Financial System Report

Summary

October 2015

Bank of Japan

Features of this *Financial System Report*

1: Assessment of developments

(Comprehensive assessment)

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

(Major developments since the previous *Report*)

Risks observed in financial markets (Chapter 3)

- From summer 2015, volatility rose in global financial markets amid growing concern about a slowdown in emerging economies, including Asia.
- Attention should be paid as to whether the heightening of market participants' concern over the development of the world economy will affect the risk appetite of global investors and global capital flows.

Functioning of the financial system (Chapter 4)

- Financial institutions (FIs: banks and *shinkin* banks) took more risks in:
  -- lending at home and abroad (M&A, real estate etc.);
  -- market exposures (investment trusts etc.)
- Households and institutional investors gradually shifted from safe assets to risky assets.
- Financing conditions among firms and households became more accommodative:
  -- their funding costs exhibited a downward trend;
  -- lending attitudes of FIs to them became more accommodative;
  -- firms' financial positions improved.

Features of this *Financial System Report*

1: Assessment of developments

Stability of the financial system (Chapter 5 and 6):

(1) Macro risk profiles and financial bases of FIs

- Credit risk: increased somewhat (has been subdued).
- Market risk: largely unchanged (recently increased).

vs.

- Capital: increased.
- The stability gap of foreign-currency funding: started to narrow.

→ **<u>A fine balance has continued to be kept between FIs' macro risks and their financial bases</u>.**

(2) Macro risk indicators

- Signals from the heat map are unchanged: the real estate firm investment to GDP ratio in "red"; the other 13 indicators in "green".
- A comprehensive look at a wide spectrum of information suggests that the real estate market currently shows no signs of overheating on the whole.

→ **<u>Signs of financial imbalances such as indications of overheating or excessively bullish expectations have not been observed</u>.**

(3) Macro stress testing: two scenarios

(Tail event) FIs' capital adequacy ratios would be maintained above regulatory levels on average, even if economic conditions would deteriorate to a level comparable to the Lehman shock.

(Tailored event) The risk that a slowdown in Asian economies would threaten the stability is considered to be limited.

→ **<u>Japan’s financial system generally has strong resilience against various stresses</u>.**

Features of this *Financial System Report*
2: Challenges in ensuring financial stability

- FIs' macro risks have generally been restrained, largely attributable to the benign financial conditions.

- The slowdown in emerging economies and the rise in volatility in global financial markets since summer 2015 may affect Japan's FIs, in case of a further worsening of the market conditions.

→ **<u>FIs need to strengthen their ability to respond to risks in areas in which they are actively enhancing their risk-taking stance. The two key areas are:</u>**

(1) overseas operations;

-- manage credit and foreign currency funding risks

(2) market investment.

-- understand the profile of complicated risks and manage those risks

- Moreover, two structural issues discussed in previous *Reports* have been unchanged.

(3) the increased systemic importance of large FIs

(4) the decline in core profitability among regional FIs

→ **<u>The Bank will continue to tackle these issues particularly through its off-site monitoring and on-site examinations.</u>**

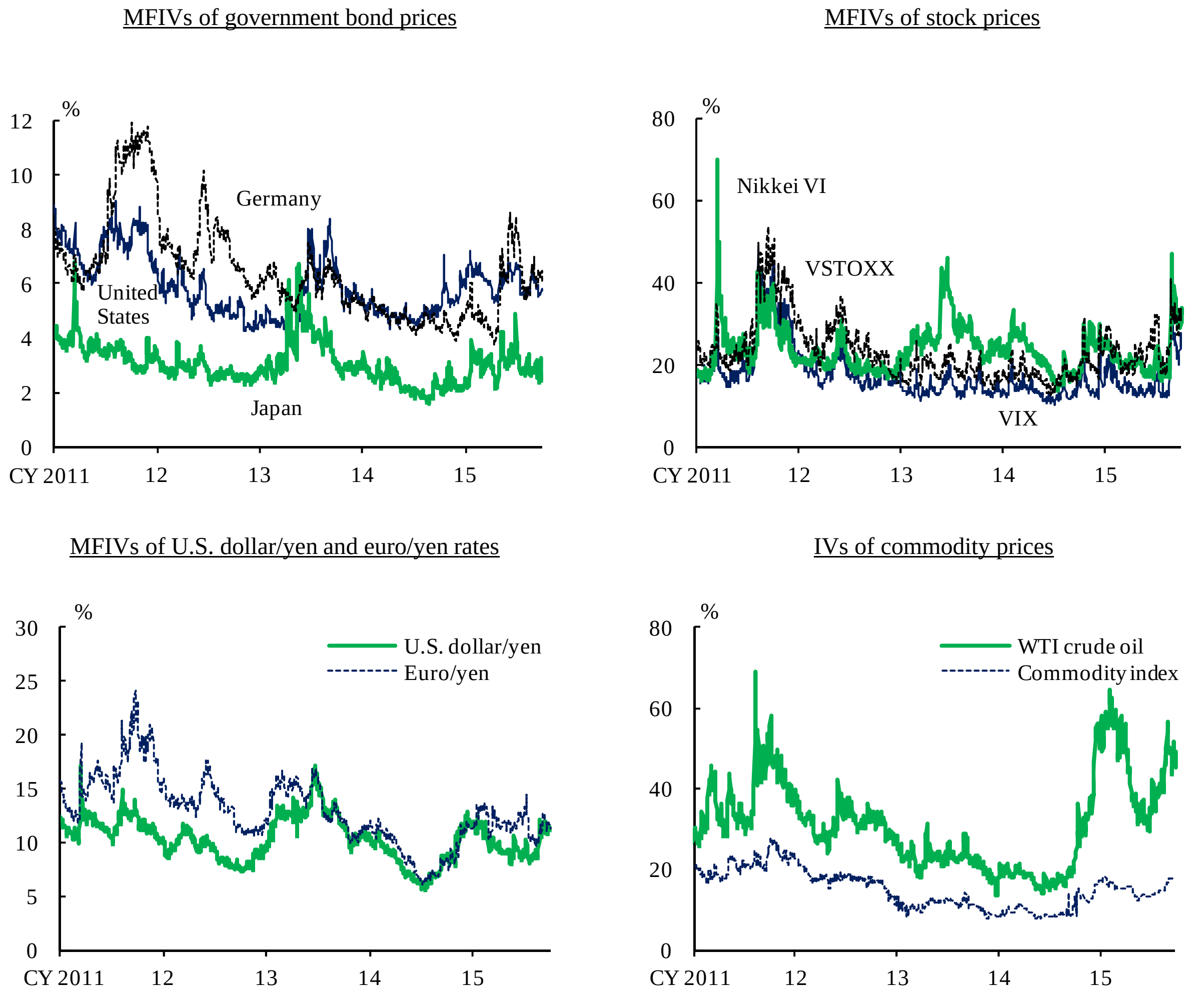
-- Policies are set out in Chapter VII of the April 2015 *Report*.

III. Risks observed in financial markets

1. Global financial markets (1)

➢ Global financial markets showed signs of nervousness after the summer, such as stock prices edging down with volatility due to growing concerns over prospects for the emerging economies.

Chart III-1-1: Volatility in global financial markets



Sources: Bloomberg; BOJ.

➢ Attention should be paid as to whether the heightening of market participants' concern over the development of the world economy, particularly for the emerging economies, as well as the impact of the monetary policy of advanced economies on global financial markets, will affect the risk appetite of global investors and global capital flows.

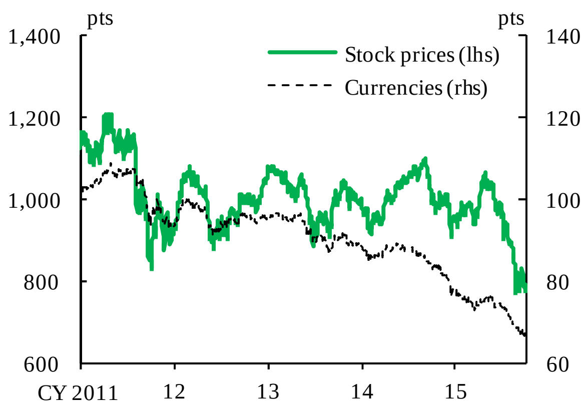
III. Risks observed in financial markets

1. Global financial markets (2)

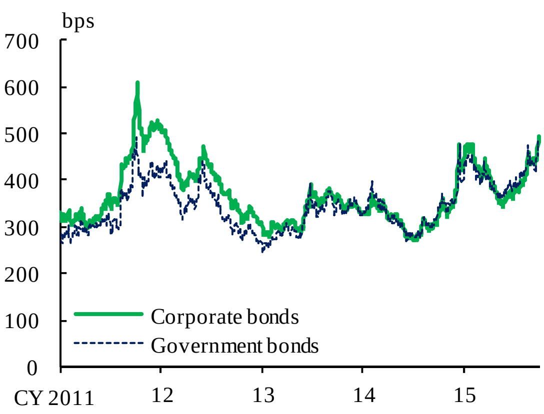
➢ In the emerging markets, the rate of decline for currencies and stock prices accelerated and credit spreads widened.

Chart III-1-2: Developments in emerging markets

Stock prices and currencies



Spreads between emerging market bonds and U.S. Treasuries

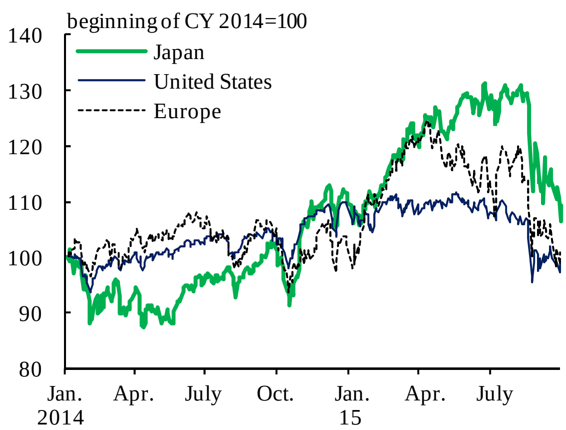


Source: Bloomberg.

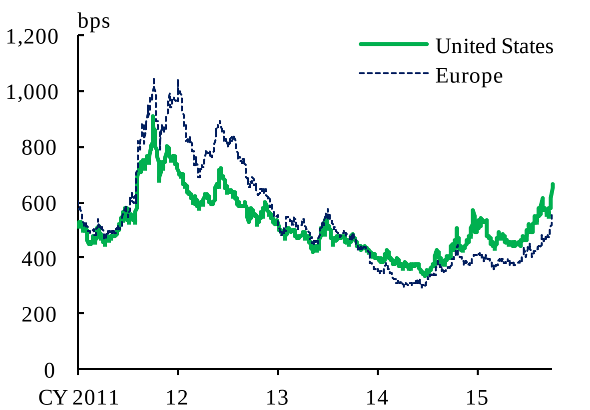
➢ In the advanced markets, stock prices also declined and credit spreads on corporate bonds, especially for high-yield bonds widened as well.

Chart III-1-3: Developments in advanced markets

Stock prices



Spreads between high-yield bonds and government bonds



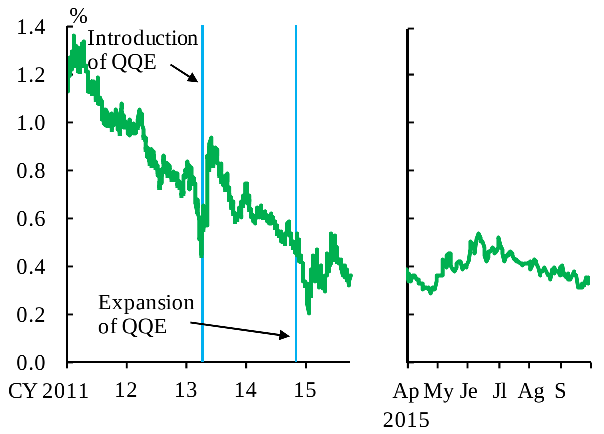
Source: Bloomberg.

III. Risks observed in financial markets

2. Japanese financial markets (1)

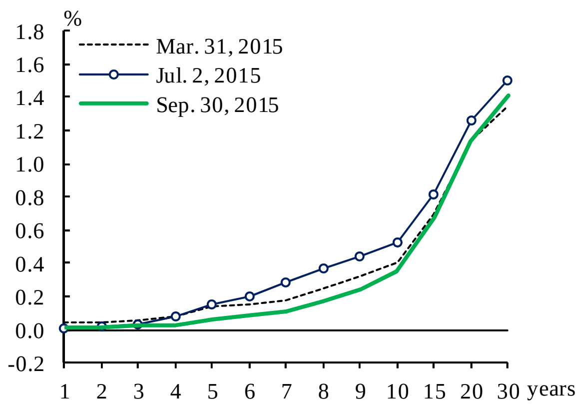
- Long-term JGB yields rose somewhat toward the summer, and declined thereafter.
- The volatility of government bond prices remained at a slightly high level toward the summer and declined moderately thereafter.

Chart III-2-1: Long-term JGB yields



Source: Bloomberg.

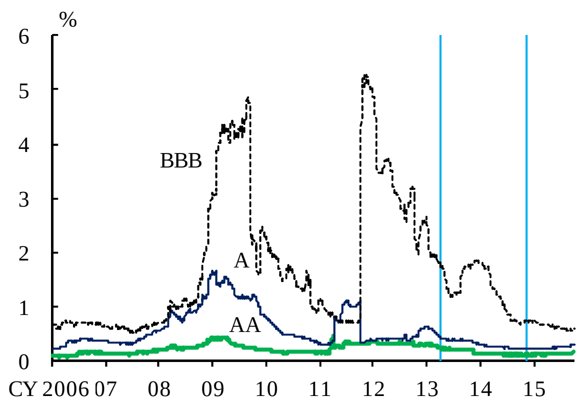
Chart III-2-2: Changes in the JGB yield curve



Source: Bloomberg.

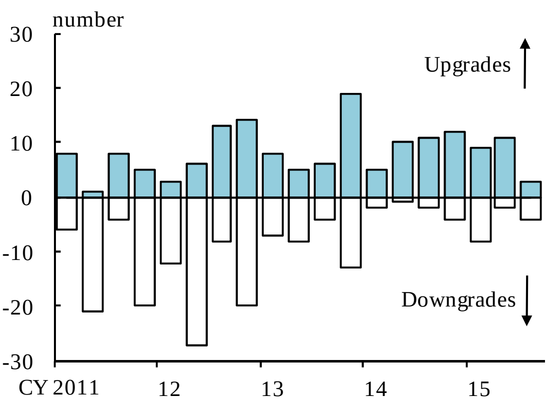
- Credit spreads on corporate bonds continued to be at low levels as a whole, although spreads on some issues have remained at a high level due to idiosyncratic factors.
- The market assessment of firms' creditworthiness has improved.

Chart III-2-12: Yield spreads between corporate bonds and JGBs



Source: Japan Securities Dealers Association.

Chart III-2-13: Developments in long-term credit ratings



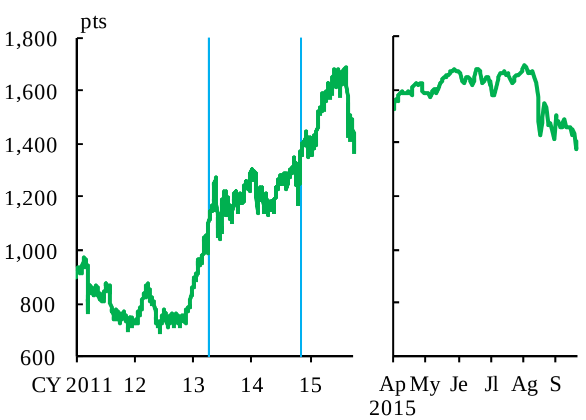
Source: Bloomberg.

III. Risks observed in financial markets

2. Japanese financial markets (2)

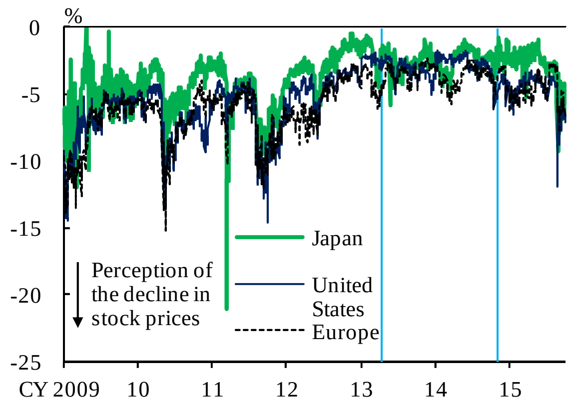
- Japanese stock prices followed a moderate rising trend toward the summer and declined rather substantially thereafter. Volatility in the stock market has risen since the summer. Risk reversals show that market participants temporarily showed a rapid increase in vigilance against the risk of declining stock prices.

