

B. Financial institutions' capital adequacy

Capital adequacy ratios

Financial institutions' capital adequacy ratios for both internationally active banks and domestic banks are well above regulatory levels.

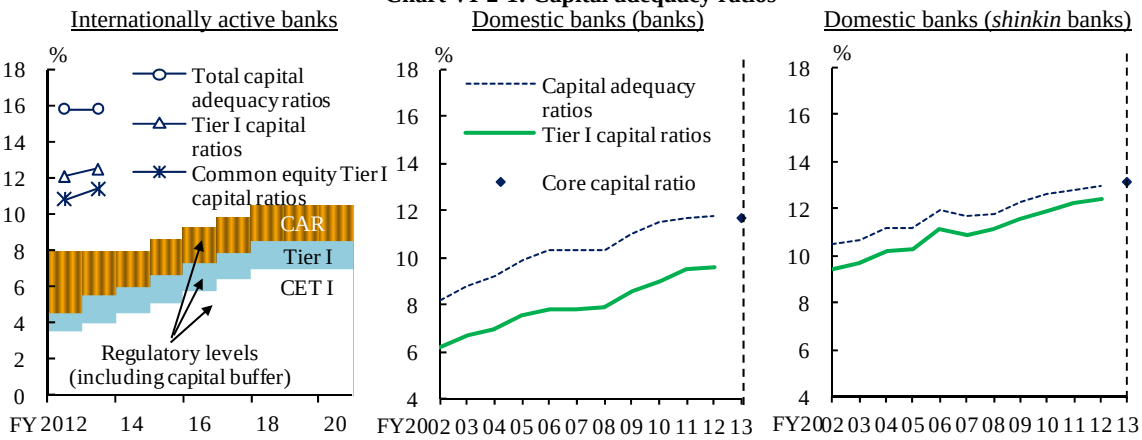
At internationally active banks, total capital adequacy ratios, Tier I capital ratios, and common equity Tier I capital ratios (CET I capital ratios) under the Basel III requirements as of the end of fiscal 2013 all significantly exceeded the regulatory levels, mainly due to a rise in retained earnings (Chart VI-2-1).

At domestic banks, new regulatory requirements for capital adequacy -- core capital ratios -- were in their initial year of implementation. On an aggregate basis, the core capital ratio at the end of fiscal 2013 stood at more or less the same level as the previous

[39] The MES shows expected losses at an individual financial institution if the VaR of aggregate financial stocks exceeds a certain threshold. Specifically, an individual financial institution's MES is the rate of change in the market value of stocks on the day the market value of aggregate financial stocks falls below the value with the lowest 5 percent probability of occurrence. The sample includes 29 major banks around the world (G-SIBs as of November 2013). For details, see Viral V. Acharya, Lasse H. Pedersen, Thomas Philippon, and Matthew Richardson, "Measuring Systemic Risk," Federal Reserve Bank of Cleveland Working Paper, No. 10-02, March 2010.

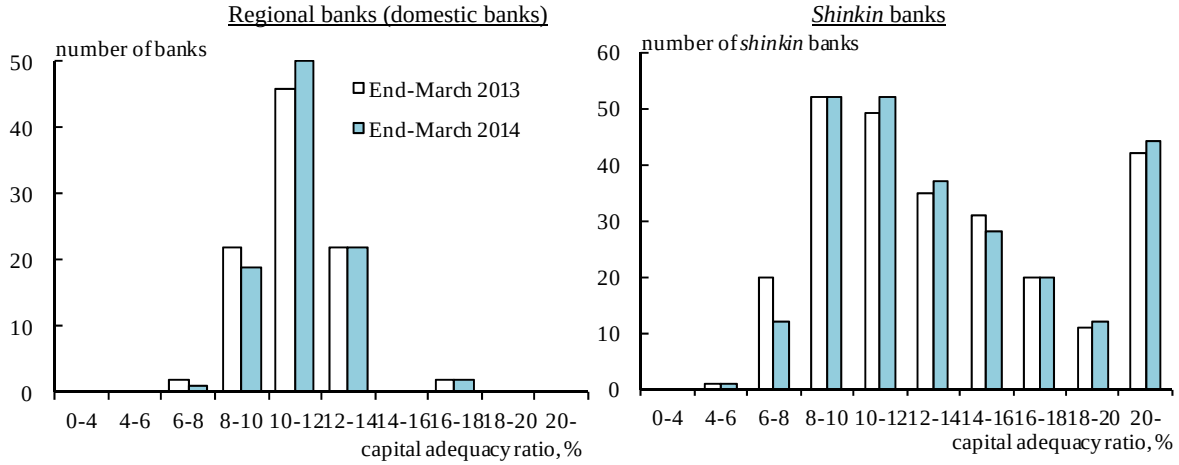
capital adequacy ratio observed at the end of fiscal 2012, thanks to an increase in retained earnings and implementation of the phase-in arrangements.[40] On an individual bank basis, the distribution of core capital ratios among both regional and *shinkin* banks at the end of fiscal 2013 did not change significantly from the previous capital adequacy ratios at the end of fiscal 2012, with core capital ratios for all banks exceeding the regulatory level of 4 percent (Chart VI-2-2).

Chart VI-2-1: Capital adequacy ratios[1,2,3]



Notes: *1*. CAR indicates total capital adequacy ratios. Internationally active banks and domestic banks are classified as of end-March 2014.
2. Data for banks are calculated on a consolidated basis.
3. The data take account of the phase-in arrangements.
Source: BOJ.

Chart VI-2-2: Distribution of capital adequacy ratios of regional financial institutions[1,2,3]



Notes: *1*. The capital adequacy ratio for end-March 2014 is based on the core capital ratio.
2. Data for banks are calculated on a consolidated basis.
3. The data take account of the phase-in arrangements.
Source: BOJ.

[40] Upon shifting to the new regulatory requirements for domestic banks, while efforts were made to enhance the quality of capital, various phase-in arrangements were put in place. For example, for former means of securing capital that did not meet the new requirements, such as subordinated bonds, a 100 percent inclusion in core capital was allowed for 1 year following their implementation.

Thus, sufficiently high capital levels in light of regulatory requirements are currently being secured at both internationally active banks and domestic banks. However, the phase-in arrangements being implemented until the shift to the new regulatory requirements is completed are scheduled to gradually come to an end, and internationally active banks will be required to hold additional capital buffers.[41] In view of such scheduled events, each financial institution needs to appropriately manage its capital level through, for example, accumulating retained earnings, while bearing in mind the importance of efficiently utilizing capital.[42]

Capital adequacy relative to the amount of risk borne by financial institutions

Financial institutions' capital has generally been at an adequate level relative to the amount of risk (Charts VI-2-3 and VI-2-4). As mentioned earlier, capital held by these institutions has increased mainly due to the accumulation of retained earnings. At the same time, the amount of risk they bear -- presented in detail in Chapter IV -- has increased, mainly reflecting the increase in market risk associated with stockholdings for major banks and regional banks and the rise in interest rate risk for *shinkin* banks. However, the pace of increase in the total amount of risk is more or less in line with that of the increase in capital, due to the decrease in the amount of credit risk.[43] Against this background, the ability of financial institutions to absorb losses and take on risks generally seems to remain at a high level for all types of banks. Nevertheless, as was

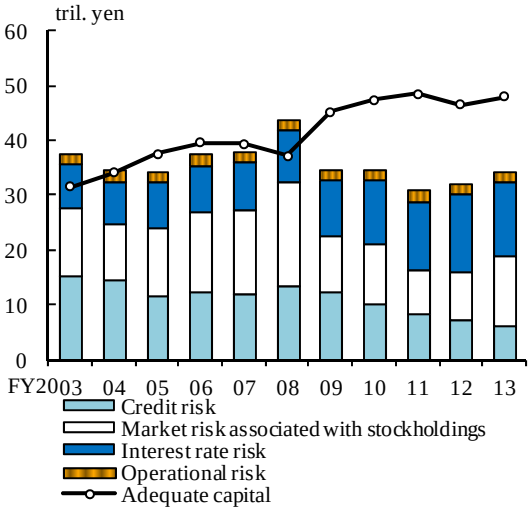
[41] For example, the minimum regulatory level of the CET I capital ratio for internationally active banks was 4.0 percent as of the end of March 2014, but is scheduled to be raised to 4.5 percent by the end of March 2015. In addition, from 2016 under the Basel III requirements, (1) the capital conservation buffer is scheduled to be raised gradually from 0.625 percent in 2016 to 2.5 percent in 2019; (2) the countercyclical capital buffer is scheduled to be imposed within a range of 0-2.5 percent; and (3) the surcharge for global systemically important banks (G-SIBs) is scheduled to be increased by 1-2.5 percent in accordance with the size and other elements of financial institutions. As for domestic banks, they are currently allowed to include 100 percent of certain instruments, such as non-convertible preferred stocks and subordinated bonds, as an element of new core capital through the phase-in arrangements, but the percentage of these instruments included will gradually be reduced in the future. In addition, they will be required to gradually deduct certain assets from core capital based on phase-in arrangements, and these assets will be subject to full deduction by the end of March 2019.

[42] Since March 2014, there have been cases in which some internationally active banks have started issuing Basel III-compliant subordinated bonds.

[43] In Charts VI-2-3 and VI-2-4, we take account of some foreign currency-denominated assets and liabilities in calculating the amount of risk borne by major banks. Common methods and parameters (such as the confidence level and the holding period) are used in calculating the amount of risk borne by all financial institutions. Thus, the amount of risk calculated here does not necessarily match the internal calculations made by financial institutions as part of their comprehensive risk management.

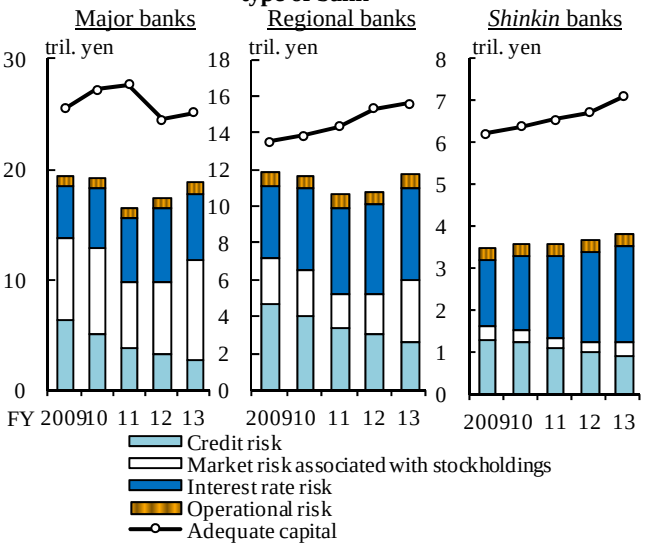
observed earlier, even some financial institutions with relatively low levels of capital adequacy have been increasing their amount of risk. These institutions need to appropriately manage the balance between capital and the amount of risk.

Chart VI-2-3: Risks and adequate capital among financial institutions[1,2,3]



Notes: *1*. Banks and *shinkin* banks are counted. The latest data are as of end-March 2014.
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. Market risk associated with stock investment trusts is excluded from that associated with stockholdings. Credit risks include foreign currency-denominated risk. Market risk associated with stockholdings, and interest risk (on-balance-sheet transactions) at major banks include foreign currency-denominated risk.
Source: BOJ.

Chart VI-2-4: Risks and adequate capital by type of bank[1,2]



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. Operational risk: 15 percent of gross profits. For banks, off-balance-sheet transactions (interest rate swaps) are included.
2. Market risk associated with stock investment trusts is excluded from that associated with stockholdings. Credit risks include foreign currency-denominated risk. Market risk associated with stockholdings, and interest risk (on-balance-sheet transactions) at major banks include foreign currency-denominated risk.
Source: BOJ.

