

Financial System FSR Report

Summary

October 2018
Bank of Japan



Executive Summary

- The expansionary phase of the financial cycle has continued. However, it has shown no signs of overheating as observed during the bubble period in the late 1980s.
 - Financial institutions (FIs) have maintained their active lending attitudes
 - The recent financial developments have supported the economic expansion and suppressed downside risk to Japan's economy in the near future
 - However, from a somewhat longer-term perspective, such developments could build up pressure on balance sheet adjustments and thereby amplify downward pressure on the economy in a stress event if the growth potential of the economy does not increase
- Japan's financial system has been maintaining stability on the whole. FIs have generally strong resilience in terms of both capital and liquidity during tail events such as the Global Financial Crisis (GFC).
 - However, two caveats are worth noting, given FIs' decreasing core profitability and regional FIs' gradually decreasing capital adequacy ratios
 - ✓ In a stress event, downward pressure on the economy from the financial system -- a decrease in FIs' risk taking -- would be more likely to intensify than in the past
 - ✓ FIs that have actively engaged in risk taking, in areas such as lending to middle-risk firms and the real estate sector, as well as securities investment, could experience larger declines in their capital because of credit costs and losses on securities

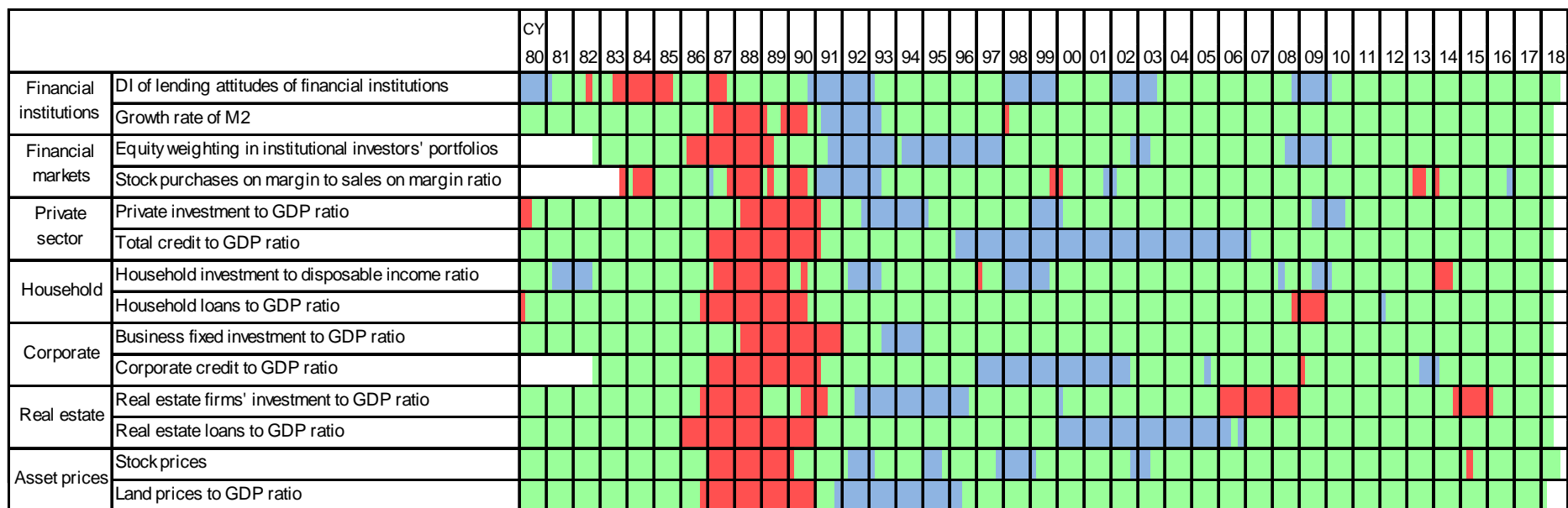
Part I. Financial cycle and financial vulnerabilities

- Heat map of Financial Activity Indexes
- Financial gap and risks to economic growth

Financial cycle: heat map of Financial Activity Indexes (FAIXs)

- The heat map helps detect signs of overheating or contraction in the current phase of the financial cycle by showing the degree of the deviation of FAIXs from their trends
- None of the indexes are "red" in spite of highly accommodative funding conditions
- Financial and economic activities as a whole have not shown excessive movements similar to those observed during the bubble period

Chart IV-1-1: Heat map



Financial cycle: some FAIXs close to "red"

- Some FAIXs are getting closer to "red" although still in the "green" zone
- The DI of lending attitudes of FIs has remained at the highest level since the bubble period, leading to an increase in lending to middle-risk firms
- The total credit to GDP ratio has gradually increased, deviating from its trend
- The real estate loans to GDP ratio has reached a historical high, deviating from its trend

Chart IV-1-2: DI of lending attitudes of financial institutions

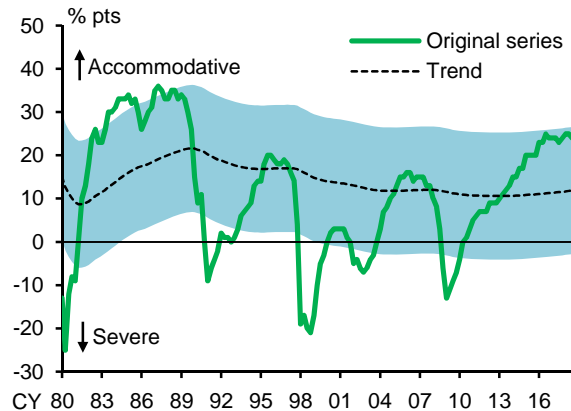


Chart IV-1-3: Total credit to GDP ratio

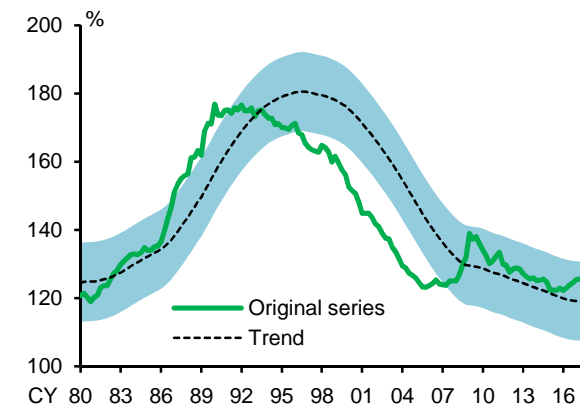


Chart IV-1-4: Real estate loans to GDP ratio

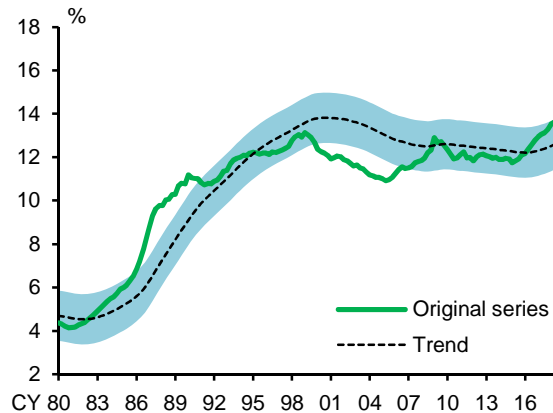
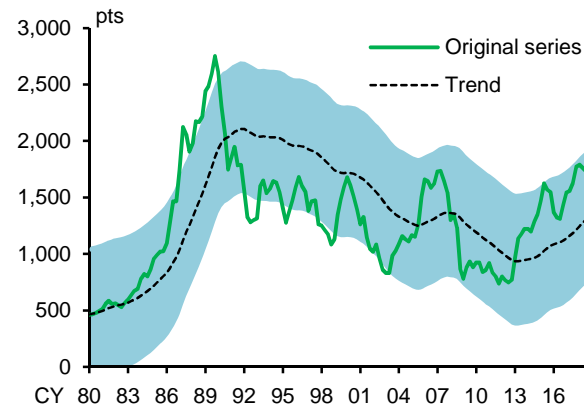


Chart IV-1-5: Stock prices



Financial cycle: the financial gap

- The financial gap -- a composite indicator of the 14 FAIXs included in the heat map -- allows us to quantitatively assess the phases of the financial cycle
- The gap has been increasing gradually but steadily, although below the levels seen during the bubble period

Chart IV-2-1: Financial gap and output gap

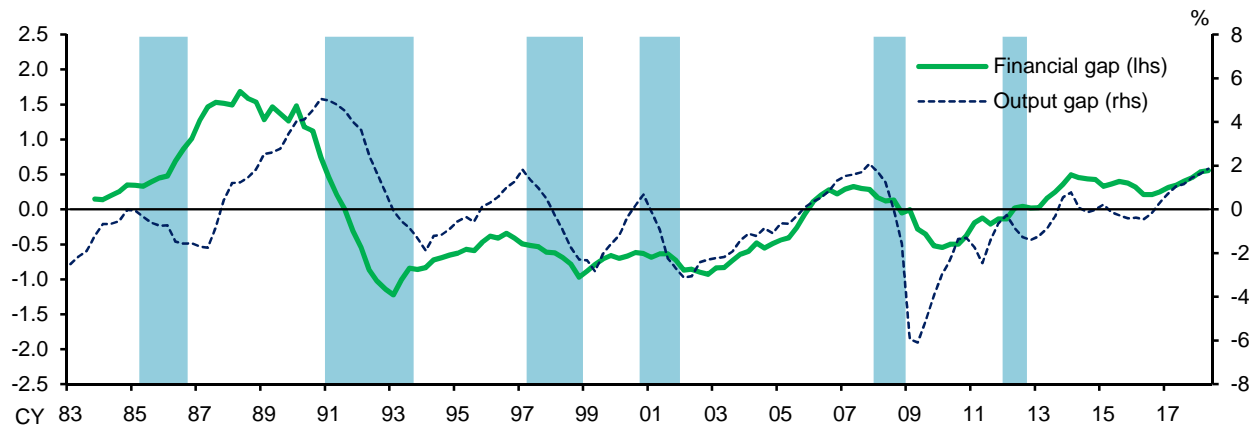
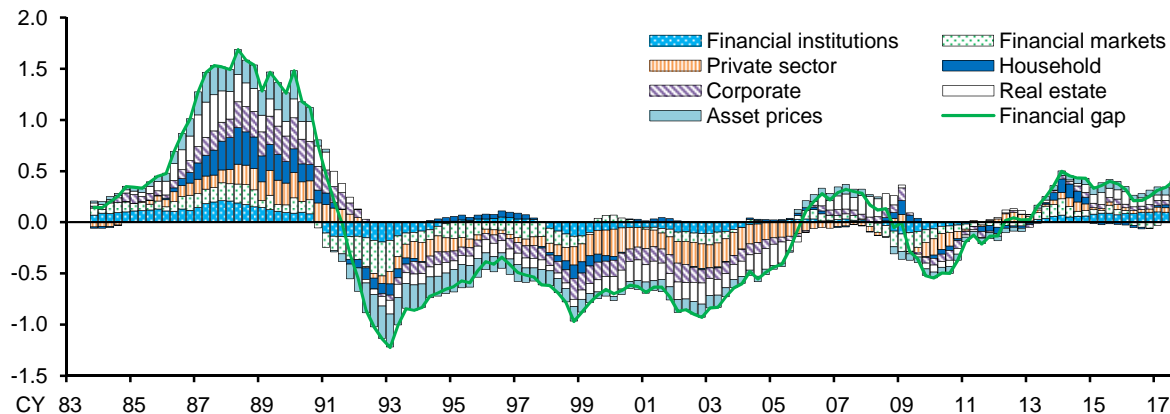


Chart IV-2-2: Decomposition of financial gap



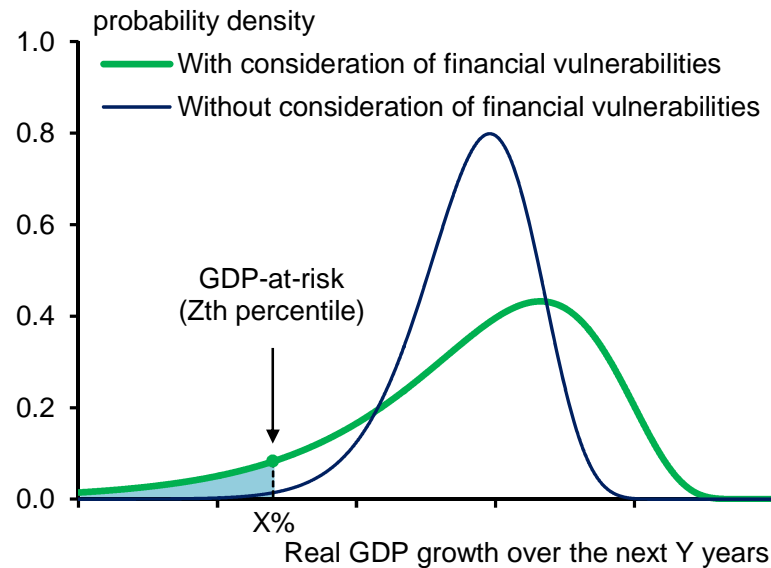
Recent financial gap

- Highest in the post-bubble period
- Positive contributions by a wide range of FAIXs
- Longest period of the positive financial gap in the post-bubble period