Chart III-2-16: Stock prices (TOPIX)



Source: Bloomberg.

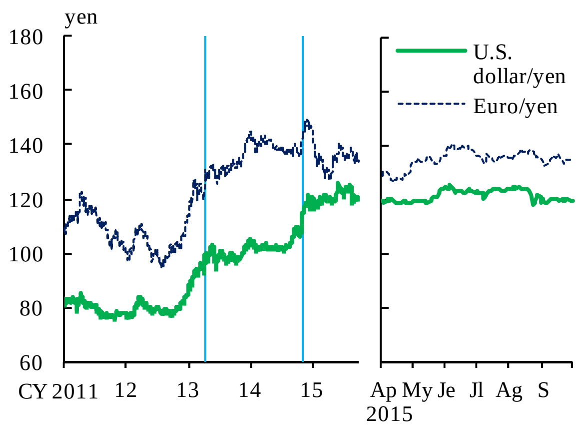
Chart III-2-17: Risk reversals of stock prices



Sources: Bloomberg; BOJ.

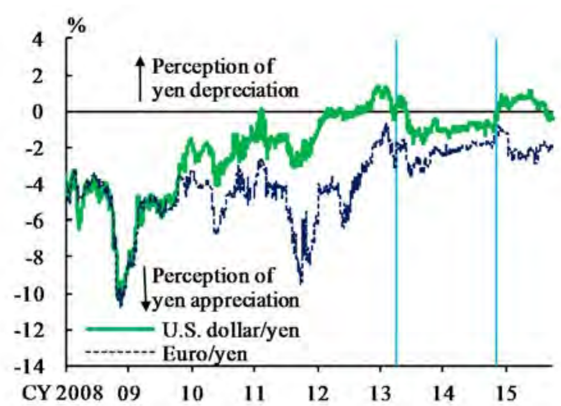
- The yen depreciated moderately against the U.S. dollar toward the summer, but recently the yen has appreciated somewhat. The volatility of the yen's exchange rates has been rising somewhat since summer. Looking at risk reversals, a slight concern over appreciation of the yen against the dollar has been observed after the summer.

Chart III-2-21: Foreign exchange rates



Source: Bloomberg.

Chart III-2-22: Risk reversals of U.S. dollar/yen and euro/yen rates



Source: Bloomberg.

IV. Examination of financial intermediation 1. Domestic loans (1)

- The growth rate of FIs' domestic loans outstanding has been largely unchanged from the level observed at the time of the previous *Report*.
- Loan growth among FIs has been led by loans to firms. The increase in the outstanding amount of lending has been spreading across small firms and among various industries and regions.

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

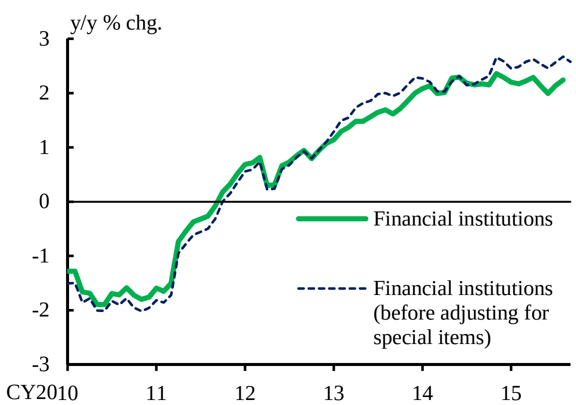
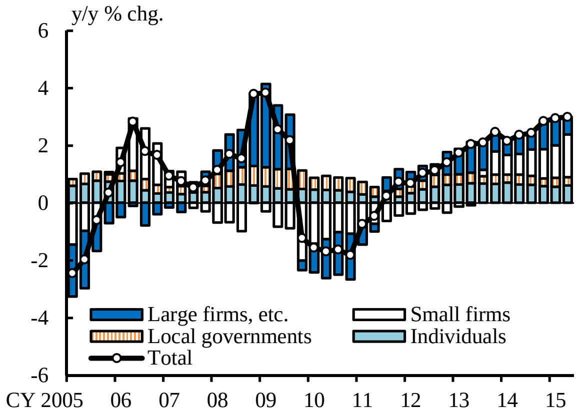
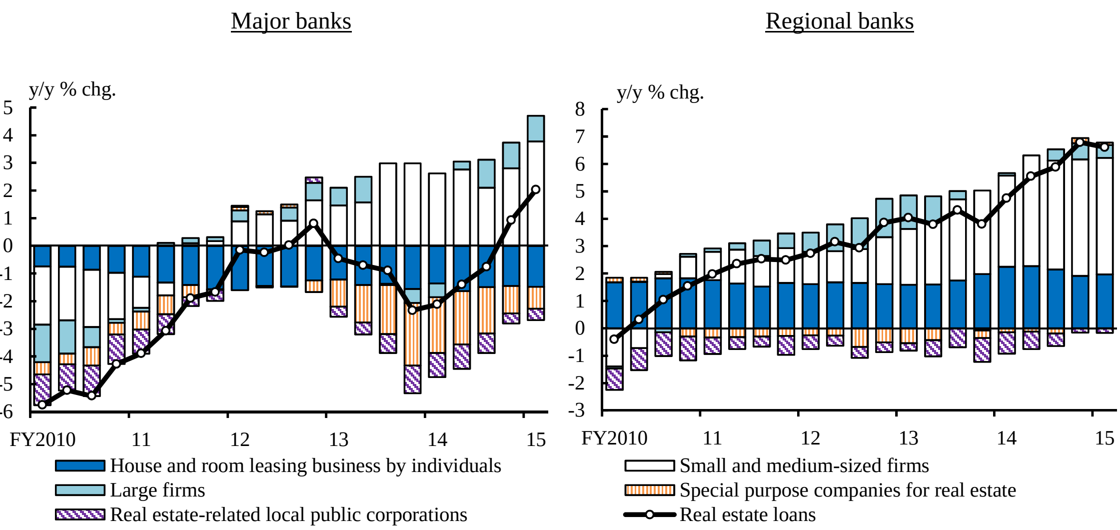


Chart IV-1-7: Loans outstanding among financial institutions by type of borrower



- Regarding real estate loans, the increase in loans by major banks is mainly attributable to the increase in loans to large real estate developers and to J-REITs (statistically defined as small and medium-sized firms).
- Among regional FIs, loans to small firms in the housing rental business, i.e., asset management companies founded by individuals and local real estate companies, have been growing at a faster pace.

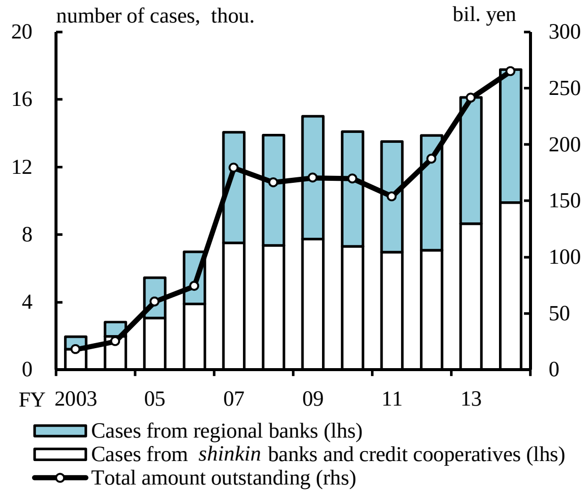
Chart IV-1-13: Real estate loans by type of bank



IV. Examination of financial intermediation 1. Domestic loans (2)

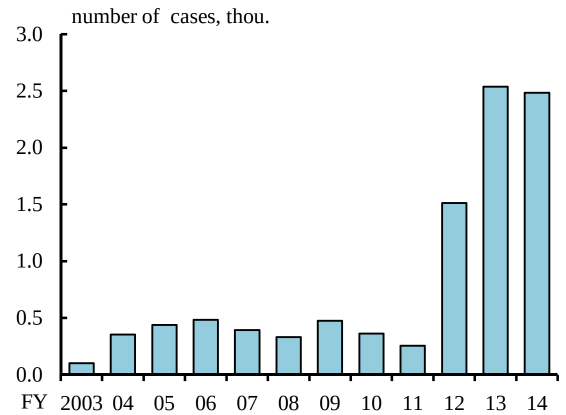
➢ FIs have been steadily proceeding with efforts toward increasing industrial vitality, as major banks have been providing support for the business reconstruction of large firms, and FIs including regional institutions have been taking part in the improvement of business management among small firms and the fostering of growing businesses.

Chart IV-1-15: Loans for start-ups and new projects



Sources: Community Bank Shinyo Kumiai; Financial Services Agency; National Association of Shinkin Banks; Regional Banks Association of Japan; Second Association of Regional Banks.

Chart IV-1-16: Number of completed business revitalization support projects by small and medium enterprise revitalization support councils



Source: Small and Medium Enterprise Agency.

➢ Loans by FIs utilizing the Bank of Japan's Stimulating Bank Lending Facility have also been increasing.

Chart IV-1-17: BOJ's loan support program

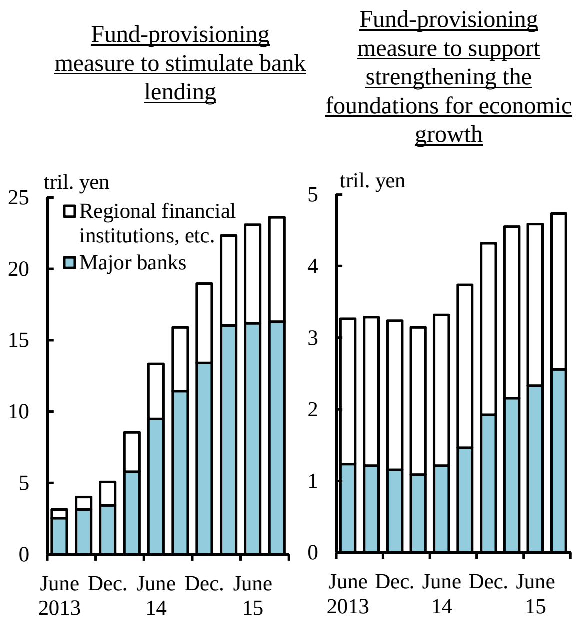
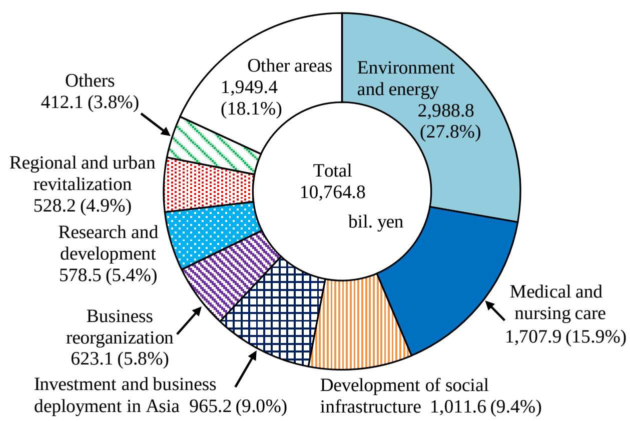


Chart IV-1-18: BOJ's loan disbursements under the fund-provisioning measure to support strengthening the foundations for economic growth by area



IV. Examination of financial intermediation 2. Overseas loans (1)

- Banks' overseas loans have continued to show relatively high growth.
- By region, those to Europe have remained relatively weak and the pace of growth in loans to Asia, which had been high, has slowed due to the deceleration of local economies.

Chart IV-1-21: Banks' foreign currency-denominated loans and loans of overseas branches

Loan amounts outstanding (U.S. dollar basis and yen basis)

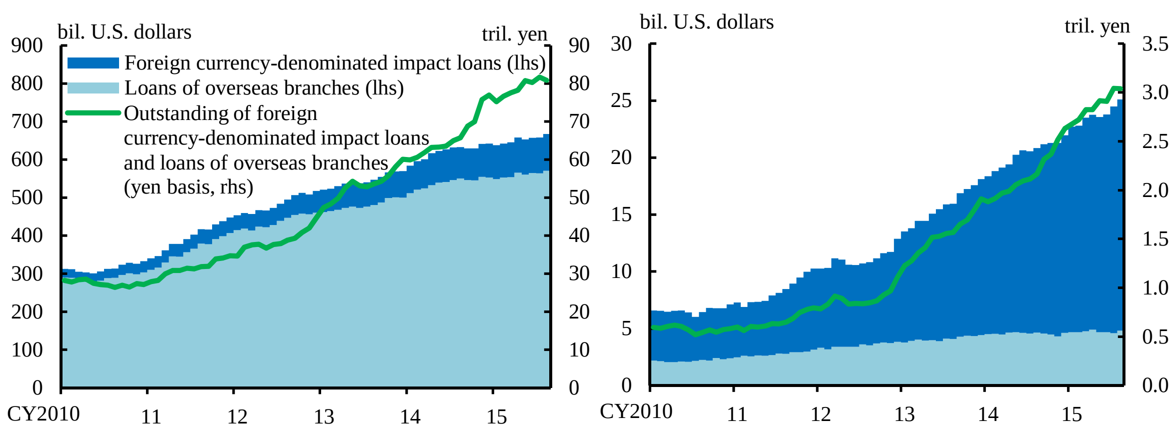
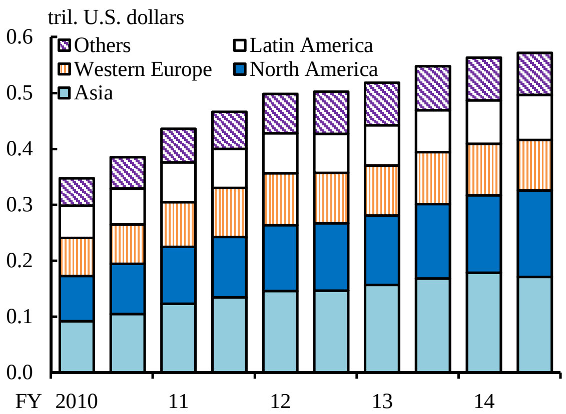


Chart IV-1-22: Overseas loans outstanding of three major banks by region



Sources: Published accounts of each bank.

IV. Examination of financial intermediation 2. Overseas loans (2)

- Banks have maintained their strong interest in expanding overseas lending to support the global expansion of Japanese firms and to capture the financial needs in countries with high growth potential.
- In Asia, although the pace of growth in lending has slowed, banks have also worked to expand their overseas network and bolster their local supply of financial services by acquiring and investing in foreign banks and other FIs.

Chart IV-1-25: Recent major overseas acquisitions and opening of new branches by major banks

	Time of announcement	Country	Outline
Mizuho Bank	Feb. 2015	United States	Acquisition of North American Asset Portfolio from RBS
	July 2015	Austria	Opening of Vienna Branch
	Aug. 2015	Myanmar	Opening of Yangon Branch
The Bank of Tokyo-Mitsubishi UFJ	Feb. 2014	United States	Integration of BTMU's U.S. branch banking operations with Union Bank
	Apr. 2014	India	Opening of Bangalore Branch
	June 2014	China	Opening of Suzhou Branch
	Jan. 2015	Thailand	Integration of Bangkok Branch with Bank of Ayudhya
	Apr. 2015	Myanmar	Opening of Yangon Branch
	June 2015	Canada	Opening of Calgary Branch
	July 2015	China	Approval for Opening a Branch in Fuzhou
	July 2015	Dubai	Approval for Commence an Islamic Finance Business at Dubai Branch
Sumitomo Mitsui Banking Corporation	Jan. 2014	Ireland	Opening of Dublin Branch
	Mar. 2014	Indonesia	Additional Share Purchase of PT Bank Tabungan Pensiunan Nasional Tbk (BTPN)
	June 2014	Czech	Opening of Prague Branch
	Aug. 2014	Cambodia	Share Purchase of ACLEDA Bank
	Dec. 2014	Spain	Opening of Madrid Branch
	Mar. 2015	Hong Kong	Additional Share Purchase of the Bank of East Asia
	Mar. 2015	Mexico	Establishment of SMBC SOFOM (Finance Company)
	Apr. 2015	Colombia	Share Purchase of Financiera de Desarrollo Nacional S.A.
	Apr. 2015	Myanmar	Opening of Yangon Branch
	June 2015	Europe	Acquisition of European Asset Portfolio from General Electric Group in United States
	July 2015	China	Approval for Opening a Branch in Dalian
	Aug. 2015	Cambodia	Additional Share Purchase of ACLEDA Bank
	Sep. 2015	Philippines	Opening of Manila Branch
Sumitomo Mitsui Trust Bank	Dec. 2014	India	Share Purchase of Reliance Capital
	Sep. 2015	Thailand	Establishment of a Bank Subsidiary in Thailand

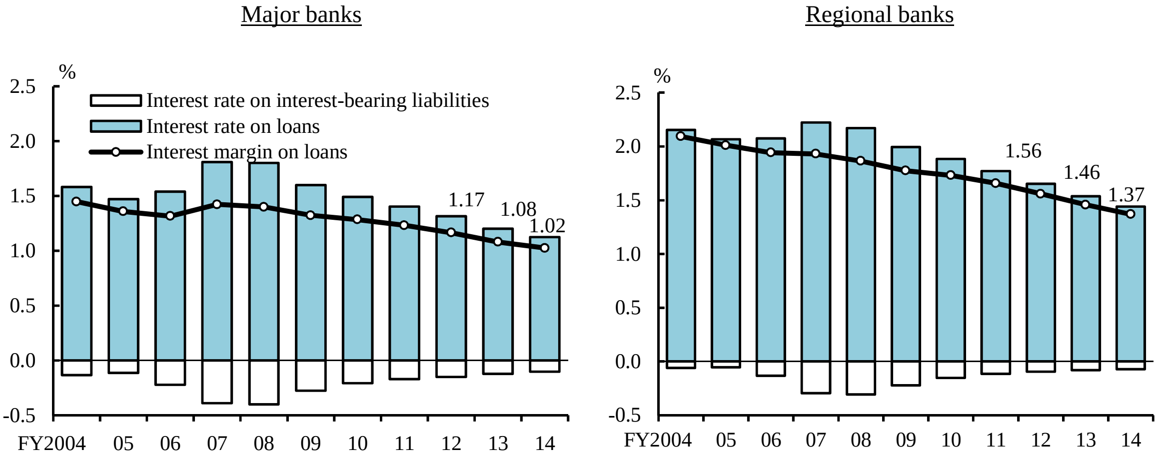
Sources: Disclosures of each bank.

