



Summary

October 2023

Bank of Japan



Note: This document presents a summary of the October 2023 issue of the *Financial System Report*.
See the *Report* for more details on the analyses as well as notes and sources of the charts.

Stability assessment of Japan's financial system

- Japan's financial system has been maintaining stability on the whole.
 - Japanese banks have sufficient capital bases to perform financial intermediation activities appropriately even amid the global tightening of financial conditions and the resultant various types of stress. They also have stable funding bases, especially small, sticky retail deposits.
 - Even after uncertainty over the financial sectors in the United States and Europe heightened in March 2023, Japan's financial system has been sound and resilient.
- However, vigilance against tail risks continues to be warranted.
 - The period of stress may be prolonged further with continuing monetary tightening by central banks and the resultant concerns about a slowdown in foreign economies. Uncertainty about future developments is similarly noted in financial and capital markets.
 - To ensure the stability of Japan's financial system, it is necessary to examine the risks of contraction and overheating in the system and address potential vulnerabilities appropriately.

Motivations behind the October 2023 issue

Focus on various risk-taking behaviors from the two perspectives

- Interest rate risk: mechanism in which interest rate risk could materialize
- Credit risk: changes in risk profiles reflecting the surrounding environment

Financial cycle and interest rate risk

- Increasing private debt
 - Longer borrowing terms
- Banks' interest rate risk



Financial cycle and the real estate market

- Increase in real estate-related loans → Valuation risk in Japan's market
- Signs of foreign market correction → Contagion risk from foreign markets



Increased corporate bankruptcies and banks' credit risk

- Increase in corporate bankruptcies → Effects of curbing default risk
- Increase in credit risk



Banks' resilience against higher foreign interest rates

- Higher-for-longer foreign rates and concerns about economic slowdowns abroad
- Negative margins on securities and valuation losses
- Higher deposit costs and shrinking lending margins
- Corporate downgrades and increasing credit costs



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Chapter II. Risks observed in financial and capital markets

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B. Japanese financial markets

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C. Financial cycle

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Box 1: Contagion risks in the commercial real estate market

Box 2: The stickiness of deposits and its variability

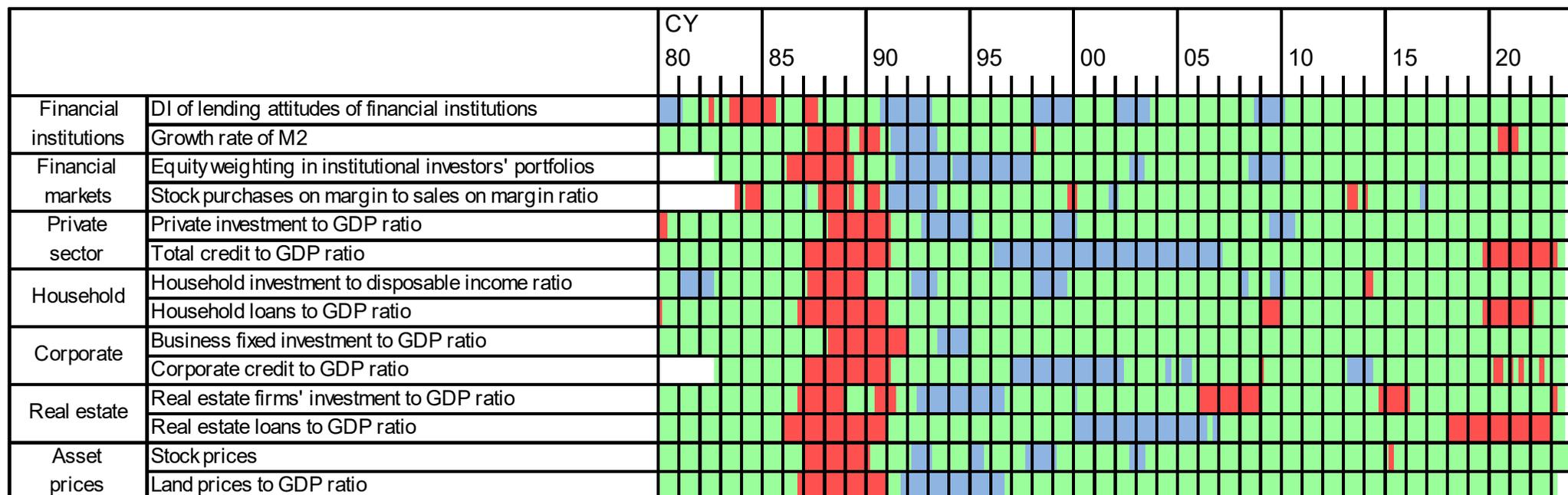
1. Financial cycle and interest rate risk

- Whether smooth functioning of financial intermediation and the resultant increase in private debt have led to a buildup of financial imbalances.
- How interest rate risk in the banking book has changed along with the increase in private debt.

Heat map (1)

- This heat map depicts whether various Financial Activity Indexes (FAIXs) point to an overheating or contraction of activity, using the bubble period in the late 1980s for reference.
- Most recently, all 14 FAIXs are "green," which signals neither an overheating nor a contraction.
 - Since the previous issue of the *Report*, the *total credit to GDP ratio* and the *real estate loans to GDP ratio* have turned to "green" from "red," which signals an overheating. The *real estate firms' investment to GDP ratio* temporarily turned "red."

Heat map

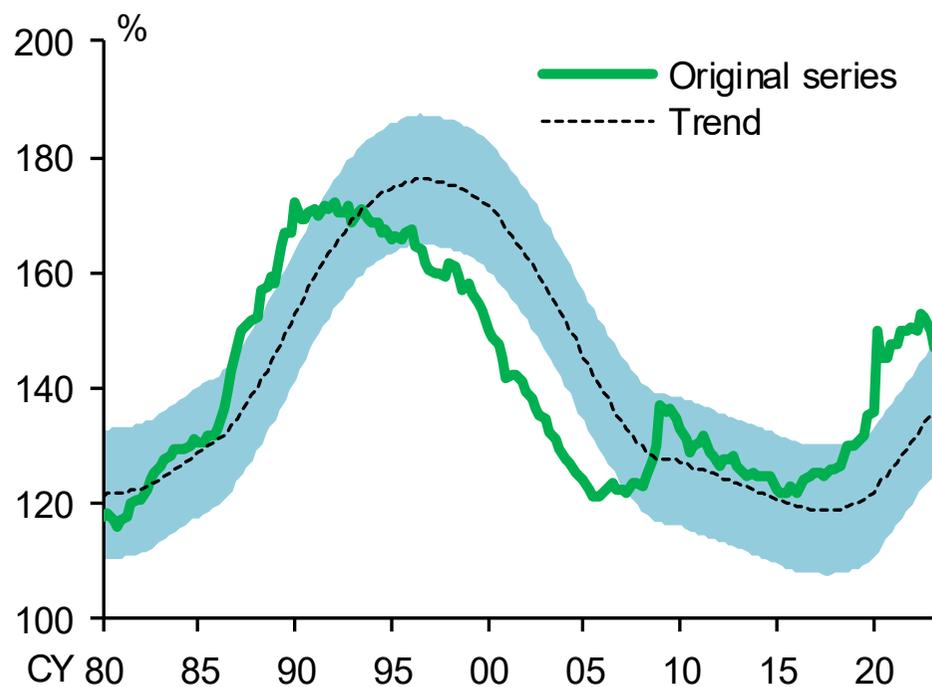


Note: See Chart III-3-1.

Heat map (2) Corporate credit

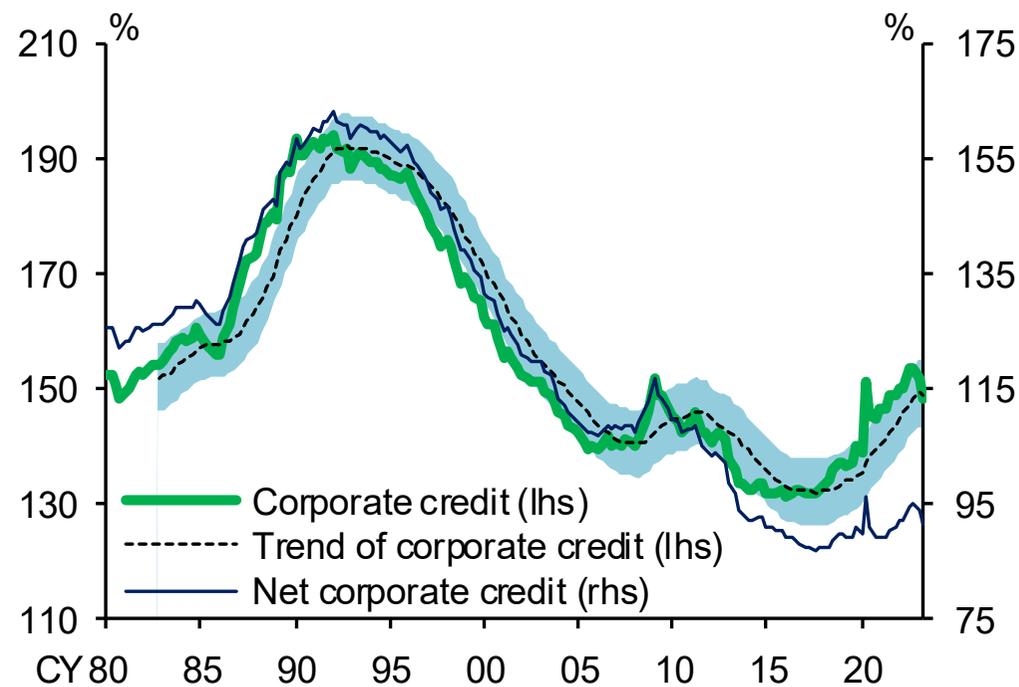
- The rebalancing of private debt and economic activity has continued as the economy has recovered.
 - Although the *total credit to GDP ratio* and the *corporate credit to GDP ratio* remain at relatively high levels, this is due to cautious cash management, especially by SMEs, aimed at securing ample cash reserves.
 - Net corporate credit (gross corporate credit minus firms' cash and deposits) has hardly expanded.
- There is no overheating of current financial activities.

Total credit to GDP ratio



Note: 1. "Trend" is calculated using the one-sided HP filter. The shaded area indicates the root mean square of the deviation from the trend.
 2. See Chart III-3-2.

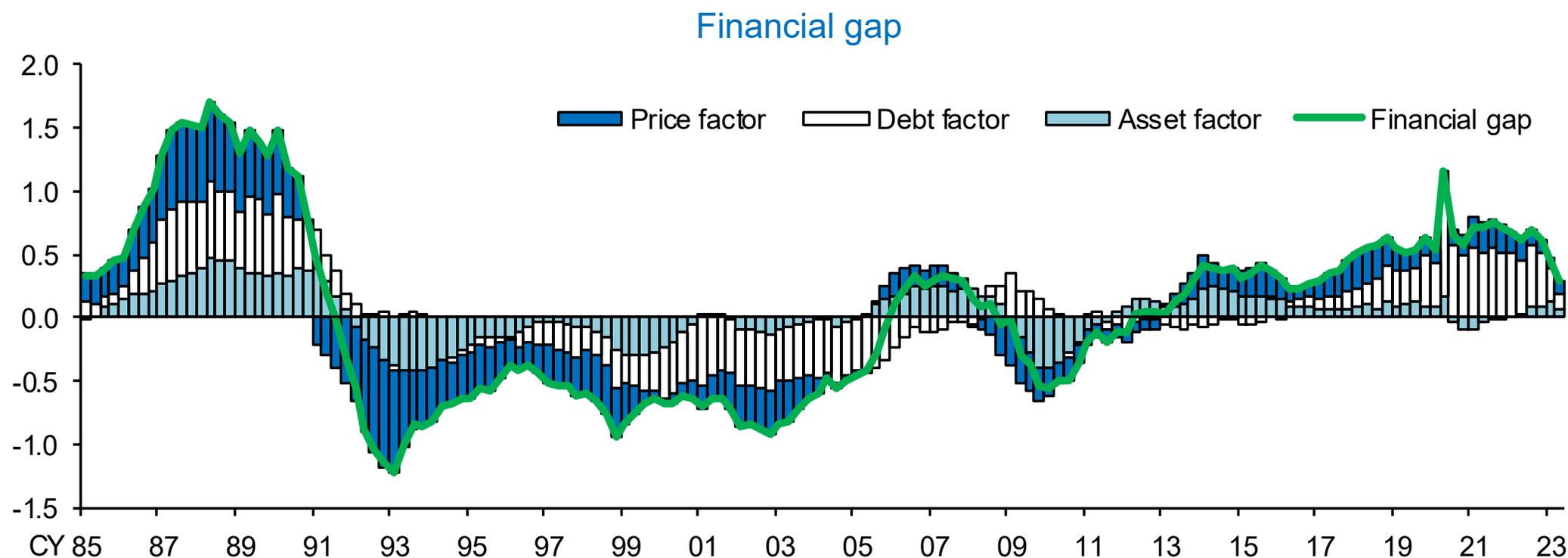
Corporate credit to GDP ratio



Note: 1. "Trend of corporate credit" is calculated using 3-year backward moving averages. The shaded area indicates the root mean square of the deviation from the trend.
 2. "Net corporate credit" is the ratio to GDP of gross corporate credit excluding firms' cash and deposits.
 3. See Chart III-3-3.

Heat map (3) Financial gap

- The financial gap is a summary measure of the 14 FAIXs in the heat map.
- The positive gap has narrowed recently. No major financial imbalances can be observed in current financial activities.
 - Active real investment (the "asset factor") due to leverage and asset price increases (the "price factor") have been limited compared to the episode in the late 1980s when financial imbalances built up, although the positive contribution of real investment is gradually becoming larger.

