

Financial
System
Report
FSR

Visual Summary

April 2012
Bank of Japan



Assessment of Japan's financial system stability

- Japan's financial system as a whole has been maintaining stability.
- In the examination of the financial system to ascertain financial imbalances, there is no indicator that warns of financial imbalances stemming from bullish expectations. The amount of risks financial institutions bear as a whole has been decreasing relative to capital. Due attention should be paid, however, to a large amount of JGBs held by financial institutions, while Japan's government debts have accumulated considerably.
- The macro stress testing shows that banks' capital bases as a whole would be able to avoid significant impairment, even if a temporary economic downturn or an upward shift of domestic interest rates for all maturities by 1 percentage point. Based on the results of stress testing under more severe assumptions, the following points warrant vigilance in order to ensure the long-lasting stability of Japan's financial system and to maintain smooth financial intermediation.
 - The quality of bank loans has not improved considerably. If the economy becomes stagnant for a protracted period, banks' credit costs could continue to exceed their profits.
 - Severe shocks in domestic and overseas financial markets, such as a downward shock to stock prices and an upward shock to bond yields occurring simultaneously, would cause deterioration in banks' realized gains/losses on securities holdings. The deterioration would be amplified through a feedback loop between the financial system and the real economy.
 - Although banks have generally secured a sufficient amount of foreign currency liquidity, they would need additional funding sources under a situation where a number of measures for foreign currency funding become inoperative simultaneously.

Challenges for Japan's financial institutions

- Financial institutions need to address the following major challenges.
 - Financial institutions should continue to enhance the effectiveness of risk management, such as credit and market risks. Of importance is that the financial institutions should conduct risk management comprehensively by paying attention to the spillover of risks from overseas economies and financial markets, and by considering correlations among the various risks.
 - Financial institutions will be required to strengthen their capital bases steadily by, for example, accumulating retained earnings and using instruments includable in the capital under the new Basel requirements.
 - Financial institutions are expected to create new financial services suited to developments in the social structure, such as the decreasing population and the aging of society. In order to raise the profitability of credit extension as core business, financial institutions also need to prompt firms' restructuring by identifying and supporting firms and business areas with high growth potential.

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3. Resilience of the financial system

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- iii. Resilience against foreign currency liquidity risk

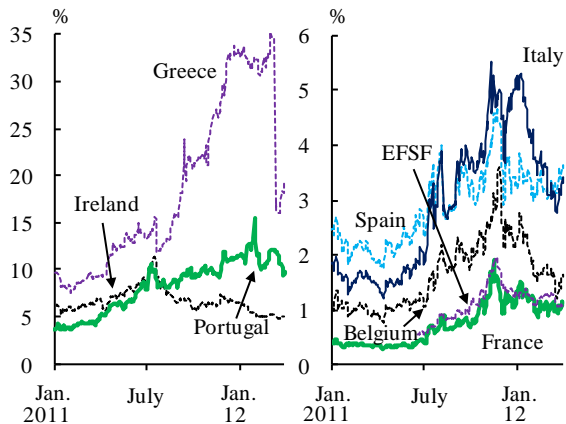
4. Challenges for Japan's financial institutions

- i. Enhancing the effectiveness of risk management
- ii. Strengthening capital bases
- iii. Constructing profit bases suited to changes in the social structure

Global economy and financial system: Europe

- In Europe, concern over the debt problem has adversely affected banks' lending attitudes and reinforced economic stagnation.
 - Government bond yields rose in most of euro area countries except Germany toward the end of 2011 and thereafter government bond markets in the euro area have gradually regained stability. However, market vigilance with regard to the debt problem has been so strong that long-term interest rates in peripheral European countries have remained at high levels.
 - Deterioration in European banks' funding conditions has induced their cautious lending attitudes.
 - Although the effects of the deleveraging by European banks have been limited so far, attention should be paid to the possibility that the deleveraging could adversely affect financial and economic conditions in emerging countries in which European banks have a large share in the loan market.

Chart II-1-3: Government bond yields^{1/}



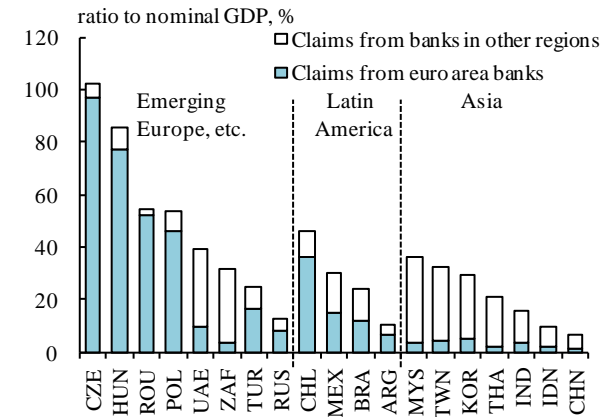
Note: 1. 10-year spreads over German government bond yields.
The latest data are as of March 30, 2012.
Source: Bloomberg.

Chart II-1-12: Loans outstanding in the euro area^{1/}



Note: 1. The latest data are as of the October-December quarter of 2011.
Source: ECB, "MFI loans, deposits and security holdings by sector."

Chart II-1-14: Cross-border claims on emerging countries^{1/}

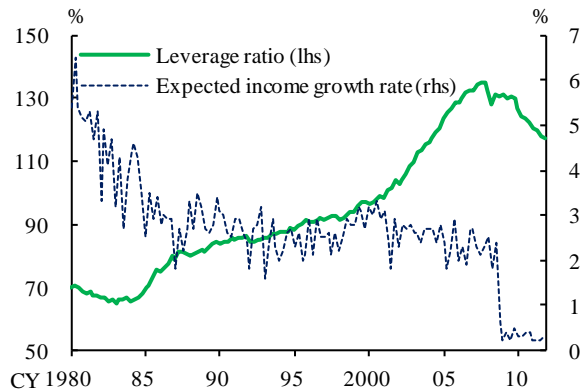


Note: 1. Claims are as of end-September 2011. Nominal GDP is as of 2010.
Sources: IMF; BIS, "Consolidated banking statistics."

Global economy and financial system: The United States and emerging economies

- In the United States, as households are still in the process of balance-sheet adjustments, the U.S. economy is tending to deviate downward.
 - Households' debt outstanding is still higher than its historical level. The expected growth rate of income has also remained at a rather low level.
- In some emerging economies with high inflation rates, it is uncertain whether they can achieve price stability and economic growth simultaneously.
- In China, where strong signs of overheating in the real estate market were observed, the pace of increase in housing prices has slowed. If housing prices undergo rapid adjustment, attention should be paid to the possibility that the quality of banks' housing loans and the loans to real estate companies could decline.

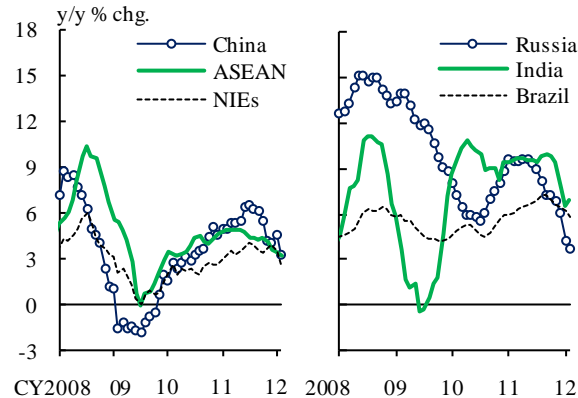
Chart II-1-17: Leverage ratio and expected income growth rate of U.S. households^{1,2,3}



- Notes: 1. The latest data are as of December 2011.
 2. Leverage ratio is a ratio of debt outstanding to disposable income.
 3. Expected income growth rate is a result of a survey on that during the next year.

Sources: BEA, "National economic accounts"; FRB, "Flow of funds accounts of the United States"; Thomson Reuters.

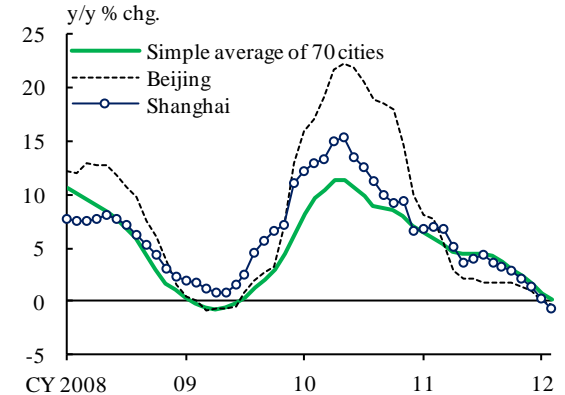
Chart II-1-22: Inflation rates of emerging economies^{1,2}



- Notes: 1. The latest data are as of February 2012.
 2. Yearly changes in the consumer price index (wholesale price index for India).

Sources: Bureau of statistics in each country.

Chart II-1-23: Housing prices in China¹



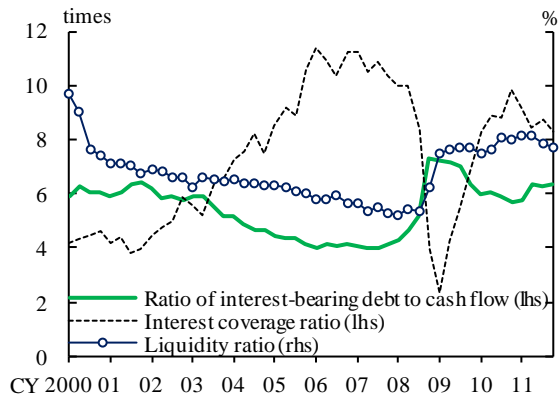
- Note: 1. Yearly price changes for new housing. The latest data are as of February 2012.

Source: National Bureau of Statistics of China.

Balance sheets of domestic firms and households

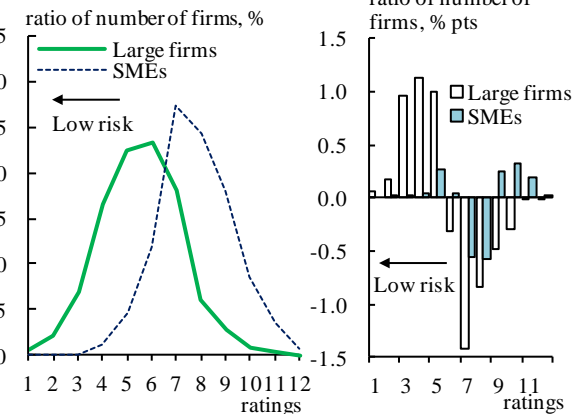
- Firms' financial conditions have generally improved. However, small and medium-sized firms and households with housing loans have continued to face severe financial conditions.
 - Large firms have been taking a cautious stance toward financing as they maintain sufficient capacity for interest payments, and their credit ratings have recovered. On the other hand, small and medium-sized firms are still faced with severe financial conditions.
 - Debt servicing capacity of households with housing loans has deteriorated gradually, as the ratio of principal and interest repayments to income has remained relatively high.