IV. Examination of financial intermediation

3. Interest rate spreads on loans

- The narrowing trend in FIs' interest rate spreads on domestic loans has continued.
- Pressure exerted by the supply of funds remains stronger than that exerted by demand.

Chart IV-1-19: Interest margin on loans in the domestic business sector by type of bank



- The profitability of housing loans continues to decline.
- The pace of decline in lending spreads has exceeded that in credit costs.

Chart V-1-13: Preferential rates on housing loans

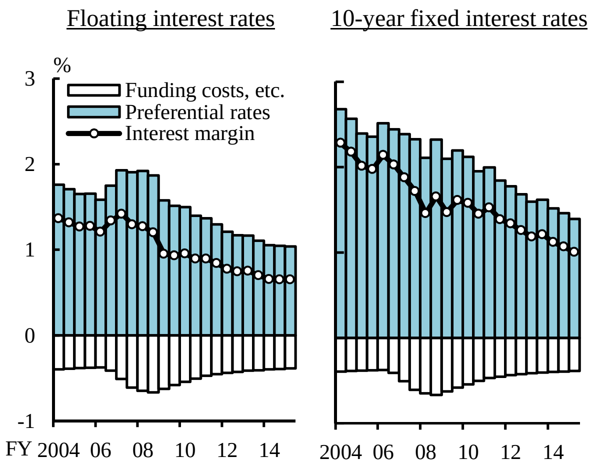
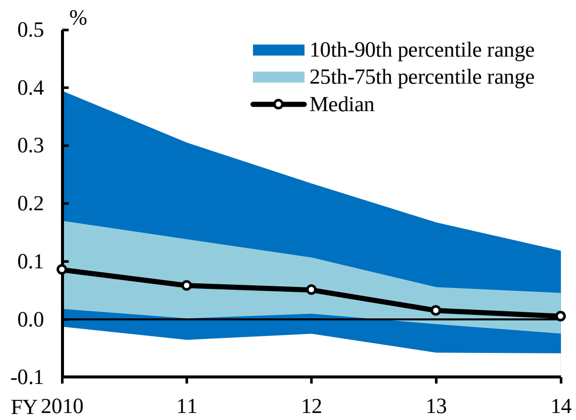


Chart V-1-14: Credit cost ratio of housing loans

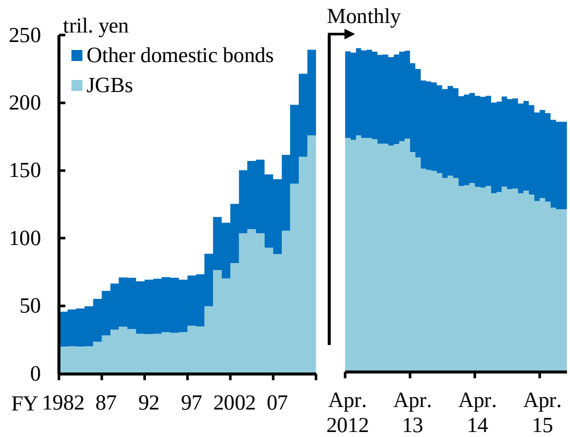


Sources: Japan Financial News, "Nikkin report"; BOJ

IV. Examination of financial intermediation 4. Securities investment (1)

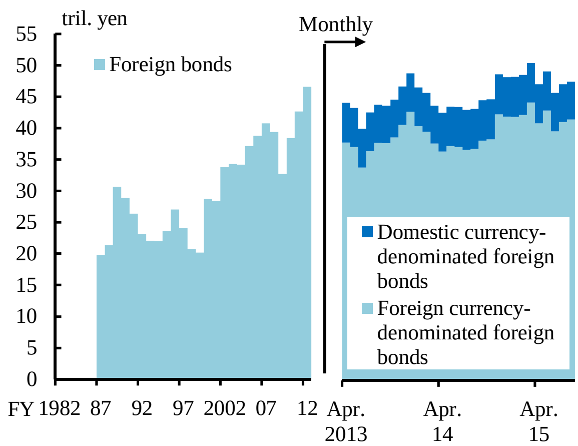
- FIs have gradually been enhancing their risk-taking stance by investing to risky assets further, such as investment trusts, while maintaining a high level of yen-denominated bond investment.
- The outstanding amount of yen-denominated bonds -- including JGBs, municipal bonds, and corporate bonds -- is at a high level from a longer-term perspective, although it has been on a declining trend, particularly at major banks.

Chart IV-1-28: Outstanding amount of yen-denominated bonds among financial institutions



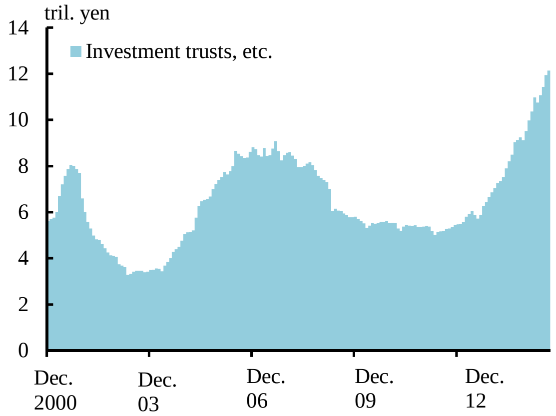
- The outstanding amount of foreign bonds, when converted into yen, has been more or less unchanged, albeit with fluctuations.

Chart IV-1-30: Outstanding amount of foreign bonds among financial institutions



- Investment trusts and other assets have continued to increase.
- Banks continue to further engage themselves in risk taking through investment in various financial assets, for example, stock investment trusts, real estate investment trusts (REITs), and bond ladder funds both at home and abroad.

Chart IV-1-31: Outstanding amount of investment trusts, etc. among financial institutions



- FIs' stockholdings are on a quite moderate downward trend, as they continue to reduce their strategic stockholdings.
- As the Corporate Governance Code came into effect in June 2015, major FIs disclosed their guidelines on strategic stockholdings. These efforts are expected to play a role in improving the soundness of FIs.

Chart IV-1-33: Policy regarding strategic stockholdings published by financial institutions

		Time of announcement	Outline
Major financial institutions	MHFG	June 2015	"As a basic policy, unless we consider these holdings to be meaningful, Mizuho Financial Group, Inc. and our core subsidiaries will not hold the shares of other companies as cross-shareholdings."
	MUFG	July 2015	"MUFG has adopted a basic policy that its Group banks…shall reduce the amount of shares held for the purpose of strategic investment, following sufficient consultation with the relevant corporate business clients."
	SMFG	July 2015	"In principle, SMFG does not hold the shares of other listed companies where 'the rationale' to hold those shares cannot be recognised."

Sources: Published accounts of each group.

➢ FIs have continued to expand their balance sheets and increase risky assets other than JGBs.

Chart IV-1-34: Assets outstanding among financial institutions

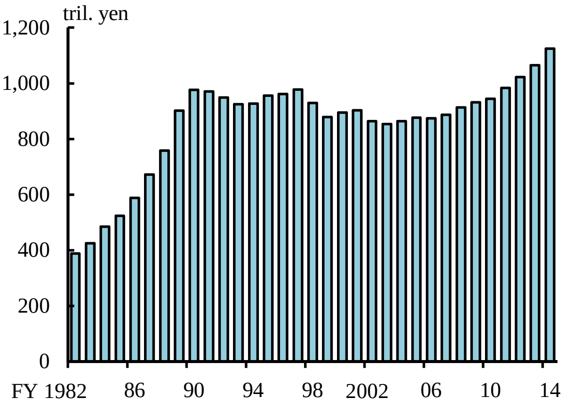
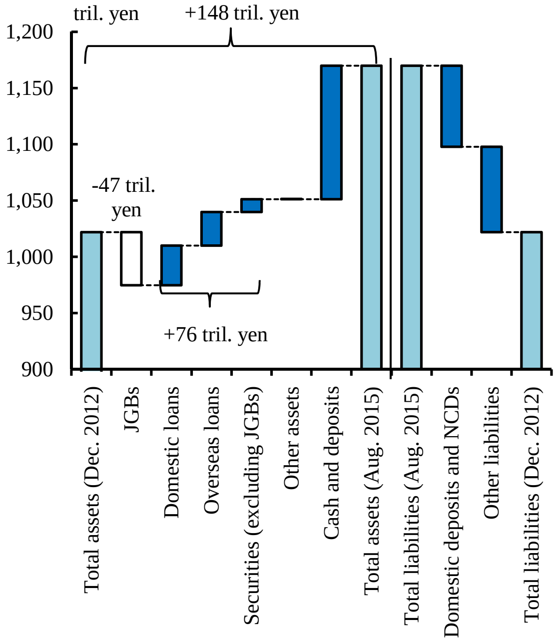


Chart IV-1-36: Changes in assets and liabilities among financial institutions



IV. Examination of financial intermediation

6. Institutional investors and financial markets

- Major institutional investors such as life insurance companies and pension funds, having invested mainly in domestic long-term bonds, have continued to increase their share of investment in risky assets.

Chart IV-2-1: Asset investments among life insurance companies

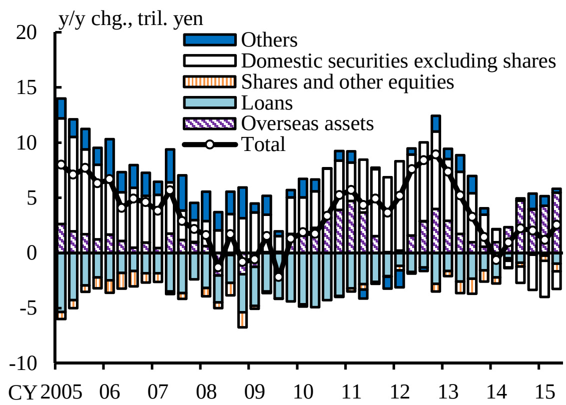
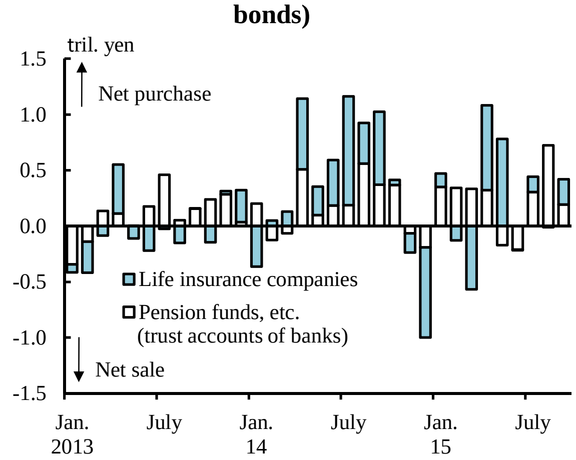


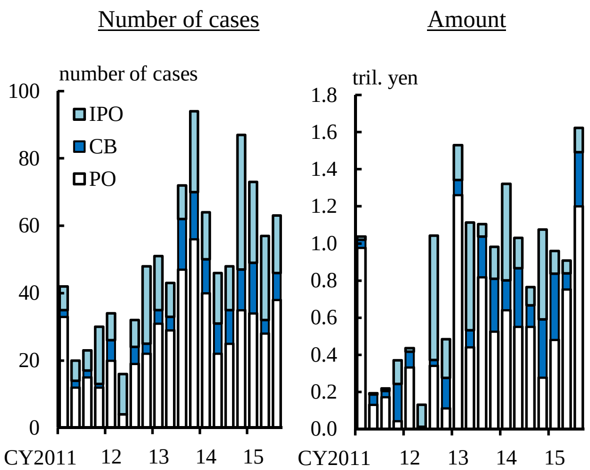
Chart IV-2-3: Outward investment among life insurance companies and pension funds, etc. (medium- and long-term bonds)



Source: Ministry of Finance.

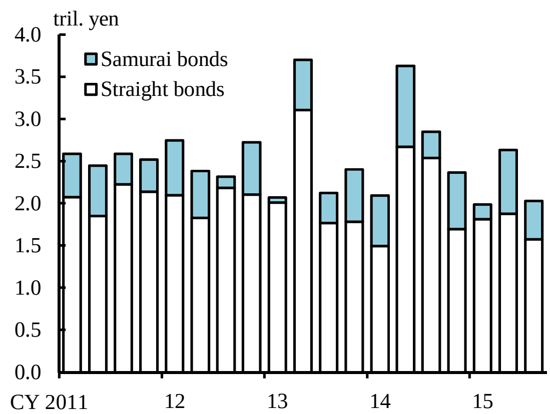
- Equity financing through the stock market remains at a high level.
- Issuing conditions for CP and corporate bonds have continued to be favorable.

Chart IV-3-1: Equity financing



Source: I-N Information Systems.

Chart IV-3-6: Amount of corporate bonds issued



Source: I-N Information Systems.

IV. Examination of financial intermediation

7. Financial conditions among firms and households

➢ Financial conditions among firms and households have become more accommodative.

Chart IV-4-1: DI of lending attitudes of financial institutions as perceived by firms

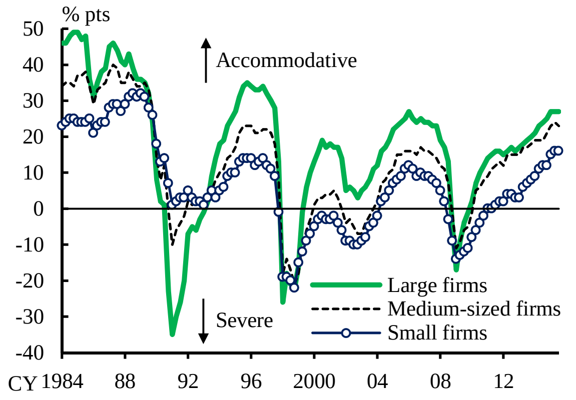


Chart IV-4-2: DI of financial positions of firms

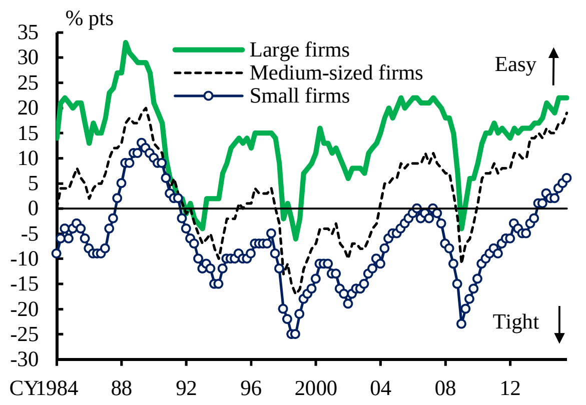
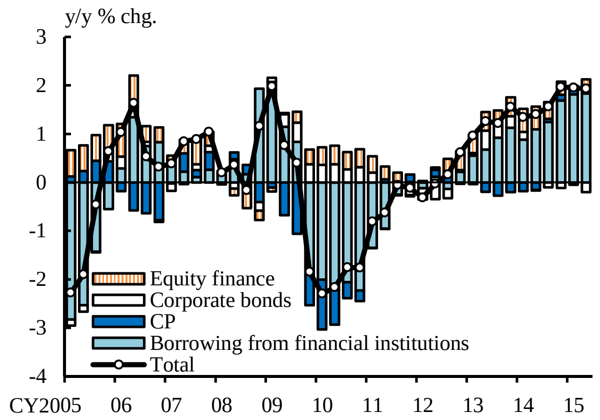


Chart IV-4-3: Total outstanding amount of firm funding



Sources: I-N Information Systems; Japan Securities Dealers Association; Japan Securities Depository Center; BOJ, "Flow of funds accounts," "Loans and bills discounted by sector."