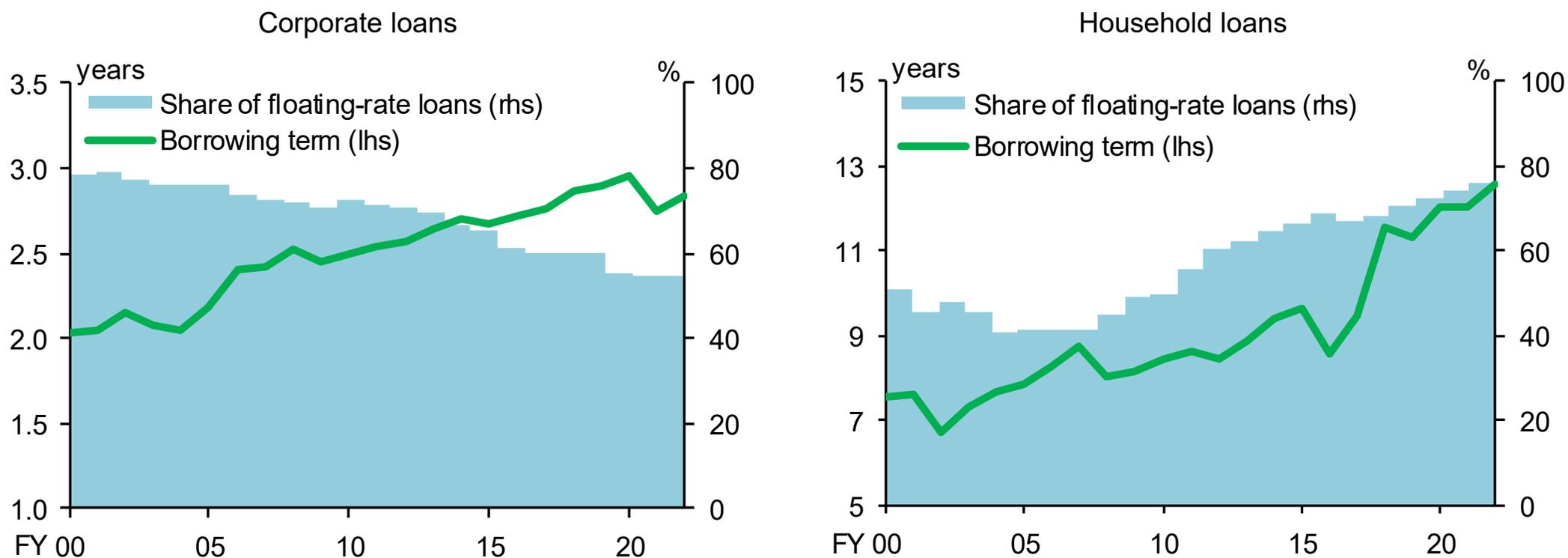


Note: "Asset factor" consists of indexes of fixed investment by the private sector, households, firms, and real estate businesses.
"Debt factor" consists of indexes of their debt financing. "Price factor" consists of the remaining indexes. See Chart III-3-4.

Borrowing terms for the non-financial sector

- Borrowing terms have become longer with the increase in private debt.
 - Seizing an opportunity from the decline in long-term interest rates, firms have secured stable funding at long-term fixed interest rates and contained refinancing risk.
 - Households have reduced their monthly repayment burden for large-lot housing loans through long-term floating-rate loans at low interest rates.
- Borrowing terms for both corporate and household loans have been at the peak range since the 2000s.

Borrowing term



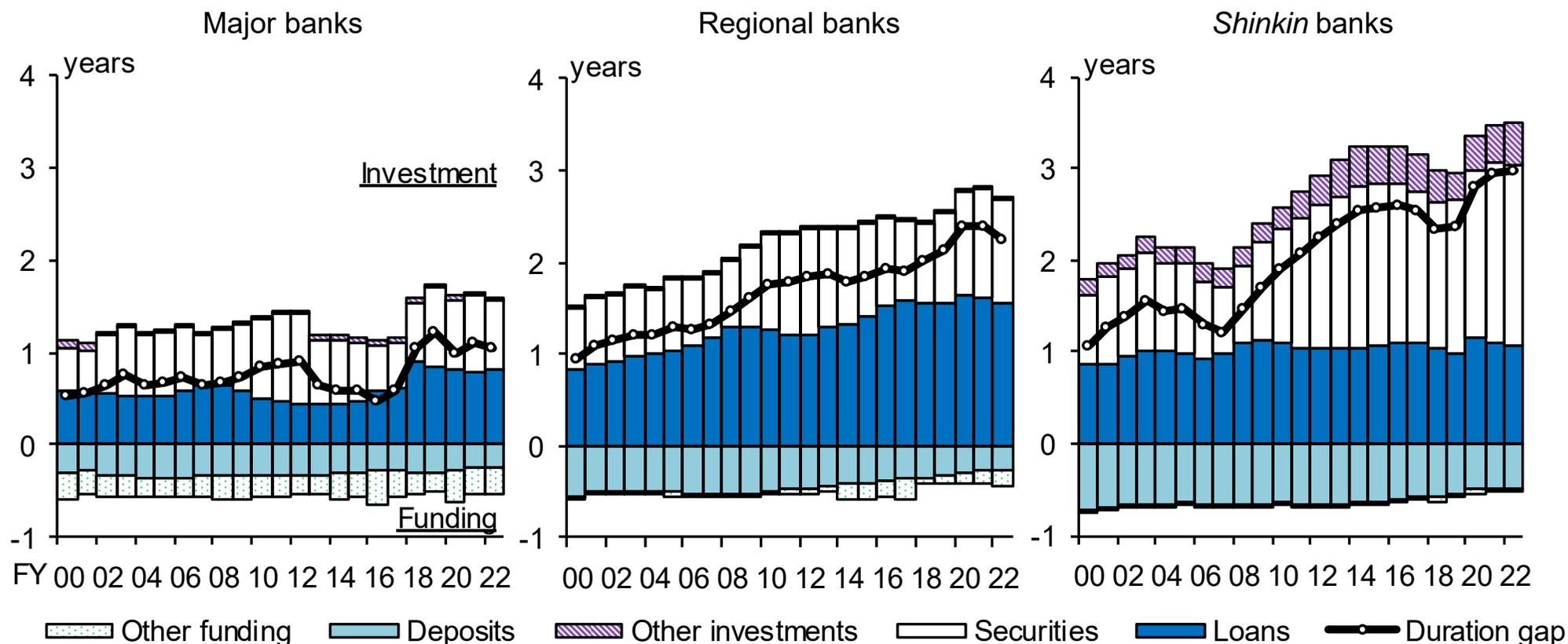
Note: "Borrowing term" shows estimated values. The data for "Share of floating-rate loans" from fiscal 2018 are actual values of major and regional banks; those up to fiscal 2017 are estimated values. See Chart III-3-5.

Interest rate risk in the banking sector (1) Duration gap

➤ Reflecting the longer borrowing terms, banks' duration gap (not taking core deposits into account) has widened compared to a decade ago.

- At major banks, this is due to the increase in long-term fixed-rate loans at low interest rates to large firms.
- At regional and *shinkin* banks, the decline in time deposits has widened the gap. In addition, the increase in long-term lending at regional banks and the shift to investments in long-term bonds at *shinkin* banks have led to the widening of the gap.

Duration gap

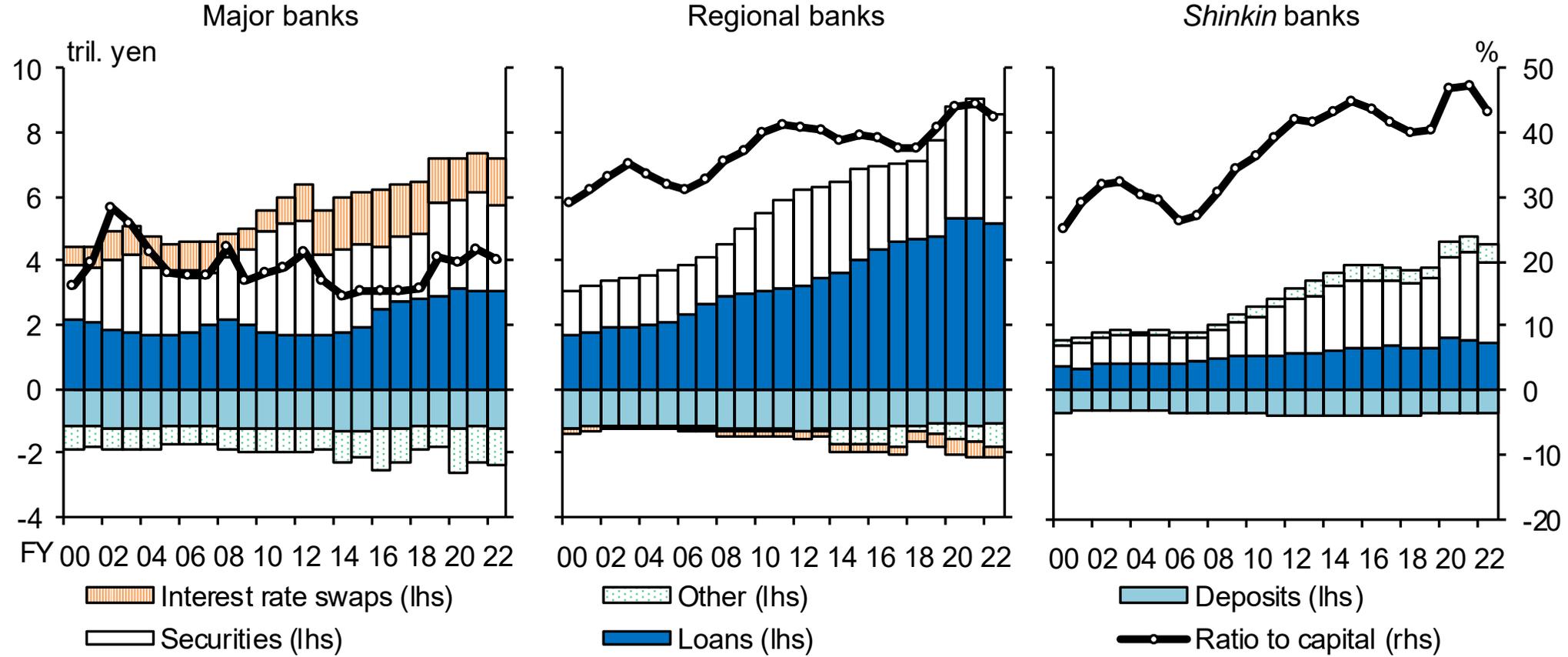


Note: Core deposits are not taken into account. See Chart IV-3-3.

Interest rate risk in the banking sector (2) Risk on the asset side

- Yen interest rate risk (in terms of the 100 BPV; not taking core deposits into account) has increased, especially among regional and *shinkin* banks.
 - On the asset side, interest rate risk on loans has increased at regional banks, while interest rate risk on securities has increased at *shinkin* banks.

Yen interest rate risk

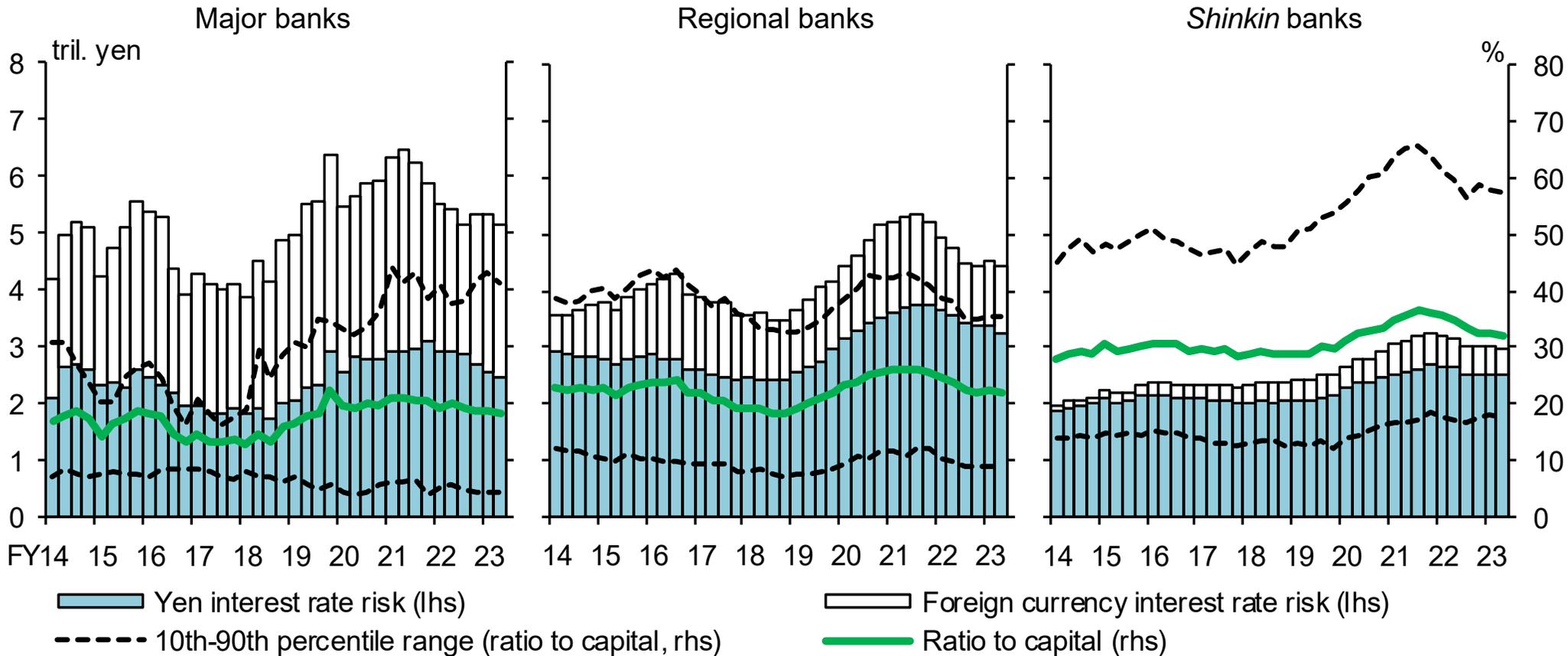


Note: Core deposits are not taken into account. "Ratio to capital" is the ratio of the asset side (loans and securities), and is calculated using CET1 capital for internationally active banks from fiscal 2012 onward, core capital for domestic banks from fiscal 2013 onward, and Tier 1 capital for all others (excl. the transitional arrangements). See Chart IV-3-4.