C. Macro stress testing

According to the results of macro stress testing, the financial system is considered to have generally strong resilience against various economic and financial shocks. Financial institutions' capital adequacy ratios are maintained above regulatory levels on the whole, even under stresses arising in scenarios involving an economic downturn of approximately the same magnitude as that observed at the time of the Lehman shock and an approximately 2 percentage point rise in long-term interest rates with an economic downturn. In the following, we look in detail at the assumptions for and

results of macro stress testing.

1. Assumptions for macro stress testing

As in the previous *Report*, a baseline scenario and two stress scenarios are set as assumptions for macro stress testing. One stress scenario assumes that severe stresses equivalent to the Lehman shock in 2008 occur in overseas economies and financial markets (an economic downturn scenario), and the other stress scenario assumes that the yield curve steepens with a rise of about 2 percentage points in long-term interest rates in Japan (an upward interest rate shift scenario). The magnitude of stresses under each scenario is assessed by comparing them with the baseline scenario.

The test takes account of the adverse feedback loop between the financial system and the real economy using the Financial Macro-econometric Model (FMM).[44] In this *Report*, we improved the FMM by changing the mechanism used for determining (1) overseas loans and (2) financial institutions' credit risk assets. As a result of this refinement, the following has been enabled, respectively: (1) more direct incorporation of the effects of an economic downturn stemming from overseas economies, similar to those assumed in this stress scenario; and (2) more accurate reflection of the effects of a deterioration in asset quality due to an economic downturn and a subsequent increase in risk assets (See Box 4 for the refinement of the FMM).

We assume that stresses occur from the October-December quarter of 2014, and changes through the end of fiscal 2016 are estimated.[45] The subjects of macro stress testing are banks and *shinkin* banks. Capital adequacy ratios are calculated based on the Basel III requirements for internationally active banks. As for domestic banks including *shinkin* banks, these ratios are calculated in line with the new requirements introduced at the end of fiscal 2013.[46]

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[44] Regarding the framework for macro stress testing including the FMM, see Tomiyuki Kitamura, Satoko Kojima, Koji Nakamura, Kojiro Takahashi, and Ikuo Takei, "Macro Stress Testing at the Bank of Japan," BOJ Reports & Research Papers, October 2014.

[45] Financial results of banks and *shinkin* banks are available until the end of March 2014. In this analysis, financial results are estimated until the end of September 2014 using the FMM. Macro stress testing is conducted starting from the end of September 2014.

[46] In calculating capital adequacy ratios based on the Basel III requirements, the phase-in arrangements accompanying the shift from the Basel II requirements are taken into account. Upon implementation of the new requirements for domestic banks, unrealized gains/losses on securities holdings of domestic banks are not reflected in the estimation of these banks' core capital ratios, and the same applies to this section.

Box 4: Refinement of the Financial Macro-econometric Model

Since the FMM was developed in 2011, ongoing efforts have been made to improve it in order to respond to new analytical needs or regulatory changes, as well as to increase the precision and accuracy of calculations. In this *Report*, we refine the FMM primarily by changing the mechanism used for determining the following two points: (1) overseas loans; and (2) credit risk assets. Details are as follows.

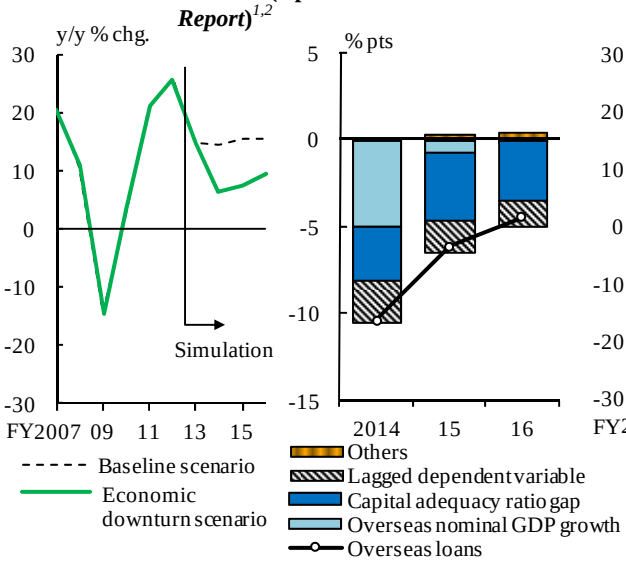
(1) Determination of overseas loans

As was explained in Chapter III, in recent years, Japanese financial institutions -- major banks in particular -- have increased their overseas loans. As a result, the effects of developments in overseas economies on total lending by Japanese financial institutions have also grown considerably. The previous version of the FMM adopted a specification in which developments in financial institutions' overseas loans were explained by the growth rate in nominal GDP of overseas economies -- the underlying factor behind changes in loan demand -- and the capital adequacy ratio gap (the deviation of a financial institution's capital adequacy ratio from the regulatory level) -- an indicator of financial institutions' capital constraints. Under this specification, the fit of the function was somewhat unsatisfactory, and overseas loans continued relatively firm growth even under a scenario that assumed an economic downturn equivalent to that at the time of the Lehman shock (Chart B4-1).

For these reasons, in this *Report*, we adopt the following independent variables as underlying factors behind changes in loan demand: nominal GDP gap of overseas economies (deviation from the overall trend of nominal GDP in overseas economies); financial institutions' capital constraints in the form of the capital adequacy ratio gap; nominal exchange rates; and European financial institutions' share of total credit extended worldwide.[47] As a result, the refined version of the function better fits the data, and we obtain a test result in which the rate of increase in overseas loans would be largely depressed through fiscal 2016 under an economic downturn scenario (Chart B4-2). Reflecting these developments, under an economic downturn scenario stemming from a downturn in overseas economies, the downturn in these economies has a considerable impact on lending by internationally active banks, causing a decline in their total amount of lending (Chart B4-3).

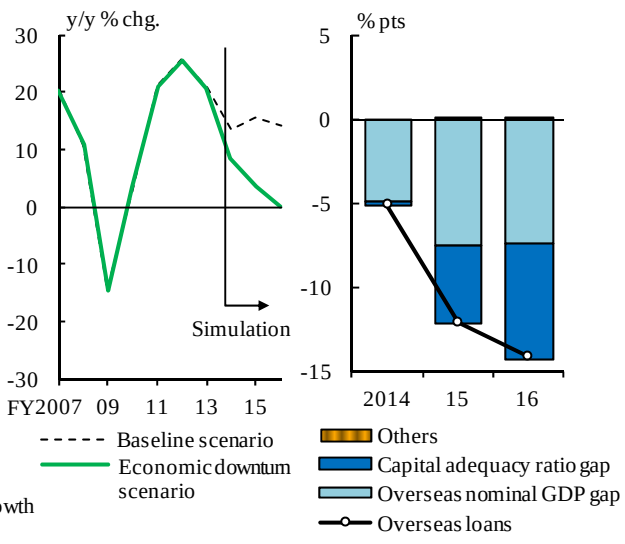
[47] We adopt European financial institutions' share of total credit extended worldwide as an indicator of the intensity of competition in overseas credit markets by, for example, capturing steps taken by European financial institutions to reduce their overseas assets following the Lehman shock.

Chart B4-1: Overseas loans in economic downturn scenario (April 2014 issue of the *Report*)[1,2]



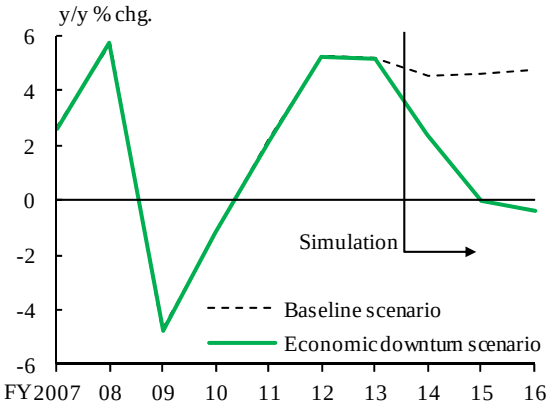
Notes: *1*. Banks and *shinkin* banks are counted.
2. The vertical axes of the right-hand chart show deviations of the quarter-on-quarter annualized changes in overseas loans from the baseline scenario.
Source: BOJ.

Chart B4-2: Overseas loans in economic downturn scenario (this *Report*)[1,2]



Notes: *1*. Banks and *shinkin* banks are counted.
2. The vertical axes of the right-hand chart show deviations of the year-on-year changes in overseas loans from the baseline scenario.
Source: BOJ.

Chart B4-3: Total loans of internationally active banks



Source: BOJ.

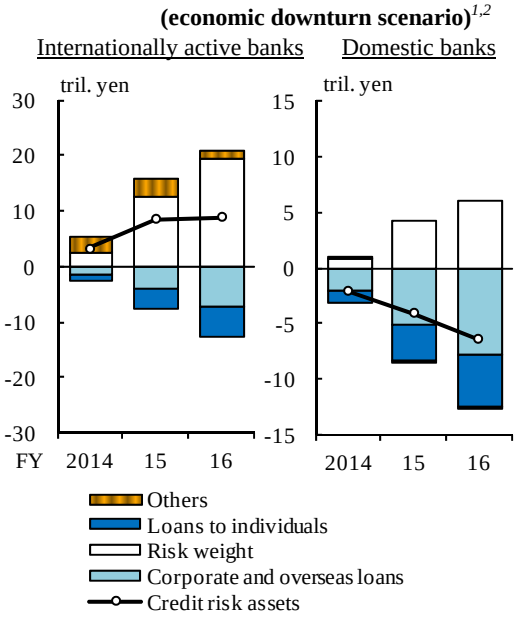
(2) Determination of credit risk assets

The previous version of the FMM adopted a relatively simple specification in which developments in credit risk assets were explained by the outstanding amount of each category of risk assets. Under this method, however, it was impossible to identify the impact of deterioration in loan quality due to an economic downturn, namely, an increase in risk weight. The new specification adopted after refinement of the FMM allows changes in loan quality to be reflected in changes in risk weight. Specifically, financial institutions are first categorized according to the method they use to calculate credit risk assets: those that use the standard procedures under the Basel regulatory

requirements and those that use internal credit rating methods. The new specification then allows the risk weight calculation by the latter group of financial institutions to be based on default probability. As a result, we have been able to incorporate into the framework a mechanism in which the risk weight of these financial institutions responds endogenously to changes in default probabilities.

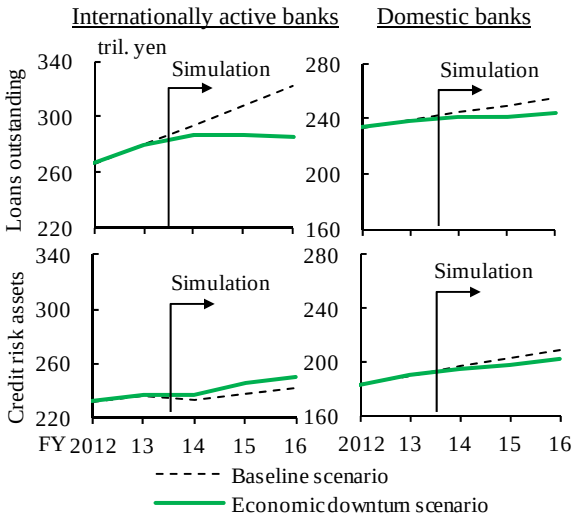
As a result of this refinement, even when the outstanding amount of loans declines under an economic downturn scenario, the risk weight increases, reflecting the deterioration in loan quality, which in turn boosts the amount of credit risk assets (Chart B4-4). Consequently, at internationally active banks -- many of which adopt internal credit rating methods -- credit risk assets increase despite a decline in the outstanding amount of loans under an economic downturn scenario, thereby depressing their capital adequacy ratios (Chart B4-5).