- Deposits have been central to household financial assets.
- However, the share of risky assets in household financial assets has been increasing, as seen in the continued net inflow to investment trusts.

Chart IV-4-4: Risky assets held by households

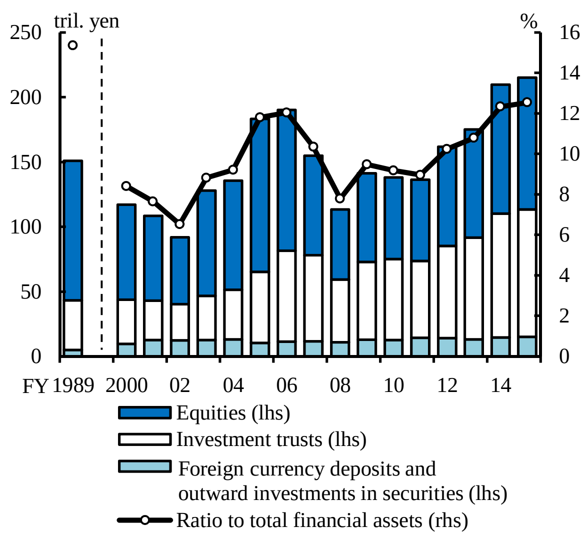


Chart IV-4-5: Client assets held by major securities companies for retail customers

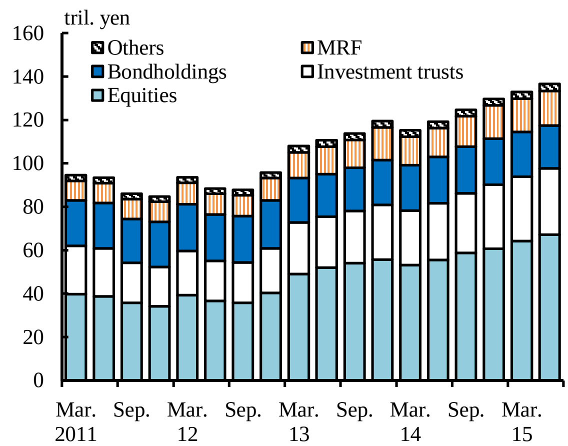


Chart IV-4-9: Purchases through NISA accounts and the number of NISA accounts opened

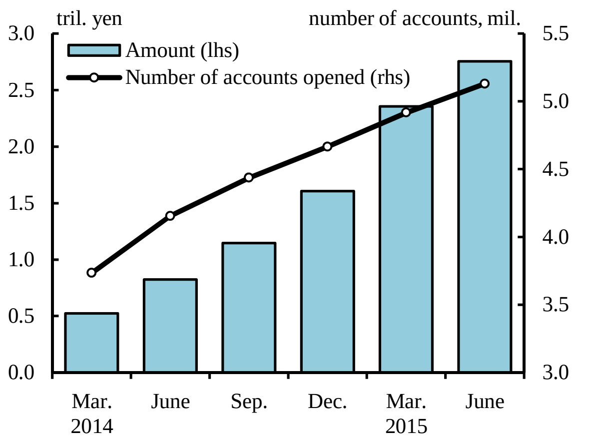
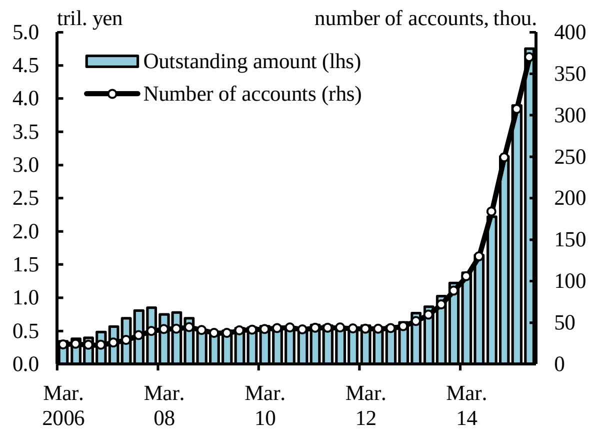


Chart IV-4-10: Assets under management in wrap accounts



Source: Japan Investment Advisers Association.

V. Macro risk profiles and financial bases of financial institutions

1. Credit risk (1)

- FIs' credit risk has increased somewhat from that in the previous *Report* (the first increase in 9 half-year periods, since the first half of 2010).
- Regional banks and *shinkin* banks have continued the trend, characterized by a decline in the amount of credit risk amid an increase in loans outstanding.
- The upturn at major banks reflects the fact that the effects of the increase in domestic and overseas lending and of an increase in the amount of expected losses exceeded the effects of restraining risks attributable to the improvements in the quality of loans.

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

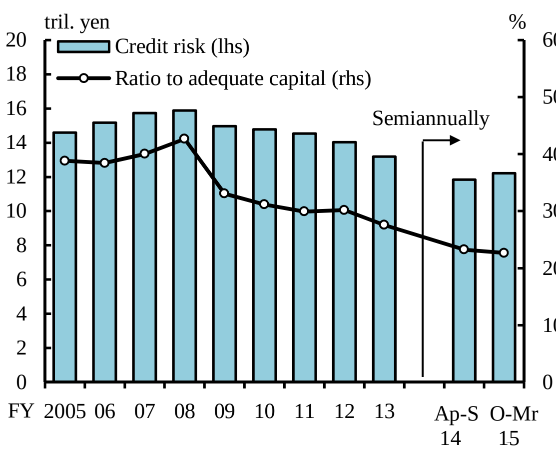


Chart V-1-2: Credit risk by type of bank

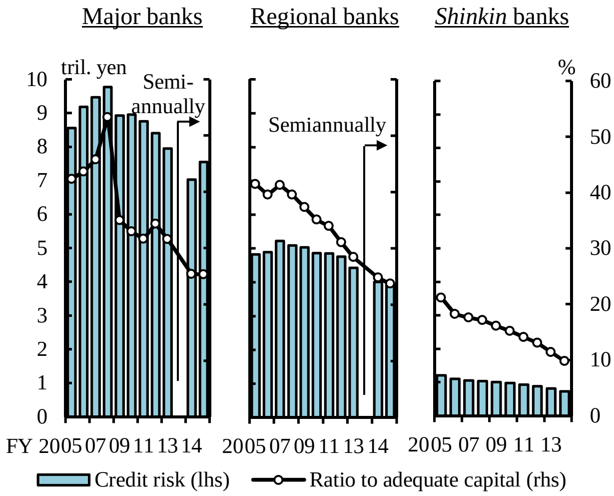


Chart V-1-5: Composition of claims by borrower classification

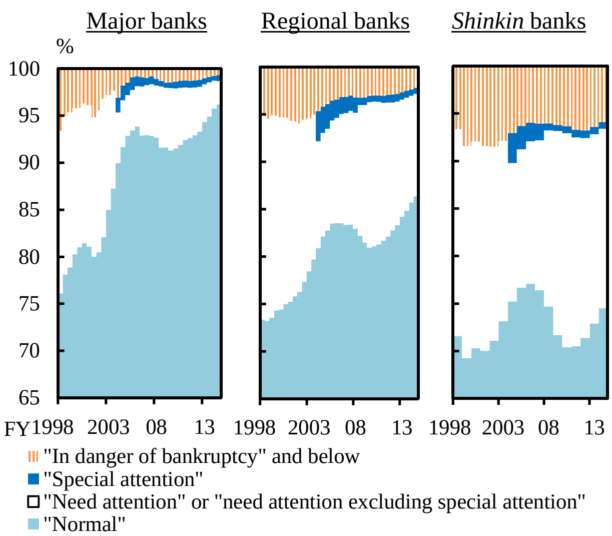
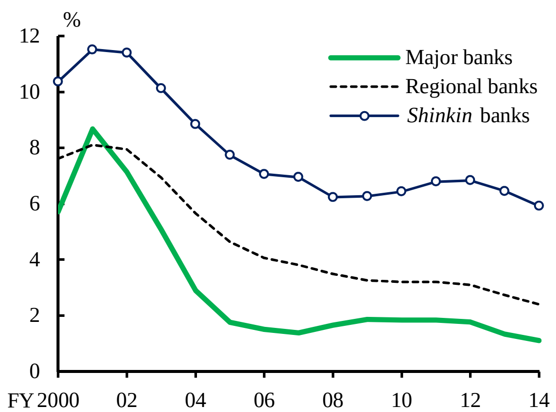


Chart V-1-6: NPL ratios



➢ The credit cost ratio of FIs is at an extremely low level.

Chart V-1-8: Credit cost ratio of banks

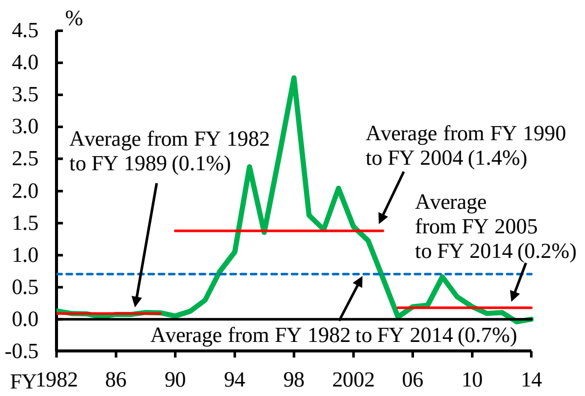
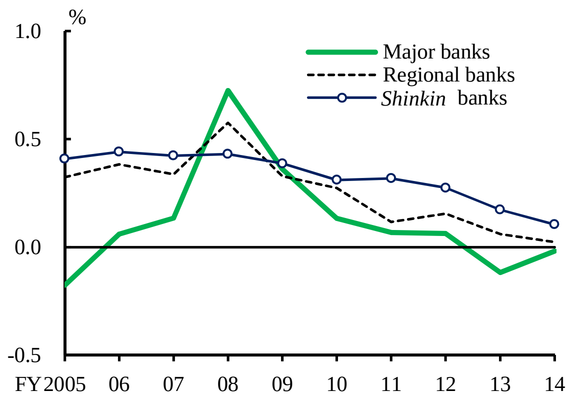
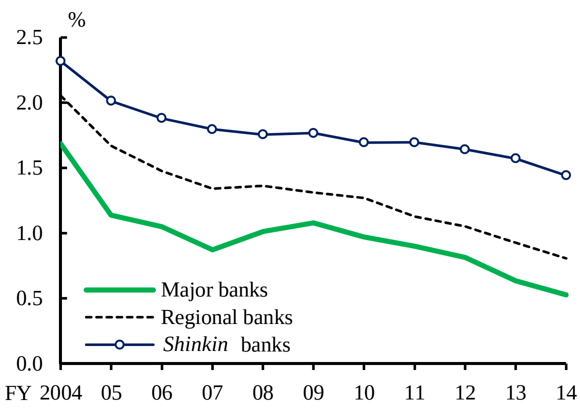


Chart V-1-9: Credit cost ratio by type of bank



➢ The loan-loss provision ratios -- already at their lowest level from a longer-term perspective -- declined further.

Chart V-1-10: Loan-loss provision ratios by type of bank



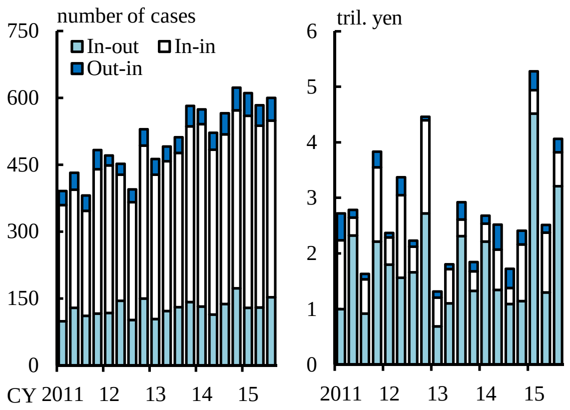
1. Credit risk (3)

- The situation surrounding the macro credit risk
  - (1) The credit cost of FIs is at an extremely low level from a long-term perspective, brought about by an improvement in the quality of loans.
  - (2) Loan-loss provision ratios continue to decline in a situation where FIs have eased their lending stances with regard to both domestic and overseas lending.
  - (3) Lending spreads on loans have also continued to decline.
- However, there have been some signs suggesting the possibility that the subdued trend in credit costs will change in the future.
  - (1) The amount of credit risk has turned to an increase for the first time in 4 and a half years, particularly among major banks.
  - (2) The reversal of loan-loss provisions, which has depressed credit costs over the past few years, has more or less halted.
  - (3) The pace of growth in Asian economies has been slowing, and market concern over a further slowdown has been strengthening. At present, these developments have not affected actual credit costs. However, depending on future developments, it is possible that these developments will eventually affect business conditions for some areas that FIs have been actively promoting, such as overseas loans, mergers and acquisitions, and loans related to resource development.
- Taking into account the above, the following three points are the key tasks and challenges regarding credit risk management of FIs.
  - (1) It is necessary for FIs to improve their credit management capabilities in areas where active engagement in credit extension has been observed (overseas loans, M&A-related loans, resource development-related loans, the housing rental business , etc.).
  - (2) It is necessary to continuously examine the adequacy of how the amount of credit risk is estimated and provisions are calculated, taking into account expectations for future developments.
  - (3) It is necessary to make appropriate assessments of risk and return in loans.

Box 1: Overseas M&A-related loans by major banks and credit management

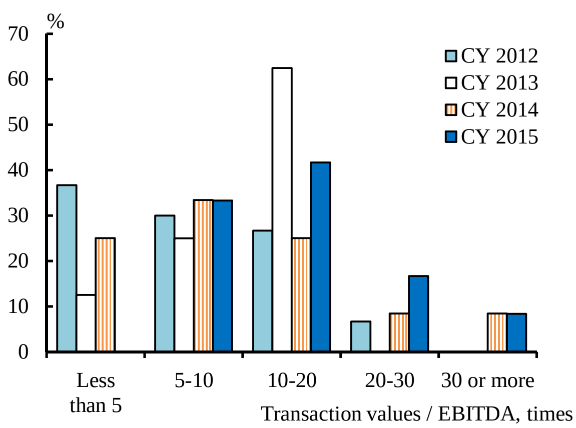
- As Japanese businesses have become increasingly active in mergers and acquisitions (M&As), M&A-related loans have represented a substantial part of the recent increase in lending by Japan's major banks.
- In general, (1) M&A-related loans require examination for credit extension in a relatively short period of time. Also, (2) risk characteristics are complex due to, for example, the differences in business practices and legal frameworks, and effects of foreign exchange. In addition, (3) the number of large-scale M&A deals -- including the case in which transaction values far excess the EBITDA for the term, or the amounts posted as goodwill in acquisition accounting are fairly large relative to the firm's net assets -- are increasing recently.
- Taking into account the above, the following should be implemented in dealing with M&A-related loans: (1) examination and development of a framework for the risk assessment of overseas business; (2) enhancement of stress testing, which incorporates trends and developments in foreign exchange and overseas economies; and (3) reinforcement of the monitoring of developments in post-merger integration.

Chart IV-1-8: M&A among Japanese companies



Source: RECOF.

Chart B1-1: Distribution of transaction values / EBITDA ratio of overseas M&A deals made by Japanese corporations

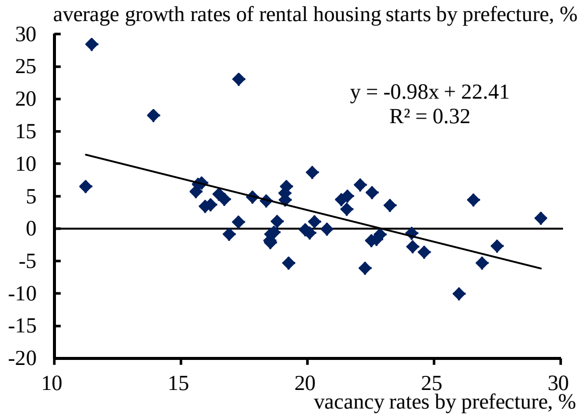


Source: Bloomberg.