GDP-at-risk (1)

- We use an approach called "GDP-at-risk" (GaR) to quantitatively examine the extent to which developments in the financial gap may pose risk to the future real economy
- GaR measures the risk by showing the growth rate may fall below X percent over the next Y years with the probability of Z percent
- Thus, GaR can demonstrate how the current financial gap -- current financial vulnerabilities -- affects the future real economy by using a simple measure of the GDP growth distribution

Chart B1-1: Concept chart of GDP-at-risk



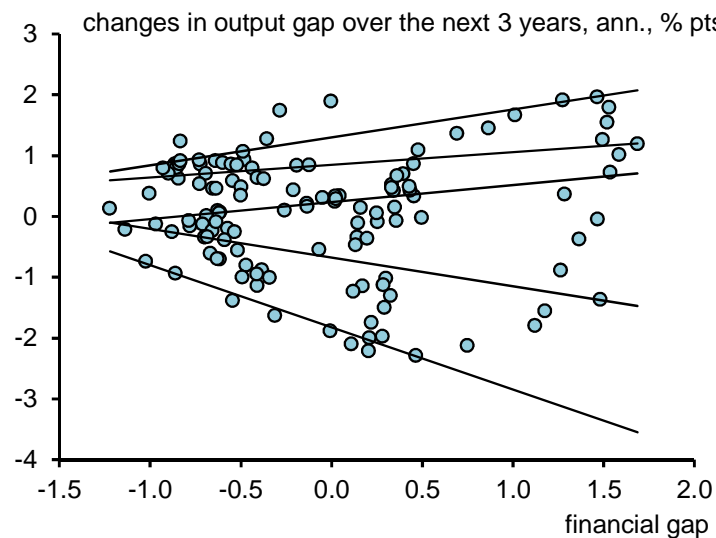
Publications using the GaR approach by international organizations and central banks

Institution	Publication	Issue Year
NY Fed	Working Paper	2016
OECD	Working Paper	2016
IMF	GFSR	From 2017
FRB	Working Paper	2018
BOE	Working Paper	2018
BOC	FSR	2018
ECB	FSR	2018

GDP-at-risk (2)

- GaR uses quantile regression to estimate the probability distribution of changes in the future output gaps (\approx the GDP growth rate - the potential growth rate)
- GaR allows us to estimate the impact of financial vulnerabilities on the economic growth both in normal times (e.g. 50th percentile) and in severe downturns (e.g. 5th percentile)
- As indicators for financial vulnerabilities, we use both Japan's financial gap and U.S. National Financial Conditions Index

Chart B1-2: Relationship between output gap changes over the next 3 years and the financial gap



Note: 1. The sample period is from the October-December quarter of 1983 to the April-June quarter of 2015.
 2. The solid lines in the chart show 5th, 25th, 50th (median), 75th, and 95th percentile lines from the bottom.

Estimation model

$$\left(\begin{array}{c} \text{Changes in the} \\ \text{output gap over} \\ \text{the next } Y \text{ years} \end{array} \right) = \left(\begin{array}{c} \text{Constant} \end{array} \right)$$

$$+ \alpha \left(\begin{array}{c} \text{Changes in the} \\ \text{output gap from} \\ \text{the previous period } t \end{array} \right) \quad \left(\begin{array}{c} \text{Momentum of} \\ \text{economic growth} \\ \text{at each point in time} \end{array} \right)$$

$$+ \beta \left(\begin{array}{c} \text{Financial gap } t \end{array} \right) \quad \left(\begin{array}{c} \text{Proxy variable of} \\ \text{domestic financial} \\ \text{conditions} \end{array} \right)$$

$$+ \gamma \left(\begin{array}{c} \text{U.S.} \\ \text{National Financial} \\ \text{Conditions Index } t-1 \end{array} \right) \quad \left(\begin{array}{c} \text{Proxy variable of} \\ \text{overseas financial} \\ \text{conditions} \end{array} \right)$$

In the case of $Y = 3$ years

Features of parameter β

$$\beta_{5\%ile} < 0 < \beta_{95\%ile}$$

$$|\beta_{95\%ile}| < |\beta_{5\%ile}|$$

Downside risks to economic growth are larger than upside ones

GDP-at-risk (3)

- The estimated probability distributions of GDP growth rates over the next 3 years show:
 - The current downside tail is not as fat as around 1990 during the bubble period
 - But, the shape of the distribution has changed in recent years as low interest rates have had a cumulative effect

Chart IV-2-4: Financial vulnerabilities and risks to economic growth over the next 3 years

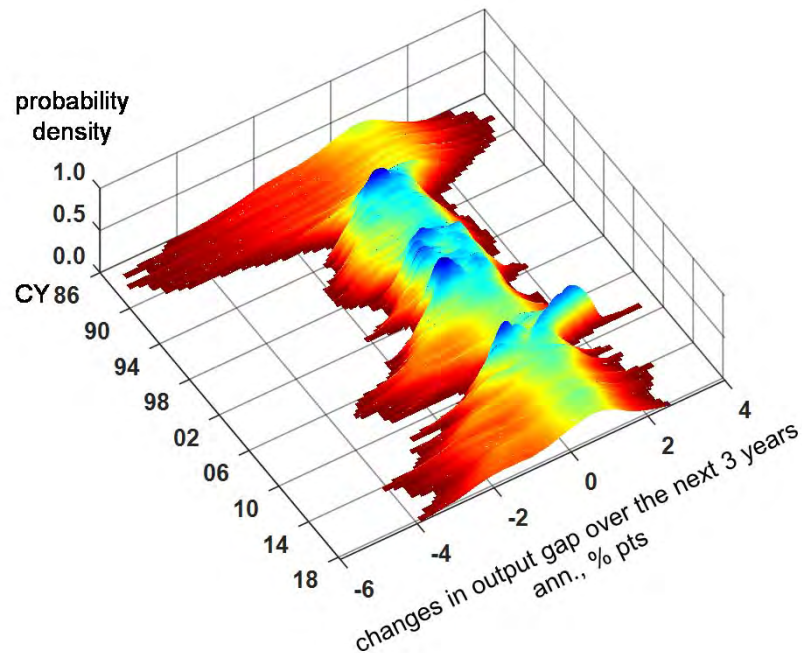
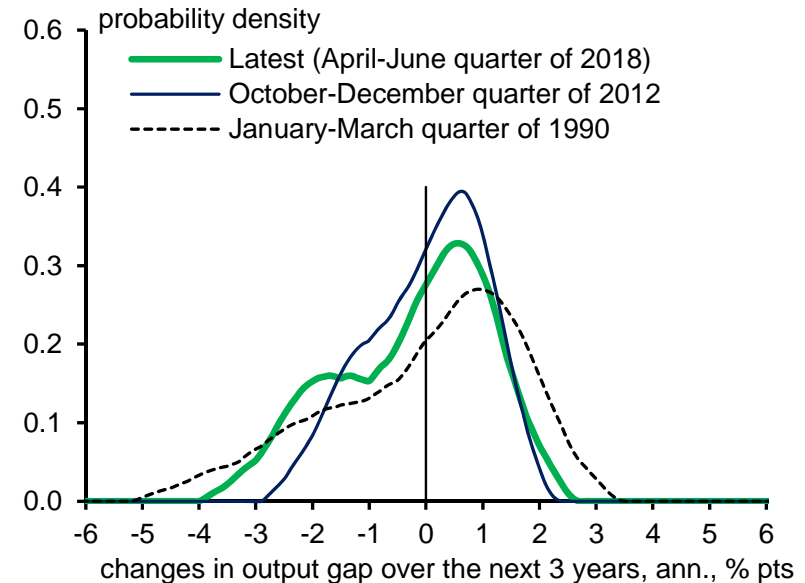


Chart IV-2-6: Comparison of risks to economic growth by period



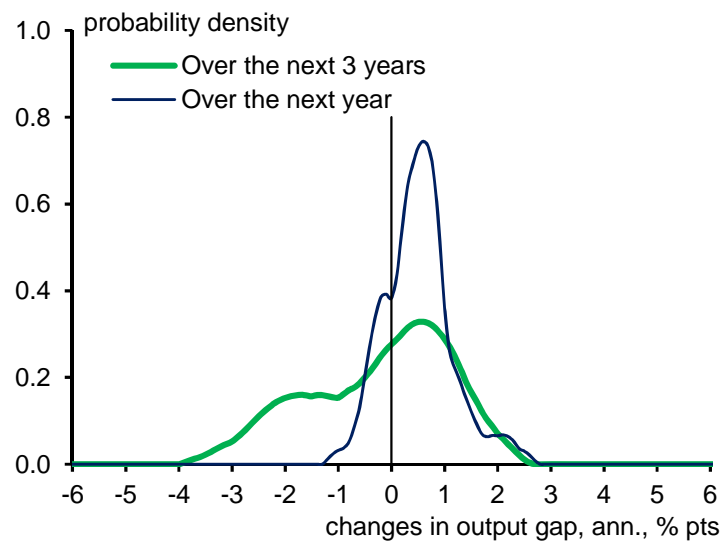
Features of the estimated probability distributions of GDP growth rates

- Risks to economic growth are time-varying depending on the economic and financial conditions at each point in time
- The effect of the financial gap on GDP growth rates over the next 3 years is larger for downside risk than for upside risk

GDP-at-risk (4)

- The effect of the financial gap on risks to economic growth differs depending on the forecast horizon of economic growth, e.g., 1 year or 3 years
- In the near term of 1 year, the recent increase in the positive financial gap has suppressed downside risk to the economy by supporting private expenditure
- In the longer term of 3 years, the financial gap has played a role in increasing downside tail risk by building up pressure on balance sheet adjustments

Chart IV-2-5: Risks to future economic growth (as of the April-June quarter of 2018)



Estimation model

$$\left(\begin{array}{c} \text{Changes in the} \\ \text{output gap over} \\ \text{the next } Y \text{ years} \end{array} \right) = \left(\begin{array}{c} \text{Constant} \end{array} \right)$$

$$+ \alpha \left(\begin{array}{c} \text{Changes in the} \\ \text{output gap from} \\ \text{the previous period} \end{array} \right) \quad \text{Momentum of economic growth at each point in time}$$

$$+ \beta \left(\begin{array}{c} \text{Financial gap}_t \end{array} \right) \quad \text{Proxy variable of domestic financial conditions}$$

$$+ \gamma \left(\begin{array}{c} \text{U.S.} \\ \text{National Financial} \\ \text{Conditions Index}_{t-1} \end{array} \right) \quad \text{Proxy variable of overseas financial conditions}$$

Features of parameter β

In the case of $Y = 3$ years

$$\beta_{5\%ile} < 0$$

In the case of $Y = 1$ year

$$0 \leq \beta_{5\%ile}$$

Caveats regarding the assessment

- The estimated distributions of GDP growth rates represent neither the BOJ's outlook for future GDP growth nor a comprehensive assessment of risks to economic growth
- The estimated results are susceptible to a considerable margin of error due to limited sample data and the measurement error in the financial gap

Part II. FIs' financial bases and risk profiles

- Capital adequacy and core profitability
- Features of credit risk: lending to middle-risk firms, real estate lending, and overseas exposure
- Features of market risk: investment trusts and real estate funds

Capital adequacy: capital adequacy ratios

- FI's capital adequacy ratios have been sufficiently above the regulatory requirements
- However, the core capital ratios for domestic banks have gradually declined recently
 - Making profits commensurate with the increase in risk assets has become more difficult