Interest rate risk in the banking sector (3) Risk on securities

- The amount of interest rate risk associated with banks' securities investment has declined.
 - However, the total amount of interest rate risk has remained at a historically elevated level.

Interest rate risk of securities holdings

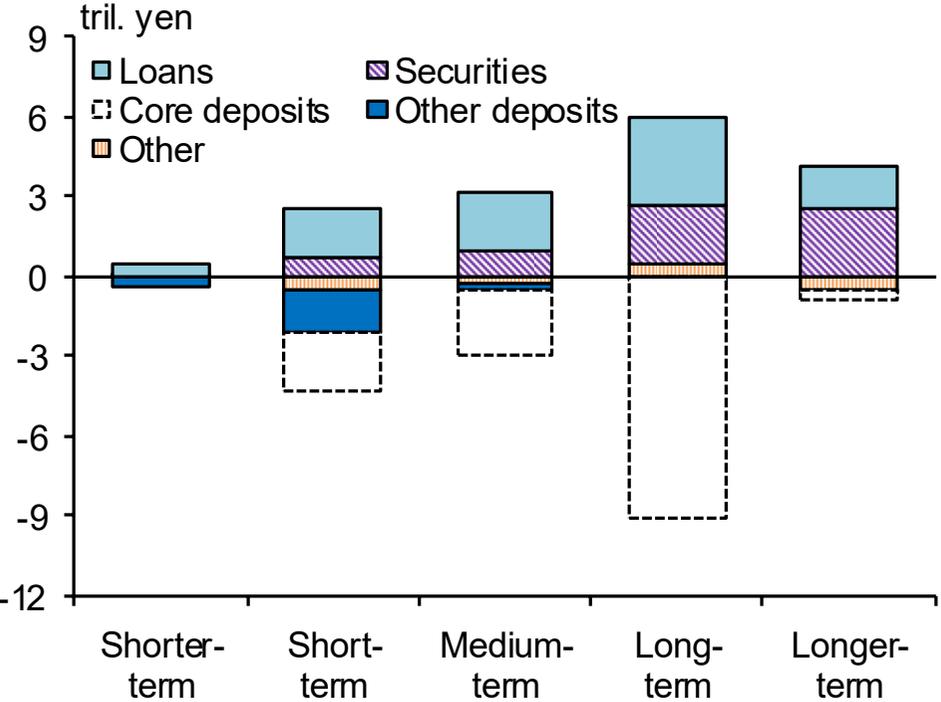


Note: 1. "Yen interest rate risk" is a 100 BPV and "Foreign currency interest rate risk" is a 200 BPV. Off-balance-sheet transactions are included for foreign currency interest rate risk.
 2. "Ratio to capital" is calculated using CET1 capital for internationally active banks and core capital for domestic banks (excluding the transitional arrangements).
 3. See Chart IV-2-9.

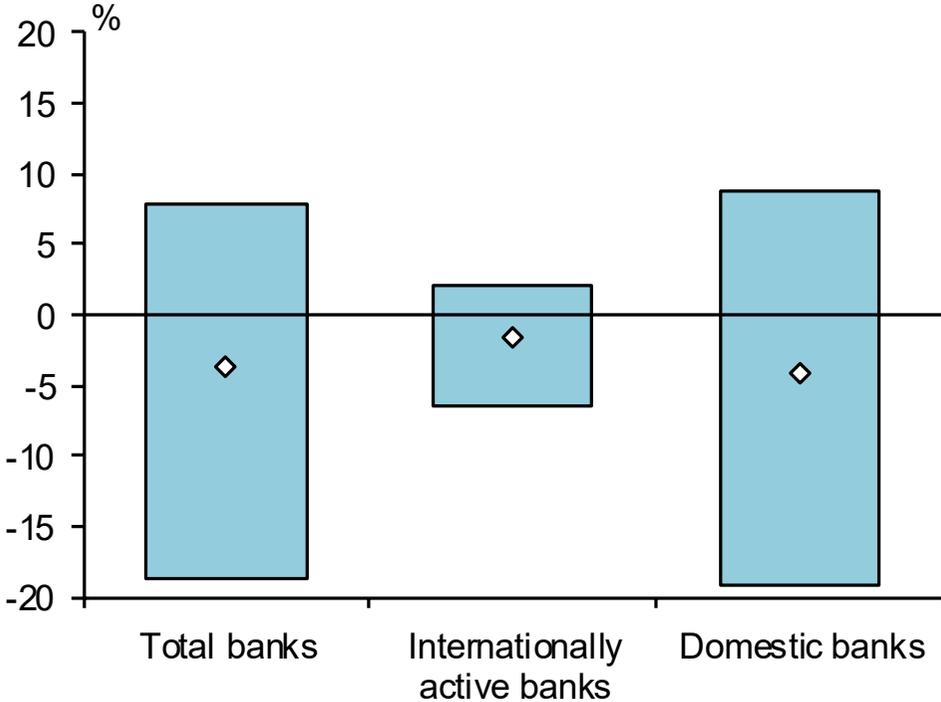
Interest rate risk in the banking sector (4) Risk in the banking book

- The increase in interest rate risk on the asset side is offset by core deposits.
 - Looking at banks as a whole, interest rate risk taking core deposits into account is generally in balance between assets and liabilities.
 - Interest rate risk-to-capital ratios (taking core deposits into account) of individual banks are below the supervisory thresholds.

Interest rate risk taking into account core deposits



Distribution of the ratio of interest rate risk to capital



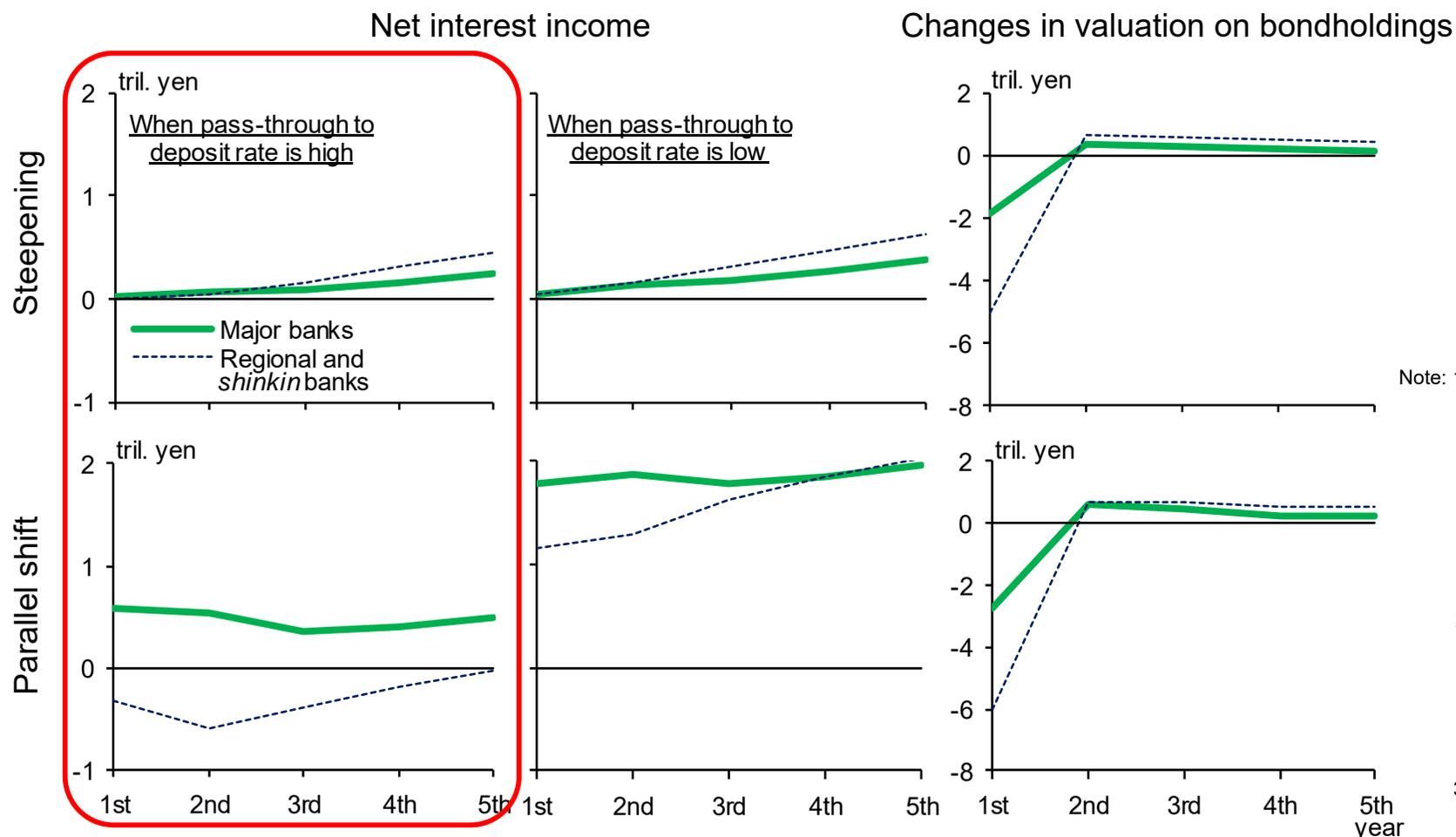
Note: 1. Shows a 100 BPV as of end-March 2023. Covers all banks (excluding *shinkin* banks).
 2. In the horizontal axis, "Shorter-term" refers to 3 months or less; "Short-term" refers to 3 years or less; "Medium-term" refers to 5 years or less; "Long-term" refers to 10 years or less; "Longer-term" refers to over 10 years.
 3. See Chart IV-3-5.

Note: 1. Shows the medians (markers) and 10th-90th percentile ranges (bands) of a 100 BPV as ratios to capital as of end-March 2023. Ratios to capital are calculated using Tier 1 capital for internationally active banks and core capital for domestic banks.
 2. Covers all banks (excluding *shinkin* banks).
 3. See Chart IV-3-6.

Simulation of interest rate rises (1)

- Two different yield curve scenarios (+1%pt) are assumed: a "steepening" and a "parallel shift."
- In the case of a high interest rate pass-through (40% for demand deposits and 80% for time deposits):
 - When the yield curve steepens, the net interest income of major banks and regional/*shinkin* banks increases over time.
 - In the case of a parallel shift, profits of major banks with a relatively small duration gap jump at the start of the simulation. In contrast, profits of regional and *shinkin* banks with a relatively large duration gap decline for some time.

Net interest income and changes in valuation on bondholdings

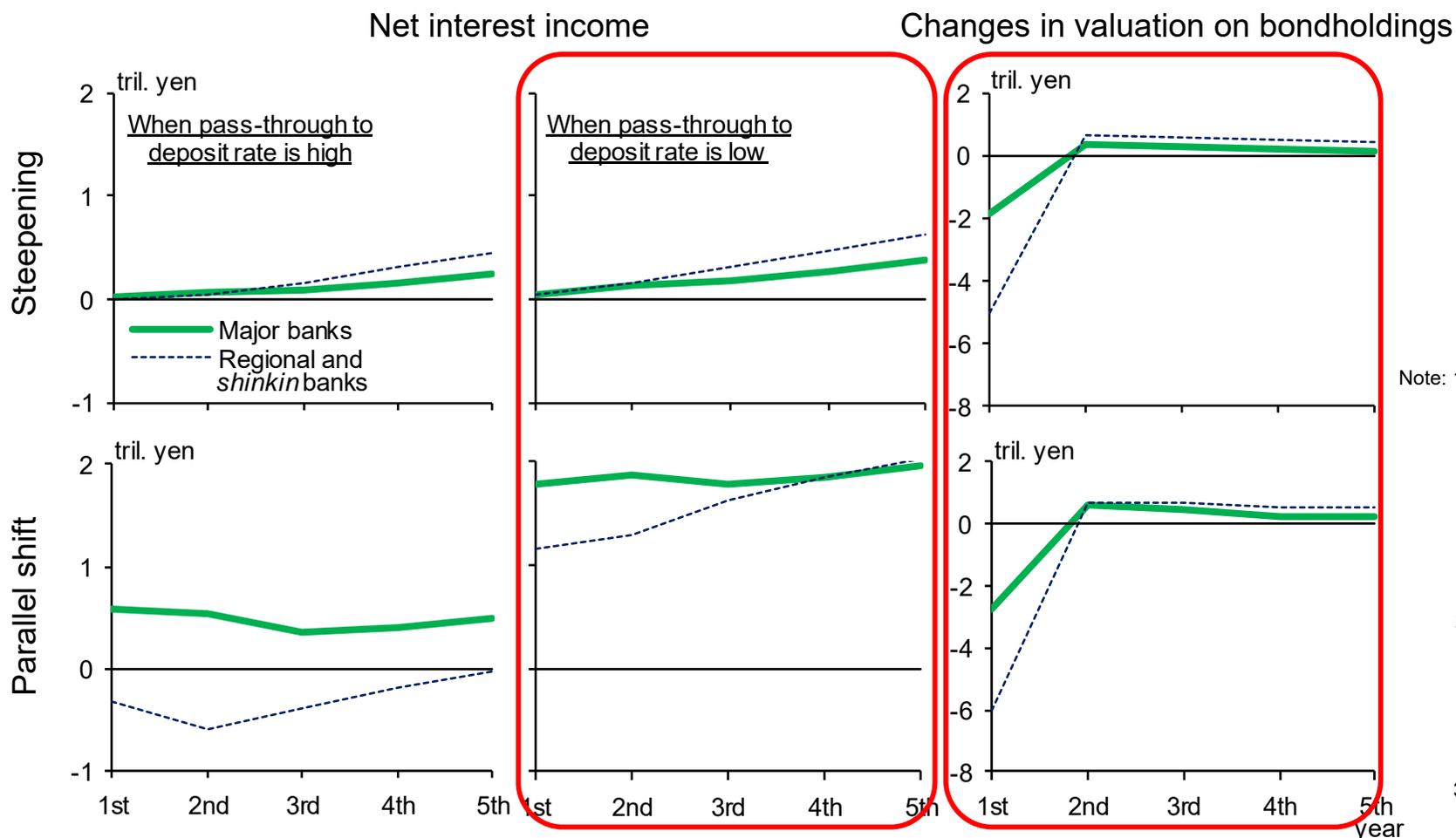


Note: 1. The higher pass-through rates correspond to the actual pass-through during the period of rising interest rates in 2006-2007. The lower pass-through rates correspond to the actual pass-through for major U.S. banks in 2022.
 2. "Net interest income" indicates the changes from the base period; "Changes in valuation on bondholdings" indicates the changes from the previous period.
 3. See Chart IV-3-7.