Chart II-2-1: Large firms' debt servicing capacity¹



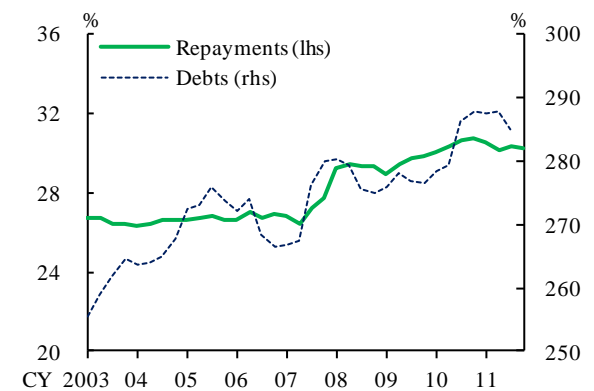
Note: 1. The latest data are as of the October-December quarter of 2011.
Source: Ministry of Finance, "Financial statements statistics of corporations by industry, quarterly."

Chart II-2-2: Credit ratings^{1,2}
Distributions of credit ratings Changes in distributions



Notes: 1. The left chart is as of fiscal 2010. The right chart is yearly changes from fiscal 2009 to 2010.
2. "SMEs" stands for small and medium-sized enterprises.
Source: Teikoku Databank, "SPECIA."

Chart II-2-5: Households' debt servicing capacity^{1,2,3}

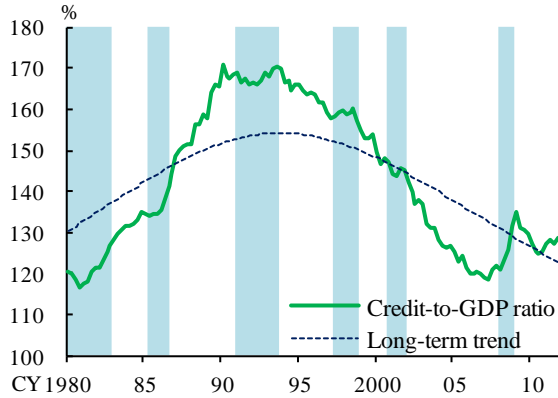


Notes: 1. The ratios to disposable income. 4-quarter moving averages.
2. Households with housing loans are counted.
3. The latest data are as of the October-December quarter of 2011 for repayments, and the July-September quarter of 2011 for debts.
Source: Ministry of Internal Affairs and Communications, "Family income and expenditure survey."

Macro risk indicators and the amount of risks at financial institutions: Macro risk indicators

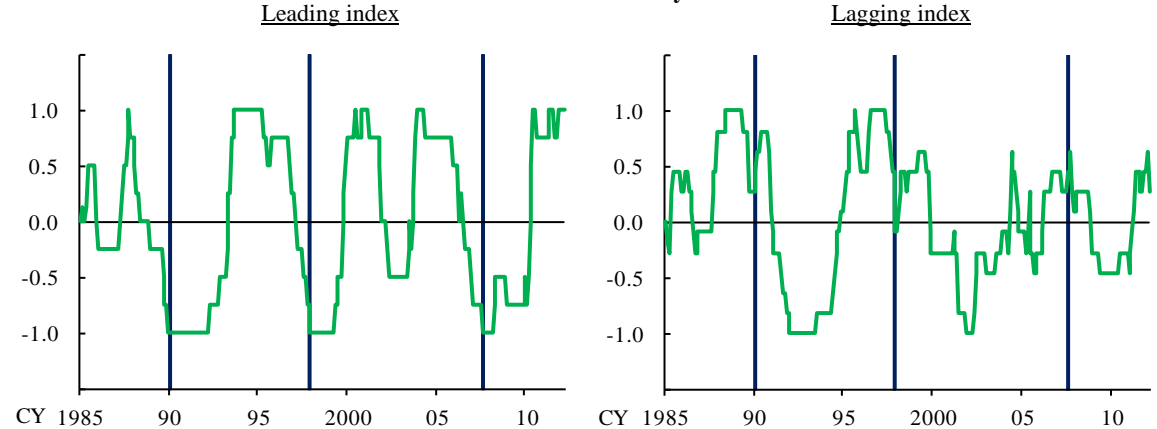
- In the examination of the financial system to ascertain financial imbalances, there is no indicator that warns of financial imbalances stemming from bullish expectations.
 - Total credit from financial institutions to firms and households relative to GDP continues to hover around its long-term trend.
 - No solid evidence of instability in the financial system is observed in the Financial Cycle Indexes or the Financial Activity Index.

Chart IV-1-1: Total credit-to-GDP ratio¹



Note: 1. Shaded areas indicate recession periods. The latest data are as of the October-December quarter of 2011.
Sources: Cabinet Office, "National accounts"; BOJ, "Flow of funds accounts."

Chart IV-1-5: Financial Cycle Indexes^{1,2}



Notes: 1. The left, middle, and right 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.
2. The latest data are as of March 2012.
Source: BOJ calculations.

Financial Cycle Index

- 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.

Chart B1-1: Heat map^{1,2}

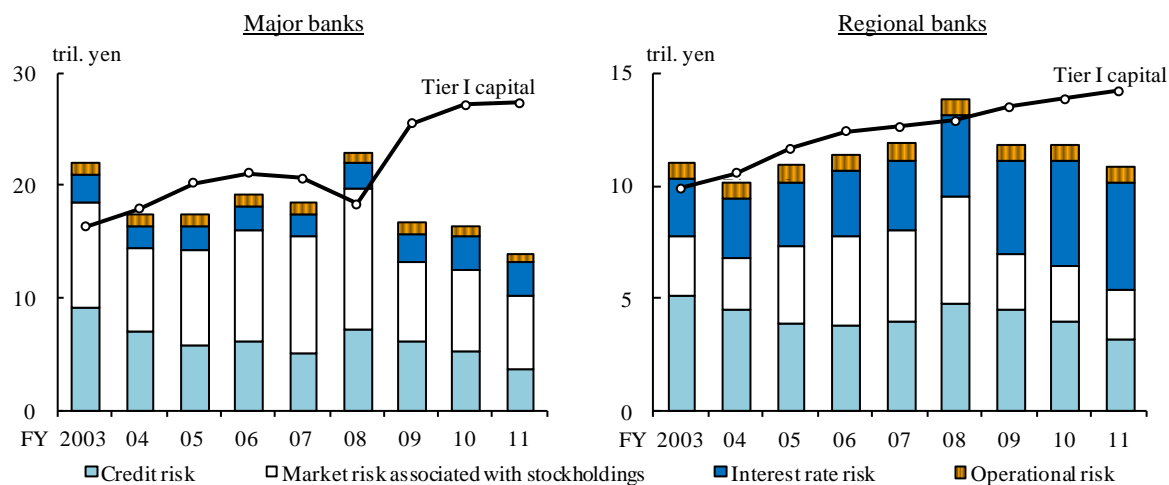
	CY	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11
DI of financial institutions' lending attitudes		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Ratio of total credit to GDP		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Equity weighting in institutional investors' portfolios		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Money multiplier (the ratio of M2 to the monetary base)		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Gross rent multiplier (the ratio of land prices to rent)		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Stock price		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Spread between expected equity yields and government bond yields		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Ratio of business investments to operating profits		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Ratio of firms' CP outstanding to their liabilities		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	
Households' debt-to-cash ratio		Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	Light	

Notes: 1. Shaded areas in the chart represent the following:
 (1) areas shaded in red (the darkest shaded areas) show that an indicator has risen by more than one standard deviation from the trend, that is, it is tilted to overheating;
 (2) areas shaded in blue (the second darkest shaded areas) show that an indicator has declined by more than one standard deviation from the trend, that is, it is tilted to overcooling;
 (3) areas shaded in green (the most lightly shaded areas) show everything in between; and
 (4) areas in white show the periods without data.
 2. The latest data are as of the July-September quarter of 2011.

Source: BOJ calculations.

Macro risk indicators and the amount of risks at financial institutions: Amount of risks at banks

- The amount of risks borne by Japan's banks relative to capital has continued to decrease.

Chart IV-3-1: Risks and Tier I capital^{1,2}

Notes: 1. Credit risk: unexpected loss with a 99 percent confidence level. Market risk associated with stockholdings: value-at-risk with a 99 percent confidence level and 1-year holding. Interest rate risk: 100 basis point value. Operational risk: 15 percent of gross profits.

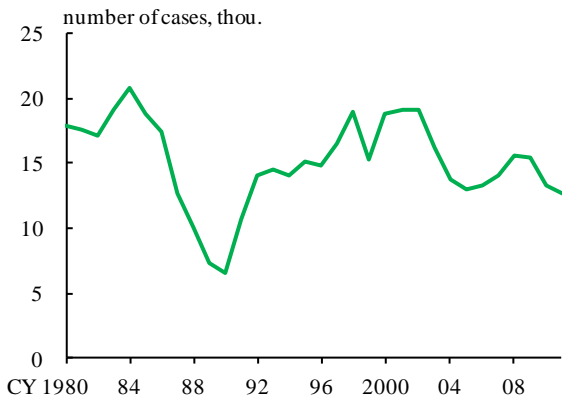
2. The latest data are as of the first half of fiscal 2011.

Source: BOJ.

Credit risk: Decrease in corporate bankruptcies

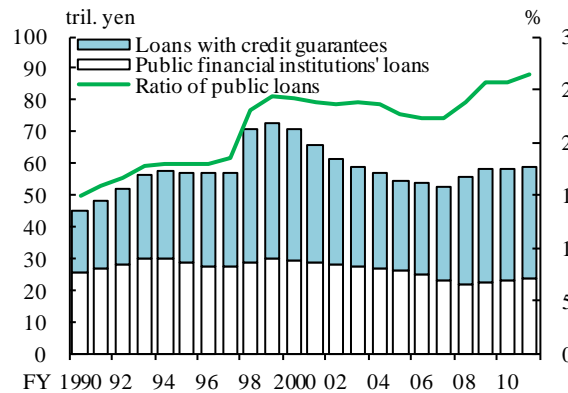
- The number of corporate bankruptcies fell to its lowest level in 20 years. Various policy measures have been implemented to encourage financial institutions to support funding of small and medium-sized firms and contributed to restrain corporate bankruptcies.
 - Summing up the outstanding loans guaranteed by the Credit Guarantee Corporation and the outstanding loans of public financial institutions, the amount of publicly offered credits exceeds 50 trillion yen, 26 percent of overall loans to small and medium-sized firms.
 - The corporation has implemented subrogation continually. Attention should be paid to the possibility that if firms with loan guarantees from the corporation fail to improve their business conditions, the associated costs would ultimately become a burden on the public sector.