Chart V-1-1: Financial institutions' capital adequacy ratios

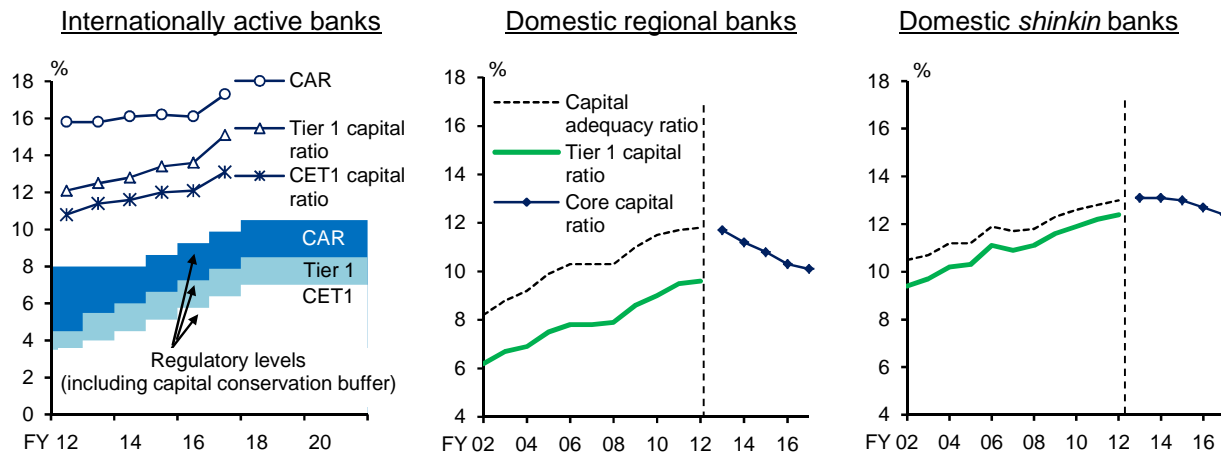
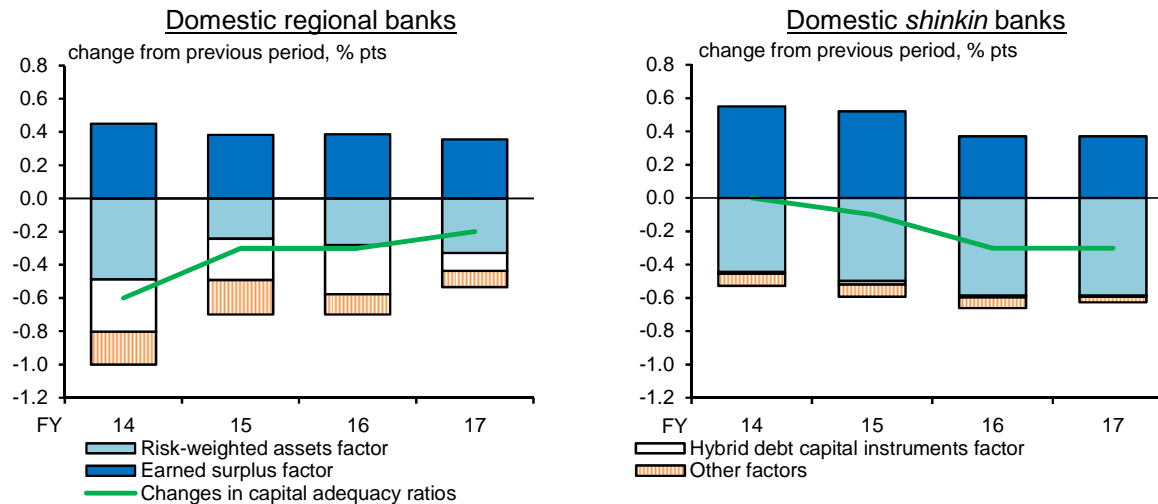


Chart V-1-2: Factors of changes in capital adequacy ratios



Capital adequacy: capital levels relative to risk

- FIs as a whole have sufficient capital relative to risk and sufficient loss-absorbing capacity
- Significant heterogeneity: some FIs' capital levels are below their held amounts of integrated risk

Chart V-1-3: Risks borne and amount of capital by type of bank

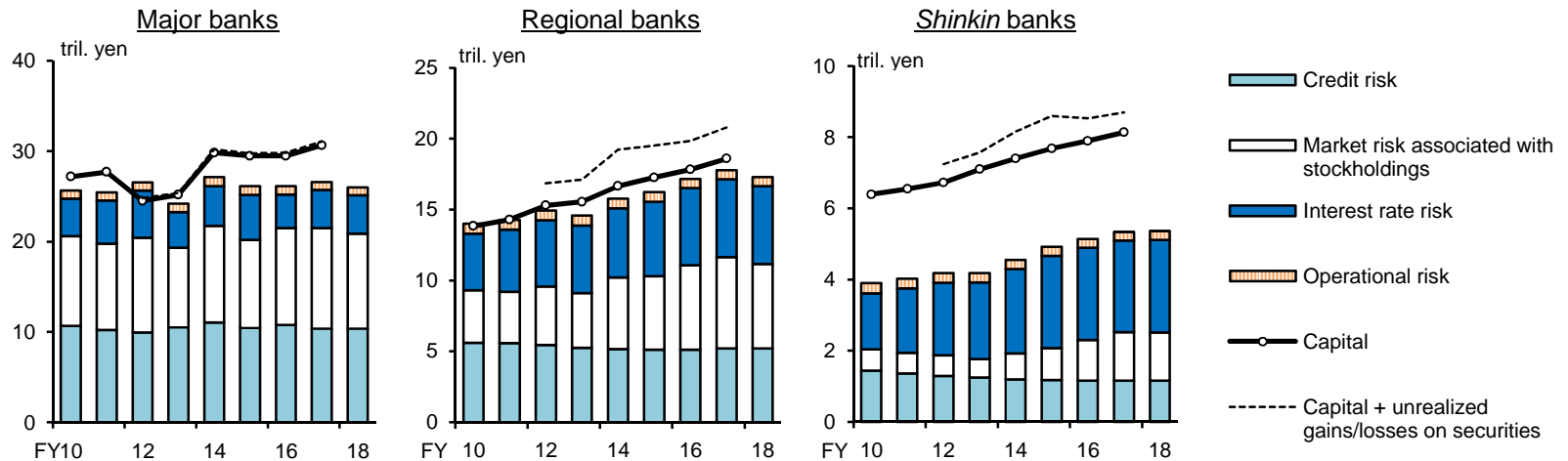
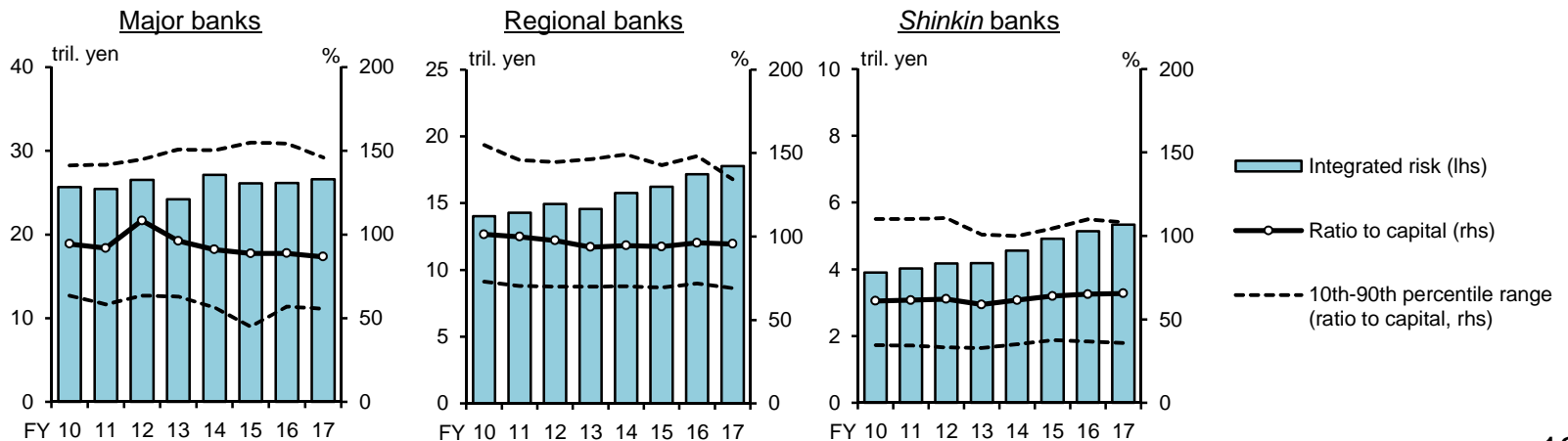


Chart V-1-4: Heterogeneity in risks borne by type of bank

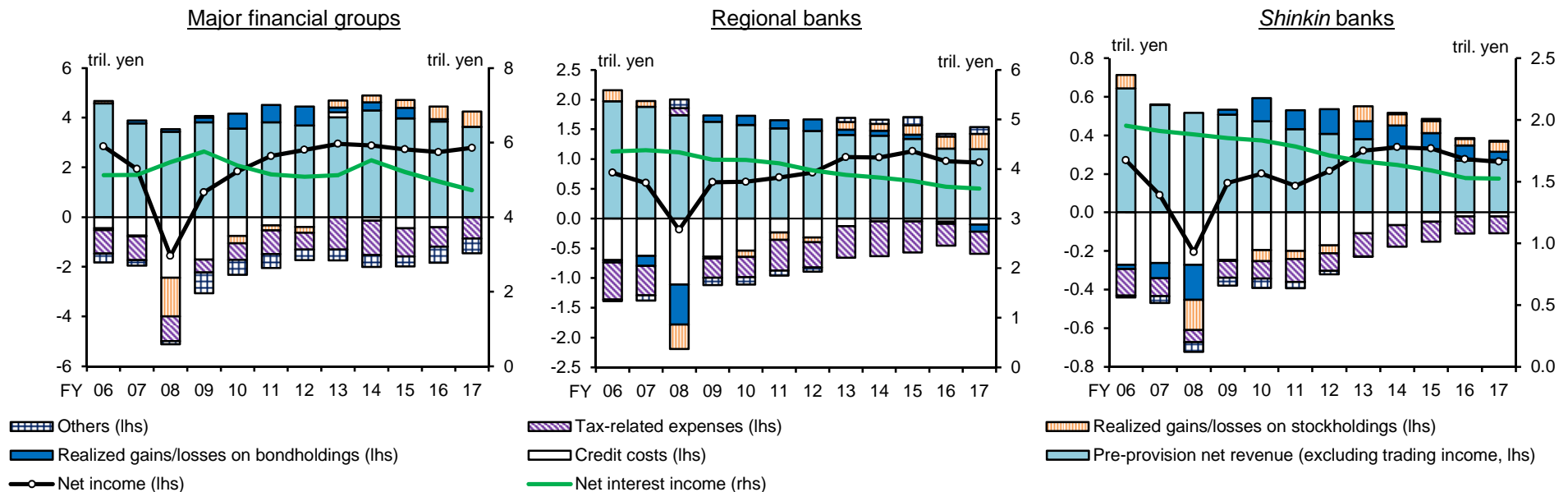


Note: The correlation among the different types of risk is not taken into account.

FIs' profitability: net income

- Net income has remained fairly high from a long-term perspective for all types of FIs
 - Net income has been underpinned by an increase in realized gains on stockholdings and a decrease in credit costs
- However, net interest income has trended downward for all types of FIs, reflecting narrower deposit-lending margins due to the prolonged low interest rate environment and intensified competition among FIs

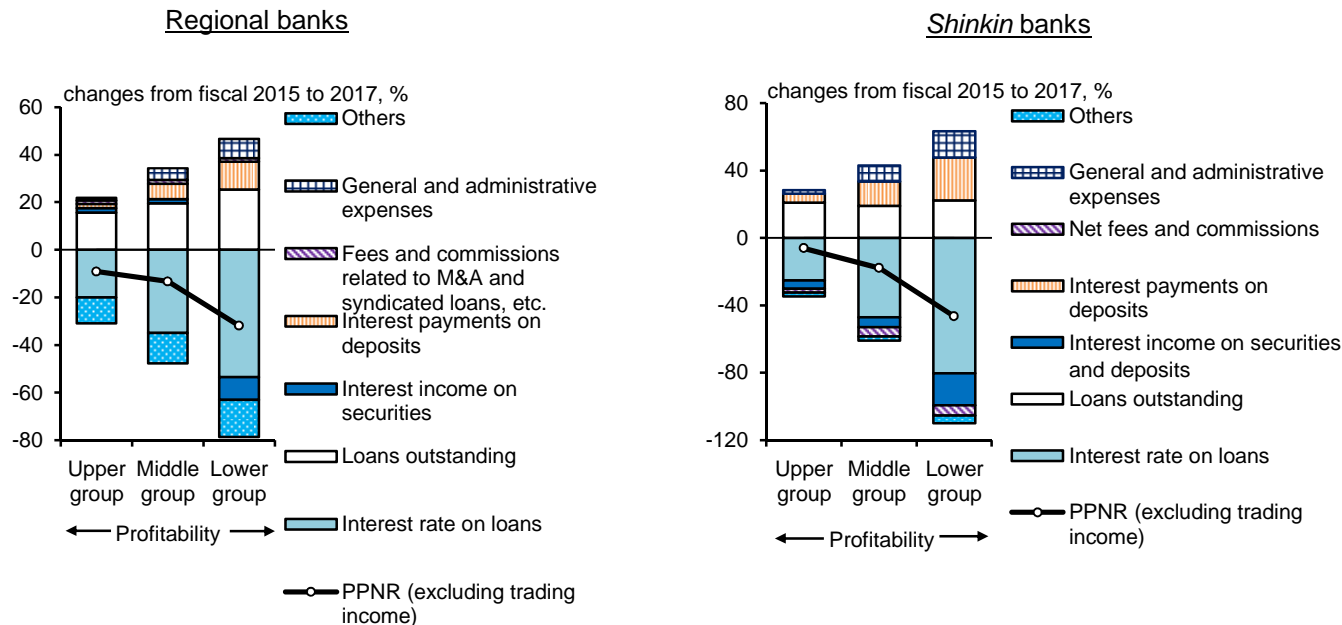
Chart V-2-1: Developments in and decomposition of net income



FIs' profitability: declining core profitability and increasing heterogeneity

- Growing differences in core profitability, measured by pre-provision net revenue (PPNR) excluding trading income, within regional banks and within *shinkin* banks
- For a lower profitable group of these banks, PPNR (excluding trading income) decreased more from fiscal 2015 to 2017
- The main factor behind growing divergences in core profitability is the decline in loan interest rates, which is larger for lower profitable banks

Chart V-2-3: Core profitability and factors of its changes



Note: Banks are divided into three groups (upper, middle, and lower) according to their ROAs calculated using PPNR excluding trading income for fiscal 2017. PPNR (excluding trading income) excludes gains/losses from investment trusts due to cancellations.