Simulation of interest rate rises (2)

- In the case of a low interest rate pass-through (10% for demand deposits and 20% for time deposits):
 - When steepening, net interest income is not very different from the case when the pass-through is high.
 - When parallel-shifting, net interest income is much higher than in the case of a steepening because the lower pass-through makes it easier to secure positive interest margins on both lending and securities investment.
- In both cases of yield curve changes, valuation gains/losses on bondholdings deteriorate at the start of the simulation period, mainly due to the increase in long-term interest rates.

Net interest income and changes in valuation on bondholdings



Note: 1. The higher pass-through rates correspond to the actual pass-through during the period of rising interest rates in 2006-2007. The lower pass-through rates correspond to the actual pass-through for major U.S. banks in 2022.
 2. "Net interest income" indicates the changes from the base period; "Changes in valuation on bondholdings" indicates the changes from the previous period.
 3. See Chart IV-3-7.

Stickiness of deposits

- The stickiness of deposits is state-dependent and not necessarily fixed.
 - The following can be noted from the results of panel estimation that explains deposit rate-setting behavior.
 - (1) A higher retail deposit ratio is associated with a higher stickiness of deposits due to the relatively high switching costs for retail deposits.
 - (2) Banks tend to follow the three major banks in terms of revising their deposit interest rates. Thus, competition in the deposit market also influences the stickiness of deposits to some extent.
 - (3) The higher the NPL ratio and the lower depositors' confidence, the lower the switching cost of deposits.

Effect on pass-through of interest rate

		Dependent variable: Time deposit rate (%)		
		Model 1	Model 2	
Explanatory variables	Retail deposit ratio (%)	-0.295***	-0.325***	(1)
	Loan-to-deposit ratio (%)	0.223**	0.227**	
	HHI	-0.171***	-0.207***	
	Deposit rate of the three major banks (%)	0.492***	0.488***	(2)
	NPL ratio (%)	—	0.428***	(3)
	Level of the deposit rate before the policy rate hike (%)	-0.956***	-0.947***	
	Deposits outstanding (log)	-0.018***	-0.014**	
	Lending rate (%)	0.021	0.023	
	Constant	0.794***	0.750***	
R ² : within / between / overall		0.187 / 0.372 / 0.237	0.188 / 0.366 / 0.235	
Sample size		10,763	10,763	

Note: 1. Shows the estimation results for panel regression (random effects model). The estimation period is from July 2006 to October 2008. All explanatory variables are lagged by 1 period except for "Level of the deposit rate before the policy rate hike" and "Lending rate."
 2. *** and ** indicate statistical significance at the 1 percent and 5 percent levels, respectively.
 3. See Chart B2-4.

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Box 2: The stickiness of deposits and its variability

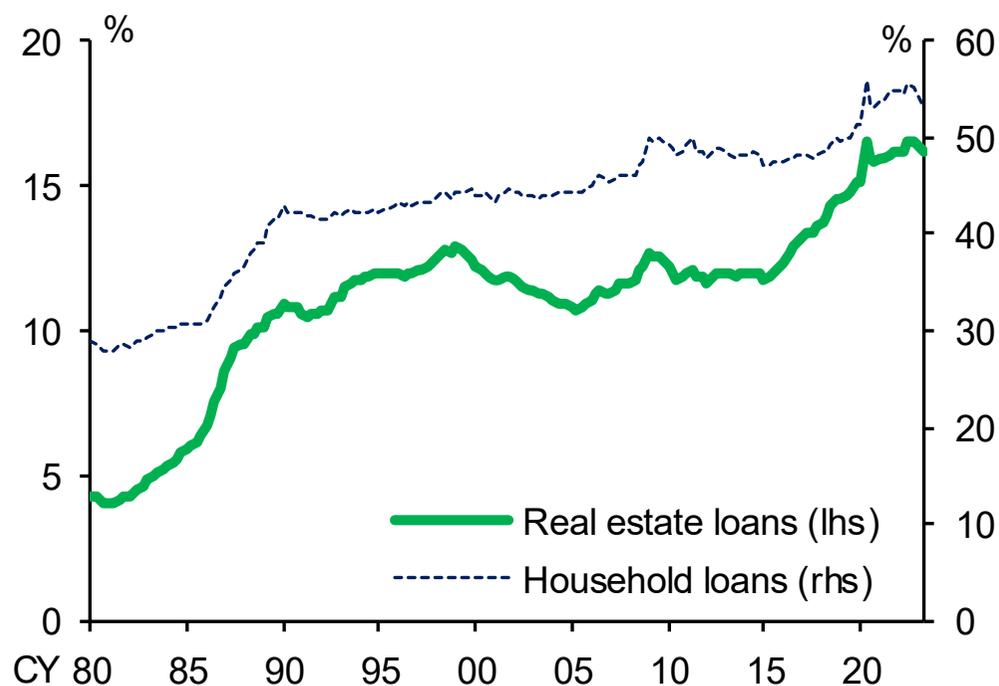
2. Financial cycle and the real estate market

- Whether the increase in real estate-related loans has led to a buildup of financial imbalances.
- How the risks in foreign real estate markets, which could be transmitted to Japan's real estate market, have changed.

Japan's real estate market (1) Real estate-related loans

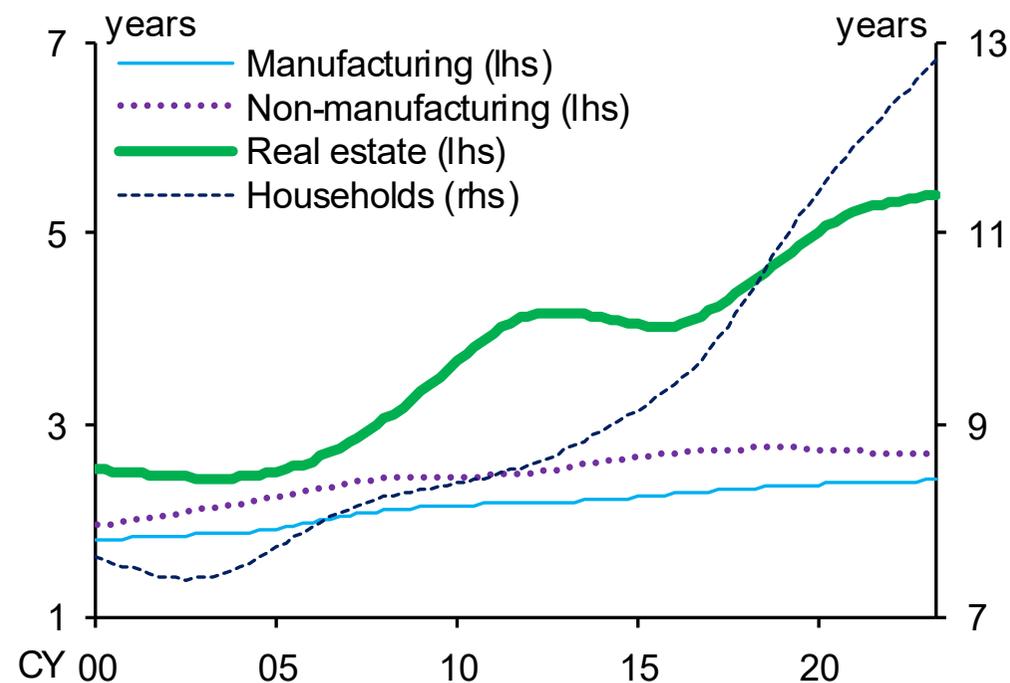
- Real estate-related loans have continued to increase even amid the rebalancing of private debt and economic activity.
 - In the real estate transaction market, there continues to be demand for funds, mainly by foreign investors.
 - In the real estate leasing market, the rise in investment in fixed assets by real estate leasing businesses and the corresponding increase in lending have continued.
 - Loan periods for real estate-related loans have become longer.

Real estate-related loans to GDP ratio



Note: See Chart III-3-8.

Borrowing term by industry

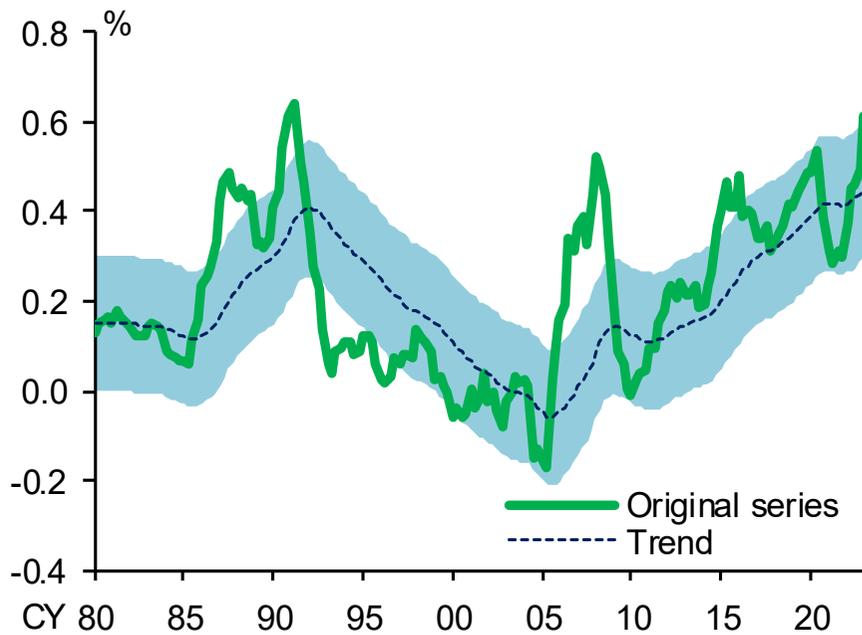


Note: Shows the trend calculated using the HP filter. "Non-manufacturing" excludes real estate businesses. See Chart III-3-9.

Japan's real estate market (2) Real investment

- In the real estate transaction market, changes can be seen in terms of both liabilities and assets of real estate businesses, as well as real estate prices.
- On the asset side, the *real estate firms' investment to GDP ratio* temporarily turned "red" in the heat map.
 - The increase in real estate firms' investment has been accelerated by urban redevelopment projects.
 - Major developers' investment in fiscal 2023 is expected to be at a higher level than the previous year.

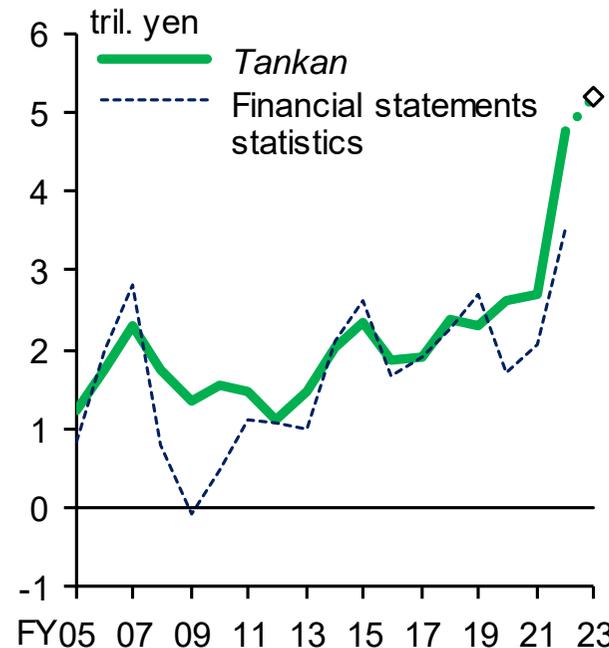
Real estate firms' investment to GDP ratio



Note: "Trend" is calculated using the one-sided HP filter. The shaded area indicates the root mean square of the deviation from the trend. See Chart III-3-11.

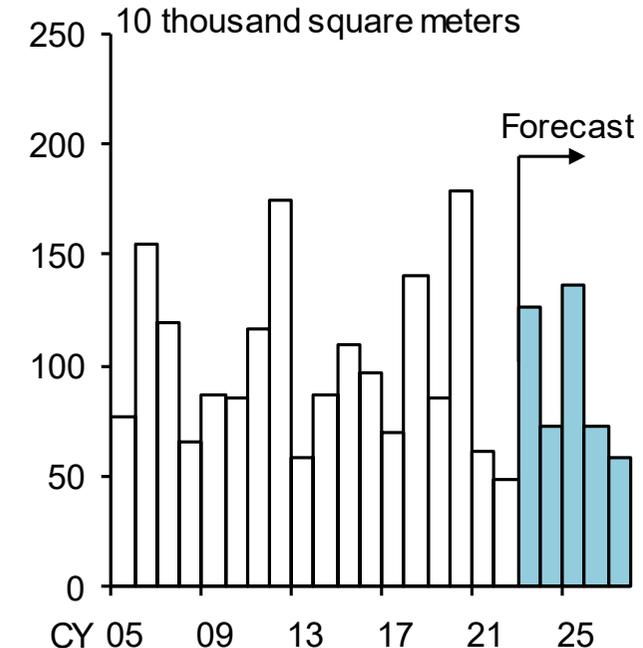
Real estate businesses' investment

Real investment



Note: 1. In the left-hand chart, the marker indicates the forecast for fiscal 2023 (*Tankan*). "Financial statements statistics" includes inventory investment. The chart covers large real estate firms.
 2. The right-hand chart is based on Mori Building Co., Ltd., "2023 Survey of Large-scale Office Buildings in Tokyo's 23 Core Cities."
 3. See Chart III-3-12.