Chart IV-3-2: Corporate bankruptcies



Source: Tokyo Shoko Research Ltd., "Tosan Geppo (Monthly review of corporate bankruptcies)."

Chart IV-3-3: Ratio of public loans to small and medium-sized firms^{1,2,3}



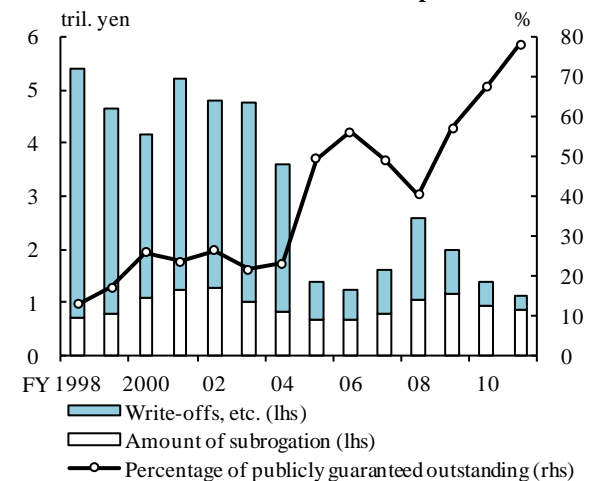
Notes: 1. Public financial institutions' loans are defined as the sum of those of Shoko Chukin Bank and Japan Finance Corporation (micro business and individual unit and small and medium enterprise unit).

2. Ratio of public loans is defined as the ratios of the sum of loans with public guarantees and public financial institutions' loans to total loan amount to small and medium-sized firms.

3. The latest data are as of the first half of fiscal 2011.

Sources: Published accounts of each institutions; National Federation of Credit Guarantee Corporations; BOJ, "Loans and discounts outstanding by sector."

Chart IV-3-5: Banks' write-offs and subrogation by Credit Guarantee Corporations^{1,2}



Notes: 1. Write-offs, etc., is the sum of write-offs, realized losses on bulk sales and others.

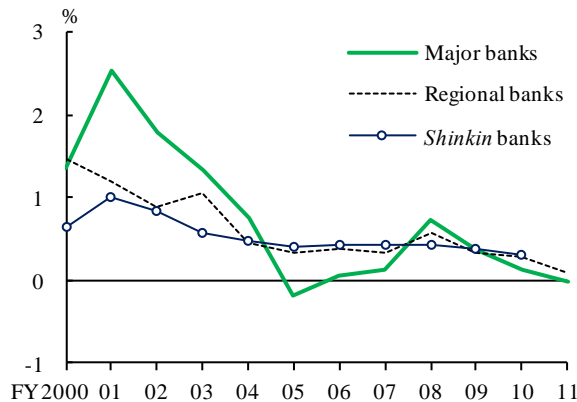
2. The latest data are as of the first half of fiscal 2011.

Sources: Financial Services Agency; National Federation of Credit Guarantee Corporations.

Credit risk: Banks' credit costs and the nonperforming-loan ratio

- Banks' credit cost ratios have declined. This is attributable to the decrease in the number of corporate bankruptcies and the relaxed requirements for restructured loans.
 - Estimation was made of how seriously banks' business conditions would deteriorate under the extremely pessimistic assumption that all firms with relaxed requirements for restructured loans failed to recover their business conditions. The results show that the impact on banks' business conditions would be marginal: the nonperforming-loan ratio of banks would rise about 1 percentage point from the current level, but additional credit costs would be about 0.2 percentage point of the outstanding amount of loans and the Tier I capital ratio would be lowered by about 0.3 percentage point.
 - In relation to profits, if banks incur such costs in 1 year, the additional credit costs would amount to 25 percent of banks' annual operating profits from core business. This is a result of banks' actions to raise the coverage ratio by means of loan-loss provisions and guarantees as part of credit risk management concerning their borrowing firms that "need attention."
- Nevertheless, small and medium-sized firms' financial conditions have deteriorated and bank loans extended to them have not improved materially in quality. It has become important for financial institutions to enhance the effectiveness of reconstruction plans and to manage credit risk appropriately, revising banks' borrower classification and loan-loss provisions, based on the assessment of the borrowers' capacity for self-reconstruction.

Chart IV-3-6: Credit cost ratio^{1,2}

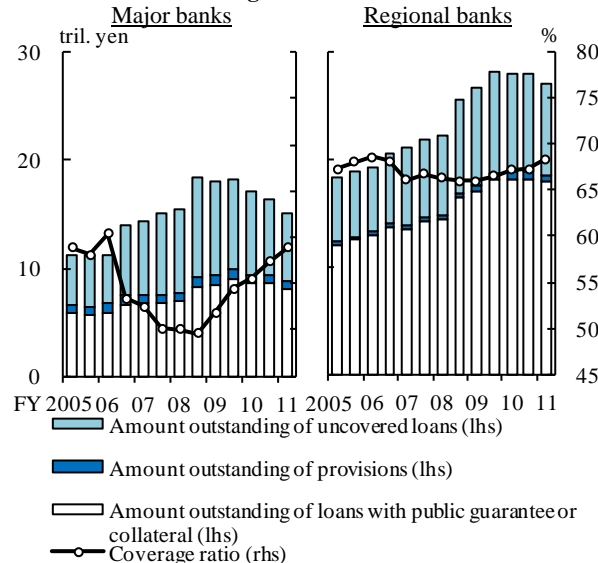


Notes: 1. Shinkin banks are 262 shinkin banks that hold accounts at the BOJ, as of March 31, 2011.

2. The latest data are as of the first half of fiscal 2011 for the major banks and the regional banks, and fiscal 2010 for the shinkin banks.

Source: BOJ.

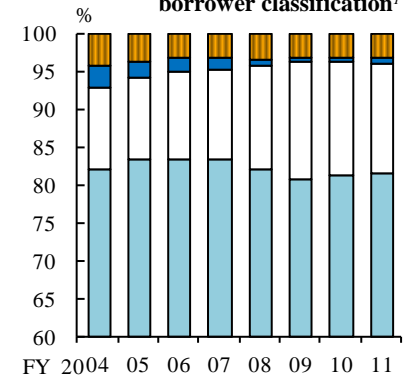
Chart IV-3-8: Coverage ratio for loans that "need attention"^{1/}



Note: 1. The latest data are as of end-September 2011.

Source: BOJ.

Chart IV-3-7: Loans outstanding by borrower classification^{1/}



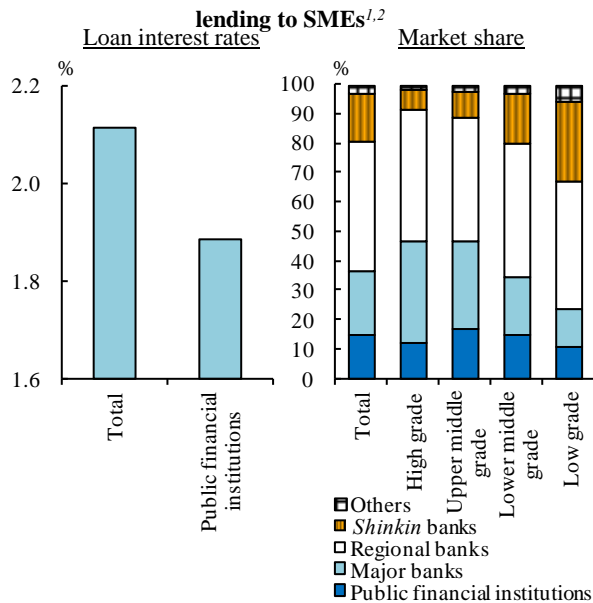
Notes: 1. The latest data are as of the first half of fiscal 2011.

Source: BOJ.

Credit risk: Net profits on bank loans to firms

- Banks' loan interest rates have been declining.
 - This is because banks' funding costs decrease and issuing conditions for CP and corporate bonds remain favorable amid the monetary easing. In addition, intensified lending competition among various types of financial institutions has been a factor that caused the decline in loan interest rates.
- The decline in loan interest rates could adversely affect profits on bank loans further.
 - Loan interest rates in fiscal 2010 for small and medium-sized firms were set at levels above the break-even point, except low-rated firms. This is largely because the break-even point declined by a larger-than-usual degree, due to the reduction of credit costs as a result of the recent policy measures.
 - If credit costs increase to the level of the average since fiscal 2006 while loan interest rates do not change, net profits as a whole would decrease by about 30 percentage points.

Chart III-3-6: Loan interest rates and market share of lending to SMEs^{1,2}

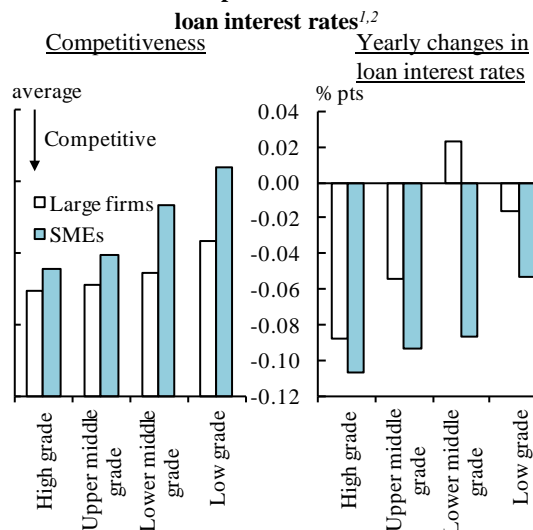


Notes: 1. The loan interest rate of public financial institutions is defined as a weighted average of those of Shoko Chukin Bank and Japan Finance Corporation (micro business and individual unit, small and medium enterprise unit).

2. The data are as of fiscal 2010.

Sources: Published accounts of each institution; Teikoku Databank, "SPECIA"; CRD.