Lending to middle-risk firms: firms' funding structure and profitability

- Bank-dependent firms have significantly increased borrowing and leverage
 - The share of "debt-free firms" has increased
 - However, total bank lending to firms has grown at an annual pace of 2-4 percent
- Features of firms with a high reliance on borrowing:
 - Less profitable and slower to improve even during the economic expansion
 - High propensity to spend → Lending to such firms contributes to economic expansion
 - Vulnerable to a deterioration in economic conditions → An increase in FI's credit costs

Chart V-3-4: Share of debt-free firms

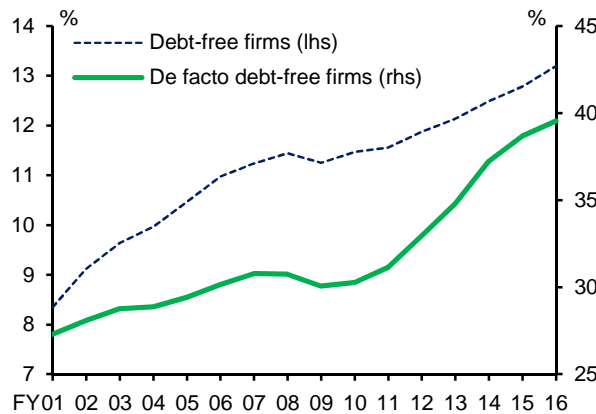


Chart V-3-6: Firms' dependence on bank loans and firms' profitability

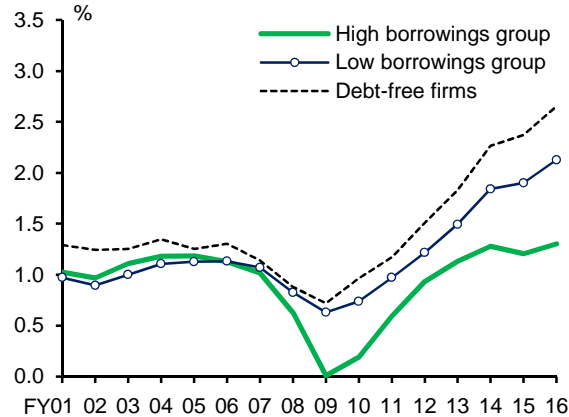
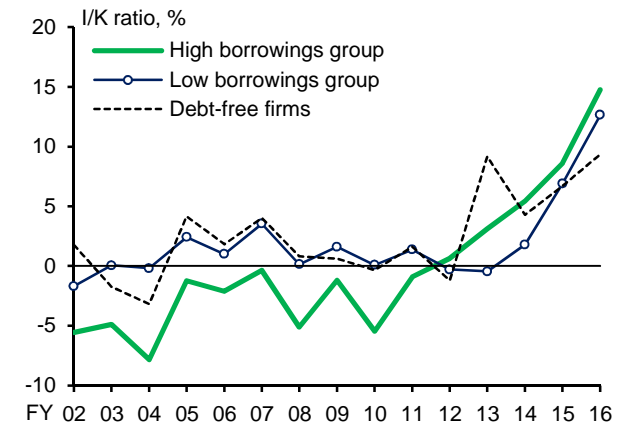


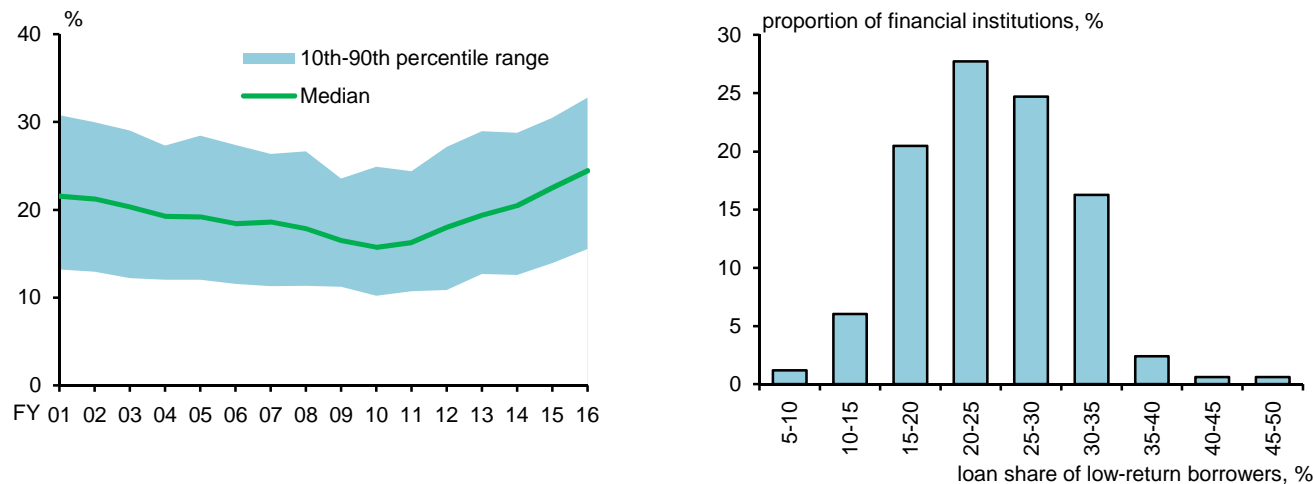
Chart V-3-7: Firms' dependence on bank loans and firms' expenditure



Lending to middle-risk firms: lending to "low-return" borrowers has increased

- Low-return borrowers: firms with relatively weak financial condition whose borrowing interest rates are low relative to their credit risk through the business cycle
- Our April 2018 FSR pointed out:
 - The loan share of low-return borrowers has been trending upward overall
 - Considerable variation in the share among FIs; around 40 percent for some FIs

Chart V-3-8: Loan share of low-return borrowers among financial institutions



Note: The charts indicate the share of loans to low-return borrowers in the total amount of loans to small firms. Covers major banks and regional financial institutions. The data in the right-hand chart are as at fiscal 2016.

Lending to middle-risk firms: FIs' views

- In a survey conducted by the BOJ, almost 50 percent of regional FIs responded that loan interest rates for middle-risk firms do not adequately match credit costs through the cycle
- The share of such a response is higher for FIs that lend more to low-return borrowers
- Not easy to raise loan interest rates for middle-risk firms even if FIs' funding rates rise

Chart V-3-9: Banks' views on loan interest rates for middle-risk firms

Survey question: "Do your bank's loan interest rates match the borrowers' average credit cost through the business cycle?"

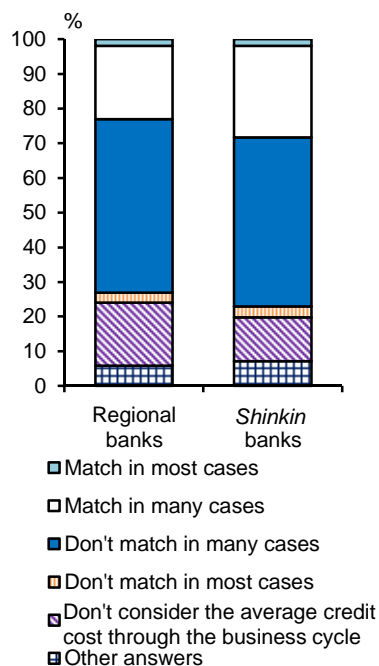


Chart V-3-10: Difficulty in raising loan interest rates for middle-risk firms

Share of banks that answered "loan interest rates do not match the average credit cost of firms through the business cycle"

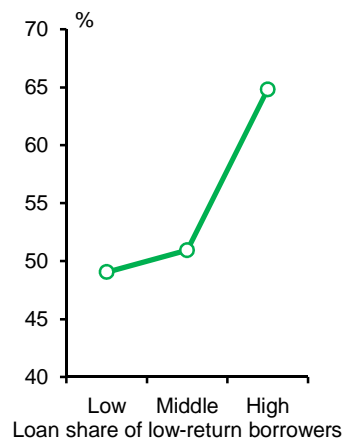
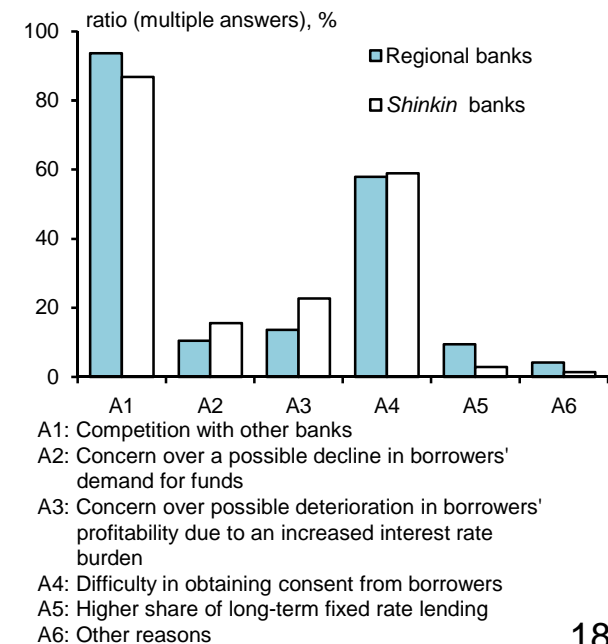
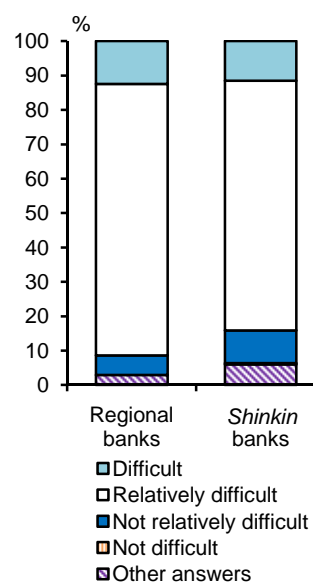


Chart V-3-11: Reasons why it is difficult to raise loan interest rates for middle-risk firms

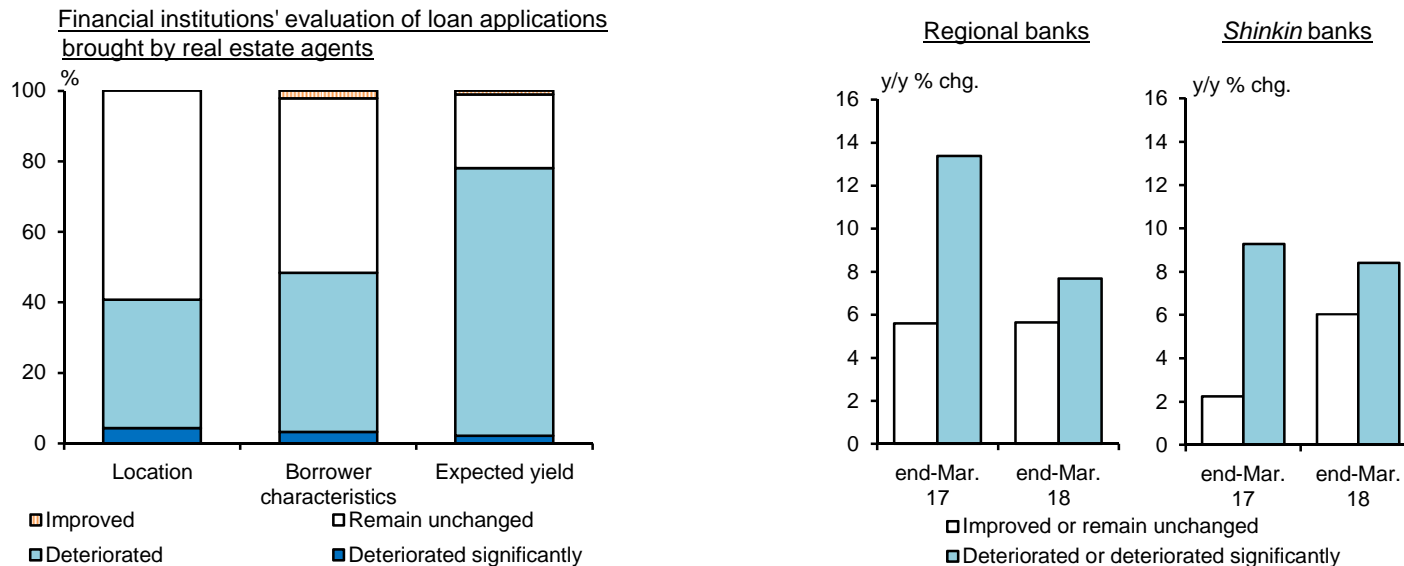
Survey question: "How difficult would it be to raise loan interest rates for middle-risk firms?"