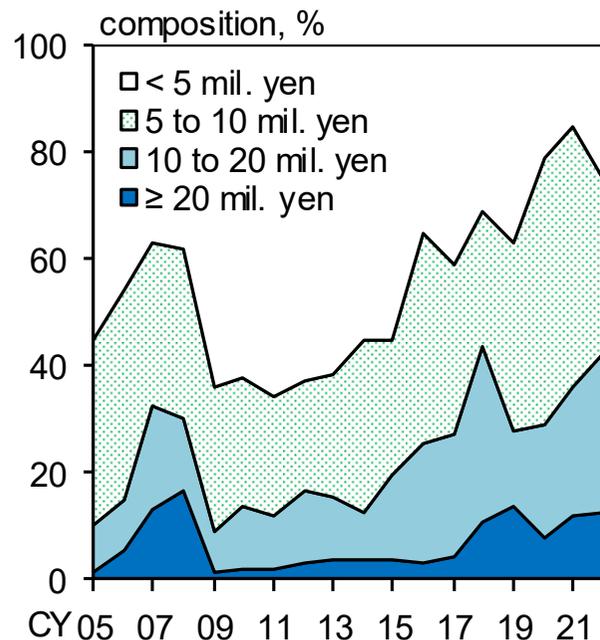
Office building supply



Japan's real estate market (3) Real estate prices

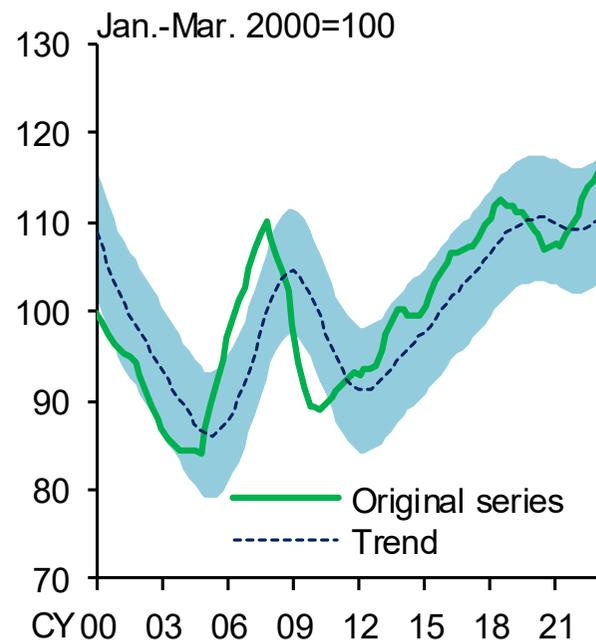
- In terms of prices, valuations of some properties seem relatively high.
 - Land prices have shown only small fluctuations across Japan, but in some limited commercial areas in central Tokyo, transactions in the higher price range have been increasing.
 - The *commercial real estate prices to rent ratio* in Japan has been above the level seen in the mini-bubble period.
 - In addition, vacancy rates for office buildings have remained at a relatively high level.

Distribution of transaction prices



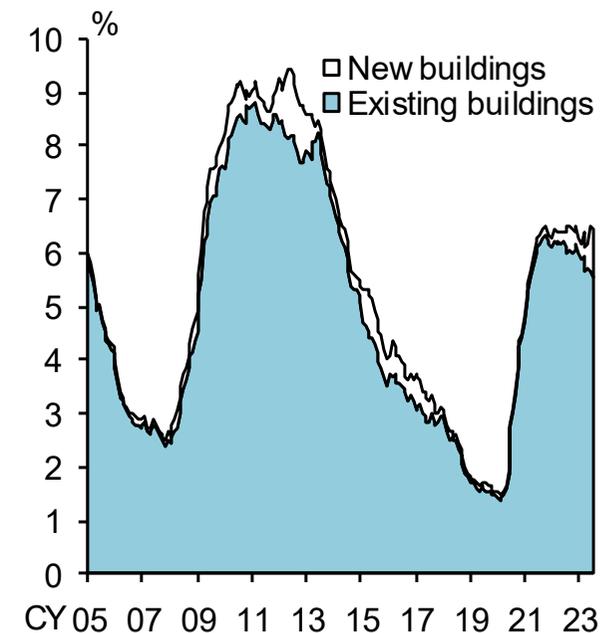
Note: Shows the composition of transaction prices per unit of commercial land in the 5 central wards of Tokyo. See Chart III-3-14.

CRE prices to rent ratio



Note: "Trend" is calculated using 3-year backward moving averages. The shaded area indicates the root mean square of the deviation from the trend. See Chart III-3-14.

Office vacancy rates

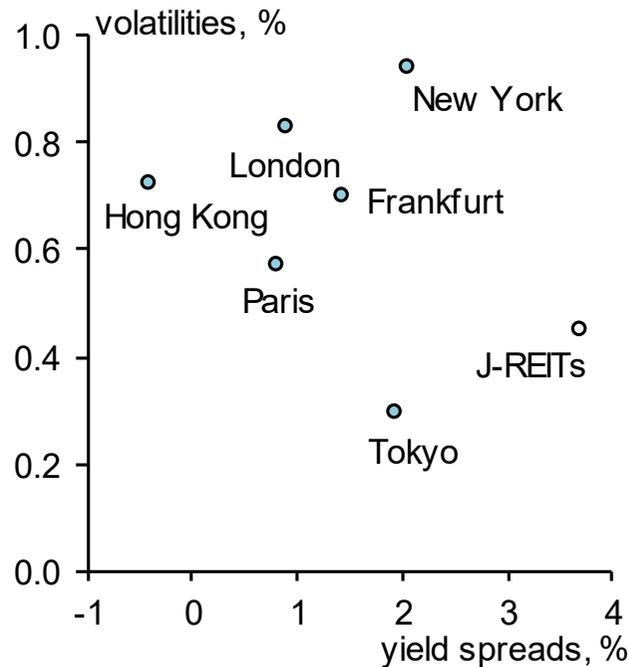


Note: Covers Tokyo business area. See Chart III-3-13.

Japan's real estate market (4) Real estate transactions

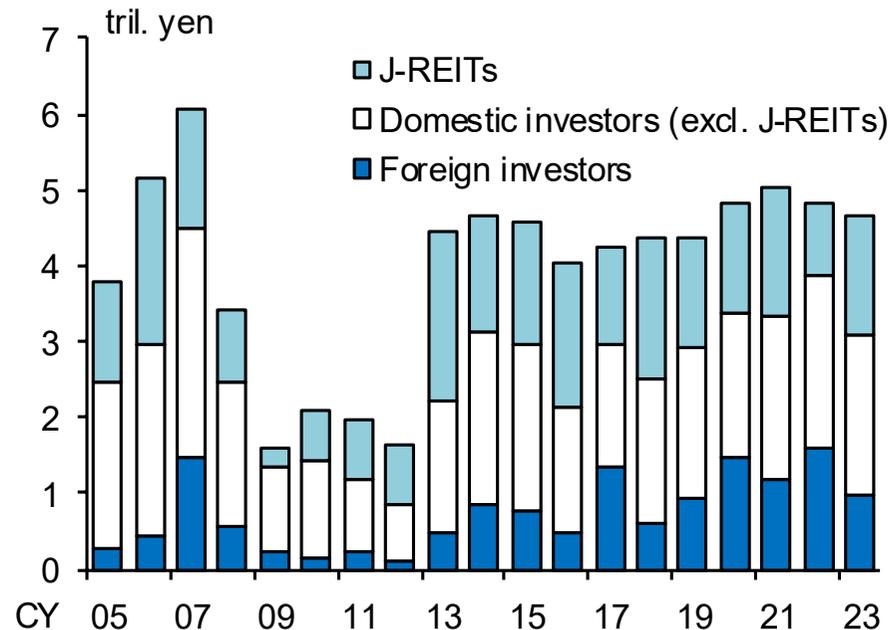
- While domestic investors have become more selective in their investment stance against the backdrop of changing valuations, foreign institutional investors' investment stance has generally remained active.
 - Foreign institutional investors' investment behavior has reduced the risk of a correction in Japan's real estate market.
 - On the other hand, foreign investment funds have a greater presence in Japan's real estate market than foreign institutional investors. Japan's market has become more susceptible to developments in the global market, such as a global portfolio rebalancing and repatriation by foreign investment funds.

Yield spreads



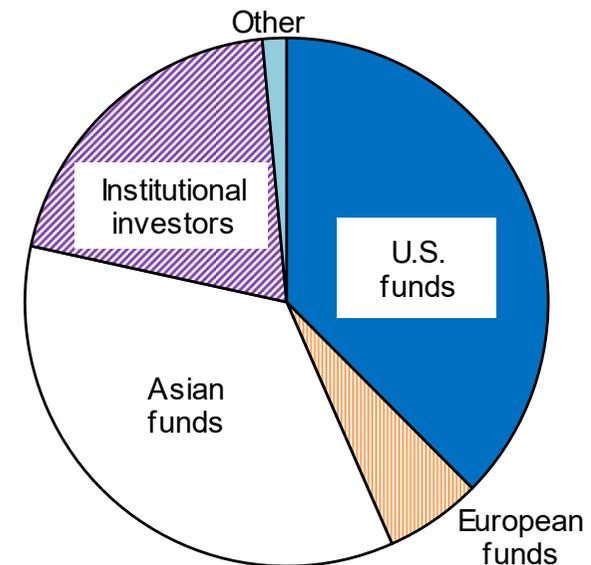
Note: The vertical axis shows the standard deviations of yield spreads from 2010; the horizontal axis shows the yield spreads during fiscal 2022. See Chart III-3-14.

Real estate property acquisitions by type of investor



Note: The latest data are annualized values for the first half of 2023. See Chart III-3-15.

Composition of foreign investors



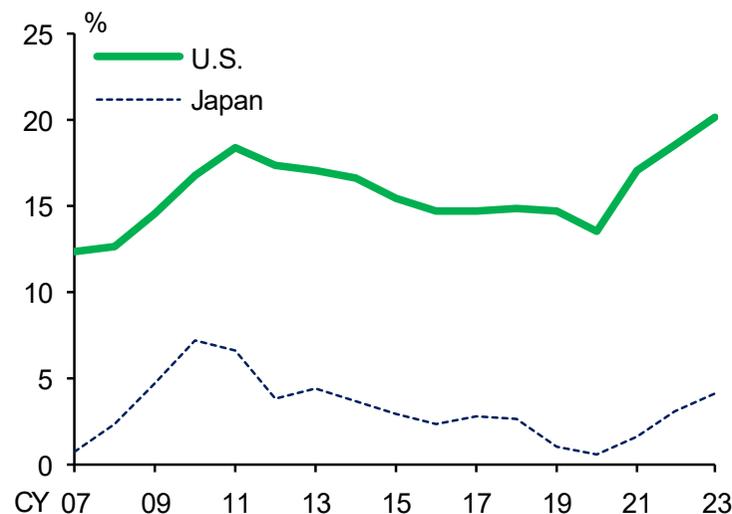
Note: Shows the composition of real estate acquisition amount for the period from January 2020 to June 2023. See Chart III-3-16.

U.S. real estate market

➤ If there were to be a substantial repricing in the U.S. real estate market, the impact would likely be felt around the world through the rebalancing of globally diversified funds.

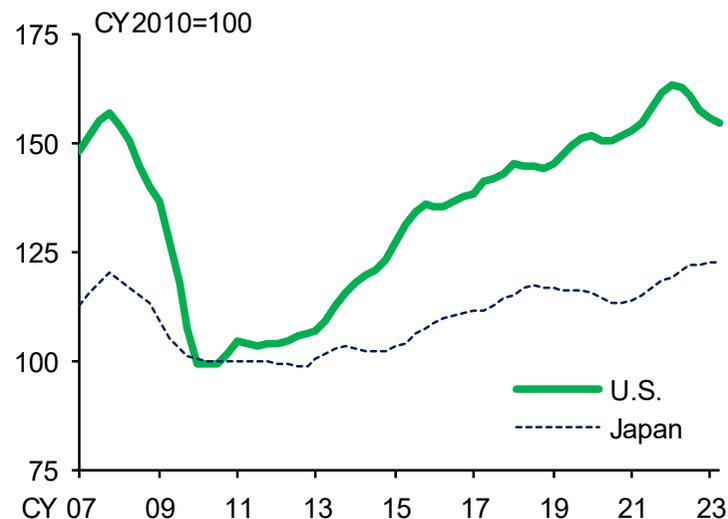
- Office vacancy rates in the U.S. market have increased substantially since the outbreak of the pandemic.
- Prices in the U.S. commercial real estate market started to decline after peaking at the beginning of 2022.
- The pace of a buildup in commercial real estate loans in the United States has been much faster than in Japan.

Office vacancy rates



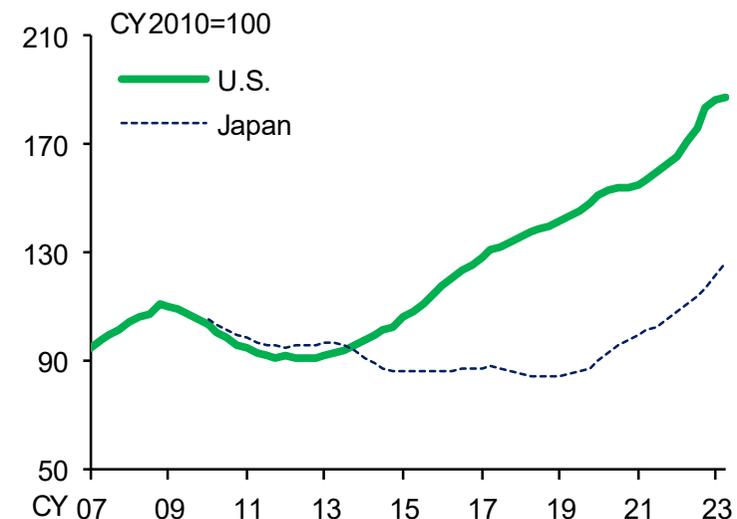
Note: See Chart B1-5.