Chart III-3-8: Competitiveness of loan market and loan interest rates^{1,2}

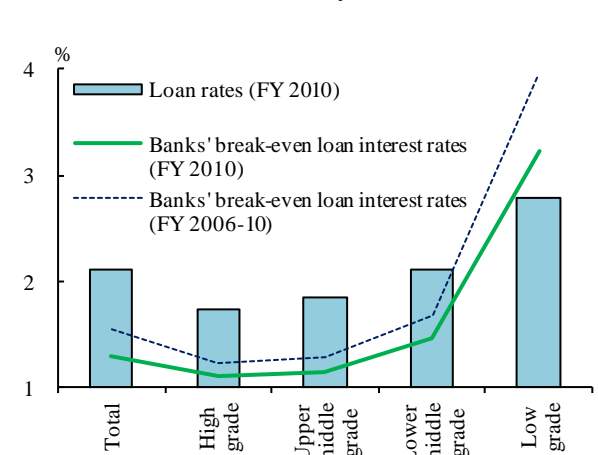


Notes: 1. The degree of competitiveness is evaluated using Herfindarl indices.

2. The left chart is the average from fiscal 2008 to 2010. The right chart is yearly changes from fiscal 2009 to fiscal 2010.

Source: Teikoku Databank, "SPECIA."

Chart III-3-9: Profitability of loans to SMEs^{1,2}



Notes: 1. The break-even loan rates are the sum of the credit cost ratio, funding rate, and general expense rate.

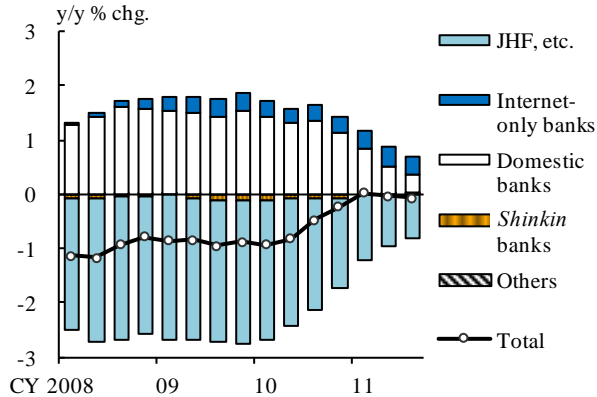
2. The credit cost ratio for each grade is estimated by proportionally dividing actual credit costs based on default probabilities in each grade.

Sources: CRD; BOJ.

Credit risk: Net profits on banks' housing loans

- Banks' profits from housing loans have also worsened.
 - As for housing loans outstanding, the decline in housing loans extended by the Japan Housing Finance Agency (JHF) has decelerated, and the rise in loans extended by Internet-only banks has accelerated.
 - Intensified competition over loan interest rates among various types of financial institutions has mitigated the burden of households' interest payment but also worsened banks' profits from housing loans.
 - Attention should thus be paid to the possibility that a further deterioration of households' income would reduce the quality of bank loans and increase credit costs.

Chart III-3-10: Housing loans outstanding^{1,2}

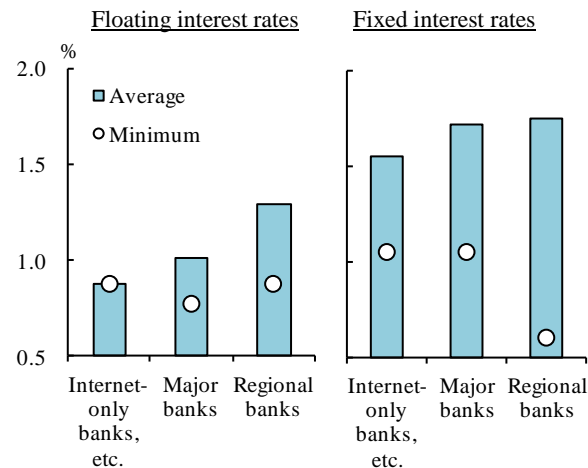


Notes: 1. The latest data are as of end-September 2011.

2. Internet-only banks are the sum of four major banks.

Sources: Japan Housing Finance Agency; BOJ, "Loans and bills discounted by sector," "Flow of funds accounts."

Chart III-3-11: Interest rates on housing loans^{1,2}

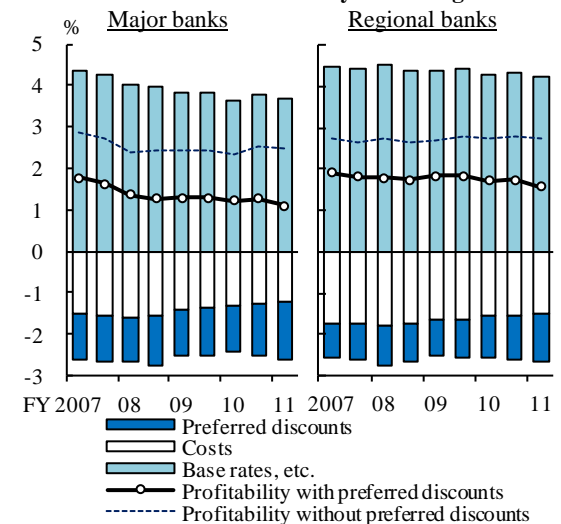


Notes: 1. Figures are effective interest rates (offered rates minus preferred discounts) as of October 1, 2011.

2. Fixed interest rates are simple averages of initial 2-year, 3-year, 5-year, 7-year, 10-year, 15-year, and 20-year fixed interest rates.

Source: Japan Financial News, "Nikken report."

Chart III-3-12: Profitability of housing loans^{1,2}



Notes: 1. Profitability at the time of origination. The latest data are as of the first half of fiscal 2011.

2. Costs are the sum of the funding rate, the premium of group credit life insurance (assumed to be 0.3 percent), and the general expense rate (assumed to be the same as that for the whole business). Base rates, etc., are the sum of base rates, fees, and commissions.

Sources: Japan Financial News, "Nikken report"; Japan Housing Finance Agency, "Survey of private mortgage loans"; Ministry of Land, Infrastructure, Transport and Tourism, "Survey of true state of private mortgage loans"; BOJ calculations.

Credit risk: Overseas loans

- Given the declining profits on domestic loans, the major banks have increased overseas loans, and the share of loans extended by Japan's banks in the global loan market has started to increase gradually.
 - In the overseas syndicated loan market, the share of loans by North American banks and Japan's banks expanded, while the share of loans by European banks shrank.
 - With respect to the amount of syndicated loans by credit rating, Japan's banks are relatively selective in choosing their investments. The ratio of nonperforming overseas loans has declined gradually.

Chart III-3-13: Margin on syndicated loans and overseas loans of the major banks^{1,2}

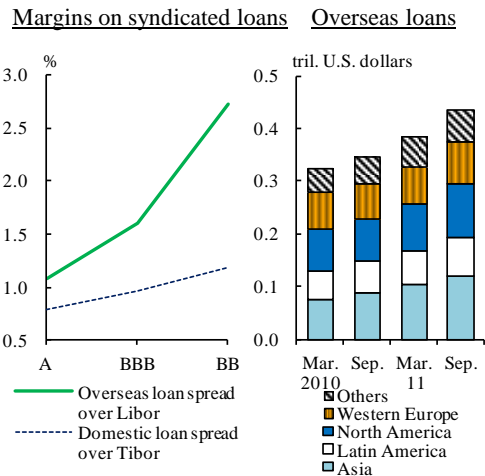
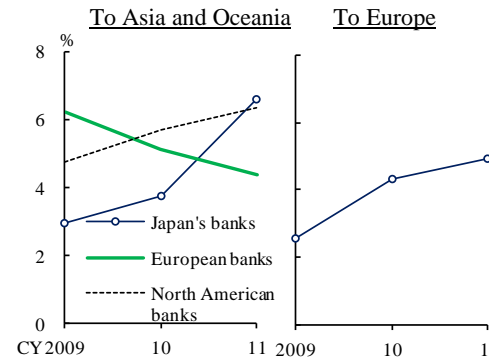


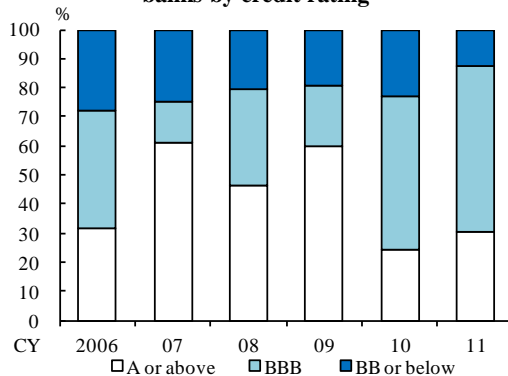
Chart III-3-15: Share in the global syndicated loan market by region^{1,2,3}



Notes: 1. European banks are financial institutions located in the eurozone.
 2. Loans extended from financial institutions other than banks are included.
 3. Shares in newly extended loans in each year.
 Source: Thomson Reuters.

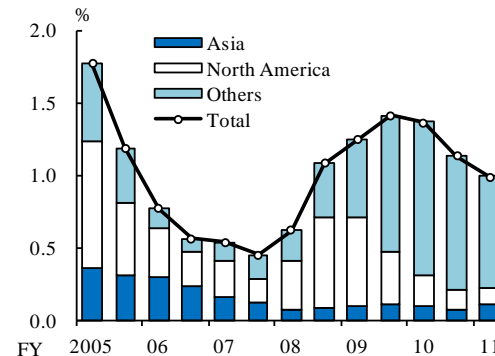
Notes: 1. The left chart: weighted average of transactions from 2009 to 2011. Average maturity of loans is from 2 to 5 years for each rating. The three major financial groups are counted.
 2. The right chart: the three major financial groups are counted on a non-consolidated basis.
 Sources: Thomson Reuters, "DealScan"; Published accounts of each group.

Chart III-3-16: Syndicated loans extended by Japan's banks by credit rating¹



Note: 1. The three major financial groups are counted.
 Source: Thomson Reuters, "DealScan."

Chart IV-3-14: Ratio of nonperforming overseas loans^{1,2}

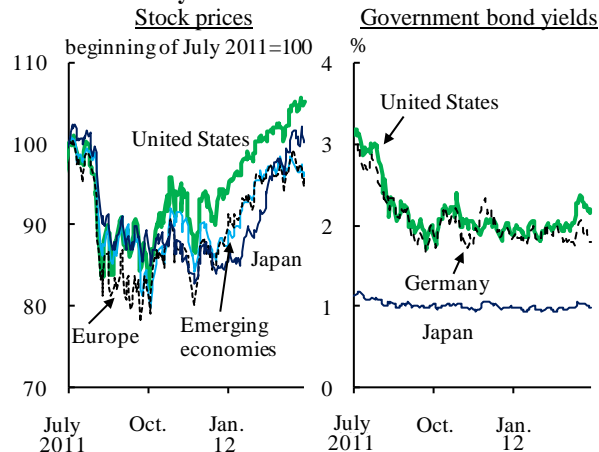


Note: 1. The three major financial groups are counted on a non-consolidated basis.
 2. The latest data are as of the first half of fiscal 2011.
 Sources: Published accounts of each group.