Credit risk related to real estate: still upward trend in lending to real estate

- The share of real estate loans in the total amount of loans has continued to increase:
 - Exceeded 30 percent for some FIs
 - Driven by an increase in lending to rental housing businesses
- An increasing number of FIs have pointed out that recently the "quality" of loan applications brought by real estate agents has been decreasing

Chart V-3-14: Loans to rental housing businesses

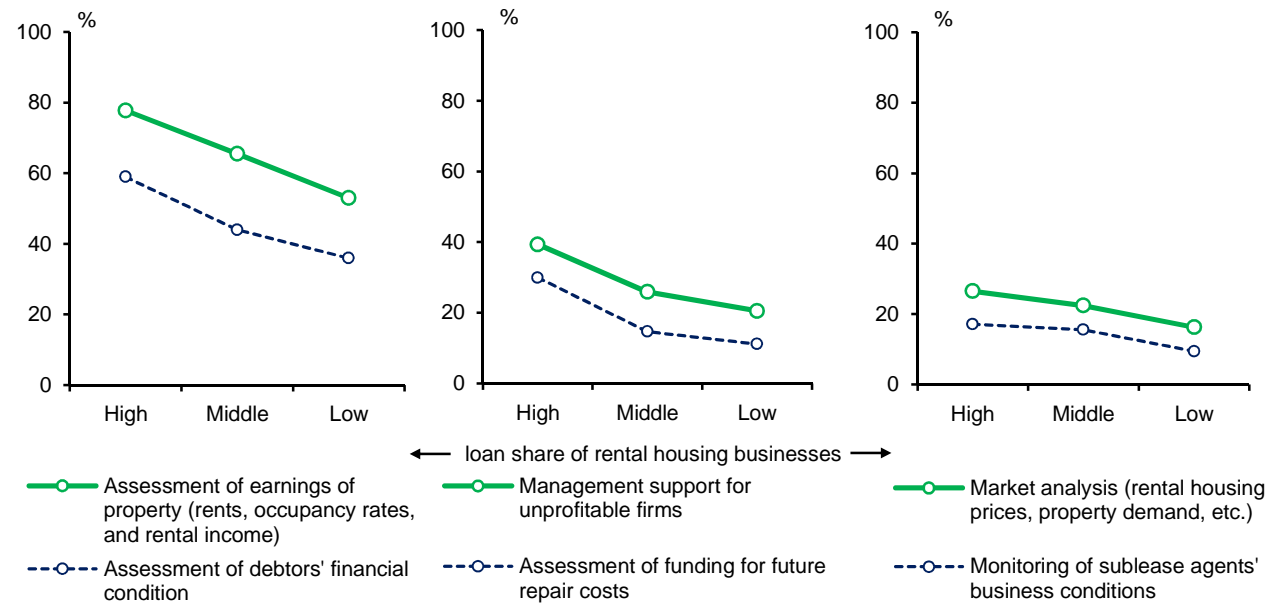


Note: 1. Results of the survey on the risk management of loans to rental housing businesses conducted in fiscal 2018. The survey covers regional financial institutions.
 2. The left-hand chart covers regional financial institutions who responded that the quality of loan applications has "deteriorated" or "deteriorated significantly" and shows how they evaluate the loan applications in terms of the location of the associated property and borrower characteristics, etc. The right-hand chart shows year-on-year percentage changes in loans outstanding to rental housing businesses for two groups that responded that the quality has "deteriorated or deteriorated significantly" or "improved or remain unchanged."

Credit risk related to real estate: need for enhancing risk management

- Common long-term risk to lending to rental housing businesses
 - Small size for each loan, but long durations
 - Population decline across the country -- common chronic stress -- could weaken demand for rental houses
- Nevertheless, some FIs do not necessarily conduct careful initial screening and interim management of loans

Chart V-3-15: Utilization of interim assessments of loans to rental housing businesses



Overseas credit risk: upward trend in overseas exposure

- FIs' overseas exposure has continued to increase, but the associated credit risk has thus far remained subdued
- Some FIs have increased lending to relatively high-risk firms, driven by intensified competition with overseas FIs and higher foreign currency funding costs

Chart III-1-18: Overseas loans outstanding of the three major banks by region

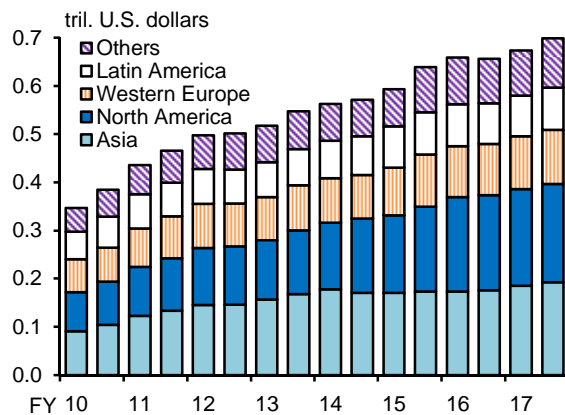


Chart III-1-26: Outstanding amount of overseas credit product investment among financial institutions

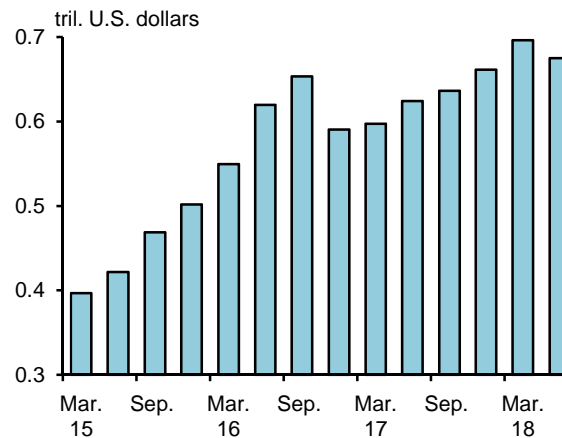
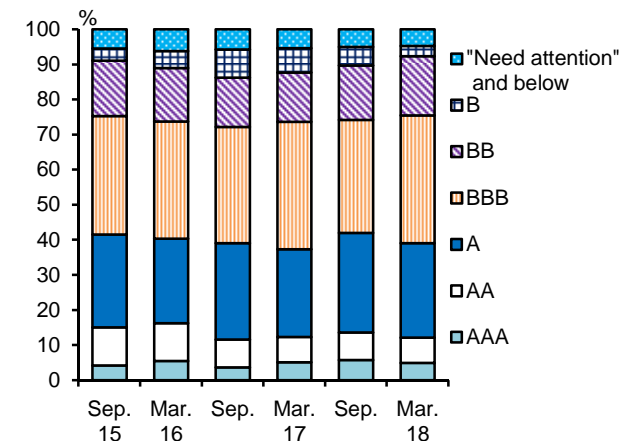


Chart V-3-17: Composition of overseas large-scale loans by credit rating



Overseas credit risk: resilient to interest rate snapback risk?

- U.S. firms' expected default frequencies (EDF) have remained low for investment-grade companies, but they have become somewhat higher for speculative-grade companies
- The econometric analysis implies that speculative-grade companies -- especially those with EDF at 90th and 95th percentiles -- are vulnerable to the snapback risk

Chart V-3-18: EDF for U.S. firms

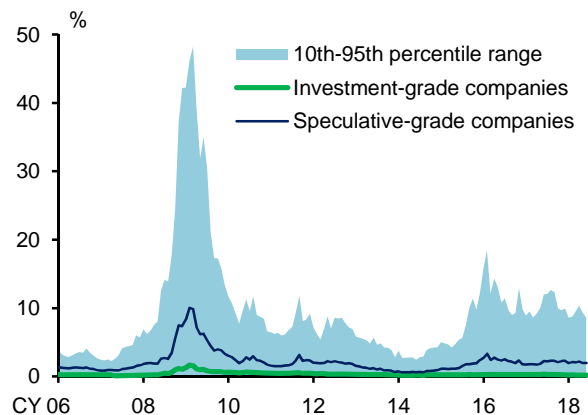


Chart B3-3: Coefficients on corporate bond spreads

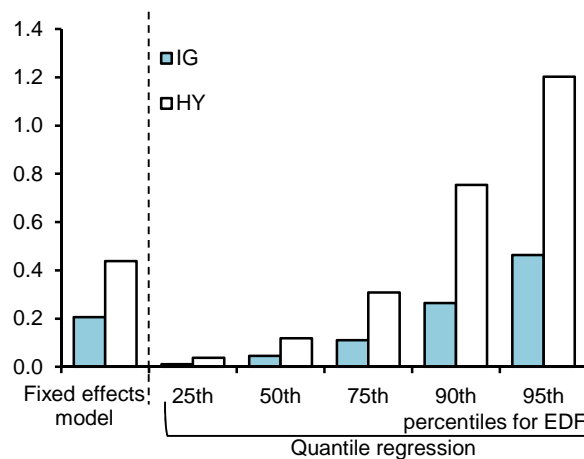
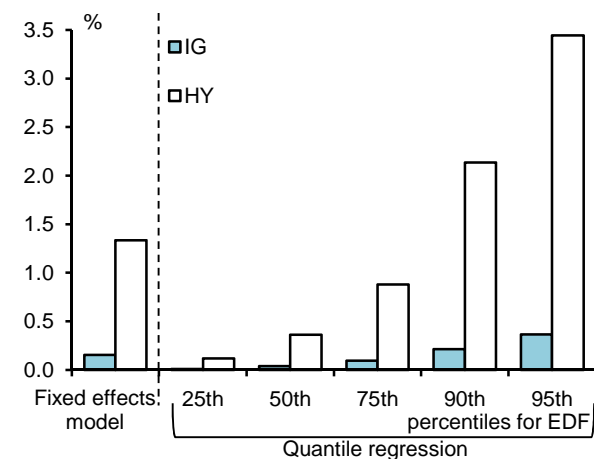


Chart B3-4: Increase of EDF under the snapback scenario



- Note: 1. The number of investment-grade companies is 377 and that of speculative-grade companies is 341. The solid lines indicate average EDF (1-year EDF) for U.S. firms in each grade.
 2. The shaded area indicates 10th-95th percentile range for speculative-grade companies.
 3. Ratings as at end-June 2018.
 4. Latest data for EDF as at end-June 2018.

Note: The coefficients for investment-grade companies (IG) and speculative-grade companies (HY) are those on corporate bond spreads for investment grade and high yield, respectively.

Note: Long-term interest rate, investment-grade bond spreads, and high-yield bond spreads are assumed to increase by 120bps, 50bps, and 200bps, respectively.

Market risk: importance of risk management of investment trusts

- Regional FIs have been more active in risk taking by increasing their holdings of investment trusts
 - Exposed to various market risks, e.g., credit risk, real estate-related risk, and FX risk, as well as overseas interest rate risk and stockholdings-related risk
- However, some FIs do not sufficiently monitor their risk factors of investment trusts

Chart III-1-24: Outstanding amount of investment trusts among financial institutions

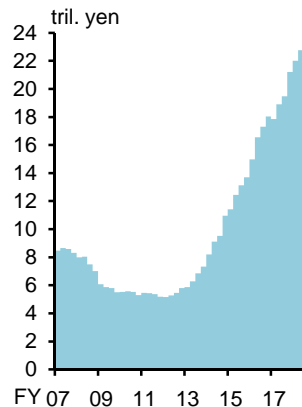


Chart V-4-6: Breakdown of regional financial institutions' investment trust holdings

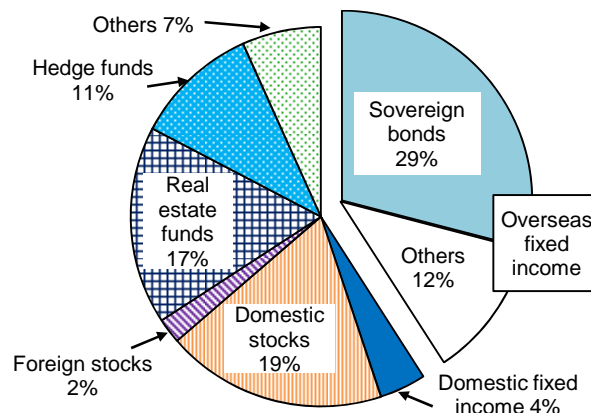
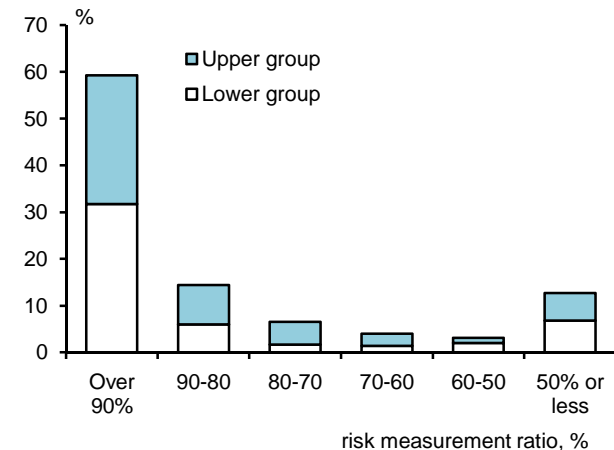


Chart V-4-8: Distribution of ratios of risk measurement associated with investment trust holdings



- Note: 1. Regional financial institutions are classified into two groups based on their ratios of the amount of investment trust holdings to the amount of securities holdings.
2. "Risk measurement ratio" = amount of investment trusts whose risk is measured / total amount of investment trusts.
3. Covers regional financial institutions. Data as at end-June 2018.