Box 2: Loans and credit management for the housing rental business

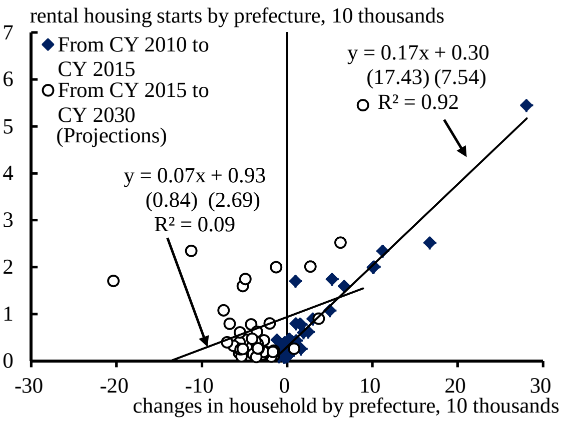
- In recent years, loans for the housing rental business have increased, particularly among regional FIs. This reflects the growing needs for more effective asset management, or from tax saving by land owners or high net-worth individuals.
- Although some studies suggest that the rental housing starts reflect the developments in vacancy rates or the number of households, the maturity of loans usually exceeds 10 years, or even in some cases 20 years. In fact, demand-and-supply conditions over a long horizon imply that at the prefecture level the correlation between the present level of rental housing starts and the forecast for the future number of households is not necessarily very high.
- Given the long maturities and other characteristics peculiar to this sector, both initial screening and interim management during the life of the loan are essential for the management of credit risks of the housing rental business.

Chart B2-3: Relationship between rental housing starts and vacancy rates



Sources: Ministry of Infrastructure, Transport and Tourism, "Statistics on building construction starts"; Ministry of Internal Affairs and Communications, "Housing and land survey."

Chart B2-4: Relationship between rental housing starts and households



Sources: Ministry of Infrastructure, Transport and Tourism, "Statistics on building construction starts"; National Institute of Population and Social Security Research, "Household projection for Japan."

Box 3: Changes in loan portfolios and sophistication of credit risk analysis

- Size of individual loans among major banks has grown moderately over the last few years.
- The "internal ratings-based approach," which is used by many FIs, leaves out the concentration risks resulting from the increasingly large size of loans. In fact, the divergence between the amount of credit risks measured by taking into account the factors in the growing size of loans and those obtained by the "internal ratings-based approach" has been growing gradually, suggesting the importance of appropriately capturing the concentration risks.
- In assessing credit risk, it would be beneficial to utilize stress testing in addition to VaR analysis especially in areas where the data accumulation is limited or when estimating losses to be incurred by risk scenarios that have not materialized.

Chart V-1-15: Cumulative share of credit amount

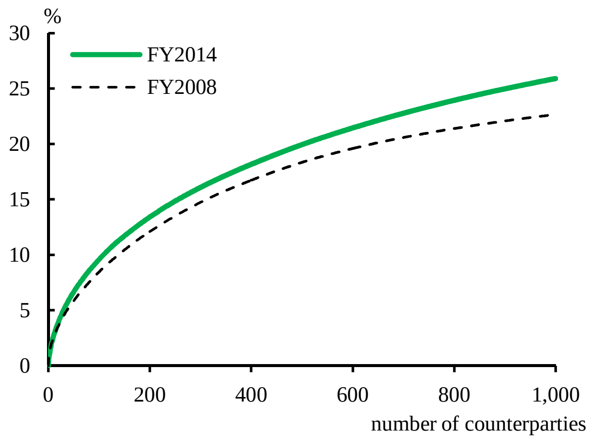
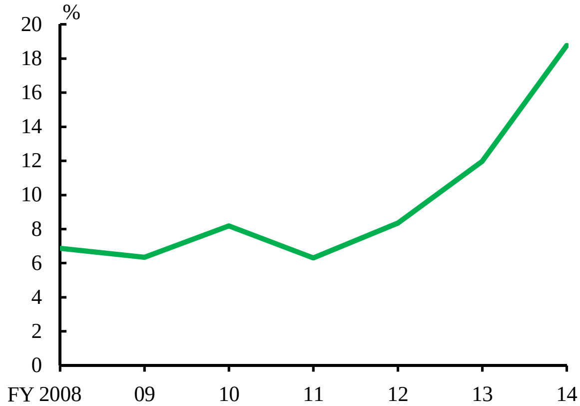


Chart B3-1: Credit risk for large borrowers

Deviation rate between the internal ratings-based approach and simulation results



V. Macro risk profiles and financial bases of financial institutions

2. Market risk (1)

- The amount of interest rate risk on yen-denominated bonds held by FIs has decreased somewhat from the level observed in the previous *Report.*
  - –– Down by 4.2 percent, from 7.5 trillion yen at the end of December 2014 to 7.2 trillion yen at the end of August 2015.
- It remains at a relatively high level from a long-term perspective.

Chart V-2-1: Interest rate risk associated with yen-denominated bondholdings among financial institutions

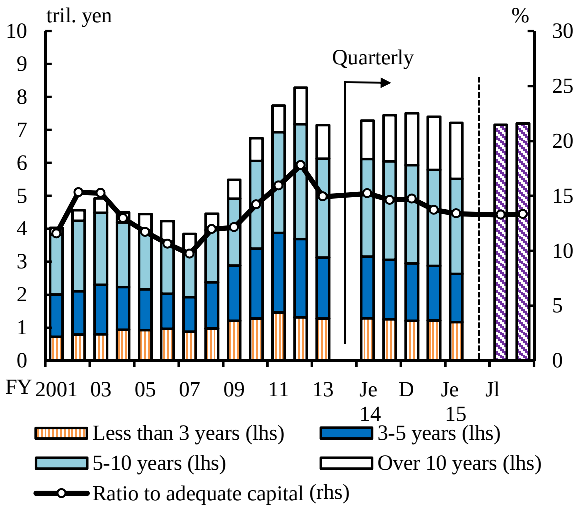


Chart V-2-2: Effects of a rise in interest rates on capital losses on yen-denominated bondholdings

Upward shift by 1 percentage point

tril. yen

	Parallel shift scenario			Steepening scenario		
	End-Dec. 2014	End-Mar. 2015	End-June 2015	End-Dec. 2014	End-Mar. 2015	End-June 2015
Financial institutions	-7.5	-7.4	-7.2	-4.8	-4.7	-4.7
Banks	-5.5	-5.4	-5.1	-3.3	-3.2	-3.1
Major banks	-2.7	-2.6	-2.3	-1.6	-1.5	-1.3
Regional banks	-2.8	-2.8	-2.8	-1.8	-1.8	-1.8
Shinkin banks	-2.0	-2.0	-2.1	-1.5	-1.5	-1.6

V. Macro risk profiles and financial bases of financial institutions

2. Market risk (2)

- Heterogeneity in the risk-taking stance of individual FIs has increased, in a situation where the overall amount of risk remains at a high level.

Chart V-2-4: Interest rate risk associated with yen-denominated bondholdings by type of bank

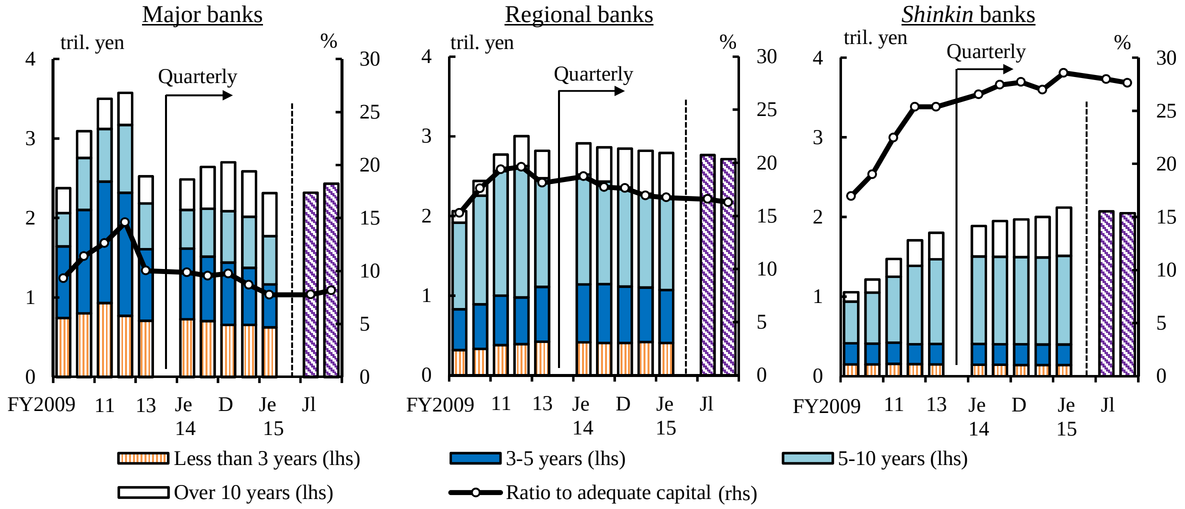
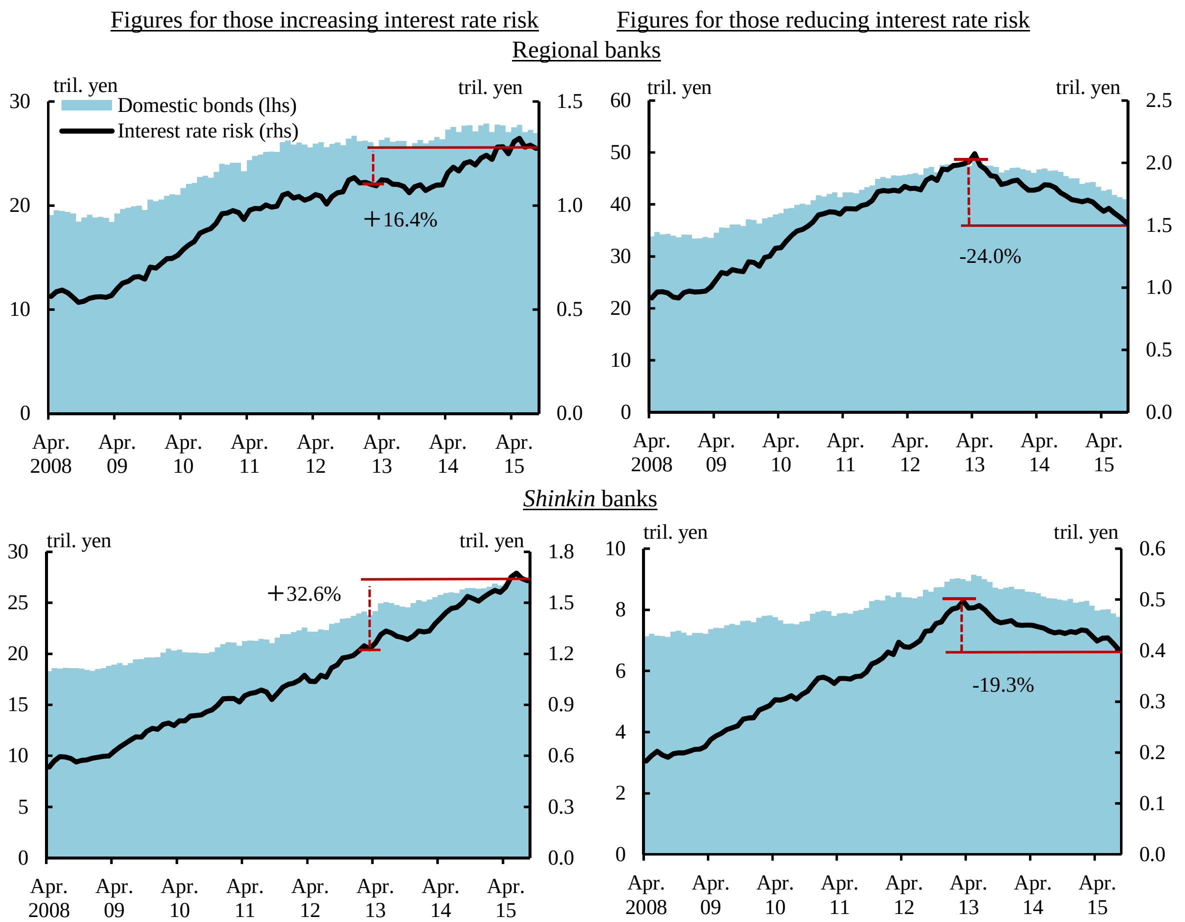


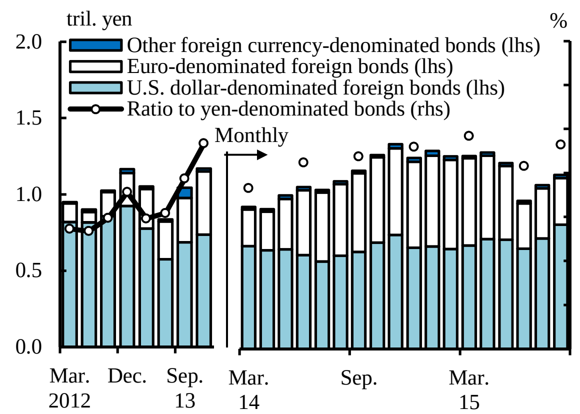
Chart IV-1-29: Developments in yen-denominated bond investment by regional financial institutions



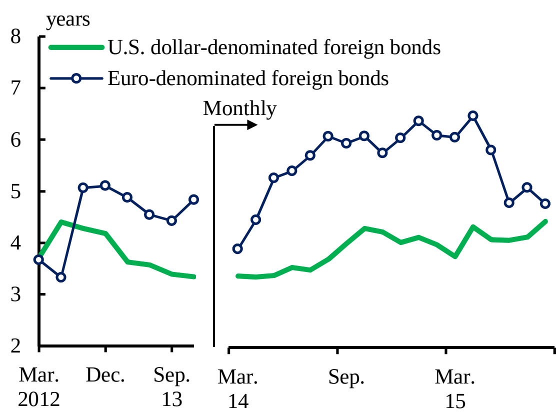
- The amount of interest rate risk associated with foreign currency-denominated bond investment at FIs has increased somewhat since the previous *Report*.
  - Up by 3.9 percent, from the end of September 2014 to 1.5 trillion yen at the end of August 2015.
- While major banks have generally adopted a restraining stance with regard to investment in foreign currency-denominated bonds, regional banks have constantly accumulated such bonds as U.S. government bonds and bonds of foreign financial institutions.
  - The ratio of the amount of interest rate risk on foreign currency-denominated bonds to that on yen-denominated bonds has reached a level of almost 50 percent at major banks and almost 20 percent at regional banks.

Chart V-2-8: Interest rate risk of foreign currency-denominated bonds among banks and average remaining maturity

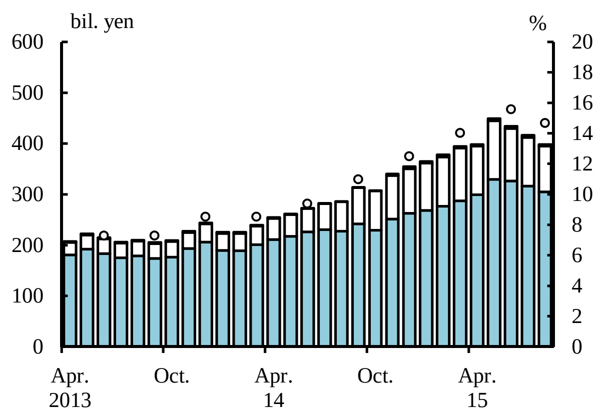
Interest rate risk on foreign currency-denominated bonds among major banks



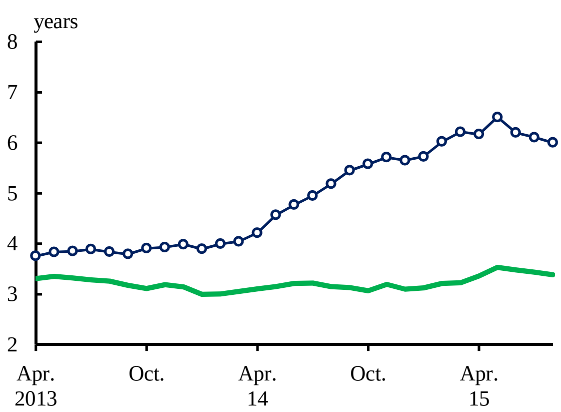
Average remaining maturity of foreign currency-denominated bonds among major banks



Interest rate risk on foreign bonds among regional banks



Average remaining maturity of foreign currency-denominated bonds among regional banks



2. Market risk (4)

- The amount of market risk associated with stockholdings at FIs has decreased somewhat since the previous *Report*.
  - Down by 3.9 percent, 12.9 trillion yen at the end of June 2015 due to the lower stock price volatility compared with that as of December 2014;
  - Market exposure itself has been increasing.
- The amount of risk at the end of September 2015 stood at 15.1 trillion yen, an increase of 12.4 percent due to the rise in stock market volatility.
- Fluctuations in the amount of market risk associated with stockholdings depend largely on the market developments. Effects on the financial conditions of FIs remain considerable.