Market risk: Developments in financial markets

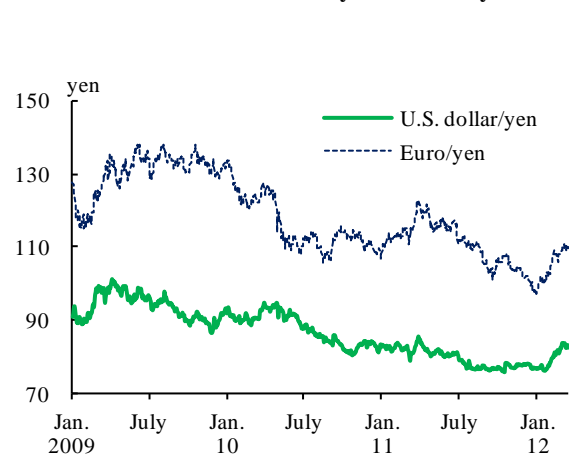
- Domestic financial markets are generally stable for now, as overseas financial markets have regained some stability.
 - Domestic stock prices moved in the lowest range since the Lehman shock toward the year-end, however, domestic stock prices have started to rise since the beginning of 2012. 10-year JGB yields have been stable at around 1 percent.
 - The yen appreciated against the U.S. dollar until October 2011 but has depreciated since the turn of the year. The dollar/yen risk reversal turned dollar call-over in November 2011.

Chart II-1-1: Global stock prices and government bond yields^{1,2,3}



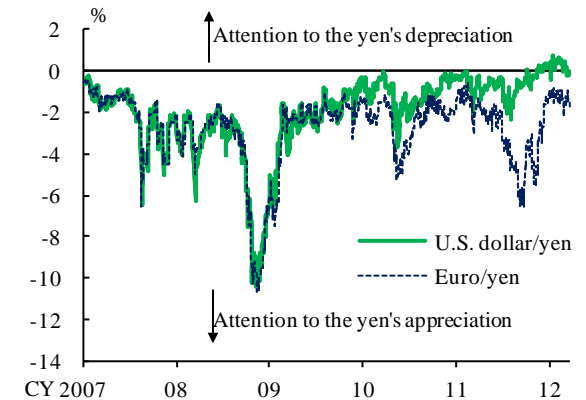
Notes: 1. Stock prices are as follows; United States: S&P 500; Emerging economies: MSCI Emerging; Europe: STOXX Europe 600; Japan: TOPIX.
2. Government bonds are 10-year bonds.
3. The latest data are as of March 30, 2012.
Source: Bloomberg.

Chart IV-2-1: U.S. dollar/yen and euro/yen rates¹



Note: 1. The latest data are as of March 30, 2012.
Source: Bloomberg.

Chart IV-2-14: Risk reversals of U.S. dollar/yen and euro/yen rates^{1,2}



Notes: 1. The latest data are as of March 30, 2012.
2. 1-month risk reversals.
Source: Bloomberg.

Risk reversals

- Risk reversals indicates the difference in implied volatilities between call and put options.
- The deeper the indicator turns negative (put-over), the stronger the risk recognition of the yen's appreciation grows.

Market risk: Correlation between domestic and overseas markets

- Since the outlook for global financial markets has been highly uncertain, the effects of overseas market developments on Japan's markets warrant attention.
 - As model-free implied volatilities (MFIVs) of stock prices indicate, domestic stock prices remain susceptible to developments in U.S. and European stock markets.
 - MFIVs of government bond prices would also be correlated globally when a tail event such as the Lehman shock occurred. Banks and other institutional investors such as life insurance companies and pension funds mostly hold JGBs as long-term investment and are loyal holders. On the other hand, foreign investors have been increasing the share of JGB holdings.

Chart IV-2-2: MFIVs of stock prices¹

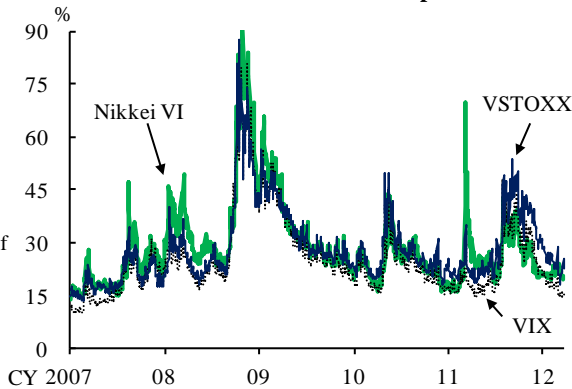
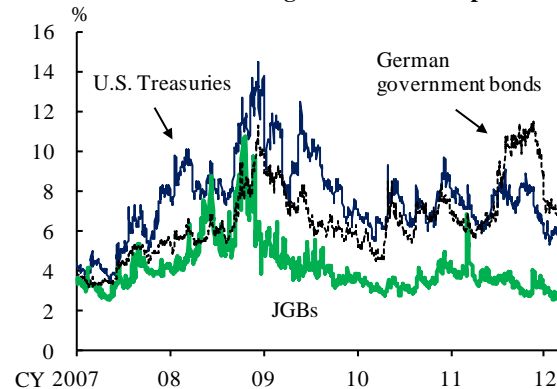


Chart IV-2-6: MFIVs of government bond prices^{1,2}



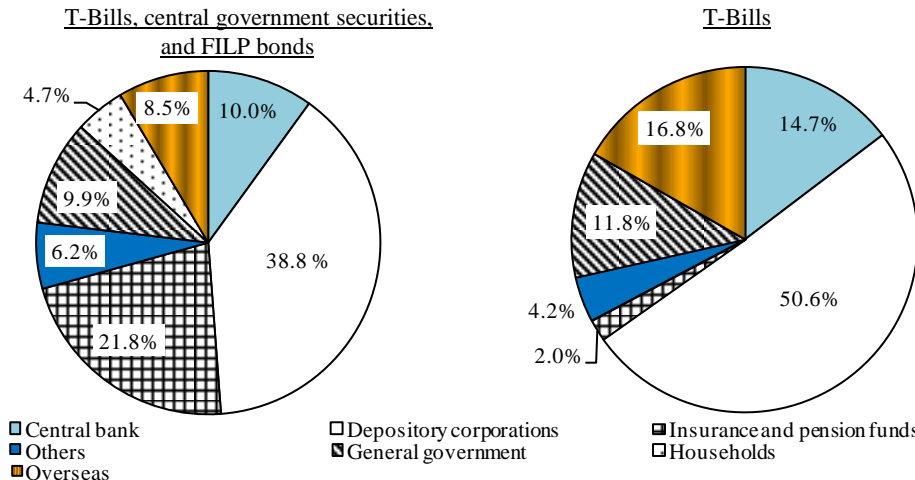
Notes: 1. Options on JGB futures traded on the Tokyo Stock Exchange for JGBs; Options on U.S. Treasury futures traded on the Chicago Board of Trade for U.S. Treasuries; Options on Euro-Bund futures traded on Eurex for German government bonds.

2. The latest data are as of March 30, 2012.

Sources: Bloomberg; BOJ calculations.

Note: 1. The latest data are as of March 30, 2012.
Source: Bloomberg.

Chart IV-2-7: JGB holdings by type of investor¹



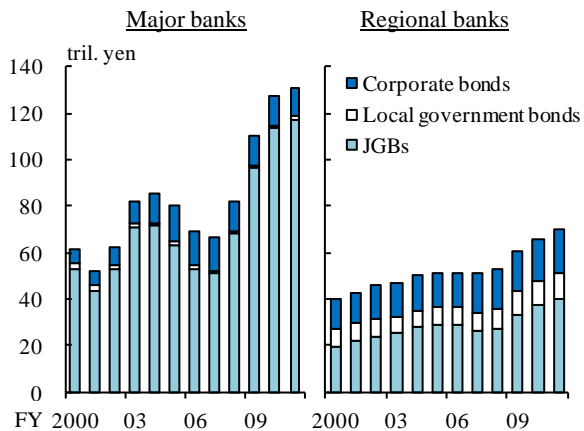
MFIVs

- MFIVs are broadly equivalent to the expectations of option market participants on the changes in asset prices (one-month ahead for stock prices, three-month ahead for government bond prices). The larger the indicator becomes, the stronger the market participants' risk recognition of price fluctuations grows.

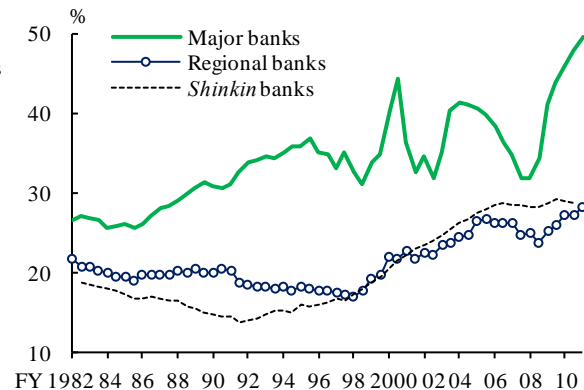
Note: 1. The latest data are as of end-December 2011.
Source: BOJ, "Flow of funds account."

Market risk: Interest rate risk borne by banks

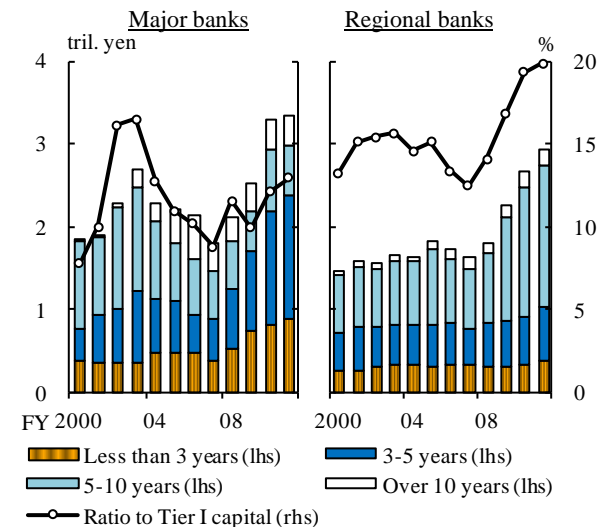
- The amount of interest rate risk borne by banks has been increasing.
 - At banks, while inflows of deposits continue, their investment in bonds has been increasing and the ratio of securities to deposits has been rising.
 - At the major banks, the average remaining maturity of bondholdings has been at around 2.5 years, because these banks have continued to invest mainly in short- to medium-term bonds.
 - At the regional banks, the average remaining maturity of bondholdings has reached around 4 years recently, as these banks have continued to invest largely in long-term bonds.