Market risk: an increase in exposure to real estate investment funds

- Major banks have expanded loans to real estate investment funds, while regional FIs have significantly increased equity investments in such investment funds
- Given an increase in foreign investors' transactions, FIs have become more vulnerable to the market contraction, which could be triggered by capital outflow by such investors

Chart V-3-16: Outstanding amount of lending and investment in real estate investment funds

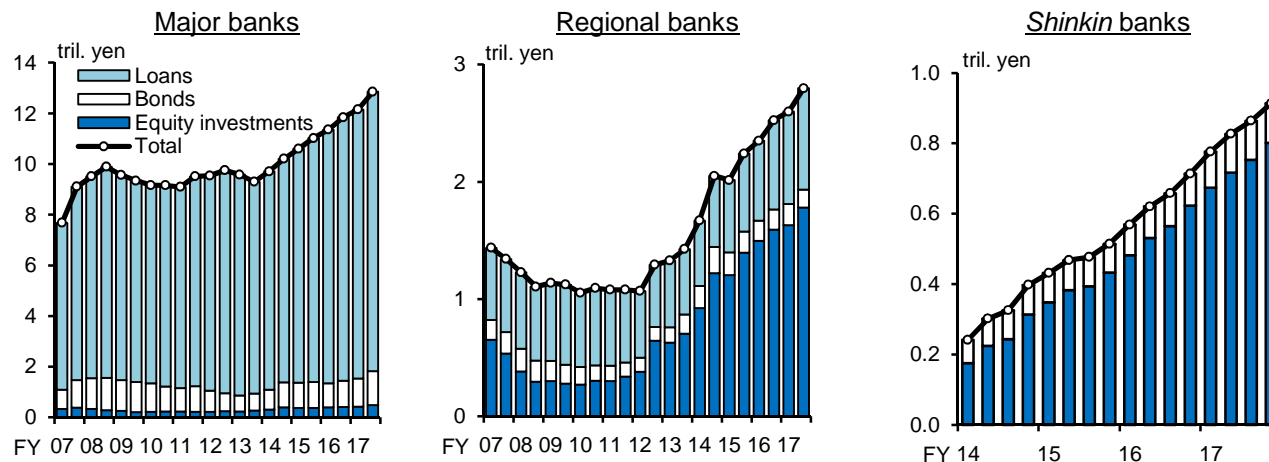


Chart V-4-7: Composition of properties owned by real estate investment funds by region

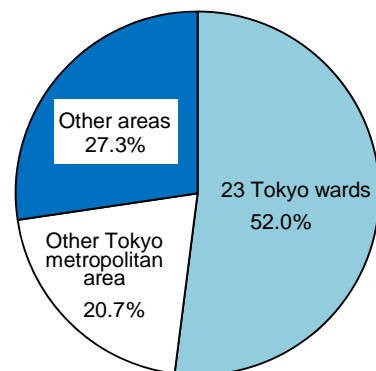
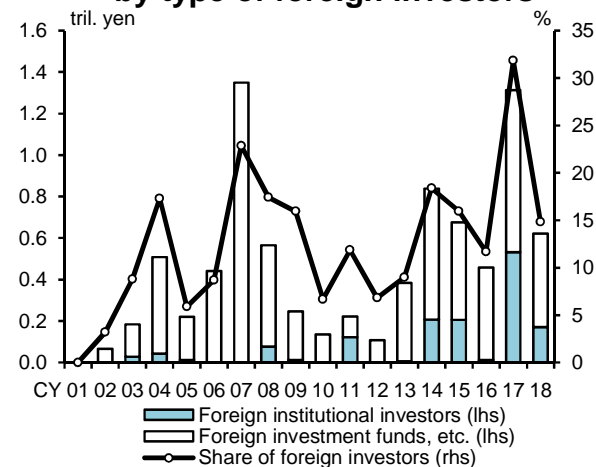


Chart B2-4: Value of real estate property acquisitions by type of foreign investors



Part III. FIs' resilience to tail risk

- Refinement of the stress testing model regarding:
 - Securities-related gains and losses
 - Lending to middle-risk firms and heterogeneity in firms' capacity to pay interest
- FIs' resilience and the impact on financial intermediation

Refinement of the model: upper limit of realized gains on securities

- Background: FIs have actively realized profits by selling securities, which decreases unrealized gains on securities and leaves less room for FIs to realize such gains
- Our model assumes that FIs continue to realize gains at the same pace as in the past 3 years, but they are subject to an upper limit:
 - Realized gains are no more than each FI's unrealized gains

Chart V-2-6: Ratio of realized gains/losses on sales of securities to net income

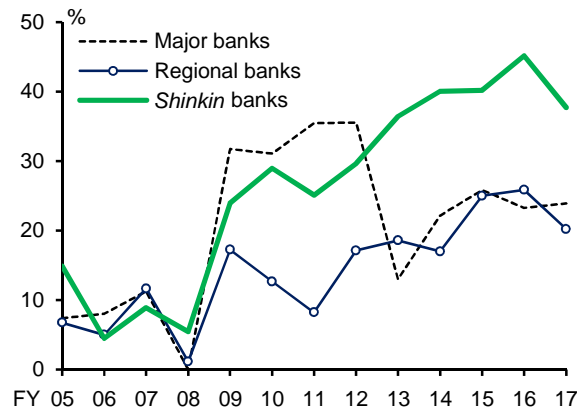


Chart V-2-7: Room for realizing gains

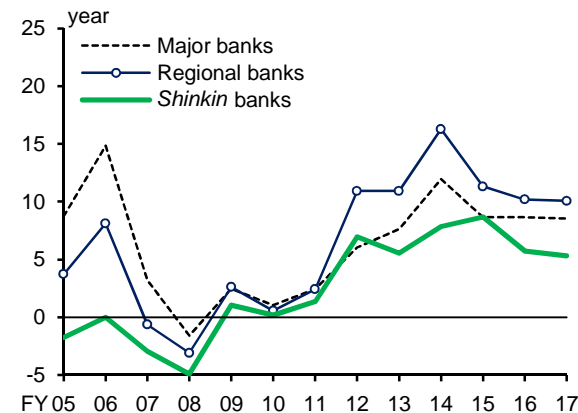
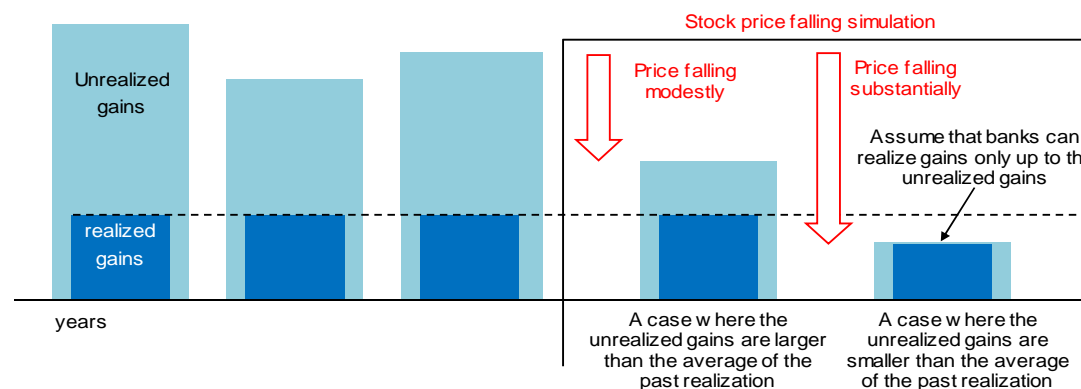


Chart VI-1-1: Concept chart of setting the upper limit of realizing gains on securities



Macro-stress test: realized gains/losses on securities

- Tail event scenario: financial and economic conditions deteriorate as in the GFC
- A large decline in stock prices would give rise to significant stock-related losses
- For regional banks, the losses would be greater than those during the GFC, reflecting their larger exposure to stock-related investment trusts
- Securities-related losses would be greater for regional banks than for *shinkin* banks, due to a larger exposure to stocks and smaller room for realizing gains on bondholdings

Chart VI-1-10: Realized gains/losses on securities holdings (tail event scenario)

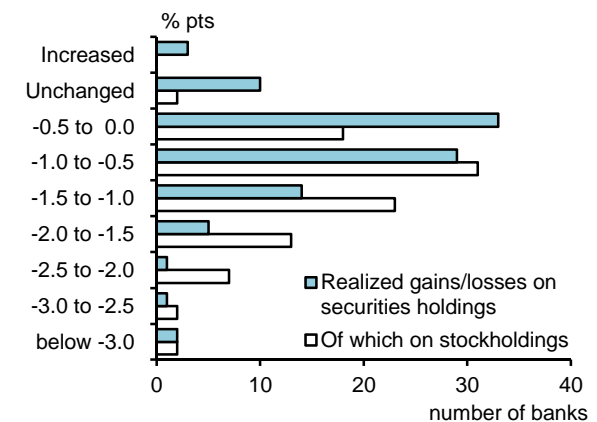
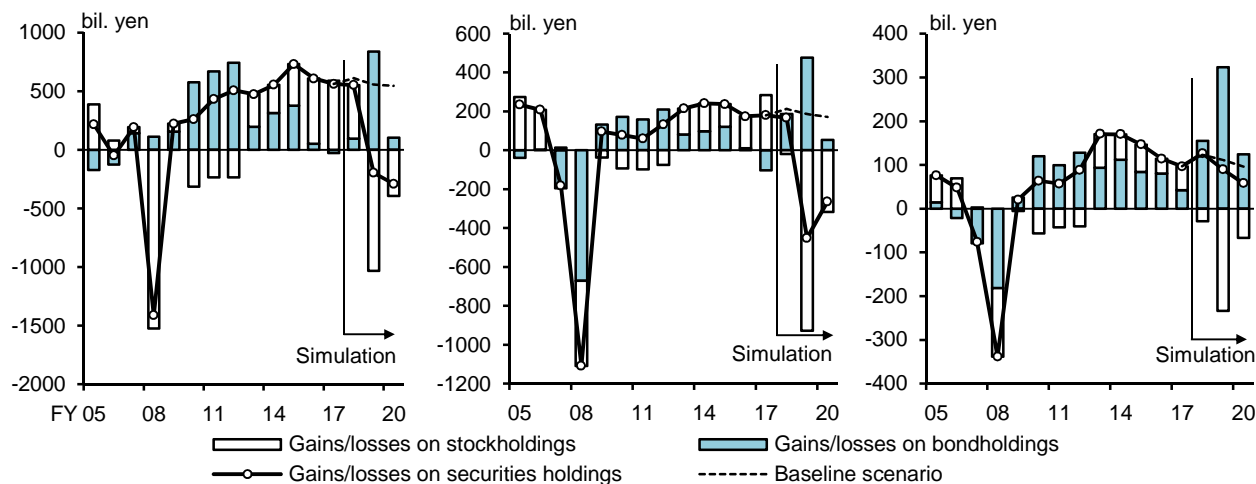
Chart VI-1-12: Impact of realized gains/losses on securities holdings on core capital ratios (contribution under the tail event scenario)

Internationally active banks

Domestic regional banks

Domestic *shinkin* banks

Domestic regional banks

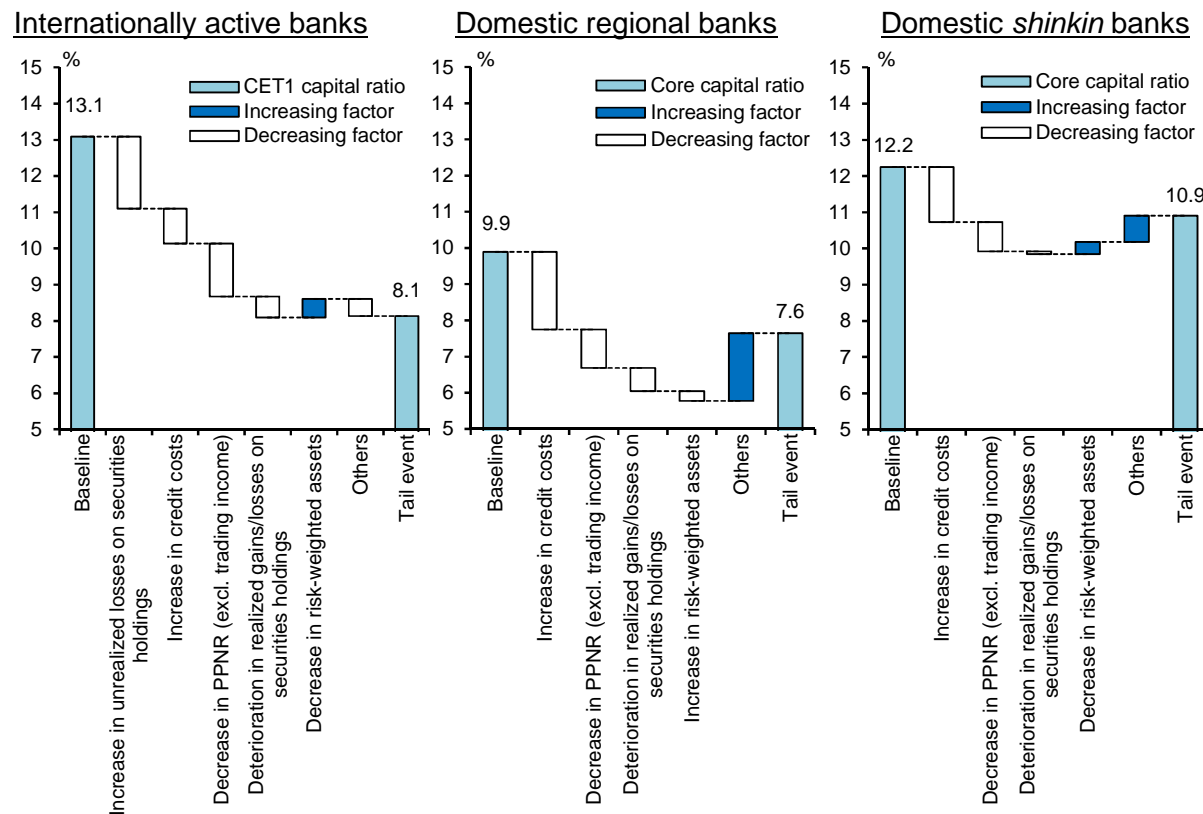


Note: The vertical axis shows the deviations of the core capital ratio from the baseline scenario, which are attributable to realized gains/losses on securities holdings, at the end of simulation period (end-March 2021).