Commercial real estate prices



Note: The data are deflated by the CPI in each country. See Chart B1-6.

Commercial real estate loans



Note: The data for Japan indicate real estate loans from banks (for large real estate businesses and SPCs). See Chart B1-7.

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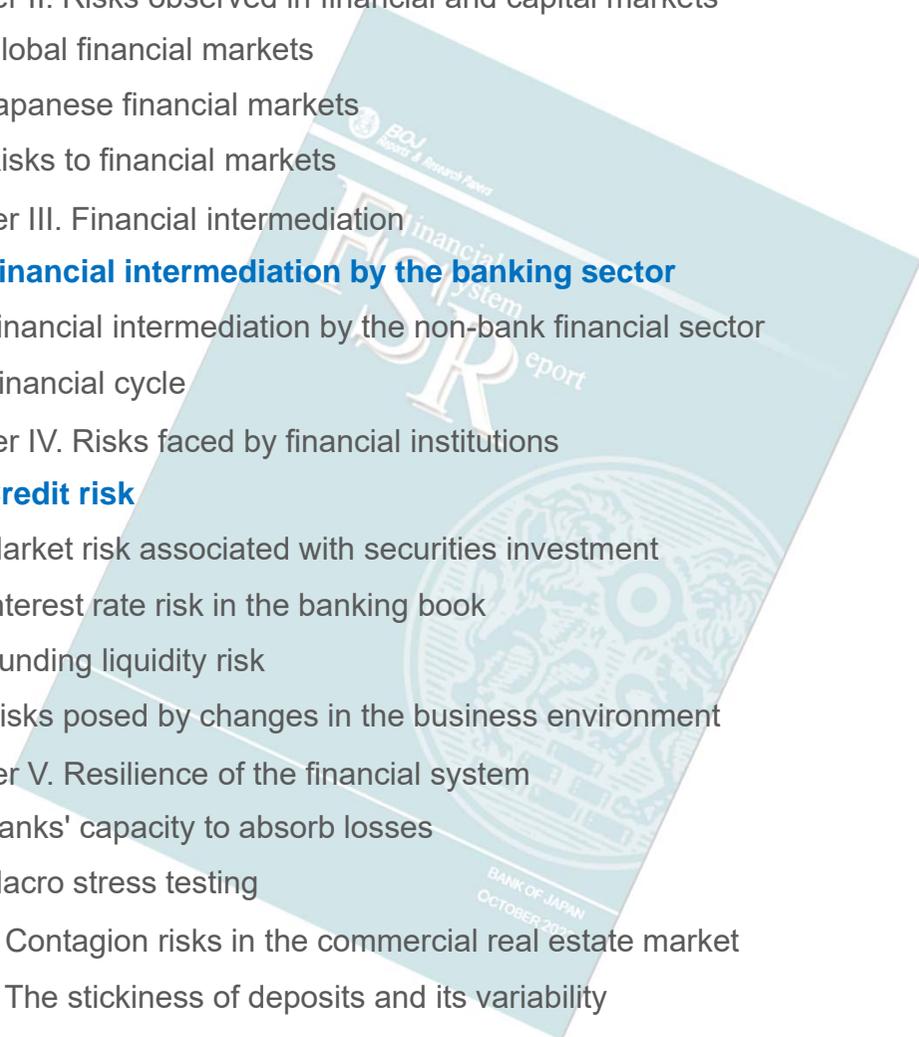
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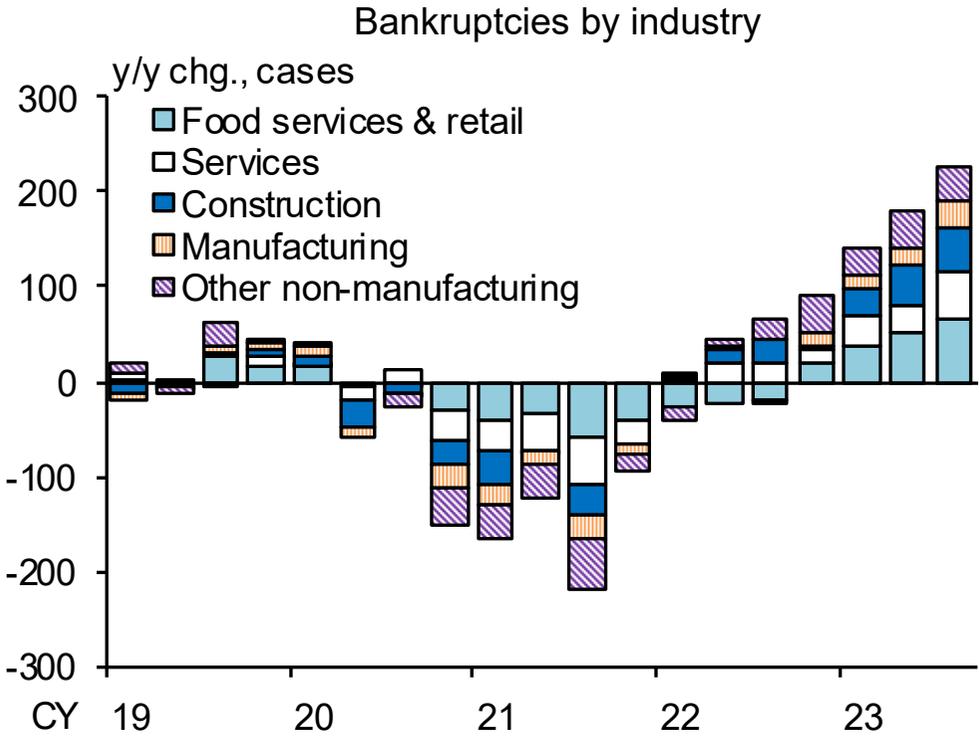
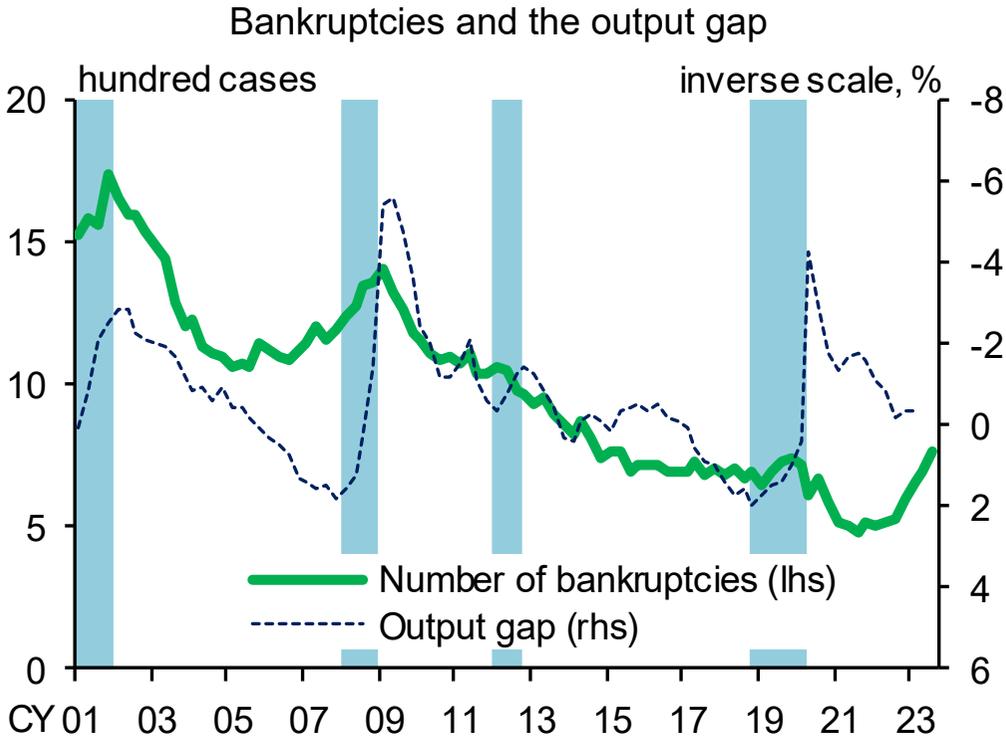
3. Increased corporate bankruptcies and banks' credit risk

- What lies behind the recent increase in bankruptcies.
- Caveats with regard to credit risk management.

Increase in bankruptcies amid an improving economy (1)

- Bankruptcies of firms have been on the rise since the end of last year.
 - From the 2000s, bankruptcies tended to increase along with the deterioration of the output gap, whereas bankruptcies recently have increased with the improvement of the gap.
 - By industry, there has been a rebound in the number of bankruptcies among SMEs, such as in the food services and retail industries, where bankruptcies had been subdued during the pandemic.

Number of corporate bankruptcies

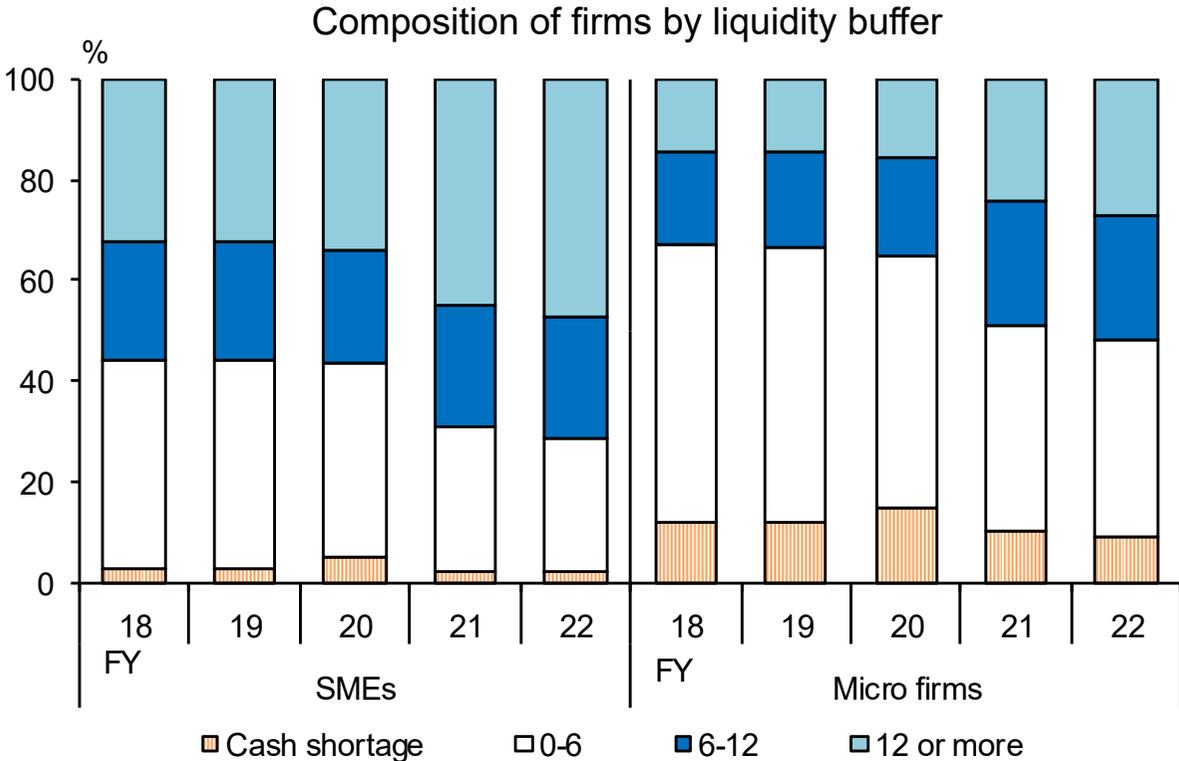
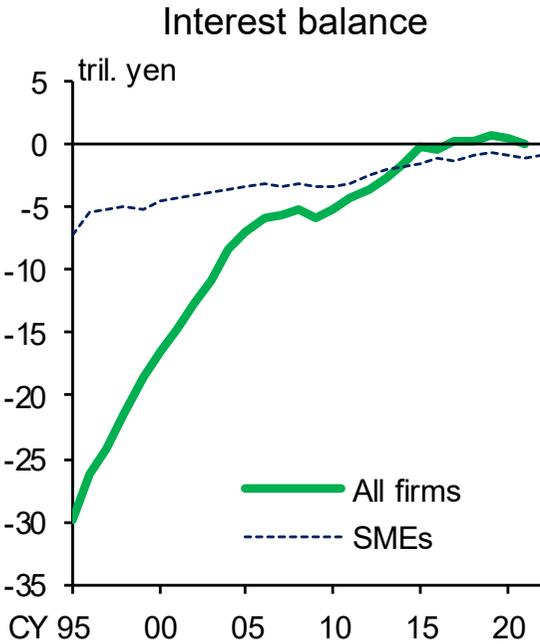


Note: 1. The shaded areas in the left-hand chart indicate recession phases. The data for "Number of bankruptcies" are quarterly averages.
 2. The data for the right-hand chart are quarterly averages.
 3. See Chart IV-1-5.

Increase in bankruptcies amid an improving economy (2)

- Firms' financial conditions are becoming increasingly polarized.
 - SMEs' net interest payments are at a historically low level.
 - The number of firms with relatively ample cash reserves -- for example, firms with cash reserves equal to half or more of their annual administrative expenses -- has increased substantially since the outbreak of the pandemic.
 - On the other hand, a certain share of firms still suffers from a cash shortage even with the improving economy. It is likely that some of these firms with cash shortages have gone bankrupt.