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

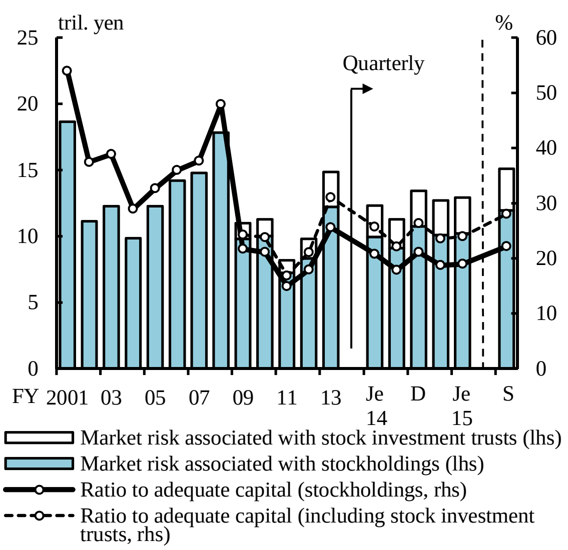
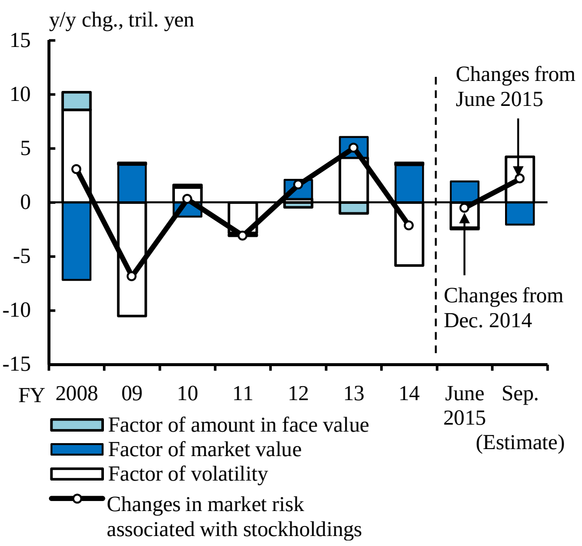


Chart V-2-10: Decompositions of changes in market risk associated with stockholdings



V. Macro risk profiles and financial bases of financial institutions

2. Market risk (5)

- The situation surrounding the macro market risk
  - (1) FIs as a whole have maintained their trend of proceeding with diverse risk taking through financial products such as investment trusts, while maintaining high levels of yen interest rate risk.
  - (2) Heterogeneity in risk-taking stances by type of bank or of individual institutions has been increasing -- with some banks adopting a cautious stance and others increasing their amount of risk -- reflecting varying levels of profit expectations for their market divisions.
  - (3) Although strategic stock investment has been on a moderate declining trend, market risk associated with stockholdings remains large enough to have considerable effects on banks' capital strength and profits.
- Under these circumstances, volatility in global financial markets, including that in Japan, has been increasing. If this trend is further reinforced, it can affect the amount of risks borne by, and the financial bases of, FIs.
- Given the above, the following two points can be raised as key tasks and challenges in market risk management for FIs.
  - (1) FIs need to take and manage risks appropriately under clear securities investment and asset-liability management (ALM) strategies, and accurately grasp the profile of diverse risk factors from a cross-sectional and multi-dimensional perspective.
  - (2) FIs need to appropriately assess the purpose of strategic stockholdings and thereby continue their efforts to reduce the related risk.

Box 4: Risk analysis of securities portfolios of regional financial institutions

- Regional FIs have increased holdings of investment trusts and foreign securities.

  -- This reflects their growing willingness to take on diverse risks.

  The weight of the amount outstanding of risky assets in the total securities portfolios:

  -- over **20 percent** at regional banks; over **10 percent** at *shinkin* banks.

  On the other hand, in terms of the value-at-risk:

  -- around **80 percent** at regional banks and around **40 percent** at *shinkin* banks
- In managing risks, it is important to consider the effects of changes in the correlation between risk factors.
- Example: The VaRs based on 2015 data are greater for both regional banks and *shinkin* banks

  -- according to the comparison between the VaRs of risky portfolio assets based on the market data during two different sample periods (2006 and 2015)
- The effects of changes in volatility need to be taken into account in risk management.

  -- Because the present VaR reflects the volatility of yen interest rates, which has trended downward.

Chart B4-1: Exposure and individual VaR ratio by type of product

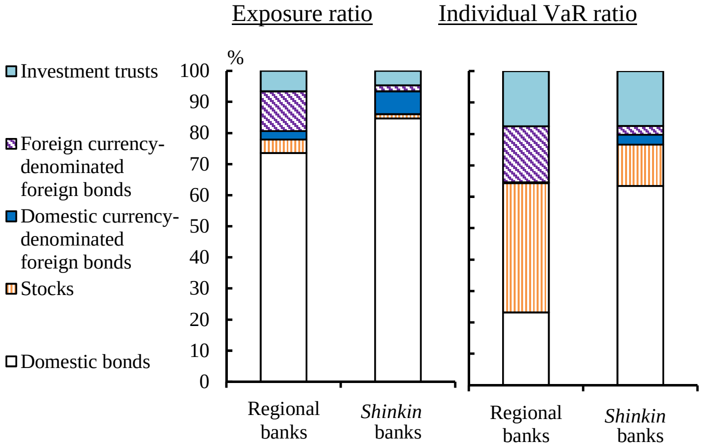


Chart B4-4: Difference in amount of risk due to correlation among risk factors

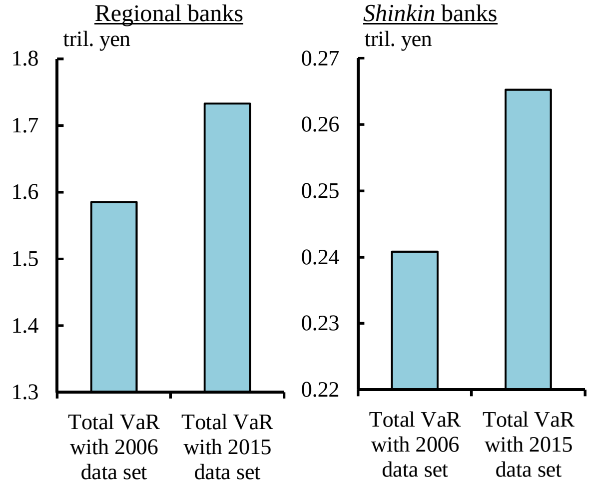
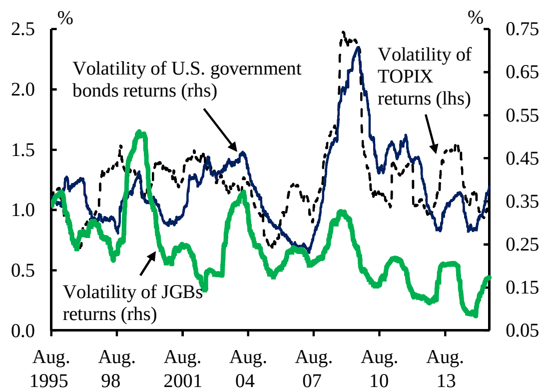
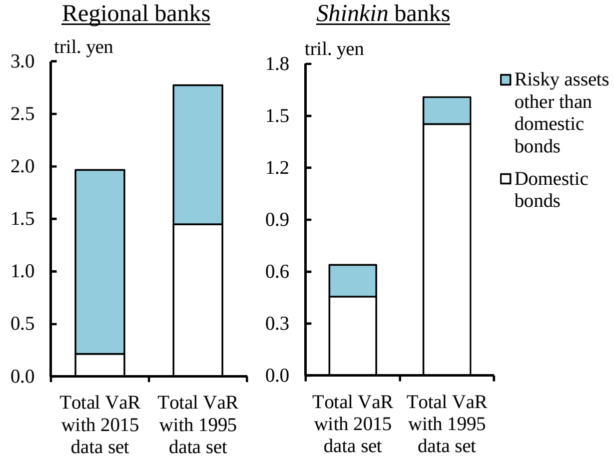


Chart B4-5: Developments of JGBs price volatility



Sources: Bloomberg, BOJ.

Chart B4-7: Difference in amount of risk due to volatility of risk factors



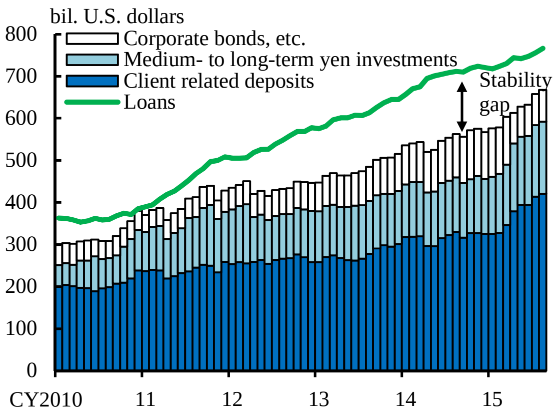
V. Macro risk profiles and financial bases of financial institutions

3. Funding liquidity risk (1)

- FIs have sufficient funding liquidity in yen funds.
- For foreign currency-based funding, as a whole, there is a liquidity buffer that can cover funding shortages even if market funding becomes difficult for a certain period.
  - Foreign currency-based funding has a funding structure with a large proportion of market funding.
- The stability gap has recently started to narrow. It still remains considerable in size.
  - This narrowing is attributable to banks' efforts to enhance their stable funding sources, such as customer deposits and medium- to long-term currency and foreign exchange swap funding.

Chart V-3-3: Stability gap among banks

Major banks



Regional banks

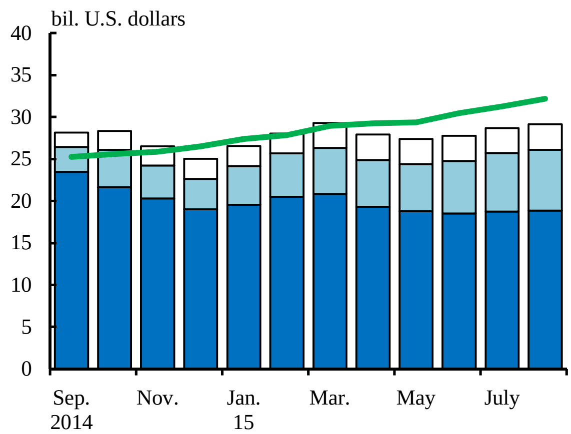
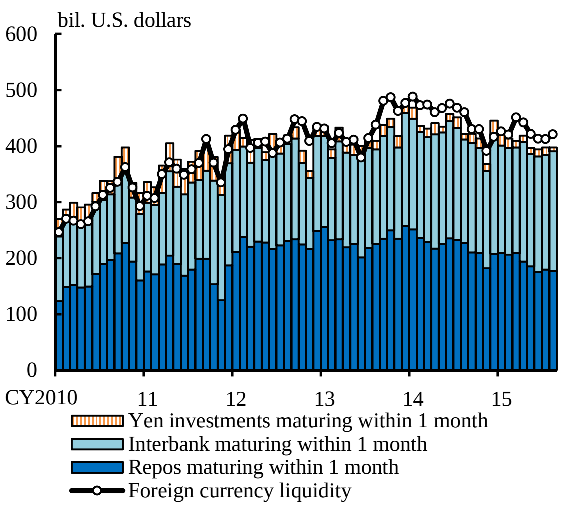
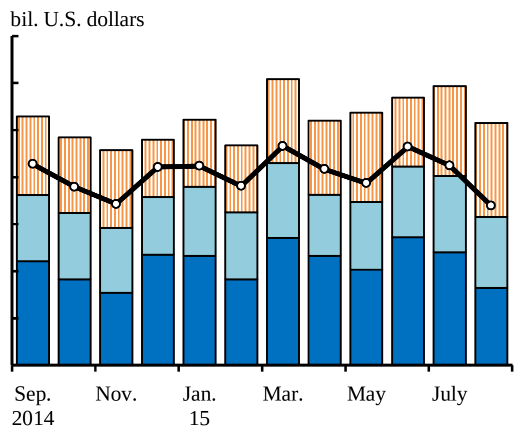


Chart V-3-4: Resilience to foreign currency liquidity among banks

Major banks



Regional banks



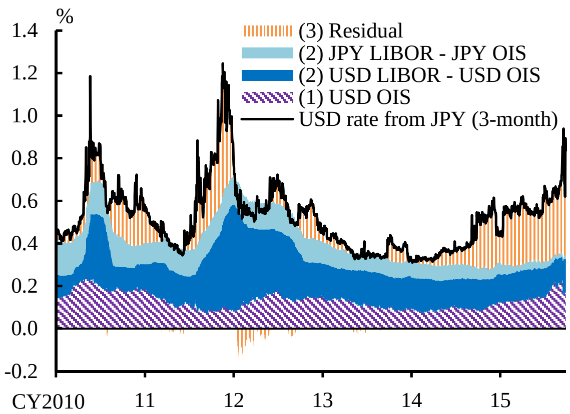
- The environment for foreign currency-based market funding through currency and foreign exchange swaps of Japanese banks has generally remained favorable.
- However, the cost of foreign currency-based funding, particularly the cost of U.S. dollar funding through the currency and foreign exchange swap markets, has continued to rise.

  Factors behind this trend:

  (1) foreign-currency funding of Japanese banks has been increasing

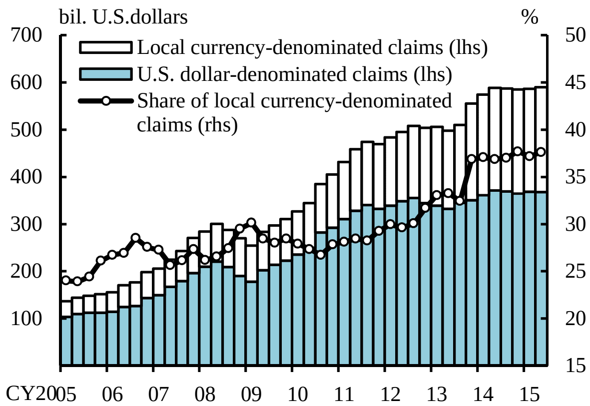
  (2) major U.S. and European banks are reviewing and making substantial changes to their businesses in response to the implementation of various international financial regulations.
- At the same time, the weight of local currency-denominated loans has been increasing, particularly in Asia.

Chart V-3-6: Breakdown of the short-term U.S. dollar funding costs



Source: Bloomberg.

Chart V-3-7: Currency-denominated claims for Asia among Japanese banks



Sources: BIS, "Consolidated banking statistics"; BOJ.

V. Macro risk profiles and financial bases of financial institutions

3. Funding liquidity risk (3)

- Situations of the macro foreign currency funding liquidity risk
  - (1) **Stability gap has started to narrow**

    This reflects efforts by major banks to enhance their stable funding sources.

    But, the stability gap still remains large. Some regional banks are also faced with relatively large stability gaps.
  - (2) **Foreign currency funding costs keep rising**
  - (3) **The weight of local currency-denominated loans has been increasing**

    -- according to the situation of local currencies other than the U.S. dollar
- The volatility of global financial markets has recently increased.

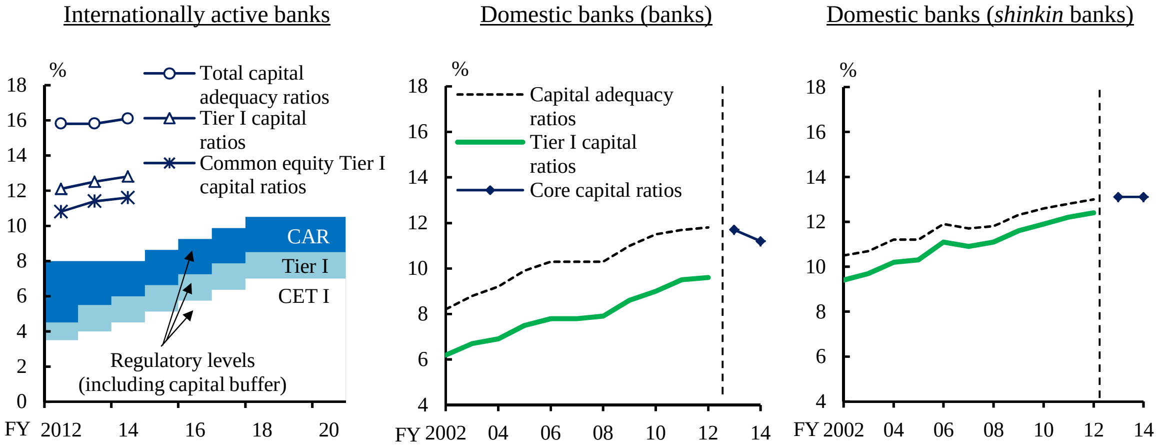
  -- If this trend is further reinforced, the effects may spread to the market funding environment of Japanese banks.
- Given the above, the following two points continue to be the key tasks and challenges.
  - (1) continuing with efforts to secure stable foreign currency funding bases and strengthen their ability to respond to potential market stresses
  - (2) enhancing liquidity risk management of local currencies other than the U.S. dollar such as Asian or European currencies

V. Macro risk profiles and financial bases of financial institutions

4. Financial institutions' capital adequacy (1)

➢ FIs' capital adequacy ratios are sufficiently above regulatory levels.