Chart B4-4: Determinants of credit risk assets (economic downturn scenario)[1,2]



Notes: *1*. Banks and *shinkin* banks are counted.
2. The vertical axes show deviations of credit risk assets in the economic downturn scenario from the baseline scenario.
Source: BOJ.

Chart B4-5: Credit risk assets and loans outstanding[1,2]



Notes: *1*. Banks and *shinkin* banks are counted.
2. Loans outstanding are the sum of corporate loans, loans to individuals, and overseas loans.
Source: BOJ.

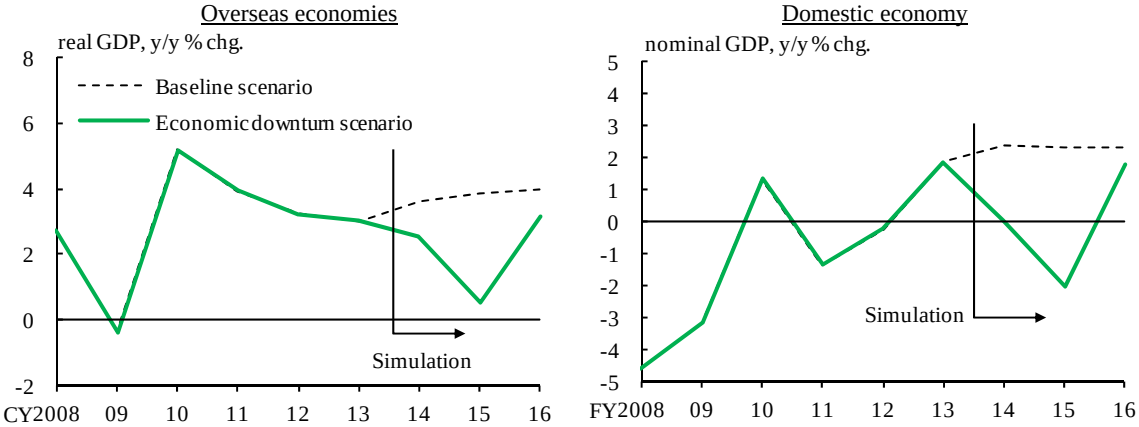
2. Baseline scenario

Assumptions made for the baseline scenario are as follows. The overseas real GDP growth rate would rise moderately from 3.0 percent in 2013 to about 4.0 percent through 2016 (the left-hand side of Chart VI-3-1).[48] Stock prices (TOPIX) and 10-year JGB

[48] This assumption is based on the long-term forecasts made by the International Monetary Fund

yields would remain unchanged from the levels observed at the end of March 2014.[49] The domestic nominal GDP growth rate would rise from 1.9 percent in fiscal 2013 to 2.4 percent in fiscal 2014 and hover at 2.0-2.5 percent through fiscal 2016 (the right-hand side of Chart VI-3-1).[50]

Chart VI-3-1: Overseas economies and the domestic economy



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

Under these assumptions, the simulation results are as follows. Since Japan's economy would continue to exhibit relatively high growth from the beginning of the simulation period, firms' financial conditions would continue to improve, which in turn would keep their quick ratios and interest coverage ratios (ICRs) at relatively high levels (Charts VI-3-2 and VI-3-3).[51] As a result, credit cost ratios would remain at low levels, while CET I capital ratios at internationally active banks would rise moderately through fiscal 2016. As the phase-in arrangements being implemented until completion of the shift to the new regulatory requirements are scheduled to gradually come to an end, core capital ratios would decline moderately at domestic banks. On the whole, however, even in fiscal 2016, they would still stand well above regulatory levels (Charts VI-3-4 and VI-3-5).[52]

(IMF) as of April 2014.

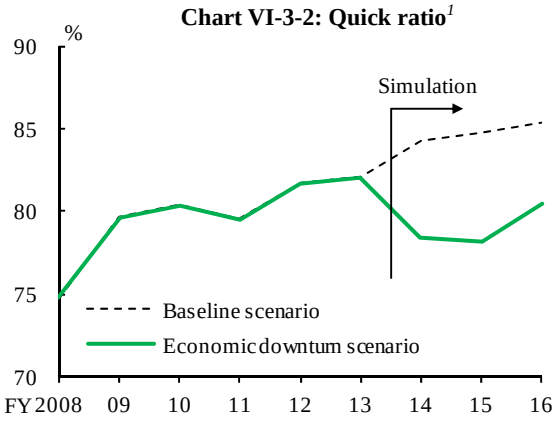
[49] Specifically, it is assumed that the TOPIX stands at 1,203 points and 10-year JGB yields at 0.64 percent.

[50] This assumption is based on private sector forecasts made in August 2014.

[51] Quick ratio is the ratio of quick assets (cash and deposits, bills and accounts receivable, and securities) to liquid liabilities. The ICR is the ratio of the sum of operating profits and interest and dividends received, etc., to interest payments, etc.

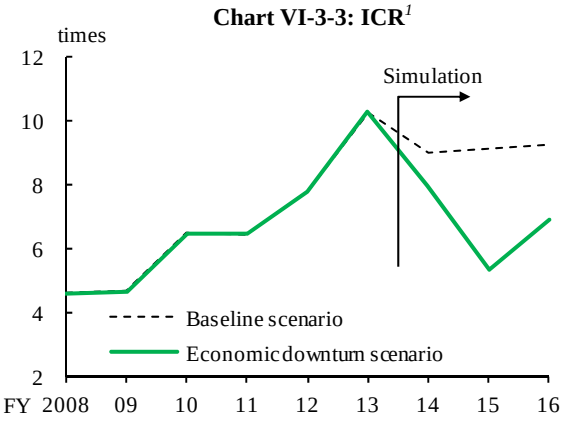
[52] From fiscal 2014, the credit cost ratios of internationally active banks are estimated to become slightly negative, and those of domestic banks are estimated to be around 0 percent. As mentioned in Chapter IV-A, financial institutions' credit cost ratios have recently been low. This is because (1)

Chart VI-3-2: Quick ratio[1]



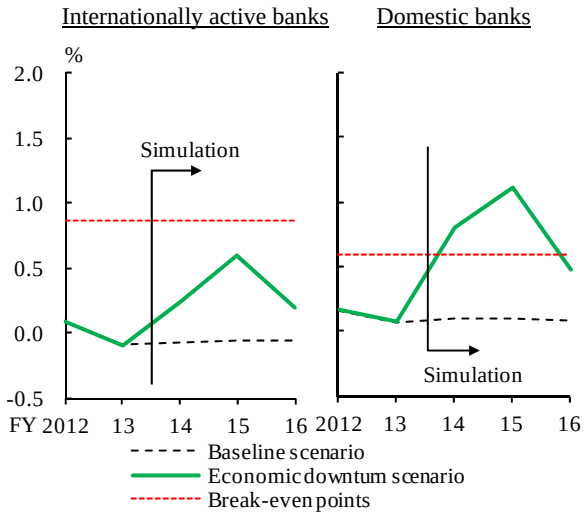
Note: *1*. Quick ratio = (cash and deposits + bills and accounts receivable + securities) / liquid liabilities.
Sources: Ministry of Finance, "Financial statements statistics of corporations by industry"; BOJ.

Chart VI-3-3: ICR[1]



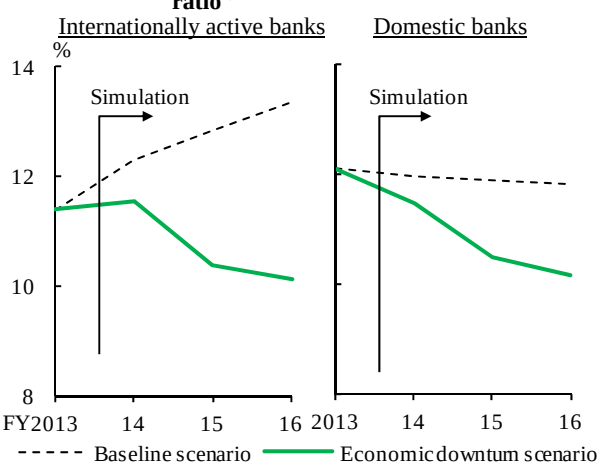
Note: *1*. ICR = (operating profits + interest and dividends received, etc.) / interest payments, etc.
Sources: Ministry of Finance, "Financial statements statistics of corporations by industry"; BOJ.

Chart VI-3-4: Credit cost ratio[1]



Note: *1*. Banks and *shinkin* banks are counted. The horizontal dashed lines indicate the break-even points in fiscal 2013.
Source: BOJ.

Chart VI-3-5: CET I capital ratio and core capital ratio[1,2]



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 core capital ratio of domestic banks. These are taking the phase-in arrangements into consideration.
Source: BOJ.

financial institutions' asset quality continued to improve and (2) financial institutions' support for firms with sluggish business performance restrained the occurrence of default. We assume in the baseline scenario that this trend would continue in the future. Specifically, a large number of borrowing firms' credit ratings would be upgraded because the domestic economic growth rate would remain high during the beginning of the simulation period. On the other hand, based on the assumption that financial institutions' support for firms with sluggish business performance continues, the number of downgraded borrowing firms would be limited. As a result, from fiscal 2014, banks' credit cost ratios would remain at low levels and the ratios of internationally active banks would be negative, as reversals of provisions for loan losses were recorded.

3. Economic downturn scenario

Assumptions made for the economic downturn scenario are as follows. Stresses equivalent to the Lehman shock in 2008 would arise in overseas economies and global financial markets in the second half of fiscal 2014. The overseas economic growth rate would decline to 2.6 percent in 2014 from 3.0 percent in 2013, then plunge to 0.5 percent in 2015 before recovering to 3.2 percent in 2016 (the left-hand side of Chart VI-3-1). Stock prices (TOPIX) would fall by 55 percent between the end of September 2014 and the end of September 2015, and 10-year JGB yields would decline by about 0.4 percentage point during the same period. Thereafter, stock prices and 10-year JGB yields would remain more or less unchanged. Under these assumptions, the domestic economic growth rate would drop from 1.9 percent in fiscal 2013 to 0.0 percent in fiscal 2014, decline further to minus 2.1 percent in fiscal 2015, and would then recover to 1.8 percent in fiscal 2016 (the right-hand side of Chart VI-3-1).[53]