Firms' financial condition

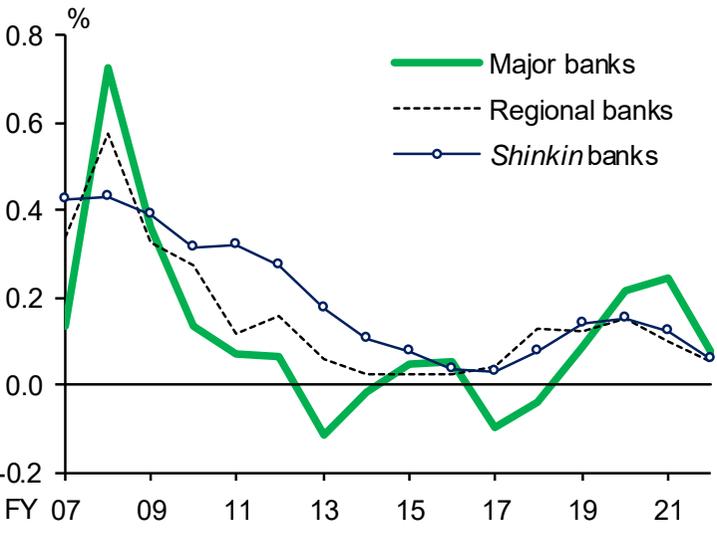


Note: 1. Interest balance for "SMEs" in the left-hand chart includes dividend income.
 2. Liquidity buffer in the right-hand chart is calculated as the ratio of cash reserves (the sum of liquid assets at the beginning of each fiscal year and net operating cash flow during the year) to monthly average administrative expenses.
 3. See Chart IV-1-6.

Increased bankruptcies and credit costs

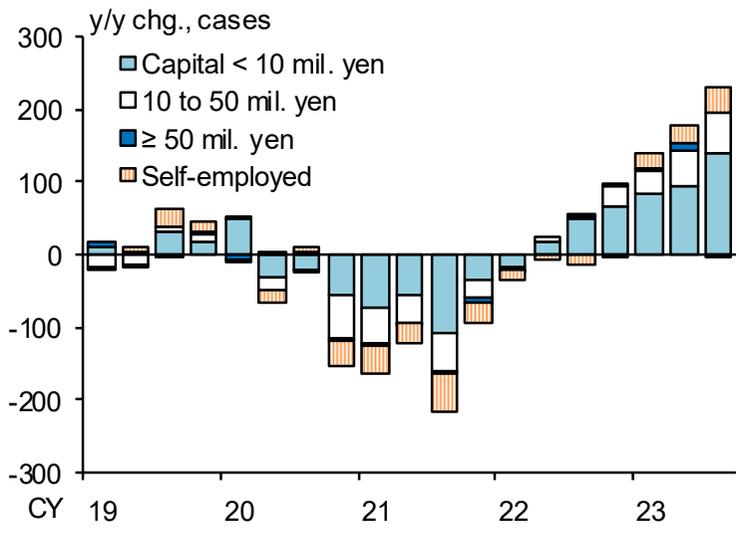
- Even though bankruptcies have been rising, banks' credit costs have remained limited.
 - This is partly because small-sized firms account for the overwhelming majority of recent bankruptcies and defaults.
 - Banks have been building up precautionary loan-loss provisions. This has also helped to keep additional credit costs in check.

Credit cost ratios



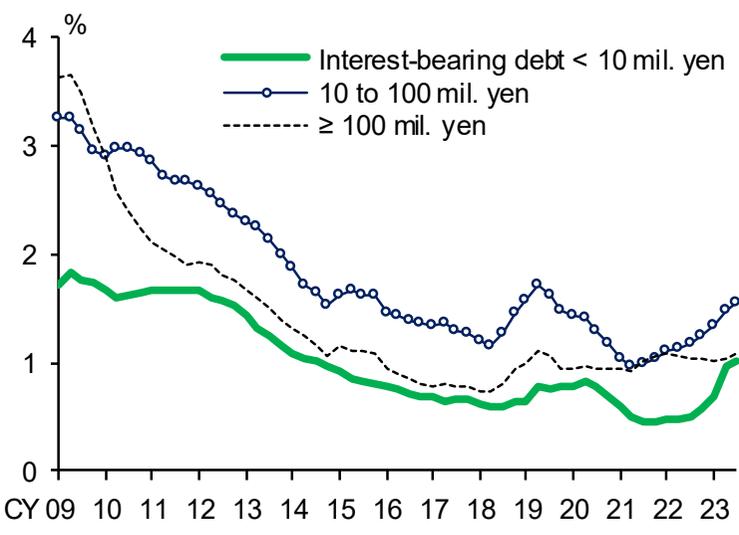
Note: Covers domestic and foreign loans. See Chart IV-1-4.

Number of bankruptcies



Note: 1. The right-hand chart shows the share of borrowers that meet the following conditions for the first time: becoming delinquent for 3 months or longer, or being downgraded to "in danger of bankruptcy" or below.
 2. The data are quarterly averages.
 3. See Chart IV-1-8.

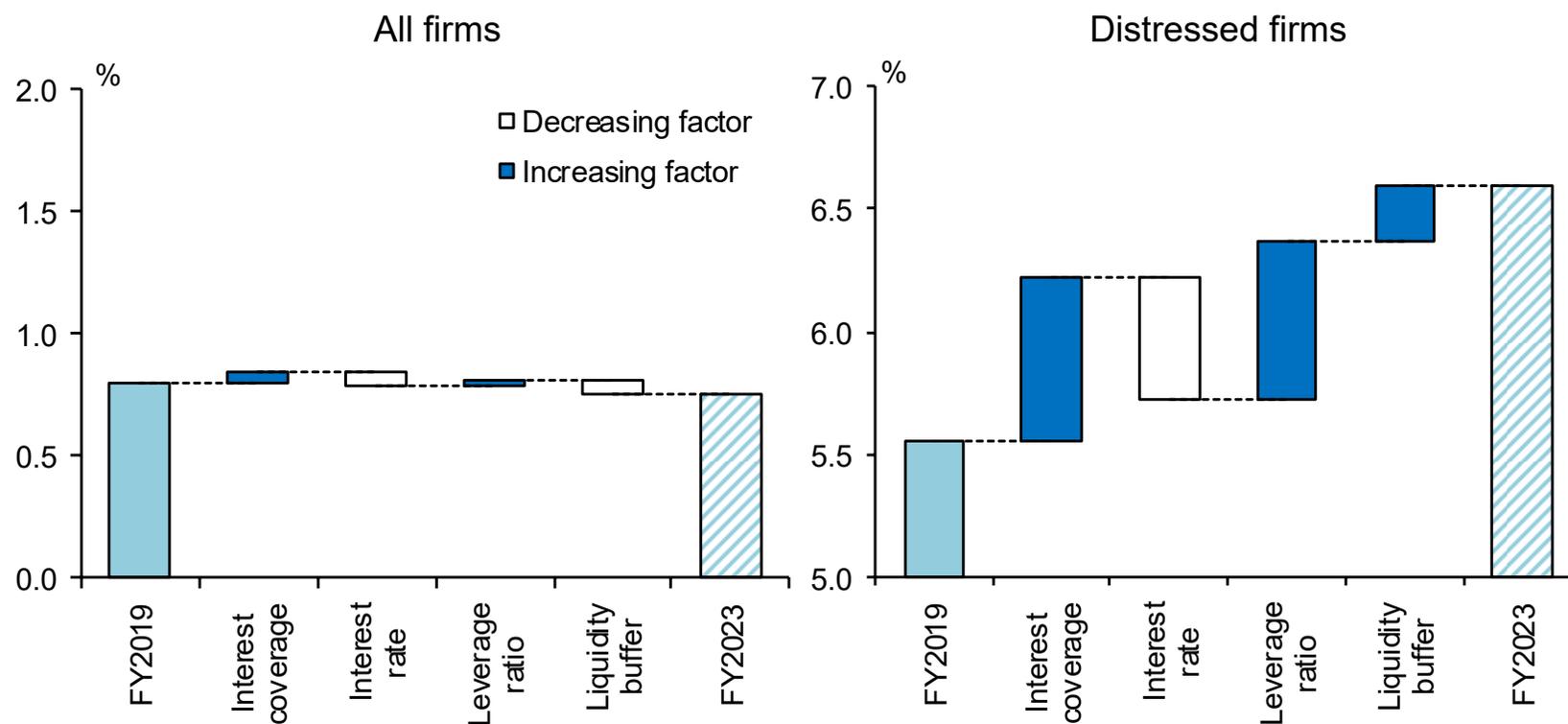
Default rates



Bankruptcies and defaults going forward

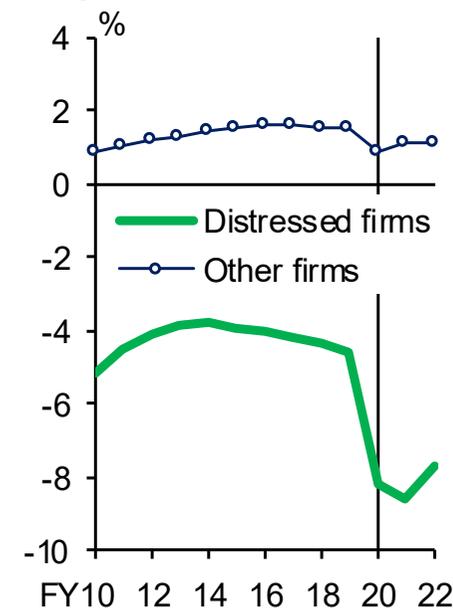
- For SMEs as a whole, the increase in the liquidity buffer due to pandemic-related loans and various subsidies restrains defaults.
- In contrast, for distressed firms, which have experienced a deterioration in their business since before the pandemic, the decline in liquidity buffers pushes up the probability of default.
 - These firms have seen a further increase in their operating losses since the outbreak of the pandemic. Their liquidity buffer has continued to decline.

Probability of default for SMEs



Note: "Interest coverage" and "Liquidity buffer" indicate, respectively, the contribution of the kinked ICR and the ratio of cash reserves to total assets to the change in the probability of default. See Chart IV-1-9.

Ratio of operating profits to sales

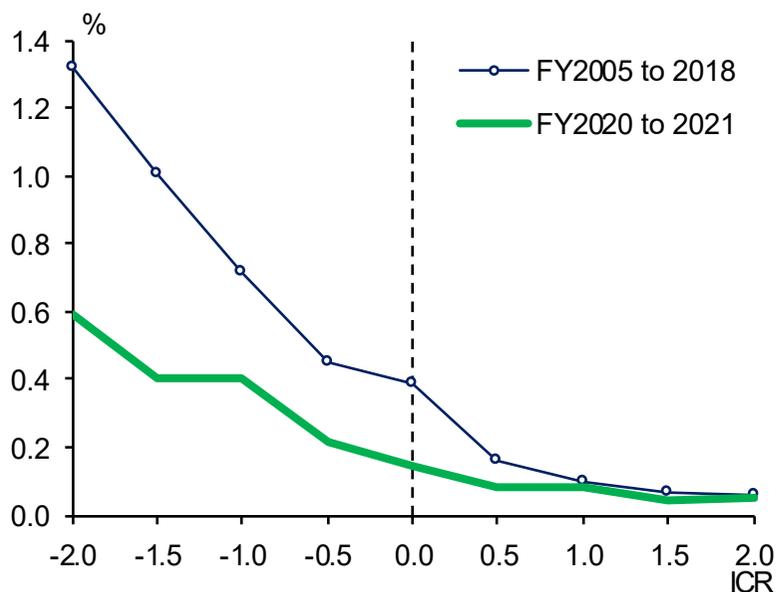


Note: Shows the median values. The vertical line indicates the beginning of the pandemic. The chart covers SMEs. See Chart IV-1-10.

Caveats with regard to credit risk management

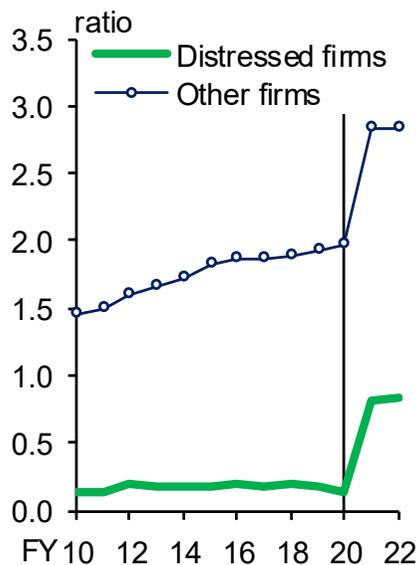
- SMEs' default rate, which has been pushed down substantially by the strong corporate financing support measures, is expected to return to its through-the-cycle average.
 - Distressed firms are exposed to refinancing risk. Their cash reserves ratio relative to short-term borrowings is low.
- It is important that banks provide support that is suited to their borrowers' actual conditions.
 - To provide continued support to firms, it is also important that banks have sufficient provisions.

SMEs' default rates



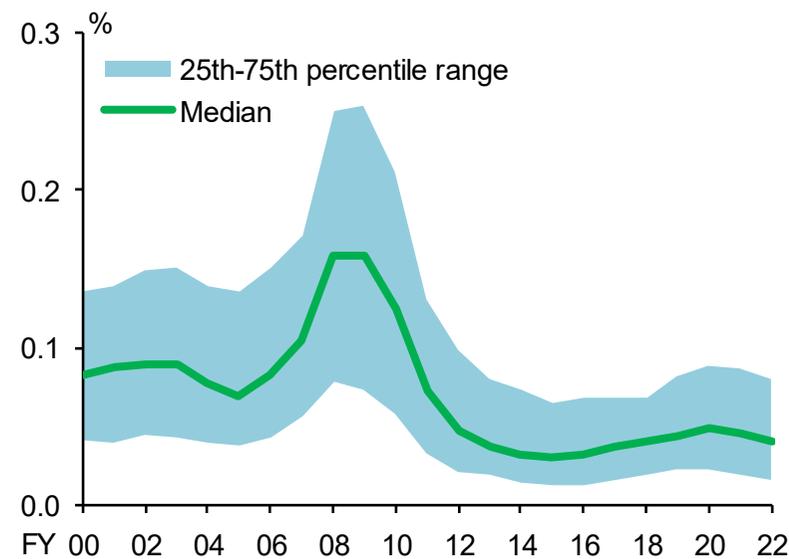
Note: Shows the default rates by kinked ICR. The default rate is the ratio of borrowers that are downgraded to "de facto bankrupt" or below. See Chart IV-1-11.

Cash reserves ratio



Note: Shows the medians of the ratios of cash reserves to short-term borrowings. The vertical line indicates the beginning of the pandemic. The chart covers SMEs. See Chart IV-1-10.