Chart V-4-1: Capital adequacy ratios



➢ FIs' capital has generally been at an adequate level relative to the amount of risk.

―― The amount of risk that FIs bear has remained more or less unchanged.

―― Capital held by these institutions has continued to increase, mainly due to the accumulation of retained earnings.

➢ The ability of FIs to absorb losses and take on risks generally seems to have remained at high levels for all types of banks.

Chart V-4-2: Risks and adequate capital among financial institutions

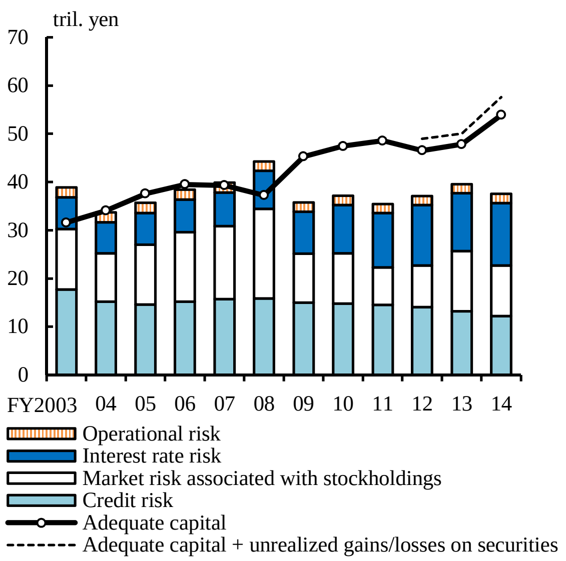
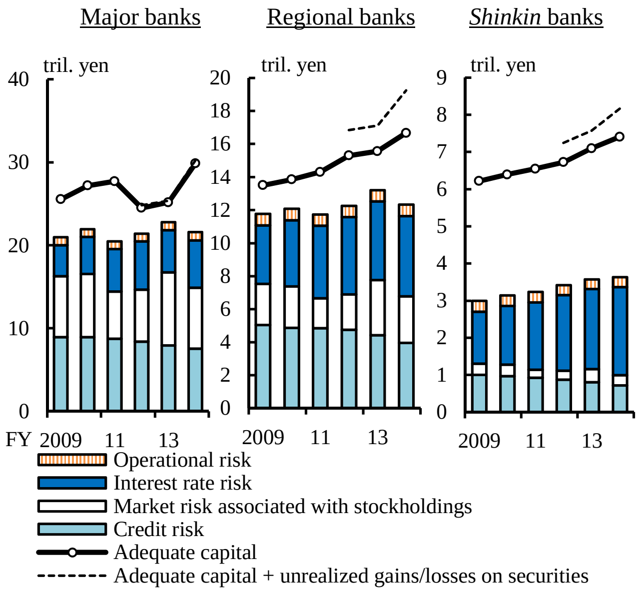


Chart V-4-3: Risks and adequate capital by type of bank



- FIs' capital has remained adequate relative to the amount of risk, although FIs' amount of market risk associated with stockholdings was up by 2.0 trillion yen from the end of March 2015.
- The effects of heightened volatility since summer 2015 on the soundness of FIs are so far limited.
- Nevertheless, careful attention should be paid to:
  - developments in financial markets and the Asian economy;
  - their subsequent effects on the management of FIs.

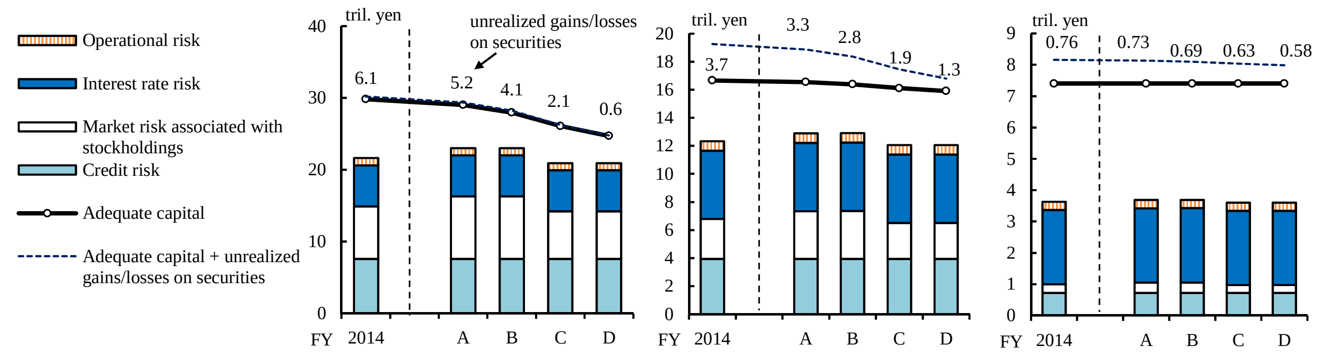
Chart V-4-4: Effect of stock price changes on adequate capital and risks by type of bank

4 scenarios

	Case A <actual value at end-Sep. 2015>	Case B	Case C	Case D
Stock price (change from end-March 2015)	-8.6%	-20%	-40%	-55%
volatility <observation period of 1 year, based on daily data> (change from end-March 2015)	1.3 times	1.5 times	1.5 times	2.0 times

Results of analyses

Major banks | Regional banks | *Shinkin* banks



For case A

tril. yen

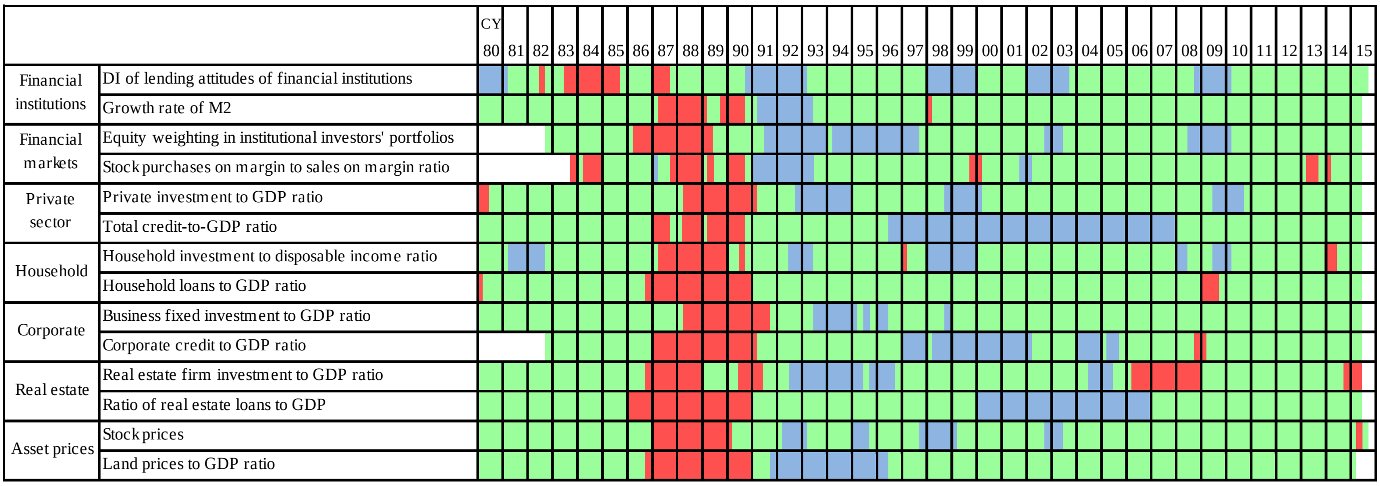
	Financial institutions		Major banks		Regional banks		*Shinkin* banks	
	End-Mar. 2015	End-Sep. 2015 (Estimate)	End-Mar. 2015	End-Sep. 2015 (Estimate)	End-Mar. 2015	End-Sep. 2015 (Estimate)	End-Mar. 2015	End-Sep. 2015 (Estimate)
Adequate capital	53.9	53.0	29.8	29.0	16.7	16.5	7.4	7.4
Amount of risk	37.6	39.6	21.6	23.0	12.3	12.9	3.6	3.7
Market risk associated with stockholdings	10.5	12.4	7.3	8.7	2.8	3.4	0.3	0.3
Unrealized gains/losses on securities (tax effects taken into account)	10.5	9.3	6.1	5.2	3.7	3.3	0.8	0.7
Internationally active banks	6.8	5.9	5.7	4.9	1.1	1.0		

VI. Macro risk indicators 1. Heat map

➢ According to the FAIXs, there is no overheating in financial intermediation.

–– Compared with the findings presented in the previous *Report*, all 14 indicators have remained unchanged, with the real estate firm investment to GDP ratio remaining "red" and the other 13 indicators "green."

Chart VI-1-1: Heat map of Financial Activity Indexes

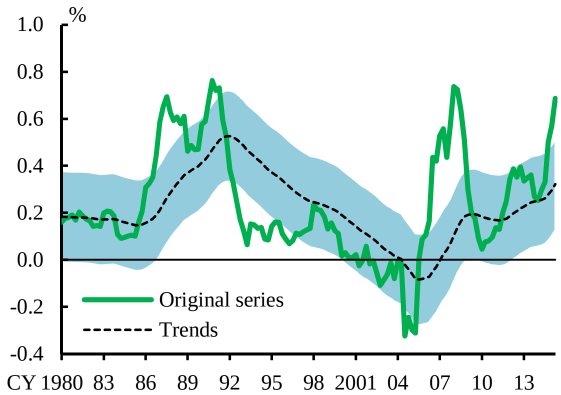


Sources: Bloomberg; Cabinet Office, "National accounts"; Japan Real Estate Institute, "Urban land price index"; Ministry of Finance, "Financial statements statistics of corporations by industry"; Tokyo Stock Exchange, "Outstanding margin trading, etc."; BOJ, "Flow of funds accounts," "Loans and bills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

- The Financial Activity Indexes (FAIXs) are indicators used to gauge overheating in various financial activities. In the *Report*, we identify signs of overheating by selecting as FAIXs 14 indicators that are appropriate in assessing whether financial imbalances similar to those observed during Japan's bubble period have arisen, and by examining the deviation of individual indicators from their trends. Whether financial activity is overheating or overcooling is measured based on how far individual indicators deviate from their historical trends. Shaded areas in the chart 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.

- The deviation of <u>the real estate firm investment to GDP ratio</u> from its trend widened compared with 6 months ago. This reflects the fact that the investment by major real estate companies is solid, mainly against the backdrop of an improvement in real estate markets particularly in metropolitan areas.

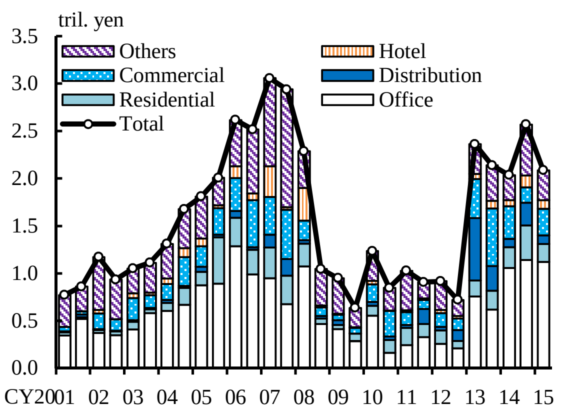
Chart VI-1-4: Real estate firm investment to GDP ratio



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

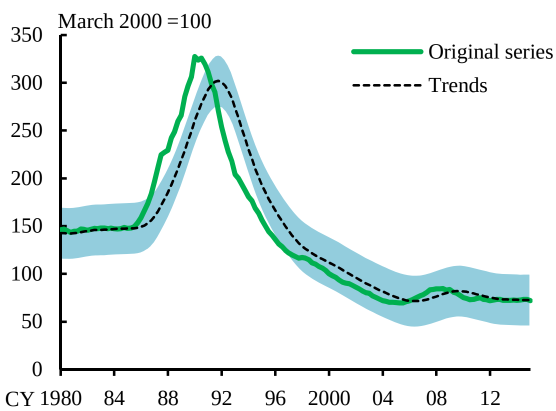
- <u>The value of real estate transactions</u> is still below the level that prevailed in or around 2007, yet it has remained at a high level.
- <u>The land prices to GDP ratio</u> has remained in line with the past trend.

Chart B5-1: Value of real estate transactions



Source: Japan Real Estate Institute.

Chart B5-4: Land prices to GDP ratio

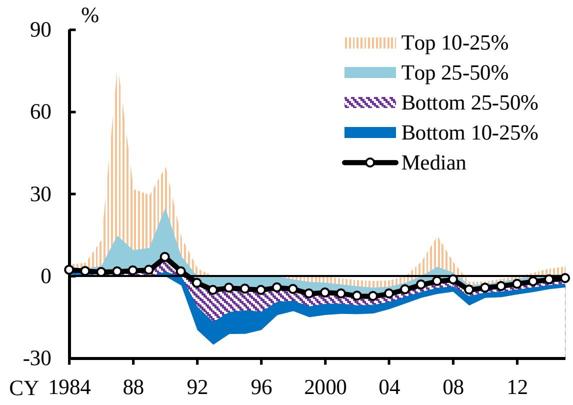


Sources: Cabinet Office, "National accounts"; Japan Real Estate Institute, "Urban land price index."

VI. Macro risk indicators 2. Real estate market (2)

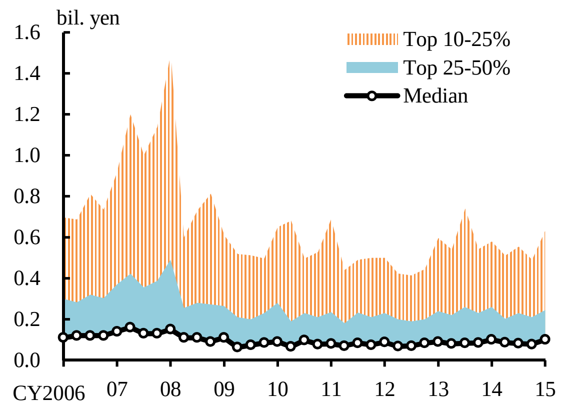
- The distribution of the rates of increases in commercial land prices (appraisal values) has not shown signs of spreading upward, as was seen during the past two real-estate booms.

Chart B5-5: Distribution of year-on-year rates of change in commercial land prices



Source: Ministry of Land, Infrastructure, Transport and Tourism, "Publication of market values of standard sites by prefectural government."

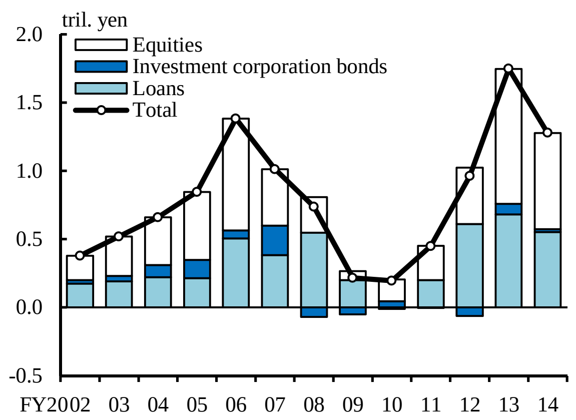
Chart B5-6: Distribution of individual commercial property transaction prices (23 Tokyo wards)



Source: Ministry of Land, Infrastructure, Transport and Tourism, "Real estate transaction-price information."

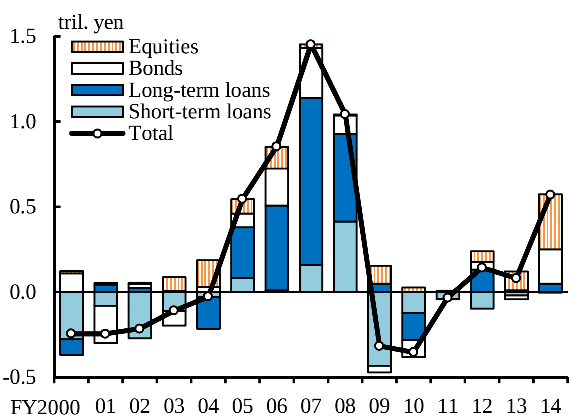
- J-REITs have continued high levels of fund raising, but there has been no increase in leverages.
- Listed real estate companies (i.e., large corporations) other than J-REITs have also increased their fund raising, but the increase in their borrowing is limited.