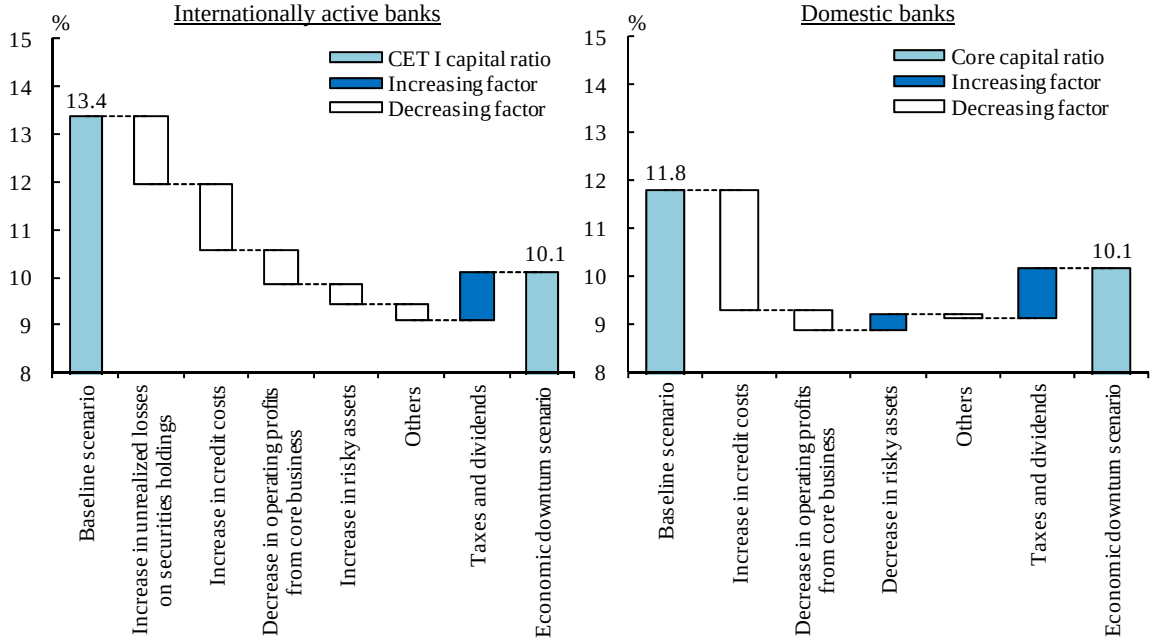
The simulation results for financial institutions' balance sheets and profits are as follows. Financial institutions would incur unrealized losses on stockholdings due to the decline in stock prices. As firms' profits declined significantly owing to the economic downturn, firms' financial indicators such as quick ratios and ICRs would deteriorate from fiscal 2014 through fiscal 2015 (Charts VI-3-2 and VI-3-3). Thereafter, although firms' profits would pick up and firms' financial indicators would improve in line with the recovery in the domestic economic growth rate, firms' profits and financial indicators would deviate downward from the baseline scenario levels throughout the simulation period. As a result, credit cost ratios would increase considerably from fiscal 2014 through fiscal 2015. Despite a subsequent decline, credit cost ratios would continue to deviate upward from the baseline scenario level throughout the simulation period (Chart VI-3-4).

Consequently, although capital adequacy ratios would fall significantly from the baseline scenario from fiscal 2014, these ratios would on average continue to exceed regulatory levels (Chart VI-3-5). The CET I capital ratio for internationally active banks would be 10.1 percent in fiscal 2016, falling by 3.3 percentage points from the baseline scenario of 13.4 percent. The CET I capital ratio at internationally active banks would be under downward pressure caused by unrealized losses on securities holdings resulting from falling stock prices and increased credit costs due to an economic downturn (the left-hand side of Chart VI-3-6). As was explained in Box 4, in improving the FMM we revised the

[53] Such developments in the domestic economic growth rate reflect external shocks including a downturn in overseas economies and the simulation results of the effects of an adverse feedback loop between the financial system and the real economy.

mechanism used for determining financial institutions' credit risk assets. As a result, the deterioration in loan quality stemming from an economic downturn (an increase in risk weight) increases credit risk assets, a factor which in part is also responsible for the downward pressure on the CET I capital ratio.[54] The core capital ratio for domestic banks would be 10.1 percent at the end of fiscal 2016, falling by 1.7 percentage points from the baseline scenario of 11.8 percent. The decline in the core capital ratio for domestic banks would be mainly caused by the occurrence of credit costs due to an economic downturn, as unrealized losses on securities holdings caused by a decline in stock prices do not reduce domestic banks' capital (the right-hand side of Chart VI-3-6).

Chart VI-3-6: Decompositions of the CET I capital ratio and the core capital ratio (economic downturn scenario)[1,2]



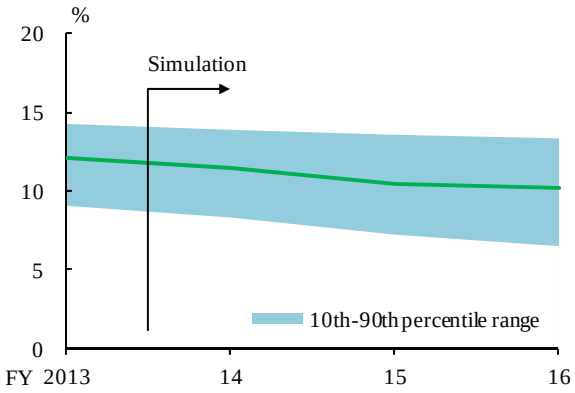
Notes: *1*. Banks and *shinkin* banks are counted. "Increase in unrealized losses on securities holdings" is calculated by taking account of tax effects. The data are as of end-March 2017.
2. The left-hand chart shows the CET I capital ratio of internationally active banks. The right-hand chart shows the core capital ratio of domestic banks. These are taking the phase-in arrangements into consideration.
Source: BOJ.

The distribution of core capital ratios among individual banks shows that some domestic banks' rates of decline in core capital ratios are relatively large (Chart VI-3-7). This indicates that the extent of the impact on capital of an increase in credit costs due to an

[54] The models employed in the previous issues of the *Report* have not explicitly taken into account the internal mechanism that determines risk weight. As a result, it was assumed that in an economic downturn scenario, risk assets would decrease, reflecting a decrease in loan volume, thereby contributing to an increase in capital adequacy ratios (See Chart VI-2-6 in the April 2014 issue of the *Report*).

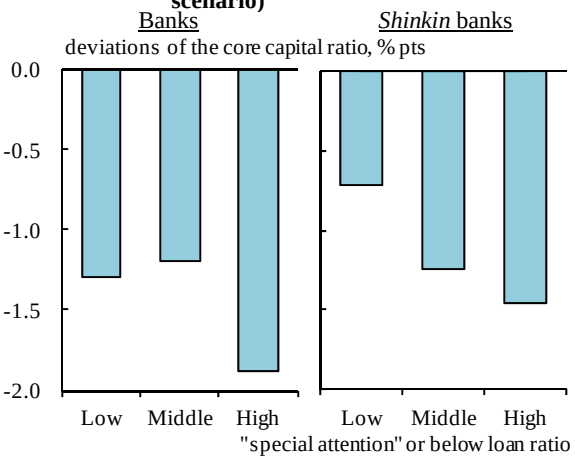
economic downturn differs among individual banks. Particular attention should be paid to the fact that the decline in core capital ratios would be substantial for financial institutions with low loan quality (with high shares of loans to borrowers classified as needing special attention or below) (Chart VI-3-8).

Chart VI-3-7: Domestic banks' core 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-3-8: Core capital ratio and shares of loans to domestic bank borrowers classified as "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. Loans classified as "low" are in the bottom one-third, those classified as "high" are in the top one-third, others are classified as "middle."
2. The vertical axes show each bank group's average core capital ratio deviation from the baseline scenario as of end-March 2016.
Source: BOJ.

4. Upward interest rate shift scenario

Macro stress testing on an upward interest rate shift assumes that a decline in stock prices and an economic downturn in tandem with a sharp rise in interest rates would hinder improvement in financial institutions' interest rate spreads on loans. In order to compare the effects of rises in interest rates, a simulation is also conducted for a case in which interest rates rise in line with economic improvement, as in the previous *Report*.

Regarding the simulation on the impact of an upward interest rate shift with an economic downturn, the assumptions in more detail are as follows. The interest rate yield curve would steepen immediately after the start of the simulation period. Specifically, 10-year rates would rise by 2 percentage points from the baseline scenario at the beginning of the October-December quarter of 2014 and remain at the same level

through the end of fiscal 2016.[55] Stock prices would fall by 34 percent during the quarter with a simultaneous rise in interest rates.[56] After declining for 1 year along with the economic downturn, stock prices would remain unchanged from the end of fiscal 2015, staying 41 percent below the baseline scenario. With respect to the economy, the nominal GDP growth rate would deviate downward from the baseline scenario immediately after the start of the simulation period, declining from 1.9 percent in fiscal 2013 to 0.6 percent in fiscal 2014 and then plunging to minus 0.2 percent in fiscal 2015. Nominal GDP growth would recover moderately thereafter, but would remain about 0.8 percentage point lower than the baseline scenario in fiscal 2016 (Chart VI-3-9).[57] Furthermore, we assume a situation in which the deterioration in economic conditions would make it difficult for financial institutions to raise their loan interest rates compared with normal times amid weakening demand for funds. We also assume that as market interest rates rise, the correlation between financial institutions' deposit interest rates and market interest rates would become stronger than at a time when interest rates are stable at low levels.[58] In this analysis, we assume that a rise in market interest rates does not change outstanding amounts of deposits or their composition (See Box 5 for the effects of shifts in deposits in the event of rises in interest rates). We set the same assumptions for overseas economies as in the baseline scenario.

The simulation results for financial institutions' balance sheets and profits are as follows. A rise in market interest rates combined with a simultaneous decline in stock prices would cause unrealized losses on both bondholdings and stockholdings at financial institutions. At the same time, the rise in loan interest rates -- reflecting higher market interest rates -- and the economic downturn would make growth in loans outstanding deviate sharply downward from the baseline scenario (Chart VI-3-10). In a situation in

[55] A 2 percentage point rise in long-term interest rates is a considerably strong stress, even compared to the Trust Fund Bureau shock in 1999 (a 1.7 percentage point rise in approximately 4 months) and the VaR shock in 2003 (a 1.2 percentage point rise in approximately 3 months).

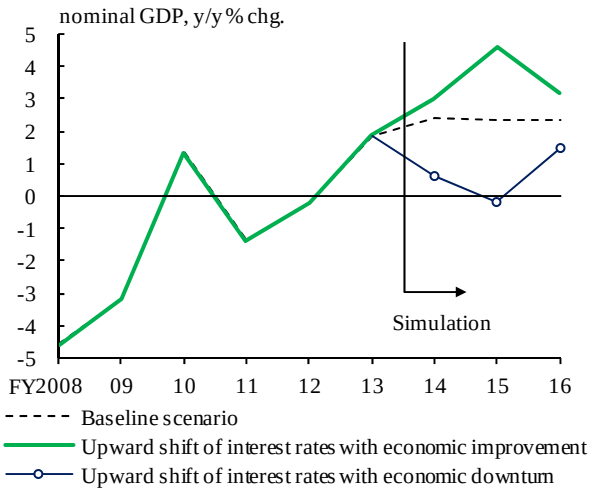
[56] The rate of decline in stock prices has been calculated using the elasticity of stock prices to JGB yields observed from April to October 1991, when the negative correlation between stock prices and JGB yields was the strongest since 1990.

[57] Similar to the economic downturn scenario results, developments in the domestic economic growth rate reflect the simulation results of the effects of an adverse feedback loop between the financial system and the real economy.

[58] Specifically, for both internationally active banks and domestic banks, we assume that the pass-through of loan interest rates (the extent to which loan interest rates would rise in response to a rise in market interest rates) would be smaller, while the pass-through of funding interest rates would be larger than the estimation results based on past data. The extent of downward and upward deviations is calculated by adjusting the estimated coefficients of each pass-through rate by about two standard errors.

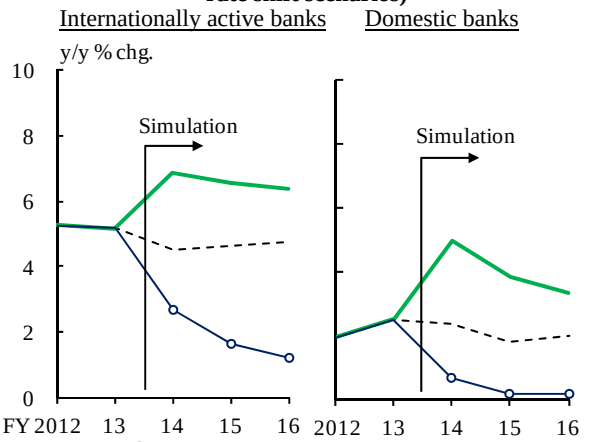
which interest rate spreads on loans do not improve at the same pace as in normal times, the downward deviation of loans outstanding from the baseline scenario would cause downward pressure on financial institutions' core profits. Moreover, a sharp deterioration in profits and an increase in interest payments among borrowing firms would worsen firms' financial conditions (measured by quick ratios and ICRs). As a result, credit cost ratios would rise to a level substantially above the baseline scenario (Charts VI-3-11 to VI-3-13).