Chart IV-3-17: Bondholdings¹

Note: 1. The latest data are as of the first half of fiscal 2011.
Source: BOJ.

Chart IV-3-18: Ratio of securities to deposits^{1,2,3}

Notes: 1. The latest data are as of the first half of fiscal 2011 (as of fiscal 2010 for *shinkin* banks).
2. Domestic operations are aggregated for the major banks and the regional banks.
3. *Shinkin* banks are 262 *shinkin* banks that hold accounts at the BOJ, as of March 31, 2011.
Source: BOJ.

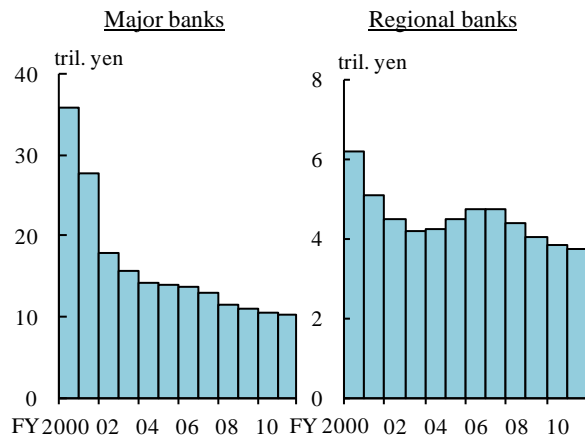
Chart IV-3-20: Interest rate risk associated with bondholdings¹

Note: 1. The latest data for bondholdings and Tier I capital are as of end-December and end-September 2011, respectively.
Source: BOJ.

Market risk: Market risk associated with stockholdings borne by banks

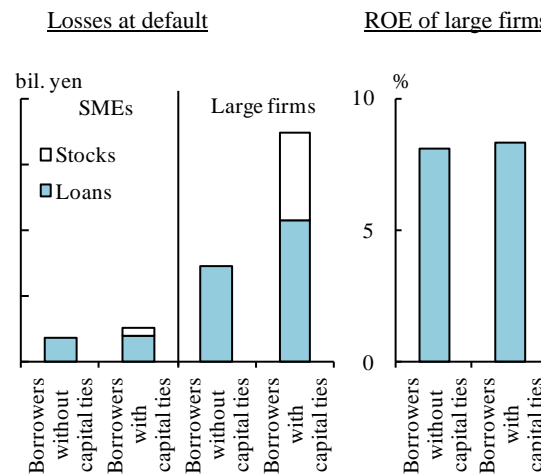
- The pace of reduction in banks' market risk associated with stockholdings has been slower than planned.
 - Japan's banks are exposed to higher credit concentration risk because they have extended a large amount of loans to firms with which they have close business ties and hold these firms' stocks strategically. Japan's banks should reexamine the merits arising from business ties strengthened by strategic stockholdings and then reduce their risk associated with stockholdings at a measured pace.
 - The amount of banks' stockholdings is large even after taking into account the hedging effect between stockholdings and bondholdings.

Chart IV-3-23: Stockholdings^{1,2}



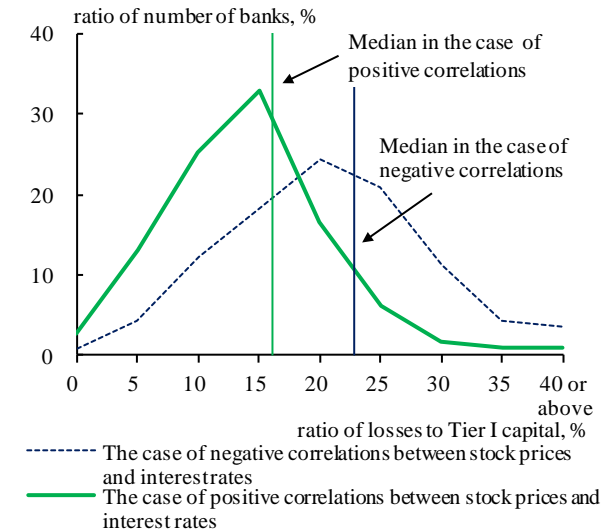
Notes: 1. On an acquisition or amortized price basis. Banks are counted on a consolidated basis.
 2. The latest data are as of the first half of fiscal 2011.
 Source: BOJ.

Chart B4-3: Losses at default and ROEs (per borrower)^{1,2,3}



Notes: 1. The covered ratio is assumed to be 60 percent for loans.
 2. Losses on stocks at default are the larger of either net assets or capital stock multiplied by capital contribution ratio.
 3. As of fiscal 2010. Excluding subsidiaries with a capital contribution of more than 50 percent.
 Source: Teikoku Databank, "SPECIA."

Chart B5-2: Losses on securities holdings^{1,2}

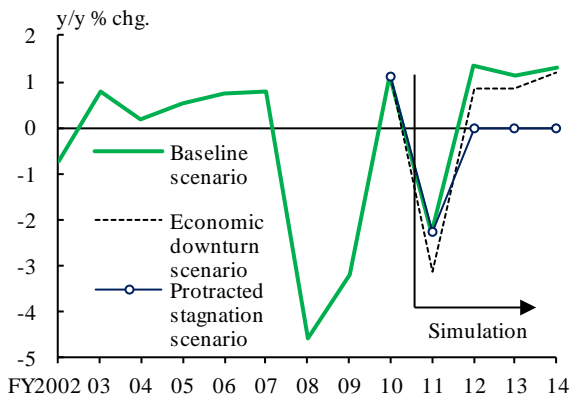


Notes: 1. The major banks and regional banks are counted. The data are as of the first half of fiscal 2011.
 2. Correlation coefficients between stock prices and interest rates are set to 0.33 and minus 0.63 in the cases of positive and negative correlations, respectively.
 Source: BOJ calculations.

Resilience against macroeconomic shocks

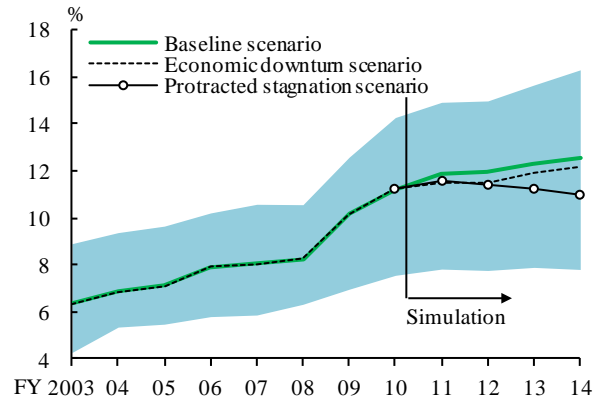
- The macro stress testing shows that banks' capital bases as a whole would be able to avoid significant impairment, even if a temporary economic downturn (an economic downturn scenario) arises.
 - Nevertheless, there is the possibility that capital adequacy ratios will remain low for banks with relatively low profitability and weak capital bases.
- On the other hand, under a scenario in which the economy remains stagnant for a protracted period (an protracted stagnation scenario), the Tier I capital ratios would decline as the estimated credit costs would continue to exceed operating profits from core business.
 - There is the possibility that the Tier I capital ratios would plunge for banks whose quality of loans is relatively low.

Chart V-1-1: Nominal GDP growth under the scenarios



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

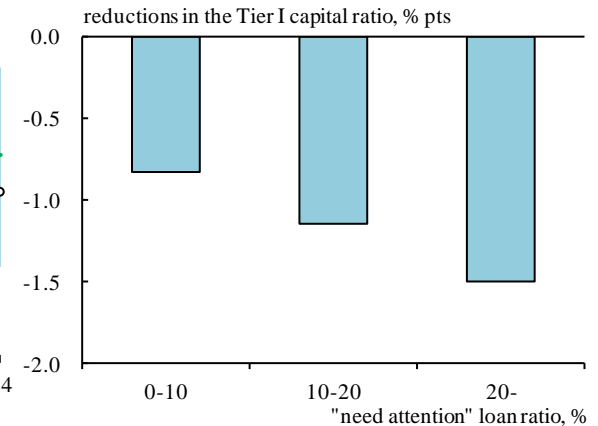
Chart V-1-4: Tier I capital ratios¹



Note: 1. Shaded area indicates the 10th-90th percentile range under the economic downturn scenario.

Source: BOJ calculations.

Chart V-1-5: Reductions in the Tier I capital ratio¹



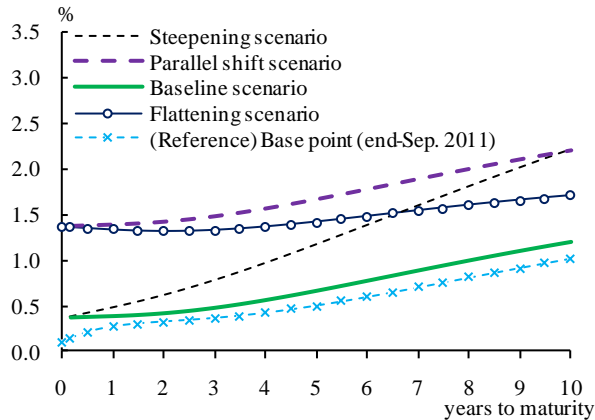
Note: 1. The regional banks are categorized by the share of "need attention" loan amount in total loans outstanding. Distribution of each regional bank's difference between the Tier I capital ratio under the protracted stagnation scenario and that under the economic downturn scenario as of end-fiscal 2014.

Source: BOJ calculations.

Resilience against financial market fluctuations: A rise in domestic interest rates

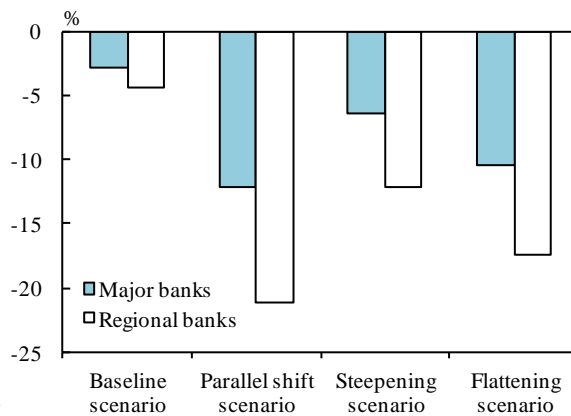
- Even under a stress scenario in which domestic interest rates for all maturities shift upward by 1 percentage point (the parallel shift scenario), banks' capital bases as a whole would be able to avoid significant impairment.
 - Capital losses on bondholdings under the parallel shift scenario would be 3.4 trillion yen for the major banks and 3.0 trillion yen for the regional banks (as of the end of December 2011, before profits, etc. are taken into account).
 - Under the parallel shift scenario, capital ratios (Tier I capital ratios) at the major banks and the regional banks would decline by around 0.3 and 0.4 percentage point, respectively after profits, capital gains/losses on all securities holdings, etc. are taken into account. Nevertheless, over 30 percent of the regional banks would experience a decline of more than 1 percentage point in their Tier I capital ratios.