Macro-stress test: capital adequacy ratios

- For all types of FIs, their net income would decrease sharply; capital adequacy ratios would decrease correspondingly but exceed regulatory requirement levels
- The decomposition reveals:
 - Large credit costs due to the significant economic downturn
 - Large unrealized losses on securities for internationally active banks; larger realized losses on securities for regional banks than *shinkin* banks

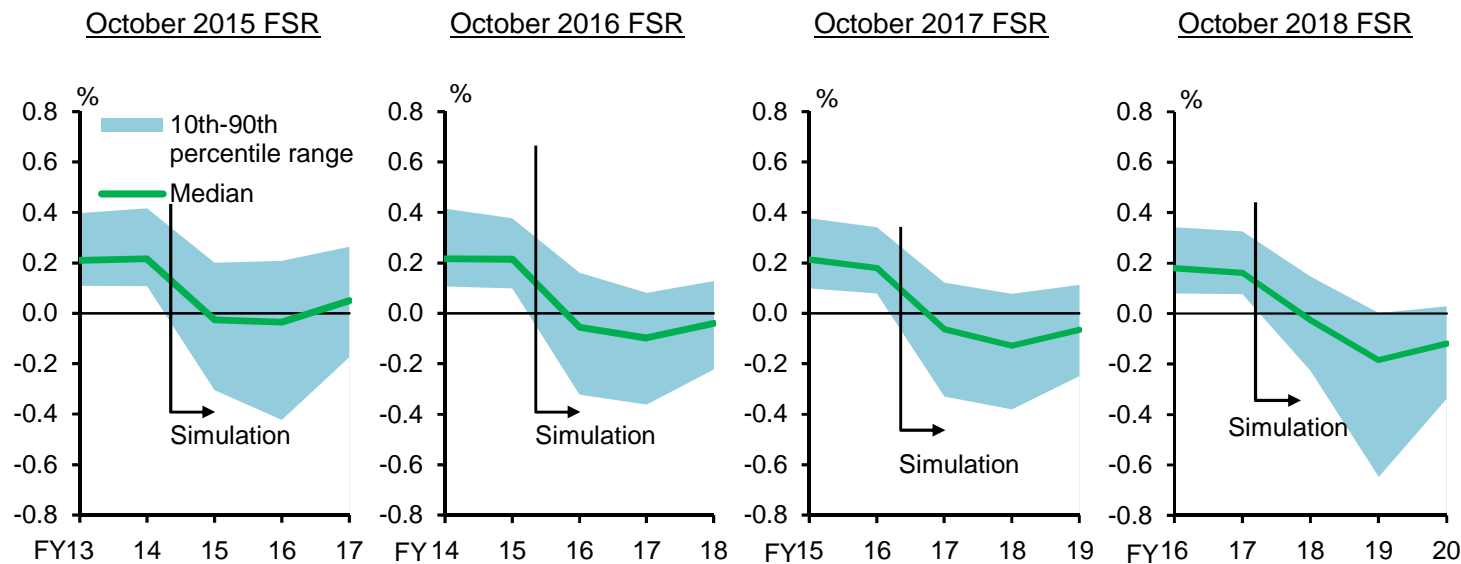
Chart VI-1-11: Decomposition of the CET1 capital ratio and the core capital ratio (fiscal 2020)



Macro-stress test: comparison with previous stress test results

- FIs are resilient against considerable stress on the whole
- However, comparing the current stress test result with previous ones, FIs' net income and capital adequacy ratios have been gradually decreasing
 - This mainly reflects the secular decline in net interest income in the baseline scenario

Chart VI-1-14: Distribution of financial institutions' net income (tail event scenario): comparison with the past stress tests

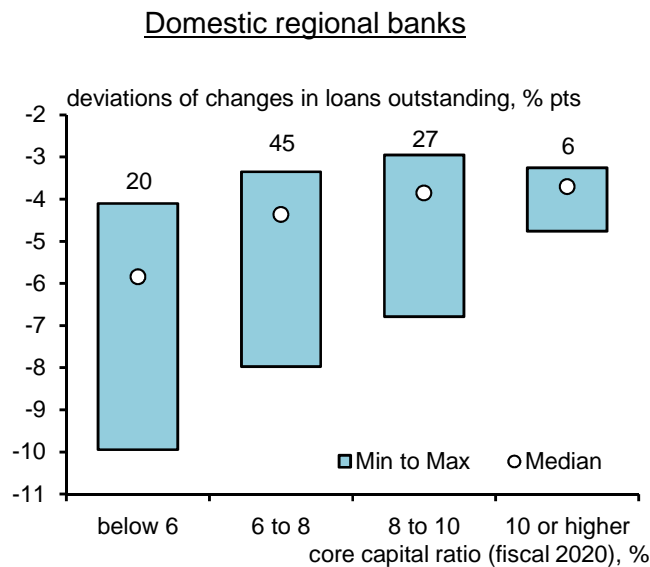


Note: The charts indicate the ratio of net income to total assets. Covers internationally active banks and domestic banks.

Macro-stress test: FIs' lending stance at times of stress

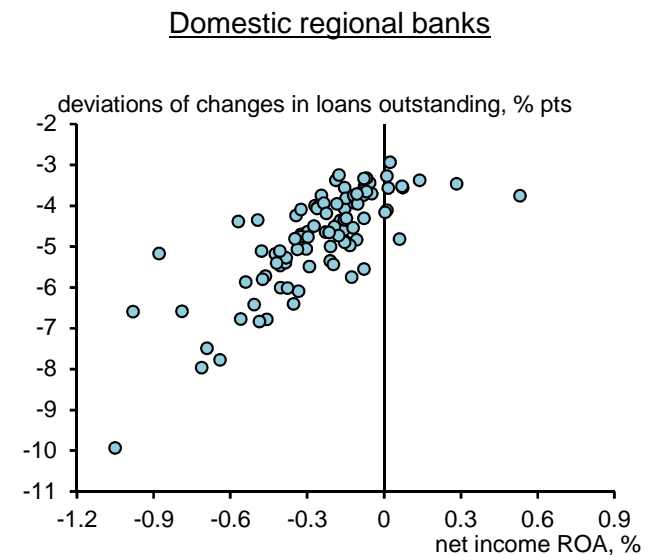
- The more FIs' capital adequacy ratios and profits fall, the more cautious their lending stance tends to be at times of stress, even if FIs meet regulatory requirements
 - The lower capital levels become, the more lending tends to be suppressed
 - The lower the ROA becomes, the more FIs restrain lending

Chart VI-1-13: Core capital ratio and loans outstanding (tail event scenario)



- Note: 1. The vertical axis shows the deviations of the cumulative changes in loans outstanding (from end-March 2018 to end-March 2021) to domestic firms from the baseline scenario.
2. The figures in the charts indicate the number of financial institutions within each group.

Chart VI-1-15: Financial institutions' ROA and deviations in loans outstanding (tail event scenario)



- Note: 1. The vertical axis shows the deviation of the cumulative changes in loans outstanding (from end-March 2018 to end-March 2021) to domestic firms from the baseline scenario.
2. "Net income ROA" = (average net income) / (average total assets) over the period of fiscal 2018 to 2020.

How could lending to middle-risk firms affect stress test results? (1)

- Through stress testing, we also examine how a recent increase in lending to low-return borrowers (middle-risk firms) could affect FIs' stress resilience
- Low-return borrowers' default rates could easily rise compared to other borrowers
 - Interest coverage ratios (ICRs) of low-return borrowers are lower and fall more substantially during the economic downturn

Chart VI-2-1: Financial indicators of borrowers

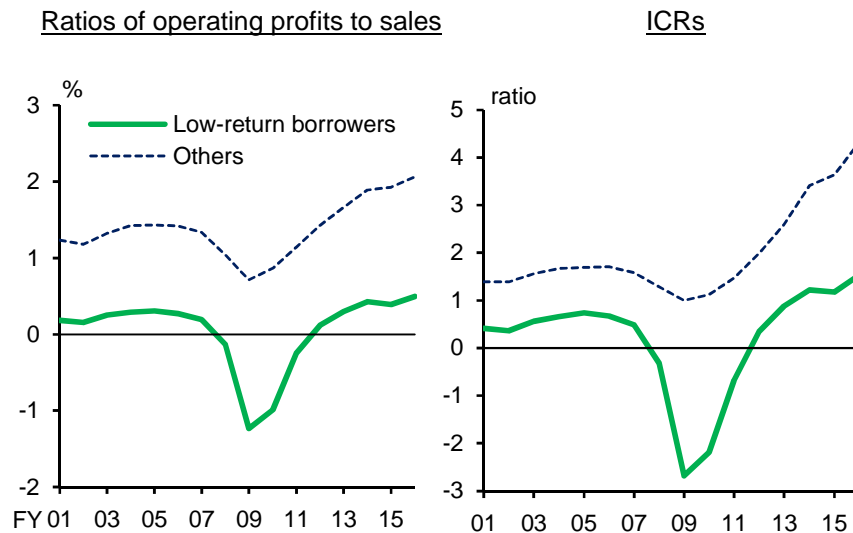
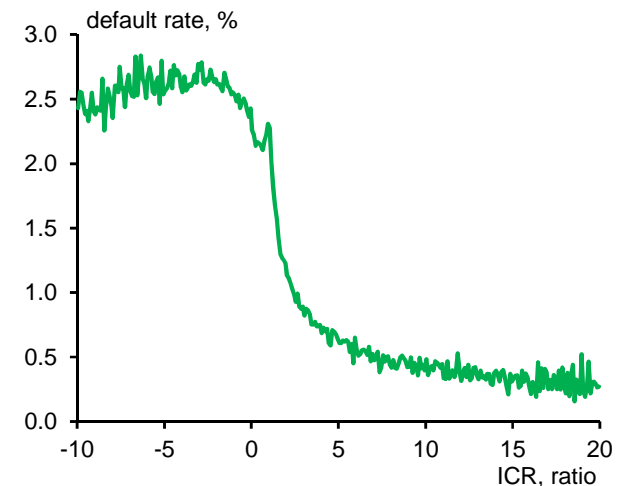


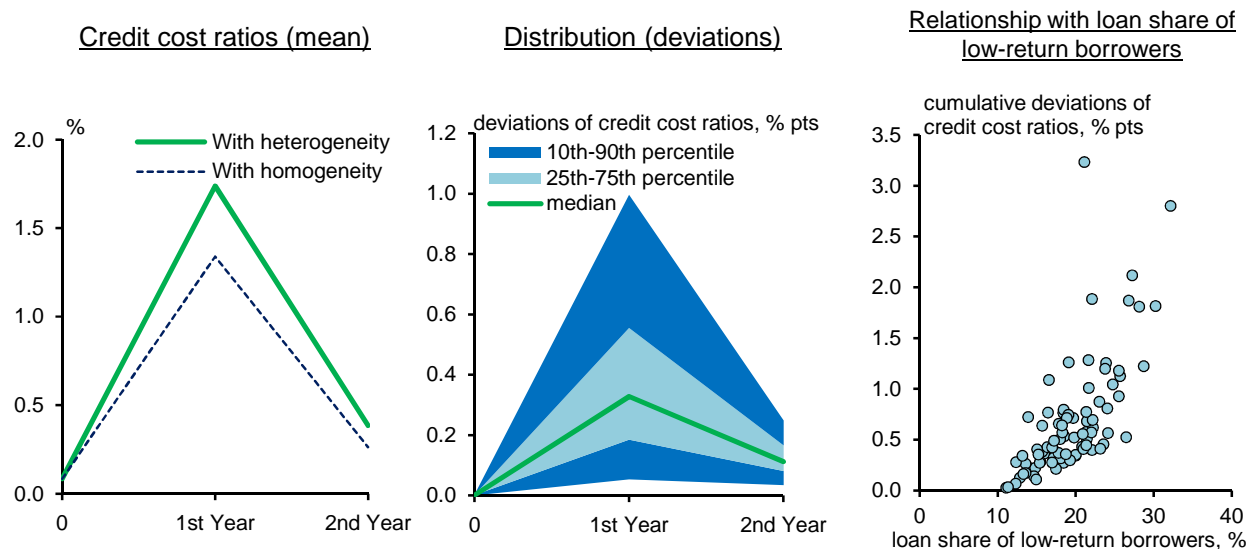
Chart VI-2-2: ICRs and the default rates