Chart VI-3-9: Domestic economy (upward interest rate shift scenarios)



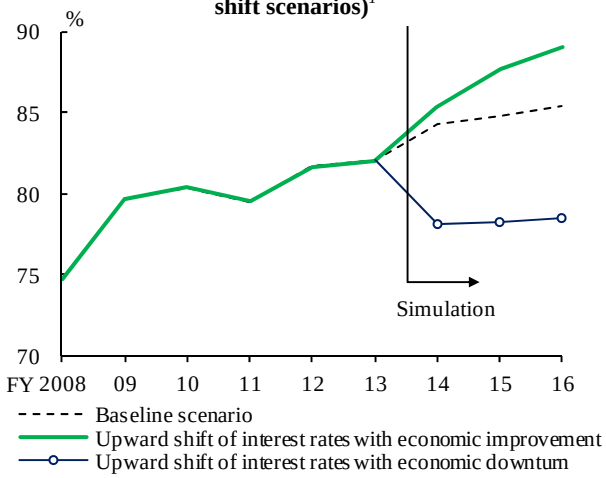
Sources: Cabinet Office, "National accounts"; Japan Center for Economic Research, "ESP forecasts"; BOJ.

Chart VI-3-10: Loans outstanding (upward interest rate shift scenarios)[1]



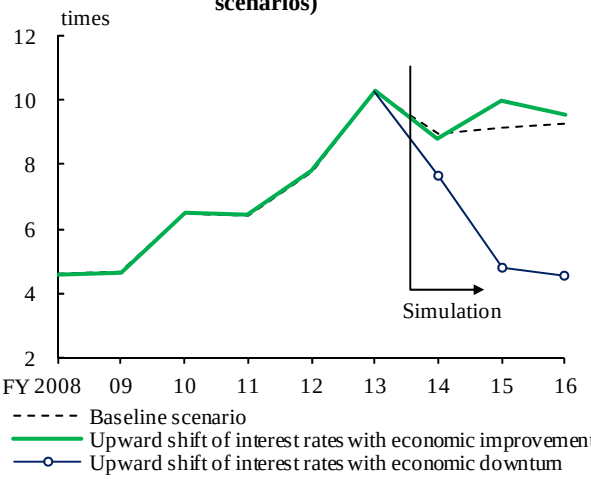
Note: *1.* Banks and *shinkin* banks are counted.
Source: BOJ.

Chart VI-3-11: Quick ratio (upward interest rate shift scenarios)[1]



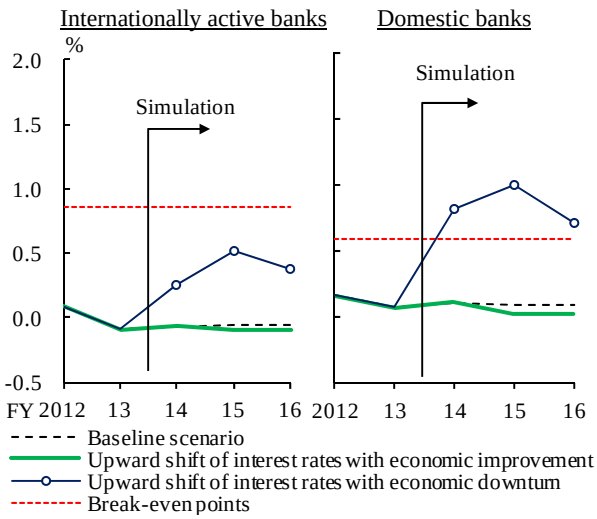
Note: *1.* Quick ratio = (cash and deposits + bills and accounts receivable + securities) / liquid liabilities.
Sources: Ministry of Finance, "Financial statements statistics of corporations by industry"; BOJ.

Chart VI-3-12: ICR (upward interest rate shift scenarios)[1]



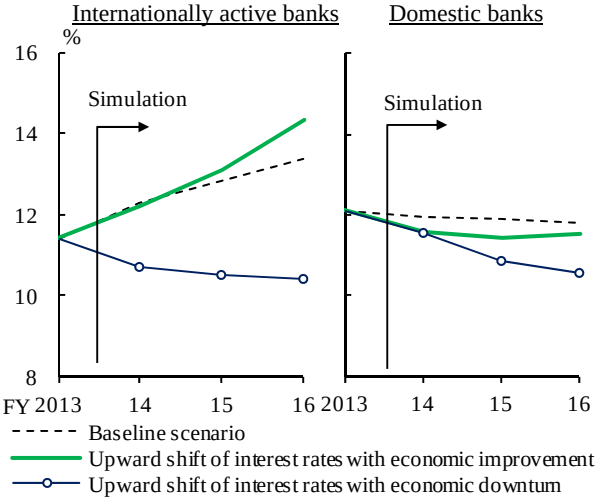
Note: *1.* ICR = (operating profits + interest and dividends received, etc.) / interest payments, etc.
Sources: Ministry of Finance, "Financial statements statistics of corporations by industry"; BOJ.

Chart VI-3-13: Credit cost ratio (upward interest rate shift scenarios)[1]



Note: *1*. Banks and *shinkin* banks are counted. The horizontal dashed lines indicate the break-even points in fiscal 2013.
Source: BOJ.

Chart VI-3-14: CET I capital ratio and core capital ratio (upward interest rate shift scenarios)[1,2]

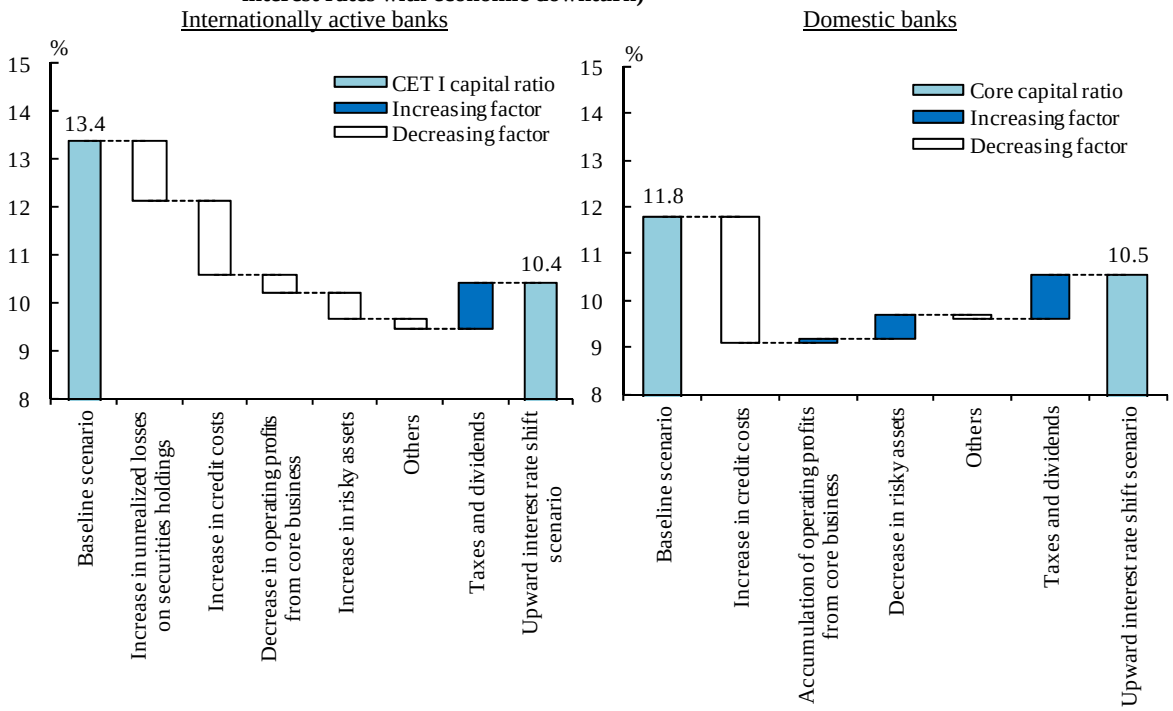


Notes: *1*. Banks and *shinkin* banks are counted.
2. The left-hand chart shows the CET I capital ratio of internationally active banks. The right-hand chart shows the core capital ratio of domestic banks. These are taking the phase-in arrangements into consideration.
Source: BOJ.

In these circumstances, the CET I capital ratio for internationally active banks would deviate significantly downward from the baseline scenario because of the emergence of unrealized losses on securities holdings and credit costs. The ratio would stand at 10.4 percent at the end of fiscal 2016, falling by 3.0 percentage points from the baseline scenario of 13.4 percent (Charts VI-3-14 and VI-3-15). The core capital ratio for domestic banks would deviate significantly downward from the baseline scenario due to the emergence of credit costs, although their capital does not reflect unrealized losses on securities holdings. The ratio would stand at 10.5 percent at the end of fiscal 2016, falling by 1.3 percentage points from the baseline scenario of 11.8 percent.

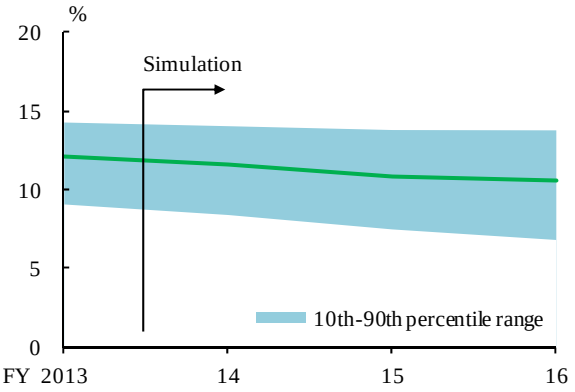
As described above, a rise in interest rates combined with an economic downturn has a major impact on financial institutions' capital because it causes the emergence of unrealized losses on bondholdings and stockholdings, as well as credit costs and a decline in core profits. Nevertheless, CET I capital ratios and core capital ratios would remain above the regulatory levels on average. The distribution of core capital ratios by individual domestic banks shows significant dispersions in the declines in their core capital ratios (Chart VI-3-16). These dispersions arise because the extent of the impact of a rise in interest rates on credit costs and financial institutions' core profits differs among individual institutions due to differences in the balance sheet structure and interest rate setting behavior. Indeed, attention should be paid to the fact that the decline in core capital ratios is more substantial for financial institutions with low loan quality (Chart VI-3-17).

Chart VI-3-15: Decompositions of the CET I capital ratio and the core capital ratio (upward shift of interest rates with economic downturn)[1,2]



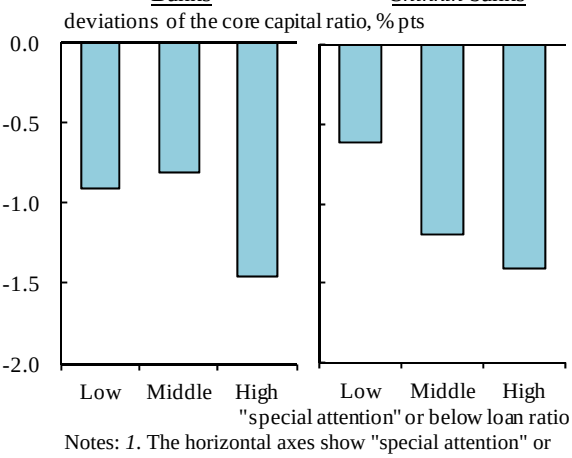
Notes: *1*. Banks and *shinkin* banks are counted. "Increase in unrealized losses on securities holdings" is calculated by taking account of tax effects. The data are as of end-March 2017.
2. The left-hand chart shows the CET I capital ratio of internationally active banks. The right-hand chart shows the core capital ratio of domestic banks. These are taking the phase-in arrangements into consideration.
Source: BOJ.