Chart V-2-1: Upward shift scenarios of interest rates¹



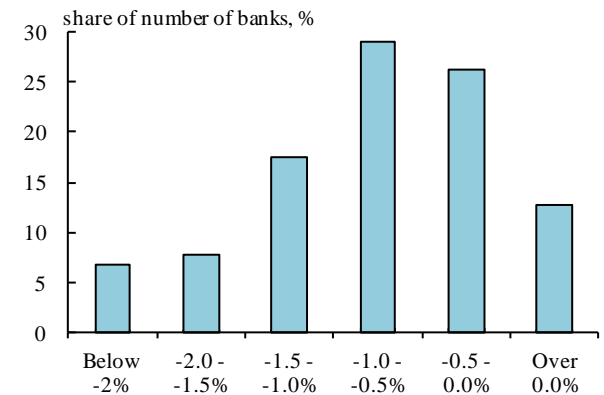
Note: 1. 1-year-later projected spot rate curves from the base point.
Sources: Bloomberg; BOJ calculations.

Chart V-2-2: Capital gains/losses on bondholdings¹



Note: 1. The ratios of capital gains/losses on bondholdings to Tier I capital for a 1-year period after the base point (end-September 2011). Before taking into account profits, etc.
Source: BOJ calculations.

Chart V-2-3: Distribution of changes in the Tier I capital ratio^{1,2}



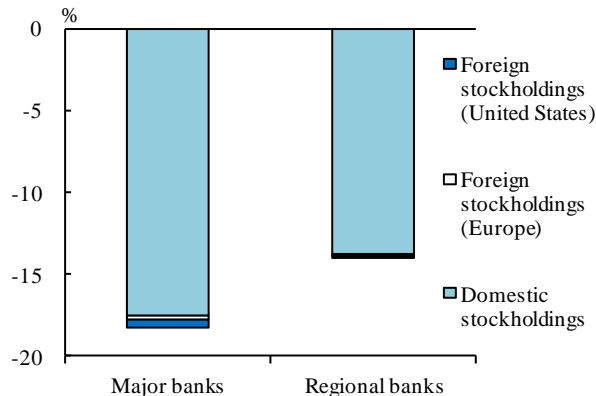
Notes: 1. The horizontal axis indicates reductions in the Tier I capital ratio due to capital gains/losses on bondholdings under the parallel shift scenario. After profits, capital gains/losses on all securities holdings, etc. are taken into account. The vertical axis indicates share of the number of banks among the regional banks.
2. The regional banks are counted.
Source: BOJ calculations.

Resilience against financial market fluctuations:

Capital losses on securities holdings caused by a shock in overseas markets

- Japan's banks would suffer a considerable amount of capital losses on both domestic and foreign securities under a stress scenario in which shocks occur in overseas stock or government bond markets.
- The following estimates of stress testing are calculated under a shock with 1 percent probability of occurrence for both European stock prices and German government bond yields, where the period of holding stocks or government bonds is set as 1 year.
 - A downward shock that induces a decline of about 50 percent in European stock prices would cause a fall of the same degree in stock prices in Japan and the United States. In this case, the major banks, which hold a large amount of domestic stocks, would suffer relatively large capital losses on stockholdings.
 - An upward shock that induces an increase of about 2 percentage points in German government bond yields would lead to a rise of about 0.9 percentage point in JGB yields and 2.5 percentage points in U.S. Treasury yields. In this case, the regional banks, which hold a relatively large amount of risk associated with JGB holdings, would suffer relatively larger capital losses on bondholdings.

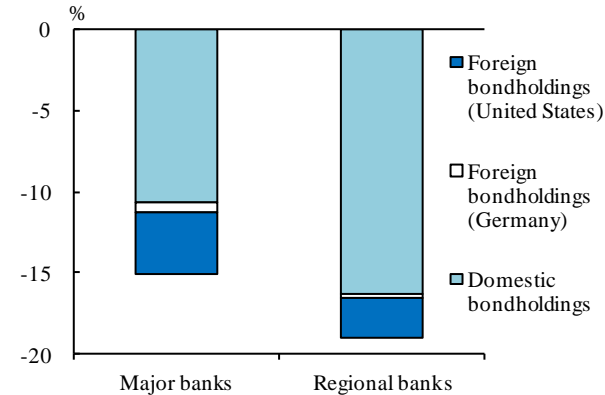
Chart V-2-5: Banks' capital losses on stockholdings under the stock price shock^{1,2,3}



Notes: 1. The amount outstanding of foreign stockholdings is estimated by using the banking sector's investment by region in the "balance of payments statistics."
 2. Ratio to Tier I capital.
 3. Tax effects and unrealized gains/losses before the shock are not considered.

Sources: BOJ, "Balance of payments statistics"; BOJ calculations.

Chart V-2-6: Banks' capital losses on bondholdings under the interest rate shock^{1,2,3}



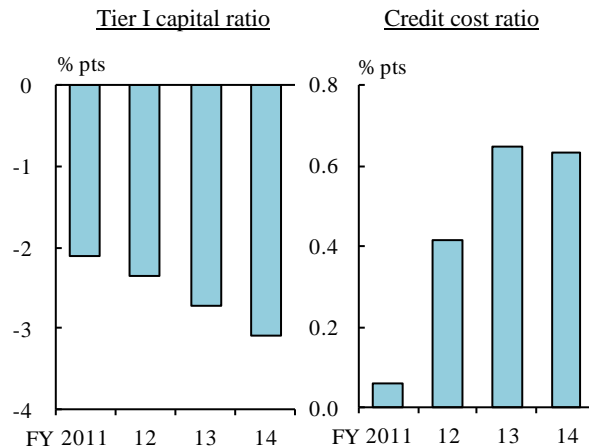
Notes: 1. The amount outstanding of foreign bondholdings is estimated by using the banking sector's bond investment in OECD countries by region in the "balance of payments statistics."
 2. Durations of foreign bondholdings are assumed to be the same as those of domestic bondholdings.
 3. See Notes 2 and 3 in Chart V-2-5.

Sources: BOJ, "Balance of payments statistics"; BOJ calculations.

Resilience against financial market fluctuations: A shock in overseas markets and adverse feedback loop

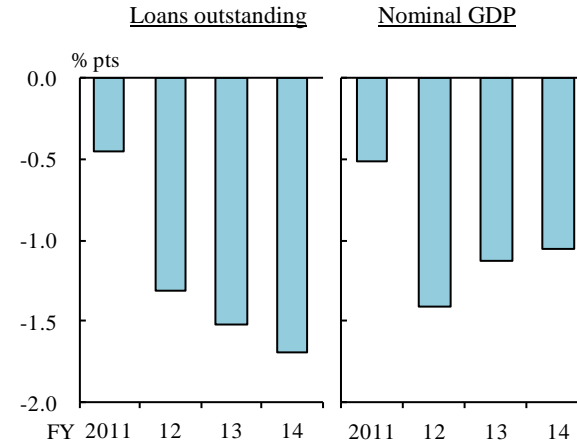
- Based on the results of stress testing under a scenario where shocks occur simultaneously in overseas stock and government bond markets, banks' realized gains/losses on securities holdings would deteriorate significantly. The deterioration would be amplified through a feedback loop between the financial system and the real economy.
 - If shocks occur simultaneously in European stock prices and German government bond yields as assumed in the previous page, banks' Tier I capital ratio would decline by about 2 percentage points in fiscal 2011. Following the decline in the Tier I capital ratio, the banks would reduce their loans and raise loan interest rates. Consequently, in fiscal 2014 the nominal GDP growth would fall by about 1 percentage point in comparison with the baseline scenario. Moreover, the decline in the Tier I capital ratio would expand due to the increase in credit costs caused by the economic slowdown.
 - Attention should be paid to the possibility of sporadic surges in market interest rates triggered by decreased confidence in fiscal sustainability, as was observed recently in Europe.

Chart V-3-1: Tier I capital ratio and credit cost ratio under the stock price and interest rate shocks¹



Note: 1. Figures indicate the deviation from the baseline scenario.
Sources: Japan Center for Economic Research, "ESP forecasts";
BOJ calculations.

Chart V-3-2: Loans outstanding and nominal GDP under the stock price and interest rate shocks¹

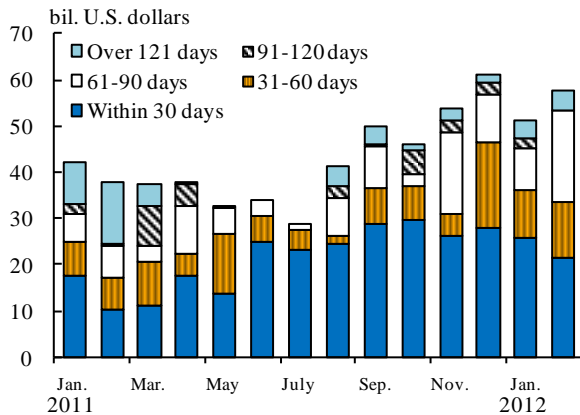


Note: 1. Figures indicate the deviation from the baseline scenario.
Sources: Japan Center for Economic Research, "ESP forecasts";
BOJ calculations.

Resilience against foreign currency liquidity risk

- Banks' funding for foreign currencies has functioned properly without any serious problem.
 - U.S. MMFs – the major providers of U.S. dollars – have increased dollar investment in Japan's banks and have lengthened the maturity.
- Even under the stress scenario where one of the major sources of foreign currency funding for Japan's banks becomes dysfunctional for 1 month, Japan's banks would have an amount of foreign currency liquidity buffers to cover funding shortages.
 - However, if more than one of the funding markets become dysfunctional simultaneously, Japan's banks would need to find alternative funding sources.