How could lending to middle-risk firms affect stress test results? (2)

- Credit cost ratios increase to 1.5-2.0 percent, when we incorporate heterogeneity in firms' interest payment capacity and FIs' exposure to low-return borrowers
 - A greater increase compared to the case of no such heterogeneity
 - The higher FIs' shares of loans to low-return borrowers become, the larger the increase in their credit costs tends to be

Chart VI-2-3: Credit cost ratios (tail event scenario): taking into account heterogeneity in firms' ability to pay interest

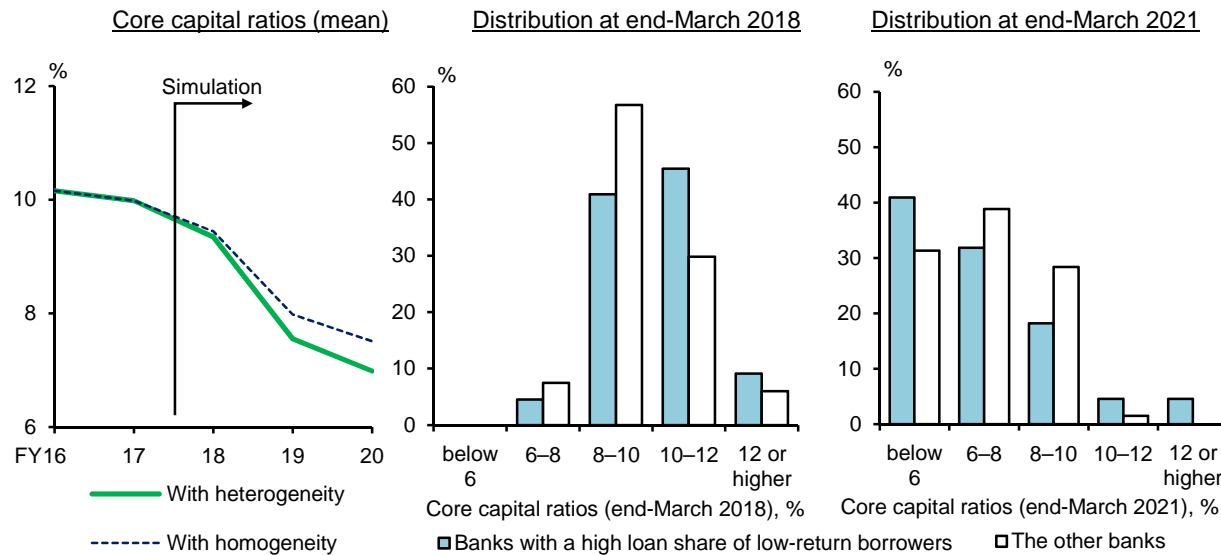


Note: The vertical axis of the middle chart shows the deviations of credit costs that are calculated as the differences between those simulated by assuming heterogeneity in firms' ability to pay interest and by assuming homogeneity in their ability to pay. Covers regional banks (domestic banks) whose loan shares of low-return borrowers can be estimated. The vertical axis of the right-hand chart shows the cumulative deviations of credit costs from end-March 2018 to end-March 2021.

How could lending to middle-risk firms affect stress test results? (3)

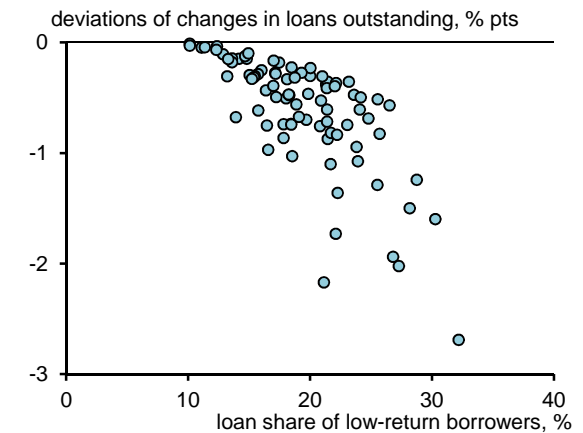
- The core capital ratio falls by more than 0.5% points than in the case of no heterogeneity
- The higher the share of loans to low-return borrowers becomes, the larger the drop in the capital adequacy ratio and the subsequent decrease in lending could be

Chart VI-2-4: Core capital ratios (tail event scenario): taking into account heterogeneity in firms' ability to pay interest



Note: "Banks with a high loan share of low-return borrowers" indicates banks that have a loan share of low-return borrowers higher than the top 25th percentile. Covers regional banks (domestic banks) whose loan shares of low-return borrowers can be estimated.

Chart VI-2-5: Loan shares of low-return borrowers and deviations in loans outstanding (tail event scenario)



Note: The vertical axis shows the cumulative changes in loans outstanding (from end-March 2018 to end-March 2021) to domestic firms that are calculated as the differences between those simulated by assuming heterogeneity in firms' ability to pay interest and by assuming homogeneity in their ability to pay. Covers regional banks (domestic banks) whose loan shares of low-return borrowers can be estimated.

Challenges from a macroprudential perspective

- In order for the financial system to maintain stability into the future, FIs need to raise their core profitability; at the same time, the corporate sector needs to increase medium- to long-term growth expectations
 - It will likely take more time until FIs' efforts bear fruit (Supplement 1)
 - FIs need to increase non-interest income and raise their business efficiency
- FIs also need to enhance their risk management in areas where they have increased their risk taking, such as lending to middle-risk firms, real estate lending, overseas lending, and securities investment
 - FIs need to examine their loan-loss provisions, their policies on capital and profit distribution including dividends, and their strategies of utilizing unrealized gains on securities, in terms of their stress resilience (Supplement 2)
- The Bank will support FIs' efforts through on-site examinations and off-site monitoring, and will also closely monitor the impact of FIs' various forms of risk taking from a macroprudential perspective
- Based on the results of the macro stress testing for individual FIs, the Bank intends to increase its dialogue with FIs on resilience to stress

Supplement 1: Features of regional banks' medium-term management plans

- Numerical targets set in the previous plans made in 2013-2015:
 - Achieved (on average): deposits and net income including realized gains and credit costs
 - Not achieved (on average): loans and PPNR (excl. trading income)
- The number of banks that set numerical targets in the current plans made in 2016-2018:
 - Decreased: deposits, loans, PPNR (excl. trading income), capital ratios, and NPL ratios
 - Increased: non-interest income, net income, and ROE

Chart B4-1: Achievement status of numerical targets in previous medium-term management plans

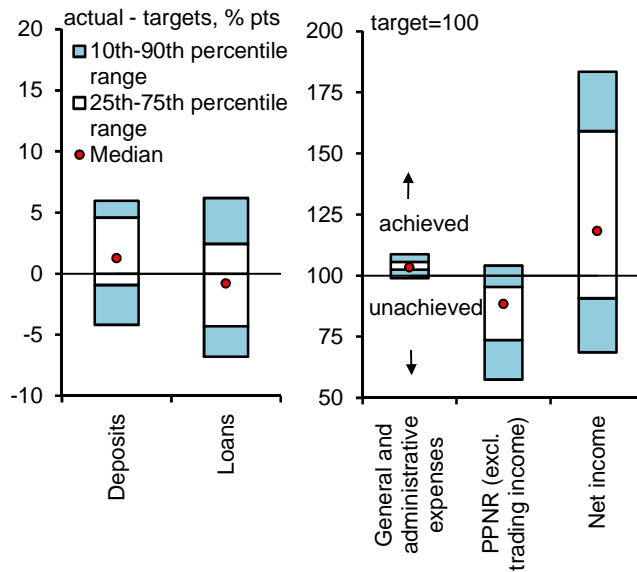
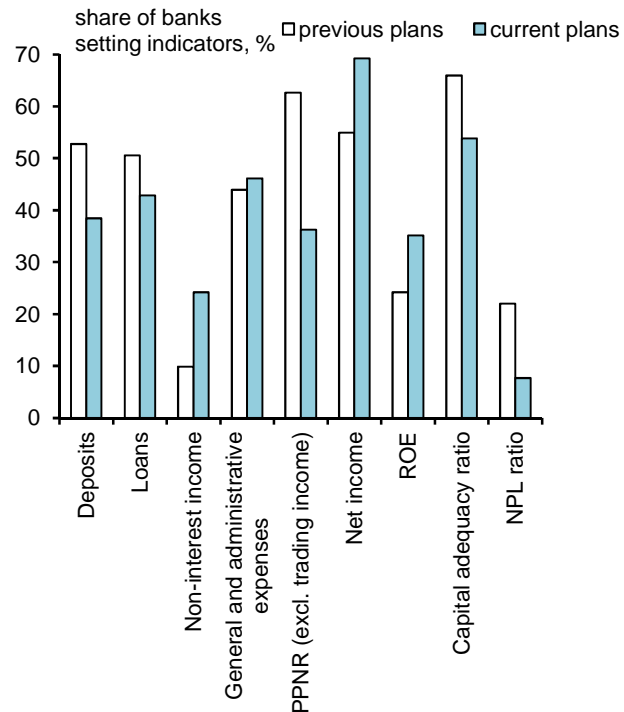


Chart B4-2: Performance indicators in medium-term management plans



Supplement 2: Policies on capital and profit distribution

- Some listed regional banks have raised their dividend payout ratios
 - Many regional banks have been managing to pay stable dividends per share despite decreasing net income
- Given that FIs support a wide range of economic activities, they should maintain strong resilience to stress
- *Shinkin* banks, free from pressure from the stock market, have maintained low dividend payout ratios amid the decline in core profitability

Chart V-2-8: Dividend payout ratios by type of bank

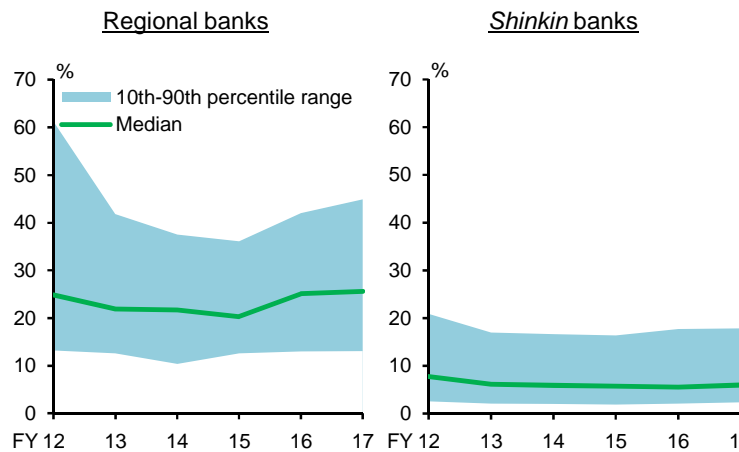


Chart V-2-9: Dividend per share of regional banks

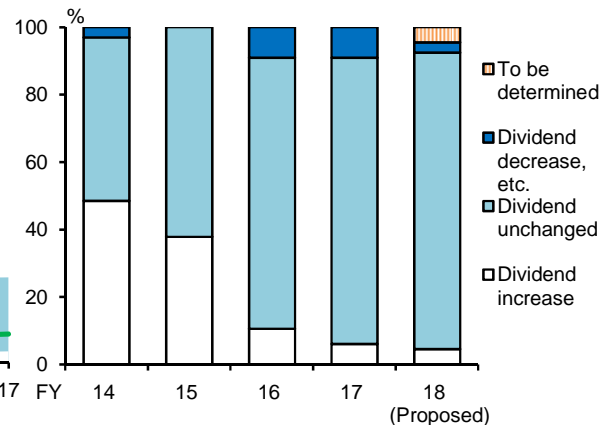
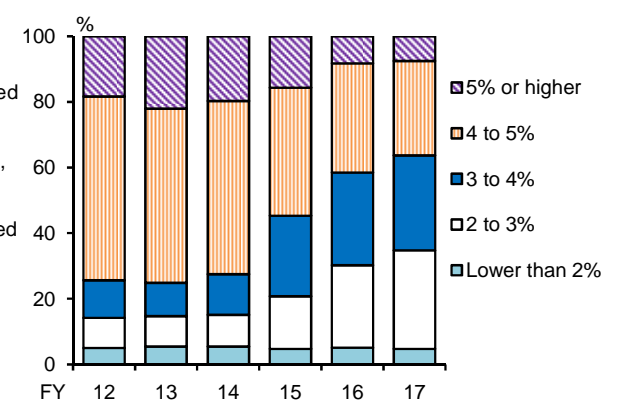


Chart V-2-10: Dividend rates of *shinkin* banks



Note: Dividend rate = amount of dividends on common shares / amount of common shares outstanding.