Chart VI-3-16: Domestic banks' core capital ratio distribution (upward shift of interest rates with economic downturn)[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-3-17: Core capital ratio and shares of loans to domestic bank borrowers classified as "special attention" or below (upward shift of interest rates with economic downturn)[1,2]



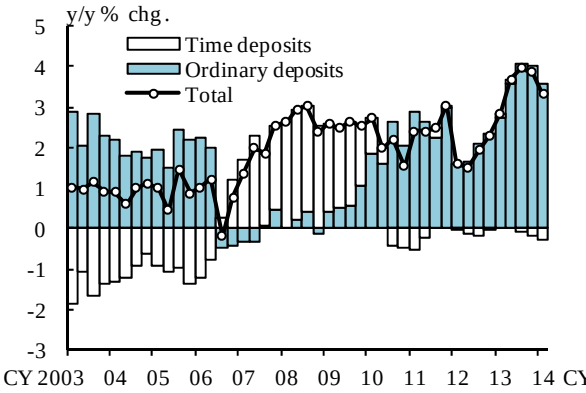
Notes: *1*. The horizontal axes show "special attention" or below loans as a share of the total amount of loans outstanding as of end-March 2014. Loans classified as "low" are in the bottom one-third, those classified as "high" are in the top one-third, others are classified as "middle."
2. The vertical axes show each bank group's average core capital ratio deviation from the baseline scenario as of end-March 2016.
Source: BOJ.

Box 5: Effects of shifts in deposits in the event of rises in interest rates

The macro stress testing in this *Report* assumes no changes in the total amount or composition of deposits at financial institutions. As such, it does not take into account withdrawals of deposits or shifts in funds from ordinary deposits to time deposits during a phase of interest rate rises.

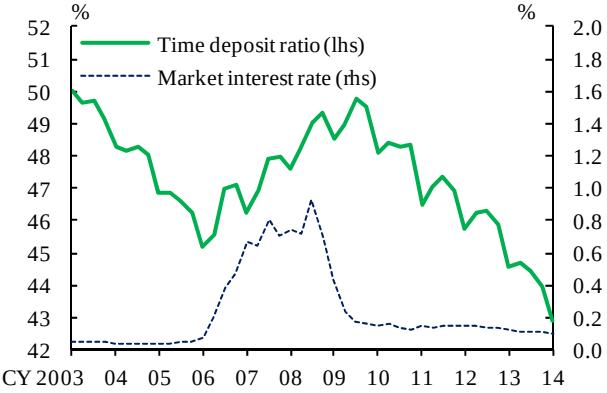
An examination of developments in deposits during the previous phase of interest rate rises, which lasted from around 2006 through 2008, shows that while growth in deposits outstanding temporarily slowed immediately after market interest rates began to rise, this was not followed by a sustained outflow of funds from bank deposits (Chart B5-1). On the other hand, a breakdown of deposits confirms that growth in ordinary deposits remained sluggish, while that in time deposits accelerated throughout the phase of interest rate rises. Reflecting these developments, the share of time deposits in total deposits (the time deposit ratio) had been increasing (Chart B5-2).

Chart B5-1: Year-on-year rate of change in outstanding amounts of banks' ordinary deposits and time deposits[1,2,3]



Notes: *1*. The latest data are as of end-March 2014.
2. Major banks and regional banks are counted.
3. Ordinary deposits include savings deposits, deposits at notice, installment savings, special deposits, and deposits for tax payments.
Source: BOJ.

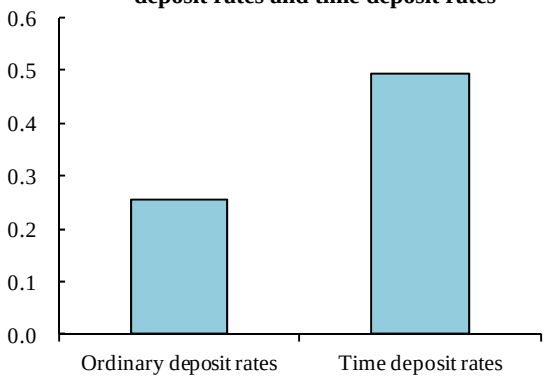
Chart B5-2: Ratio of banks' time deposits to total deposits and market interest rate[1,2,3]



Notes: *1*. The latest data are as of end-March 2014.
2. Major banks and regional banks are counted.
3. The market interest rate is 1 month Libor.
Sources: Bloomberg; BOJ.

Shifts in funds from ordinary deposits to time deposits during a phase of interest rate rises increase financial institutions' funding costs for the following two reasons. First, interest rates for time deposits are generally higher than those for ordinary deposits. Second, as pass-through rates (the extent to which deposit rates rise in response to a rise in market interest rates) for time deposits are higher than those for ordinary deposits, financial institutions' funding rates tend to rise in the event of a rise in market interest rates if the time deposit ratio is high (Chart B5-3).

Chart B5-3: Pass-through of banks' ordinary deposit rates and time deposit rates[1,2]



Notes: *1*. Major banks and regional banks are counted.
2. The vertical axis indicates the pass-through of ordinary deposit rates and time deposit rates (a year after the market rate rise).
Source: BOJ.

Taking account of the above characteristics, we analyze financial institutions' net interest income in the event of a rise in market interest rates. Specifically, based on a parallel shift scenario in which market interest rates rise from the baseline by 2 percentage points over a 1-year period, it is assumed that the time deposit ratio rises throughout the period. The extent of the increase in the time deposit ratio is obtained by proportionately applying the relationship between the extent of the rise in market interest rates and that in the time deposit ratio observed around 2006 through 2008.[59]

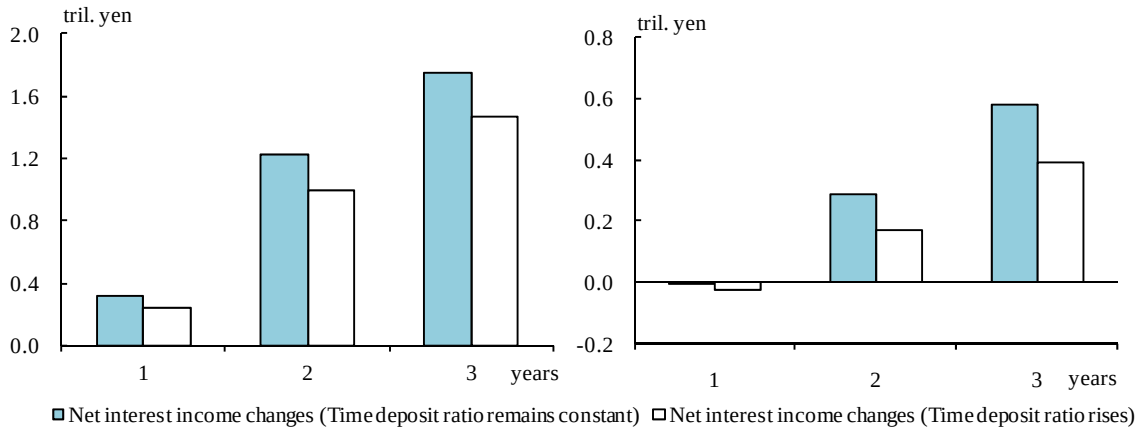
The results of the analysis suggest that both internationally active banks and domestic banks would see positive net interest income in response to rises in market interest rates. However, the results also indicate that an increase in time deposit ratios resulting from higher market interest rates would reduce the increase in net interest income by about 0.3 trillion yen for internationally active banks and about 0.2 trillion yen for domestic banks in the third year after market interest rates start rising (Chart B5-4). These amounts correspond to the extent to which the CET I capital ratio and the core capital ratio at the end of fiscal 2016 -- under the upward interest rate shift scenario -- are each lowered, specifically, by about 0.1 percentage point.

The above findings suggest that shifts in deposits during a phase of interest rate rises could depress financial institutions' profits by increasing their funding costs. However, it should be noted that the shifts in deposits assumed in this analysis are based on the pattern observed during the previous phase of interest rate rises, and that the quantitative effects of shifts in deposits could therefore vary, depending on market conditions as well

[59] Specifically, the growth rate of the ratio in the banking sector is assumed to stand at 10.8 percentage points on average.

as the extent and pace of interest rate rises during a phase characterized by interest rate rises.

Chart B5-4: Differences in the effects of a rise in interest rates on net interest income of banks[1,2,3,4]



Notes: *1*. Major banks and regional banks are counted.
2. A 2 percentage point parallel shift in interest rates for 1 year is assumed.
3. The vertical axis shows deviations of net interest income under each parallel shift scenario from that under the baseline scenario.
4. A rise in the ratio of time deposits to total deposits for 1 year is assumed.
Source: BOJ.

5. Issues on interpreting the results of macro stress testing

The above results suggest that Japan's financial system generally has strong resilience against various stresses. However, the following four issues should be noted in interpreting the test results.

First, it is possible that economic or financial shocks affect the stability of the financial system, depending on their speed and extent as well as the factors behind them. For example, if risk is accumulated under a continuation of favorable financial conditions such as low volatilities, the negative impact might be intensified by the concentration of unwinding or the adverse feedback loop between the financial system and the real economy, depending on the situation.[60] In addition, attention needs to be paid to the fact that the routes and ranges through which shocks propagate have become complex due to the strengthened ties with the global financial system as well as the interconnectedness of large financial institutions.

Second, although the test results show that the financial system as a whole would

[60] Macro stress testing in Chapter VI is a method mainly used for examining the risk concerning the adverse feedback between the real economy and the financial system. However, there exist certain limitations regarding factors that can be taken into account.

not suffer from capital shortage, the capital of some individual banks would be considerably affected (Charts VI-3-7 and VI-3-16). In addition, mainly due to the increase in credit costs, it is possible for some banks to record net losses in their financial statements, even with capital adequacy ratios that do not fall below regulatory levels (Charts VI-3-4 and VI-3-13). The stress testing in this *Report* assumes that the functioning of financial intermediation will not be constrained as long as capital adequacy ratios exceed regulatory levels. In reality, however, financial institutions' risk-taking stance, and ultimately the functioning of financial intermediation, may undergo changes at an earlier stage, for example, when financial institutions record net losses in their financial statements. This possibility warrants attention.

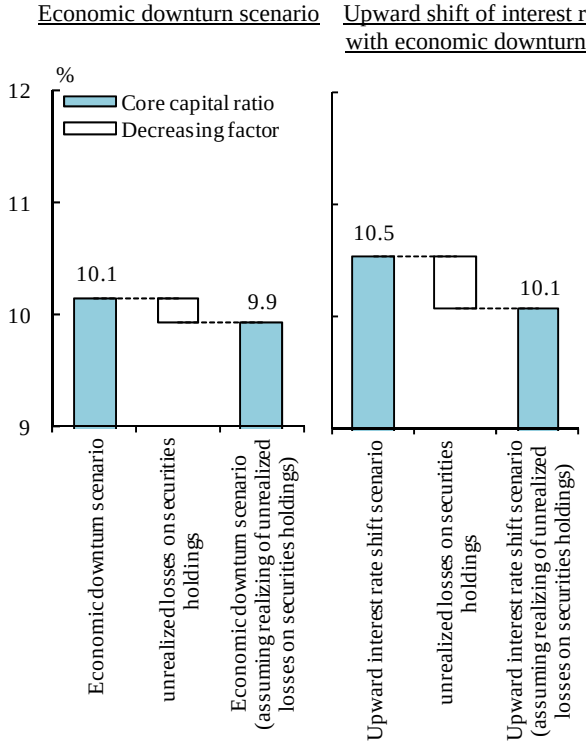
Third, the stress testing in this *Report* is based on the new regulatory requirements effective since the end of March 2014, which do not count unrealized losses on securities holdings in calculating capital for domestic banks. As a result, the negative impact (declines in capital adequacy ratios and accompanying deterioration of loans) under the stress scenario is estimated to be smaller for domestic banks than for internationally active banks. However, it is possible that even domestic banks need to be aware of the effects of unrealized losses on their balance sheet strength, depending on their magnitude, since unrealized losses are disclosed such as in financial results. In addition, it is probable that unrealized losses will become realized due to sales of securities in particular and that the losses will directly affect capital (Chart VI-3-18). In such a situation, attention needs to be paid to the possibility that financial institutions will face tighter constraints on their risk-taking stance, such as in their lending.