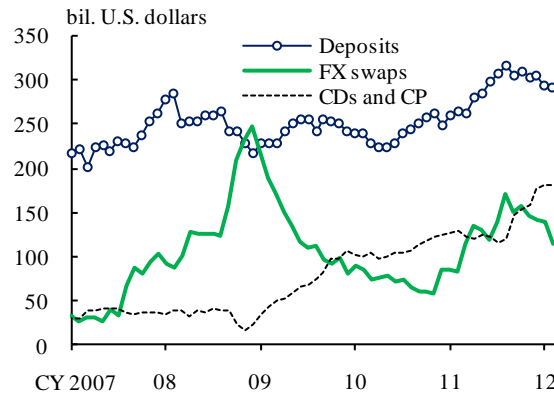
Chart IV-3-30: U.S. MMFs' assets under management by remaining maturity¹



Note: 1. U.S. major MMFs' investment in Japan's financial institutions are counted.

Sources: Published accounts of MMFs.

Chart IV-3-32: Funding amount in overseas branches^{1,2}

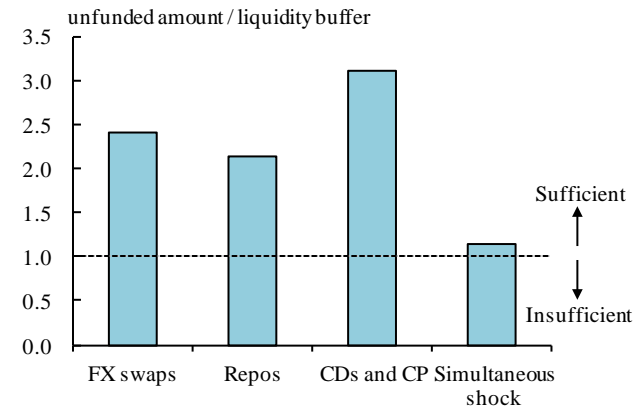


Notes: 1. FX swaps indicate net liabilities of interoffice accounts.

2. The latest data are as of February 2012.

Source: BOJ, "Financial institutions accounts."

Chart V-2-8: Stress testing against foreign currency liquidity shock¹



Note: 1. The major banks and the regional banks are counted. As of end-September 2011.

Sources: Published accounts of U.S. MMFs; BOJ, "Regular derivatives market statistics in Japan"; BOJ calculations.

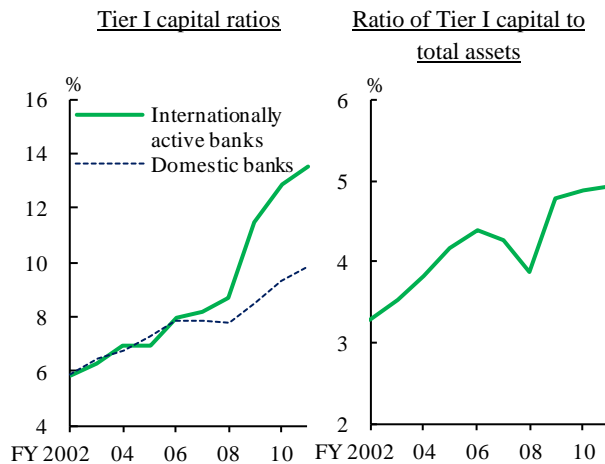
Enhancing the effectiveness of risk management

- Financial institutions should continue to enhance the effectiveness of risk management, such as credit and market risks. Of importance is that the financial institutions should conduct risk management comprehensively by paying attention to the spillover of risks from overseas economies and financial markets, and by considering correlations among the various risks.
 - i. Credit risk
 - ✓ Financial institutions need to improve the effectiveness of reconstruction programs by strengthening measures to help ailing borrowing firms improve their business conditions.
 - ✓ Financial institutions need to appropriately manage credit risk, revising their borrower classification and loan-loss provisions, based on the assessment of the borrowers' capacity for self-reconstruction.
 - ✓ Japan's banks need to prepare and strengthen their credit screening for overseas lending business and enhance their monitoring capability.
 - ii. Market risk
 - ✓ Financial institutions should examine market risk associated with securities investment from multidimensional perspectives with the use of stress testing and other methods, in order to achieve balanced investment portfolios and manage risk in accordance with financial institutions' capital.
 - ✓ Japan's banks should reexamine the merits arising from business ties strengthened by strategic stockholdings and then reduce their risk associated with stockholdings at a measured pace.
 - iii. Funding liquidity risk
 - ✓ Financial institutions remain heavily dependent on short-term markets for foreign currency funding and are therefore susceptible to changes in market conditions.
 - ✓ Financial institutions should constantly reexamine the capacity of funding in individual market and the term structure of foreign currency assets, and then continue their strict foreign currency liquidity management, including measures to secure stable funding.

Strengthening capital bases

- Banks need to continue to strengthen their capital bases steadily by, for example, accumulating retained earnings and using instruments includable in the capital under the new Basel requirements, with a view to improving the quality of their capital and increasing their capital adequacy ratios.
 - Under the new Basel requirements to be applied to internationally active banks, banks' Tier I capital will decline gradually due to the grandfathering measures regarding deductions from banks' capital and funding methods.

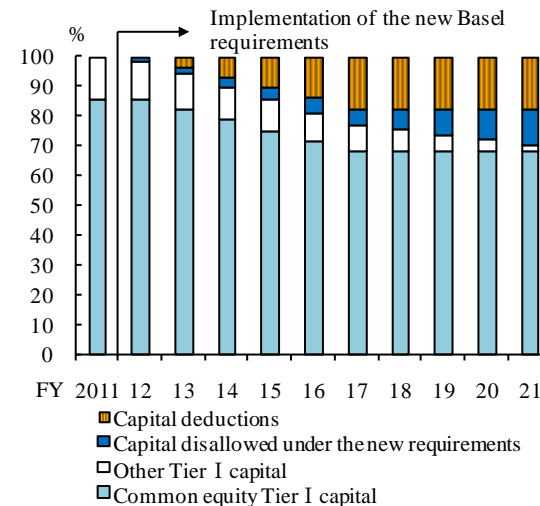
Chart IV-3-34: Tier I capital ratios and ratios of Tier I capital to total assets^{1,2,3,4}



Notes: 1. Based on the Basel II regulation.
 2. Left chart: on a consolidated basis.
 3. Right chart: on a non-consolidated basis.
 4. The latest data are as of the first half of fiscal 2011.
 The major banks and the regional banks are counted.

Source: BOJ.

Chart IV-3-35: Tier I capital under the new Basel requirements^{1,2,3,4}



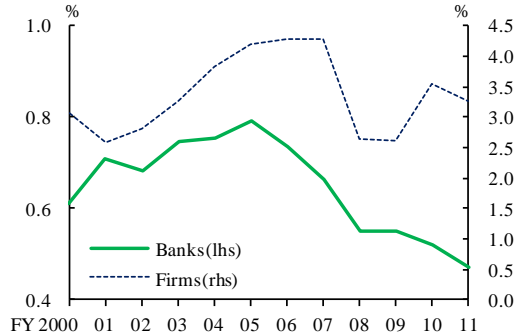
Notes: 1. Internationally active banks are counted.
 2. BOJ calculations based on questionnaires about financial conditions at end-September 2011.
 3. Grandfathering measures are considered based on "amendment to administrative notice on capital adequacy rules for internationally active banks based on Basel III" issued by the Financial Services Agency in March 2012.
 4. Capital deductions are those from common equity Tier I capital.

Source: BOJ.

Constructing profit bases suited to changes in the social structure

- Profitability of Japan's banks has been declining. Regional banks in local areas in particular face more severe business conditions amid the decreasing population.
 - Financial institutions are expected to create new financial services suited to developments in the social structure, such as the decreasing population and the aging of society. As for the profitability of credit expansion as core business, financial institutions need to prompt the restructuring of firms by identifying and supporting firms and business areas with high growth potential.
- Another possible option to strengthen profit bases is to work on strategic business partnerships and integration, thereby improving business efficiency and expanding their customer network.

Chart IV-3-37: Operating profit ROA from core business for banks and current profit ROA for firms^{1,2}

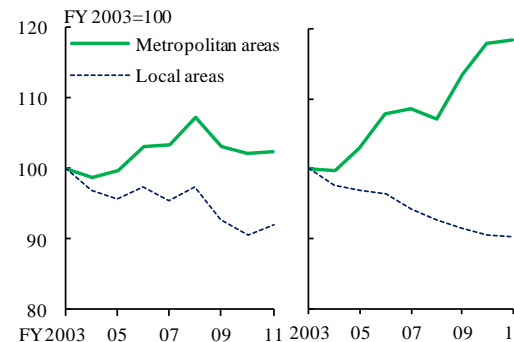


Note: 1. The latest data are as of the first half of fiscal 2011.

2. See Annex 2 in the main text for the definition of operating profits from core business.

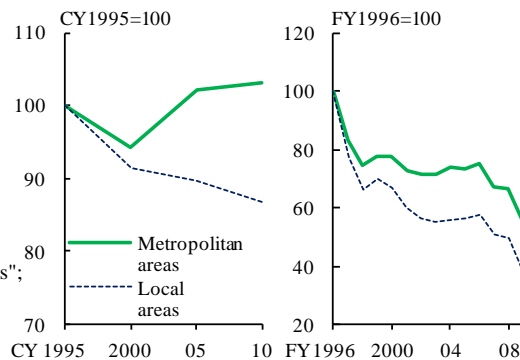
Sources: Ministry of Finance, "Financial Statements statistics of corporations by industry, quarterly"; BOJ.

Chart B7-2: Regional banks' loans outstanding to small and medium-sized firms¹



Note: 1. Metropolitan areas consist of the south Kanto, Tokai, and Kinki regions.
Source: BOJ, "Loans and bills discounted by sector."

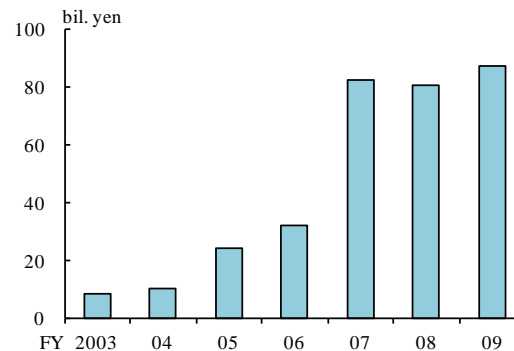
Chart B7-3: Population in their 30s and 40s and housing investment¹



Note: 1. See note 1 in Chart B7-2.

Sources: Cabinet Office, "Prefectural accounts"; Ministry of Internal Affairs and Communications, "National population census."

Chart III-3-18: Loans to start-ups extended by the region banks



Source: Financial Services Agency, "Report on promotion of region-based relationship banking in fiscal 2009."