Chart B5-10: Financing by J-REITs



Source: Nikkei Needs.

Chart B5-12: Financing by listed real estate companies other than J-REITs



Source: Nikkei Needs.

VI. Macro risk indicators 2. Real estate market (3)

➢ The real estate market as a whole is not in an overheated condition.

―― Many indicators are still below the levels that prevailed during the real-estate boom prior to the Lehman shock.

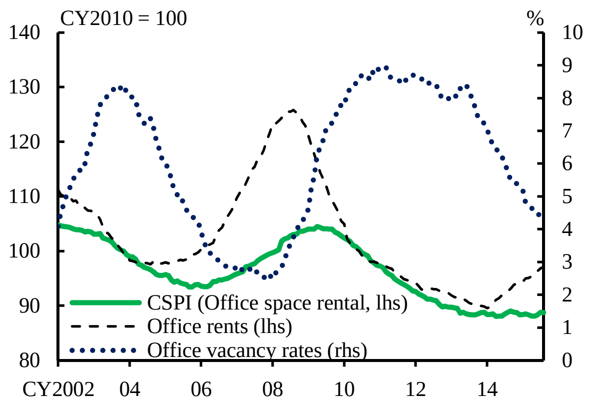
➢ Nevertheless, the situation in the real estate market warrants vigilant attention since:

―― J-REITs and overseas investors have been stepping up their property purchases, resulting in transactions in some high-value properties in central Tokyo;

―― banks are becoming more aggressive in investment and financing;

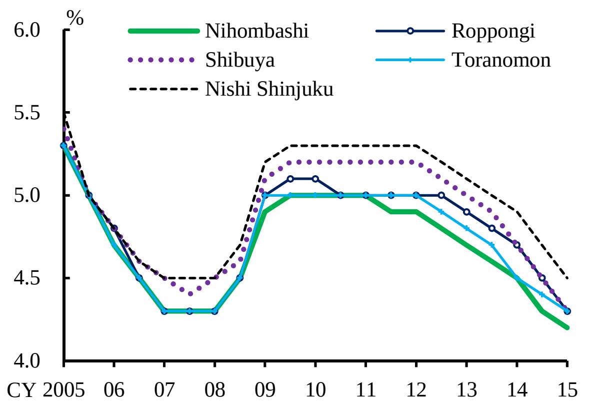
―― there have been signs of increased borrowing by small and medium-sized real estate companies with low credit ratings.

Chart B5-8: Office rents and vacancy rates in the Tokyo area



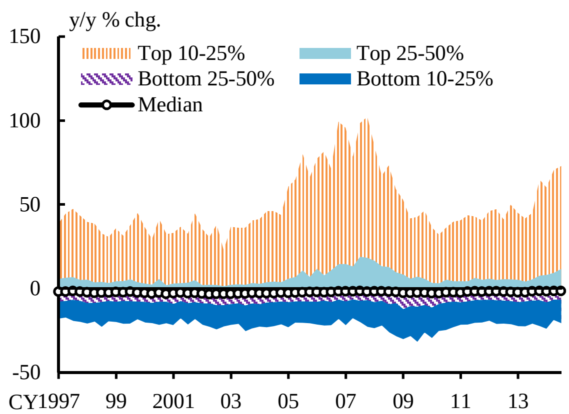
Sources: Miki Shoji Co., Ltd.; BOJ, "Services Producer Price Index."

Chart B5-9: Capitalization rate of office buildings in Tokyo metropolitan area



Source: Japan Real Estate Institute, "The Japanese real estate investor survey."

Chart B5-13: Debt financing by real estate companies with lower creditworthiness



Source: CRD.

VI. Macro stress testing 1. Stress scenarios

- From this issue, stress scenarios will comprise:

(1) the tail event scenario

Assess the stability of the financial system through fixed-point observations.

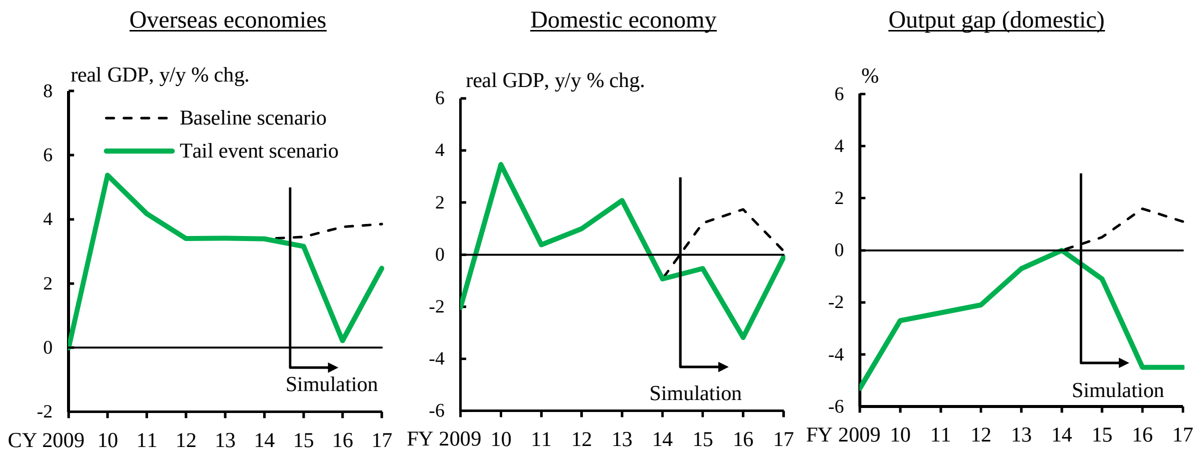
The severity of stress is comparable to that observed at the time of "the Lehman shock."

(2) the tailored event scenario

Assess the vulnerability of the financial system against a specific event under different scenarios for every test.

In this *Report*: "a substantial slowdown in the Asian economy."

Chart VI-2-1: Overseas economies and the domestic economy (tail event scenario)



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

- According to the results of macro stress testing, the financial system is considered to have generally strong resilience against various economic and financial shocks at home and abroad.

VI. Macro stress testing 2. Tail event scenario

- The credit cost ratios of FIs would exceed their break-even points.
- The number of FIs recording net losses would increase significantly.
- Under these circumstances, while banks' capital adequacy ratios would decline significantly, FIs' capital adequacy ratios on average would be maintained above regulatory levels.

Chart VI-2-7: Decompositions of the CET I capital ratio and the core capital ratio (tail event scenario)

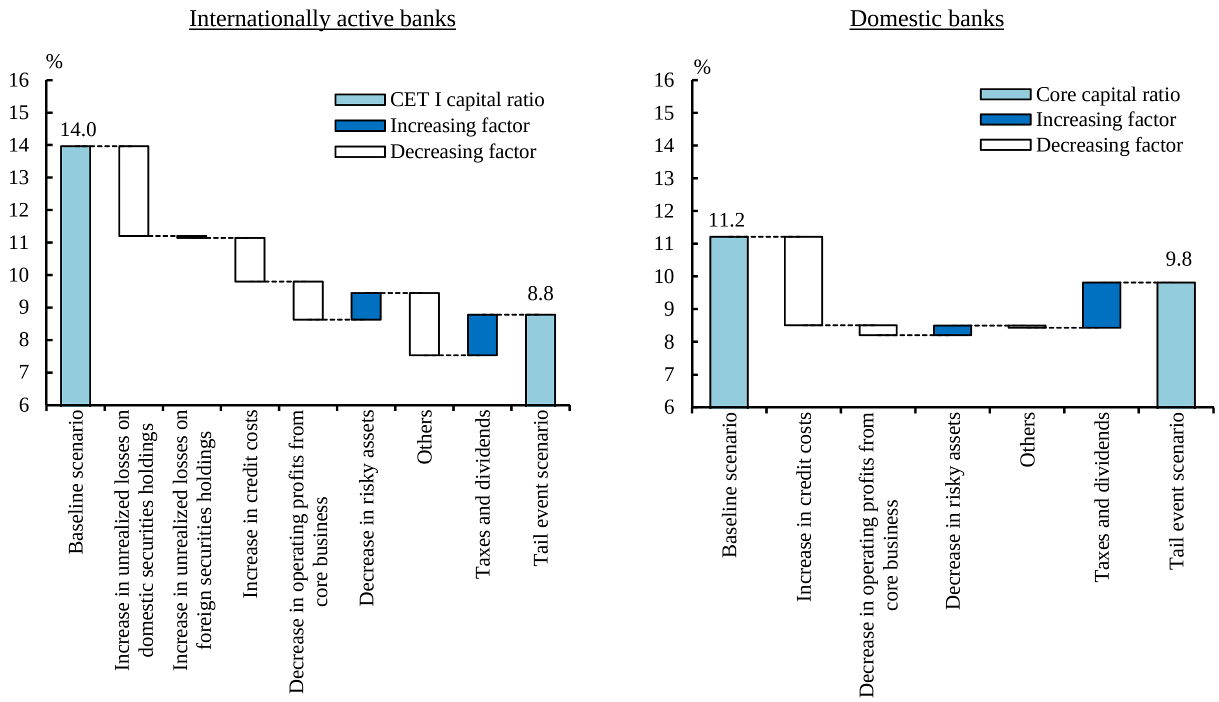


Chart VI-2-5: Credit cost ratio (tail event scenario)

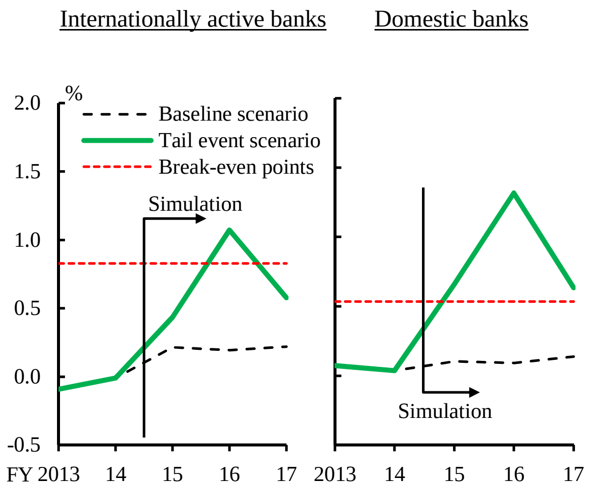
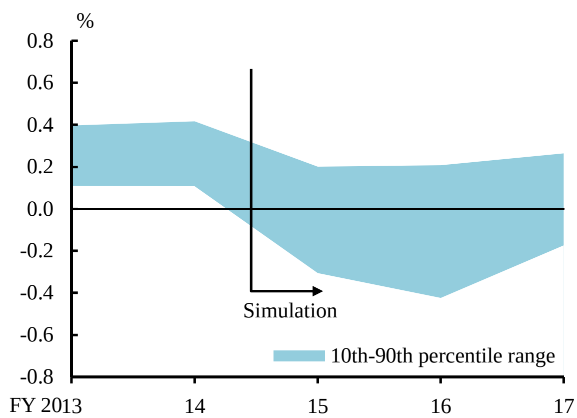


Chart VI-2-14: Net income ROA distribution (tail event scenario)



VI. Macro stress testing 3. Tailored event scenario

- Assumes that the growth rate of the economies in the Asian region would decline substantially.
  - from 6.8 percent in 2014 to 6.2 percent in 2015 and to 3.0 percent in 2016
  - Such slowdown would be transmitted to other countries mainly through the channel of real economic activity such as trade.
- FIs' capital adequacy ratios on average would be maintained above regulatory levels.
  - The risk that a slowdown in Asian economies would threaten the stability of Japan's financial system is considered to be limited.
- Nevertheless, the credit cost ratio in the Asian region would rise substantially to around the average of those in foreign countries during past financial crises.

Chart VI-2-11: Credit cost ratio (tailored event scenario)

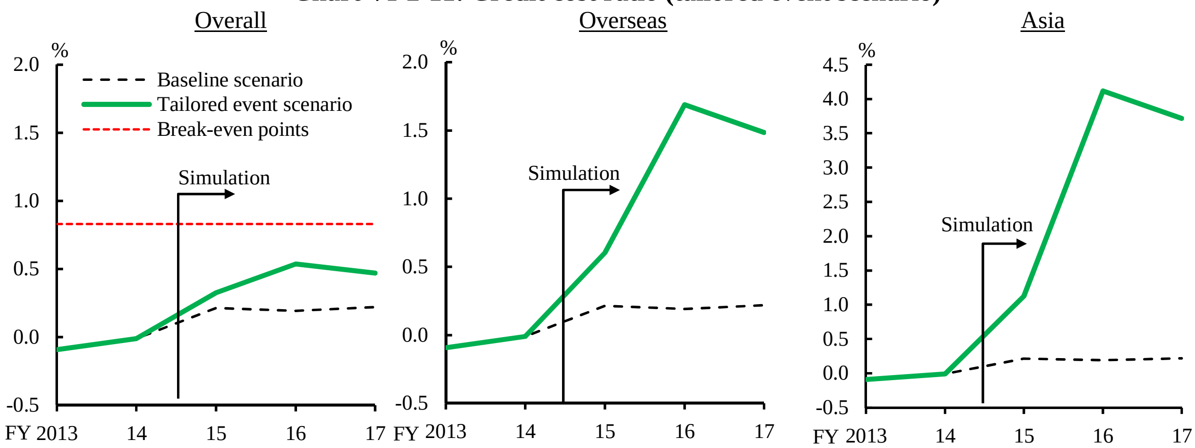
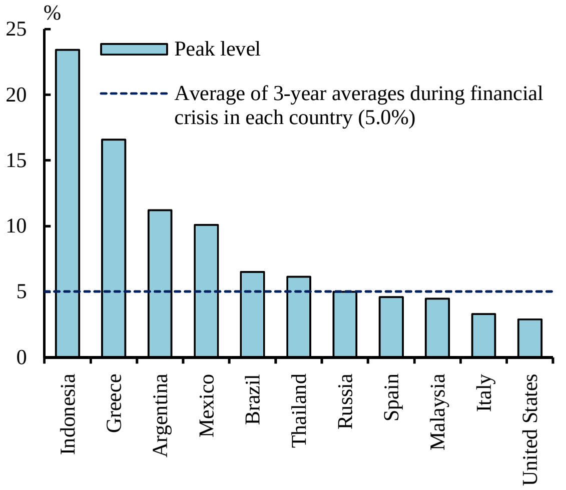
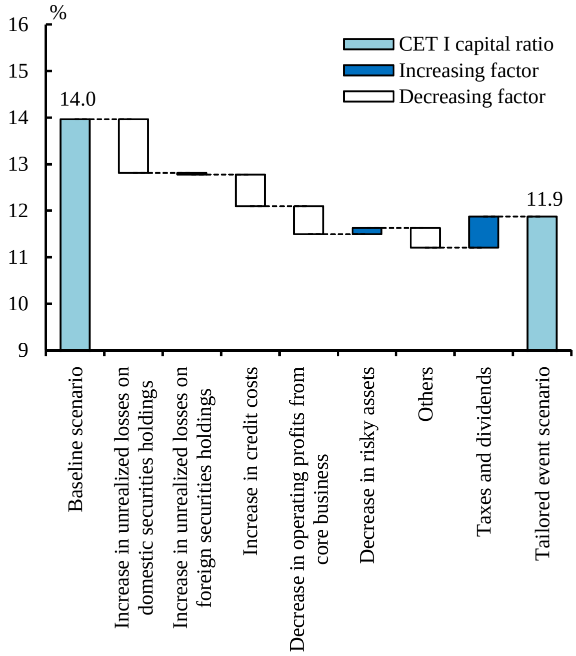


Chart V-1-16: Credit cost ratio in each country during past financial crisis



Sources: ECB, "Consolidated banking data"; Federal Financial Institutions Examination Council; Jack Glen, Camilo Mondragon-Velez, "Business cycle effects on commercial bank loan portfolio performance in developing economies"; Sarawan Angklomkliew, Jason George, Frank Packer, "Issues and developments in loan loss provisioning: the case of Asia", BIS Quarterly Review, December 2009.

Chart VI-2-13: Decomposition of the CET I capital ratio (tailored event scenario)



VI. Macro stress testing: the Bank of Japan's actions

- The Bank of Japan is enhancing its disclosures on scenario development, methodologies, and data of macro stress testing
  - –– so that these can be referred to by individual FIs when they conduct stress testing.
- The Bank will release a paper "Designing Scenarios of Macro Stress Testing at the Bank of Japan" (*Financial System Report Annex Series*).
  - –– a supplementary volume on the narrative and logic behind the setting of scenarios
  - –– In addition, the main variables in each scenario can be downloaded from the Bank's web site.
- To enhance the effectiveness of macro stress testing, the Bank will continue to strengthen communication with FIs.