Fourth, a rise in interest rates reflecting improvement in economic conditions does not become a threat to the financial system, as it leads to an improvement in financial institutions' profit level. This is because, even if financial institutions incur unrealized losses or realized losses on sales of bonds, positive effects, such as improvement in net interest income mainly due to an increase in loans and a rise in stock prices, exceed negative ones (Chart VI-3-19).[61,62]

[61] For the main assumptions for and results of interest rate rises accompanied by economic improvement, see Charts VI-3-9 to VI-3-14.

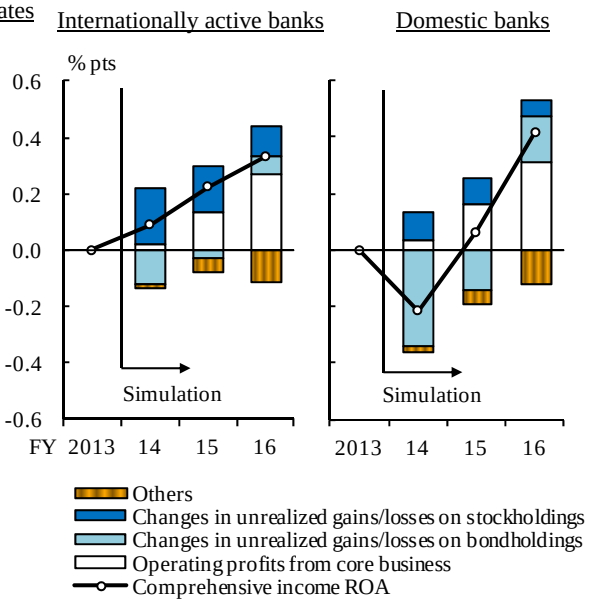
[62] Economic recovery brings about a rise in profits by improving loan spreads, in addition to an increase in loans. In general, the loan spreads of financial institutions tend to expand in a phase of interest rate rises (the opposite applies in a phase of interest rate declines). This is because the average interest rate of overall deposits does not correlate with market interest rates as much as loan interest rates (difference in pass-through rates to market interest rates), since deposits include liquid deposits, such as current deposits and ordinary deposits. However, two issues should be noted. First, pass-through rates of deposits depend on the extent of the rise in market interest rates. If the rise is

Chart VI-3-18: Core capital ratio of domestic banks (assuming realizing of unrealized losses on securities holdings)[1]



Note: *1*. Banks and *shinkin* banks are counted. The data are as of end-March 2017.
Source: BOJ.

Chart VI-3-19: Determinants of comprehensive income ROA (upward shift of interest rates with economic improvement)[1,2,3,4]



Notes: *1*. Banks and *shinkin* banks are counted.
2. The vertical axes show the deviations of comprehensive income ROA from the baseline scenario.
3. Comprehensive income is calculated as net income plus changes in valuation and translation adjustments.
4. Unrealized gains/losses on bondholdings/stockholdings are calculated by taking account of tax effects.
Source: BOJ.

substantial, pass-through rates tend to be high, since shifts from liquid deposits to time deposits or other financial products occur. Second, the degree of improvement in loan spreads when interest rates rise differs among financial institutions. This is because the extent to which financial institutions can raise their loan interest rates might differ, depending on the strength of their regional economy, the intensity of competition, and borrowing firms' ability of repayment (for the analysis on this point, see the April 2014 issue of the *Report*).

VII. Toward ensuring financial stability in the future

Changes in the environment surrounding the financial system

Based on the assessment in the previous chapters, Japan's financial system has been maintaining stability, and financial intermediation has operated more smoothly than before. The system generally has strong resilience against stresses, equipped with an adequate capital base as well as high risk-taking capacity.

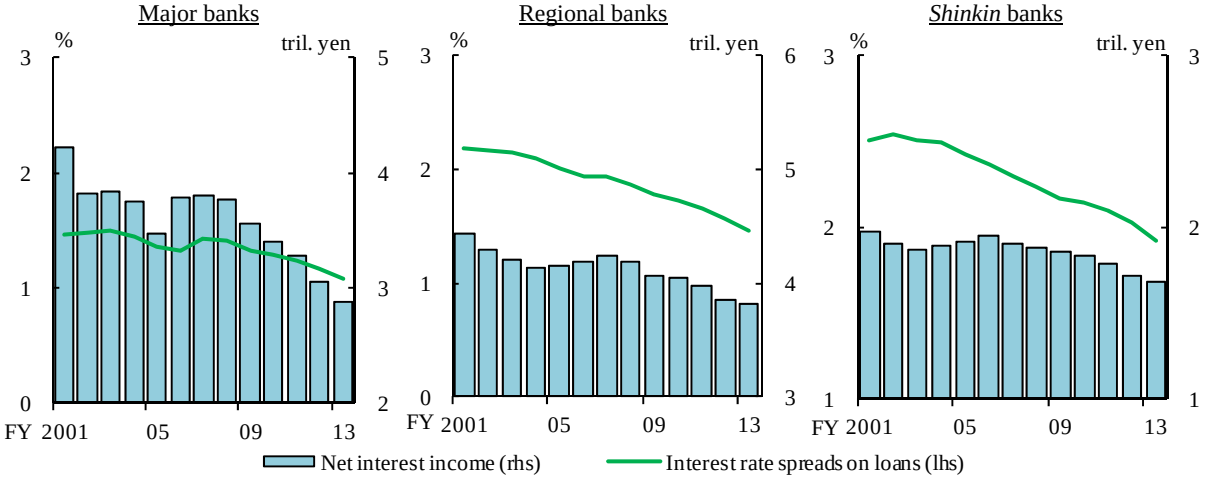
Looking into the future, the following changes are expected to affect the stability and functioning of Japan's financial system.

To begin with, **the financial and economic environment will continue to change constantly both at home and abroad, transforming the financial system's risk profile**. As the on-going globalization of the economy and the transformation of industrial structures being promoted by the government and the private sector -- at both the national and regional levels -- progress further, the financial intermediation function of and risks borne by the financial system will change both in terms of quality and quantity. Japan's growth potential and the future course of its economic and price developments will affect financial institutions' investment stance and performance in securities investment through interest rates and stock prices. Recently, search for yields by investors in the global financial markets has been increasingly notable, and its effects are likely to spread to Japanese markets through various channels, depending on future developments.

In this situation, **the narrowing trend in financial institutions' interest rate spreads on domestic loans and the declining trend in their profitability are expected to continue for the time being** (Chart VII-1-1). The profit environment, particularly for regional financial institutions, has generally been severe. On their balance sheet, the deposit surplus -- in which the amount of deposits largely exceeds that of loans -- continues to be observed (Chart VII-1-2). These are macroeconomic developments that have taken root during the protracted period of economic stagnation and deflation. No significant change has been observed so far, although the economy has recently been recovering moderately. These problems are expected to be eventually resolved, as Japan further raises its growth potential. As seen in Chapter VI, a rise in interest rates reflecting economic improvement leads to an improvement in interest rate spreads on loans and net interest income. On the other hand, if the decline in financial institutions' profitability is prolonged further, it could constrain their capacity to absorb losses and to take risks, and in the medium term could adversely affect the stability and functioning

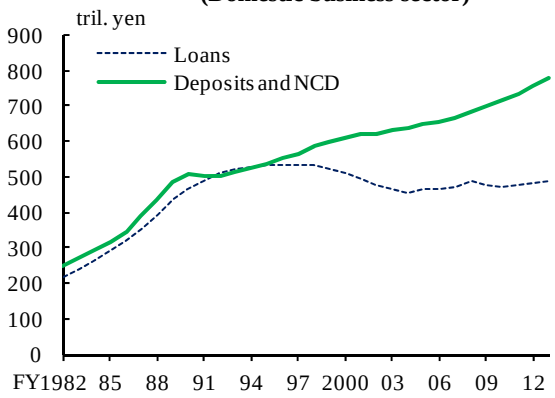
of the financial system.[63]

Chart VII-1-1: Interest rate spreads on loans and net interest income by type of bank (Domestic business sector)[1]



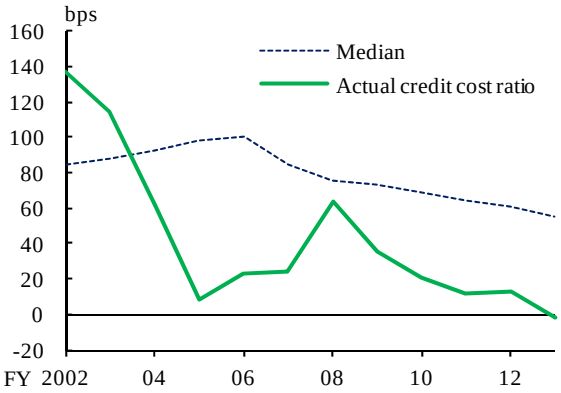
Note: *1*. Interest rate spreads on loans = loan interest rate – funding rate.
Source: BOJ.

Chart VII-1-2: Loan-to-deposit difference among financial institutions (Domestic business sector)[1,2]



Notes: *1*. The latest data are as of end-March 2014. Banks and *shinkin* banks are counted.
2. The data are based on the amount outstanding at month-end.
Source: BOJ.

Chart VII-1-3: Break-even credit cost ratio among financial institutions[1,2]



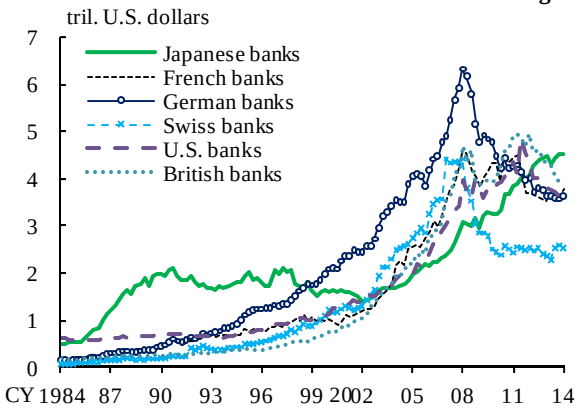
Notes: *1*. Banks and *shinkin* banks are counted. Break-even credit cost ratio is calculated on existing-bank and *shinkin* bank basis (Major banks that have merged after 2002 are not counted).
2. Break-even credit cost ratios are the ratios above which credit costs exceed operating profits from core business. Profits from core business for fiscal 2012 and fiscal 2013 are calculated without profits due to cancellations of investment trusts.
Source: BOJ.

Moreover, **Japan's financial system has been strengthening its overseas connections through an expansion of overseas operations by Japanese financial institutions and**

[63] The break-even credit cost ratio (the level of the credit cost ratio at which credit costs and operating profits from core business are equivalent), an indicator of financial institutions' capacity to absorb losses, has declined for 7 consecutive years (Chart VII-1-3).

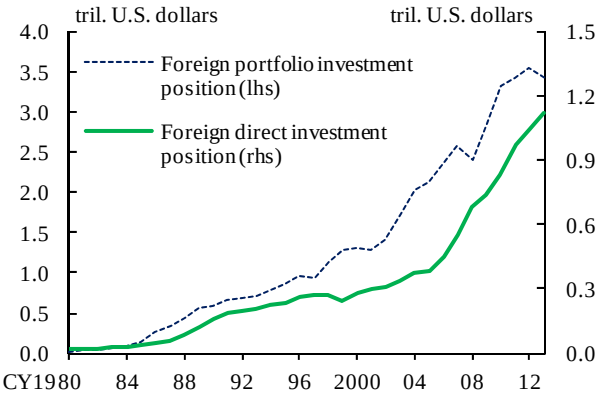
an increase in cross-border capital flows by domestic and foreign investors (Charts VII-1-4 to VII-1-6). These developments contribute to improving the efficiency of fund allocation and strengthening the financial system's resilience against financial and economic shocks that occur in Japan. At the same time, they play a part in raising the likelihood of shocks originating overseas spilling over to Japan. The routes and ranges through which cross-border shocks propagate have become complex. At present, the Financial Stability Board (FSB) and the Basel Committee on Banking Supervision (BCBS) in particular are proceeding with international regulatory reforms to enhance the robustness of the global financial system, while authorities are moving forward with structural reforms of the banking sector and the development of resolution system. With these changes in the regulatory environment, business models and risk profiles of internationally active banks as well as the functions and structure of the global financial system will undergo a significant transformation in the future. Such changes abroad will also have effects on Japan's financial system.

Chart VII-1-4: International comparison of cross-border claims outstanding[1]



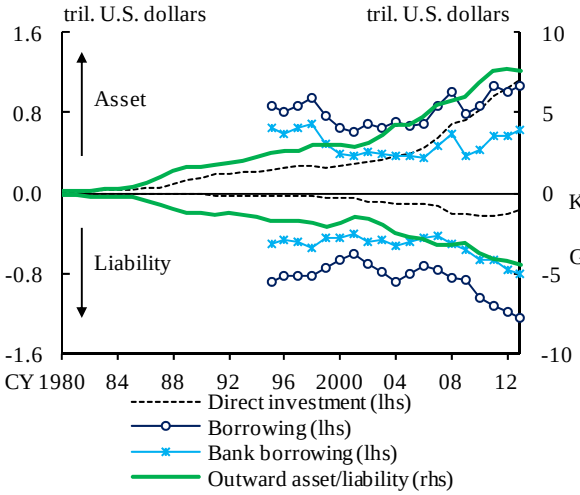
Note: *1*. The latest data are as of end-March 2014. The data are aggregated by nationality basis. In addition to cross border claims, the figures include local positions in foreign currency and inter-office position.
Source: BIS, "Locational banking statistics."

Chart VII-1-5: Foreign direct and portfolio investment[1]



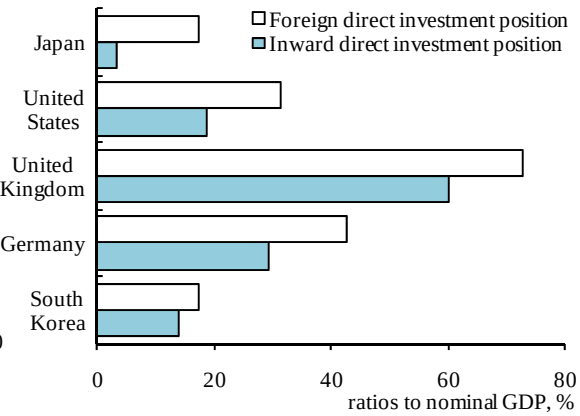
Note: *1*. The latest data are as of end-December 2013.
Source: Ministry of Finance, "International investment position."

Chart VII-1-6: Outward asset and liability[1,2]



Notes: *1*. The latest data are as of end-December 2013.
2. "Borrowing" includes "Bank borrowing."
Source: Ministry of Finance, "International investment position."

Chart VII-1-7: Foreign and inward direct investment positions[1]



Note: *1*. The data are as of 2012.
Source: OECD.

Management challenges for financial institutions

Based on the above considerations and from the viewpoint of ensuring financial stability in the future, the following three points can be raised as key management challenges for financial institutions. How they tackle these challenges will serve as a key factor for determining financial institutions' future soundness and profitability.

The first challenge is the enhancement of the financial intermediation function and the strengthening of financial tools as well as risk management to make this possible. Financial institutions are expected to respond to a growing demand for funds associated with economic recovery as well as to contribute to enhancing the vitality of national and regional industries. Activities such as investments and loans in growing businesses, private finance initiatives (PFIs) and public-private partnerships (PPPs), financial support for business reconstruction of large firms or the revitalization of small and medium-sized firms, and the spurring of industrial restructuring, will enhance the profitability of and improve the quality of financial institutions' assets in the medium term. However, during the process of pursuing these goals, new business risks in growth sectors could materialize, and costs of business support could increase. Therefore, in order to promote these efforts vigorously, financial institutions need to improve their financial tools and capacity to support businesses, and need to assess and manage these risks and costs in an appropriate manner.

Japan's economy faces a declining and aging population, whose effects on regional

economies are particularly evident. However, even in regional economies, there exist (1) some industries that will grow in an aging society, such as health care, welfare, and other services, and (2) some industries, besides manufacturing, which could grow by meeting demand arising outside the country or region, such as tourism, agriculture, and environment and energy. There also exist (3) some sectors that could create new business opportunities for the private sector, such as the renewal and rebuilding of public infrastructures. Financial institutions can contribute to enhancing the vitality of regional industries by helping these sectors grow or by realizing the reallocation of resources. If these efforts bear fruit, they will lead to increased profitability of regional financial institutions in the long run.

The second challenge is the securing of a stable foreign-currency funding base and the strengthening of credit management and other functions in step with expanding overseas operations. Financial institutions are expanding their overseas operations with a view to supporting global operations of Japanese firms and meeting local financial needs. Their overseas loans and foreign-currency impact loans have continued high growth (Chart III-1-21). Major banks are also acquiring overseas financial service-providers. As the globalization of Japan's economy is still less advanced than that of other countries, Japanese firms' expansion of overseas operations and the associated increase in financial needs are expected to continue (Chart VII-1-7). Given the high share of market funding for foreign-currency funds, financial institutions must appropriately manage foreign-currency liquidity risks, including local currencies, and secure a stable funding base to enable them to deal with growing business operations in the future. At the same time, in assessing borrowers' business risks, analysis must be undertaken from a broad perspective, taking into account differences in systems and infrastructure among countries as well as their country risks. Since Japanese banks are focusing on expanding their operations particularly in emerging economies such as Asia, they need to strengthen their capacity to manage credit and business risks overseas.

At the same time, large financial institutions that conduct business operations globally need to attain higher levels of soundness and business management, including appropriate responses to international regulatory reforms. Given their large presence in financial intermediation at home and domestic markets, their overseas linkages through international operations, and the strength of their interconnectedness, large financial institutions have a significant impact on the stability and functioning of the financial system as a whole. While appropriately responding to structural changes in the international regulatory environment and in the global financial system, these

institutions need to secure a robust financial base and build resilience against stresses, in terms of capital and funding liquidity. This will enable them to ensure the stability of their business operations in the midst of rapidly changing financial and economic conditions at home and abroad, and in various stress situations.

The third challenge is the establishment of clear guidelines for asset-liability management (ALM) and the execution of appropriate risk taking as well as management. Since the deposit surplus situation is likely to continue for some time, securities investment will continue to hold great significance in the ALM. As economic and price conditions have improved moderately since 2013, financial institutions have been reviewing their risk balance by, for example, limiting the buildup of interest rate risks and increasing investment in investment trusts and foreign securities. Nevertheless, yen-denominated bonds continue to hold the central position in financial institutions' securities investment, and risk associated with yen interest rates is still at a high level compared with past ones, although it has declined from its level that prevailed before the spring of 2013. Also, there are large variations in risk-taking behaviors among individual financial institutions. Furthermore, the possibility remains that market risk associated with strategic stockholdings may considerably affect financial institutions' financial conditions.

Financial institutions need to establish clear guidelines on securities investment and on interest rate risk management while taking into account their own balance sheets as well as their perceptions of interest rates and business conditions, and to examine on a corporate-wide basis the impact of the guidelines on their financial positions as well as their policy on practical responses under various scenarios. It would also be useful to examine the ALM from a broad perspective, including the outstanding amounts of loans and deposits, their composition and interest rates, the optimal form of strategic stock investment, and the absorption of funds by financial products other than deposits. In the long run, the kinds of options or financial products to offer for customers' asset formation in response to the continued decline in and aging of the population is an important issue, from financial institutions' ALM perspective.

Actions by the Bank of Japan

The Bank will deepen dialogue with financial institutions through daily off-site monitoring and on-site examinations, particularly on their actions to deal with the challenges described above as well as their profitability, while encouraging them to improve their business and risk management. It will also exchange views with financial

institutions on the actual situation surrounding national and regional industries as well as firms, challenges toward enhancing their vitality, and on possible actions from the financial side. Furthermore, it will promote the sharing of awareness of issues and knowhow by holding seminars on themes that contribute to enhancing the functioning of financial intermediation and risk management.

In order to ensure the stability of the financial system as a whole, the Bank will continue to examine the stability and functioning of the system from a macroprudential perspective, which includes the accumulation and biased distribution of macroeconomic risks as well as their resolution, the feedback loop between the financial system and the macroeconomy, the system's linkages to the global financial system, the accumulation and concentrated unwinding of risks in markets, and the interconnectedness of large financial institutions. Based on the examination, as necessary, it will work to share a common understanding and to hold discussions with a wide range of participants in the financial system on matters including where risks lie, what issues to tackle, and how to respond appropriately to given circumstances.

Annex: Glossary

Financial statements of financial institutions

Net income = operating profits from core business + realized gains/losses on stockholdings + realized gains/losses on bondholdings – credit costs ± others (such as extraordinary gains/losses)

Operating profits from core business = net interest income + net non-interest income – general and administrative expenses

Net interest income = interest income – interest expenses

Net non-interest income = net fees and commissions + profits on specified transactions + other operating profits – realized gains/losses on bondholdings

Overall gains/losses on stockholdings = realized gains/losses on stockholdings + changes in unrealized gains/losses on stockholdings

Realized gains/losses on stockholdings = gains on sales of stocks – losses on sales of stocks – losses on devaluation of stocks

Overall gains/losses on bondholdings = realized gains/losses on bondholdings + changes in unrealized gains/losses on bondholdings

Realized gains/losses on bondholdings = gains on sales of bonds + gains on redemption of bonds – losses on sales of bonds – losses on redemption of bonds – losses on devaluation of bonds

Credit costs = loan-loss provisions + write-offs + losses on credit sales – recoveries of write-offs

Credit cost ratio = credit costs / total loans outstanding

Capital adequacy ratios of internationally active banks

Common equity Tier I (CET I) capital ratio = CET I capital / risky assets

CET I capital comprises common equities and retained earnings.

Risky assets are financial institutions' risk-weighted assets.

Tier I capital ratio = Tier I capital / risky assets

Tier I capital includes CET I capital and equities such as preferred equities that meet certain conditions.

Total capital adequacy ratio = Total capital / risky assets

Total capital includes Tier I capital and subordinated bonds that meet certain conditions.

Capital adequacy ratios of domestic banks

Core capital ratio = core capital / risky assets

Core capital includes common equities and retained earnings as well as equities such as preferred equities that meet certain conditions.

Risky assets are financial institutions' risk-weighted assets.