Loan-loss provision ratios for loans classified as "normal"



Note: Covers major, regional, and *shinkin* banks. See Chart IV-1-12.

Chapter I. Stability assessment of Japan's financial system

Chapter II. Risks observed in financial and capital markets

A. Global financial markets

B. Japanese financial markets

C. Risks to financial markets

Chapter III. Financial intermediation

A. Financial intermediation by the banking sector

B. Financial intermediation by the non-bank financial sector

C. Financial cycle

Chapter IV. Risks faced by financial institutions

A. Credit risk

B. Market risk associated with securities investment

C. Interest rate risk in the banking book

D. Funding liquidity risk

E. Risks posed by changes in the business environment

Chapter V. Resilience of the financial system

A. Banks' capacity to absorb losses

B. Macro stress testing

Box 1: Contagion risks in the commercial real estate market

Box 2: The stickiness of deposits and its variability



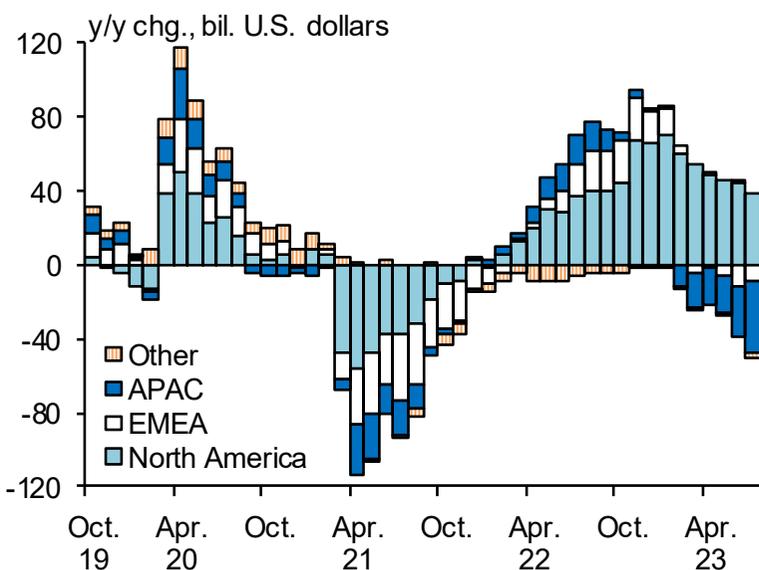
4. Banks' resilience against higher foreign interest rates

- How the risk profiles of foreign loans and securities portfolios have changed.
- Vulnerabilities associated with higher-for-longer foreign interest rates.

Foreign loan portfolios (1)

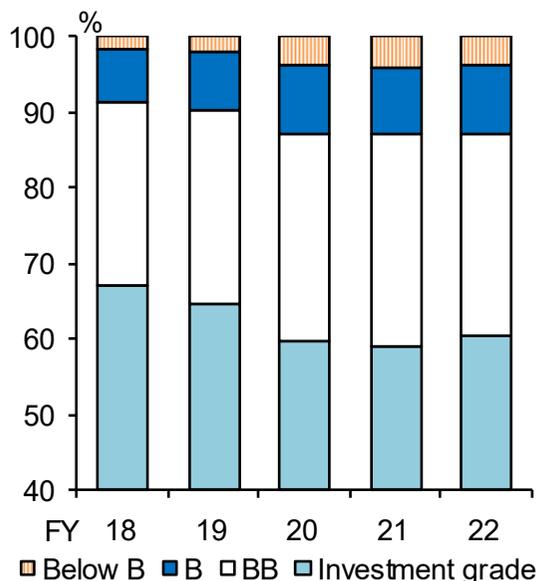
- Banks have changed the composition of loans to further reduce risks.
 - While banks have been active in meeting demand for funds from investment grade firms, particularly in the United States and Europe, they have been cautious about extending loans to high-risk borrowers.
 - Major banks have been more cautious about extending loans to the Chinese economy and its peripheral economies.
- Foreign lending-deposit interest margins have continued to improve together with the rise in market interest rates. This has led to an improvement in profit buffers.

Foreign loans outstanding of the three major banks by region



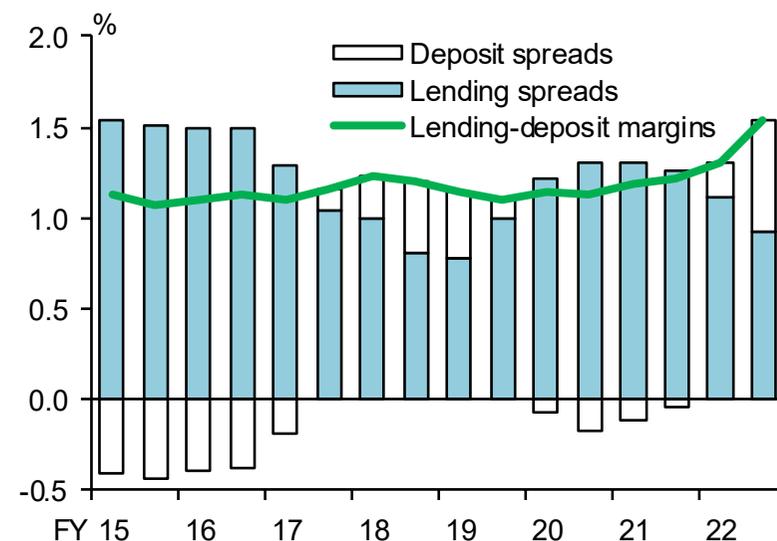
Note: See Chart III-1-14.

Rating composition of foreign loans



Note: Covers the three major banks (based on the internal rating of each bank). See Chart IV-1-13.

Foreign lending-deposit interest margins

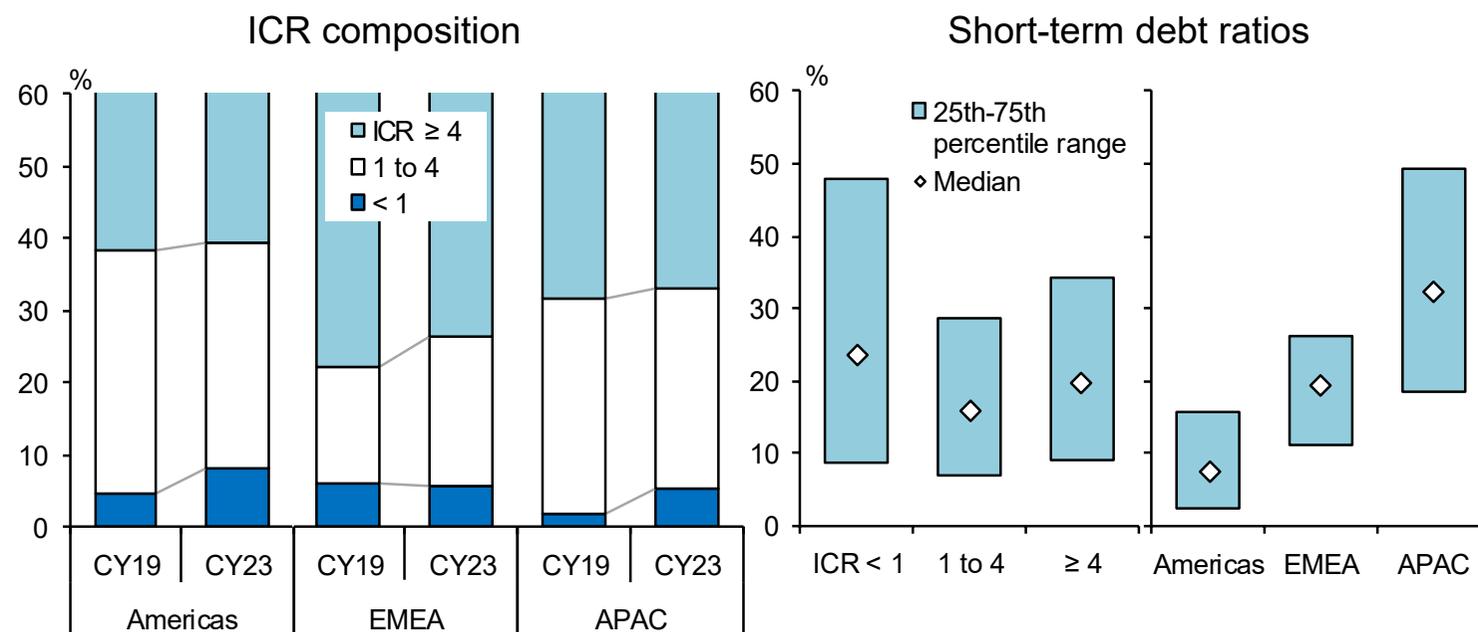


Note: Deposit/lending spreads are the differences between deposit/lending rates and base rates (the U.S. 3-month rate), respectively. The chart covers the international business of the three major banks (on a non-consolidated basis). See Chart IV-1-16.

Foreign loan portfolios (2)

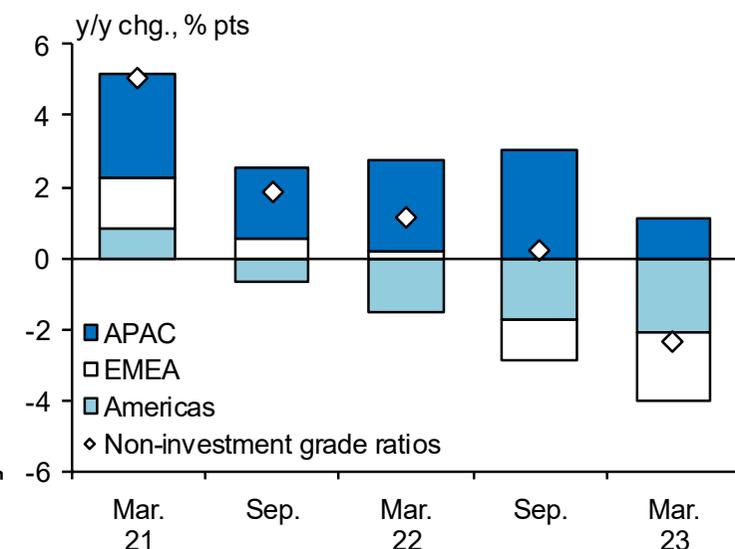
- If a substantial economic slowdown reduces firms' profits, a deterioration in ICRs is inevitable.
 - The percentage of firms with an ICR of less than one has increased only slightly.
 - Many low-ICR firms have high short-term debt ratios. This is particularly the case for firms in the APAC region, for which one-third of interest-bearing debt will mature within one year.
- Looking at real estate-related loans, the share of non-investment grade loans in the APAC region, which is more susceptible to developments in the Chinese real estate market, has been rising.

Risks associated with large borrowers



Note: In the left-hand chart, "CY19" and "CY23" indicate December 2019 and June 2023, respectively. The right-hand chart is as of June 2023. The charts cover the three major banks' large borrowers. See Chart IV-1-18.

Non-investment grade ratios for real estate-related loans



Note: Covers the three major banks. See Chart IV-1-19.

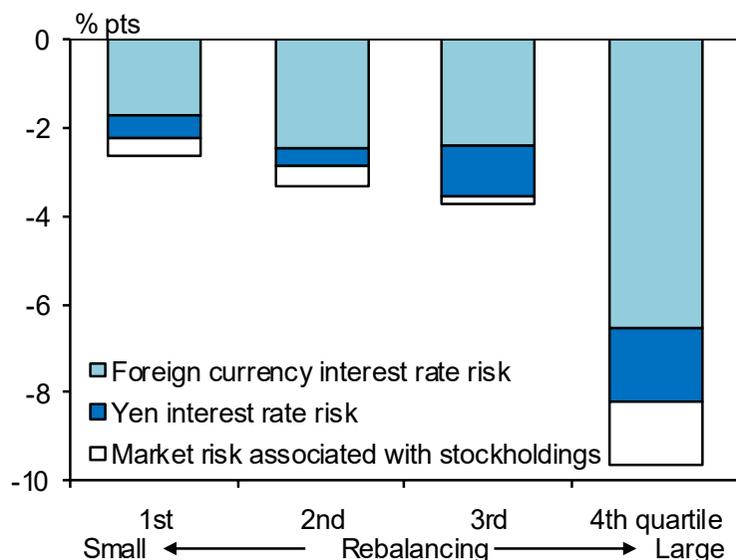
Securities portfolios (1)

➤ Banks' investment behavior has become more diverse compared to 2022, when banks were cautious about taking risks.

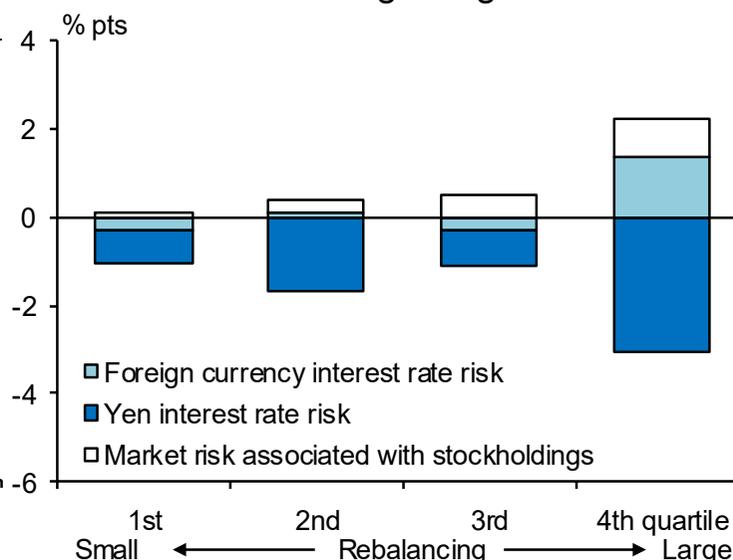
- Regional banks are grouped into quartiles based on their degree of rebalancing (losses on sales during 2022).
- Banks in the fourth quartile have restored some of their foreign bond positions that they had reduced in 2022.
- They have further reduced yen-denominated bond positions, reflecting expectations for revisions to monetary policy.
- The increase in valuation losses on securities has been limited compared to the beginning of 2023.

Changes in market risk

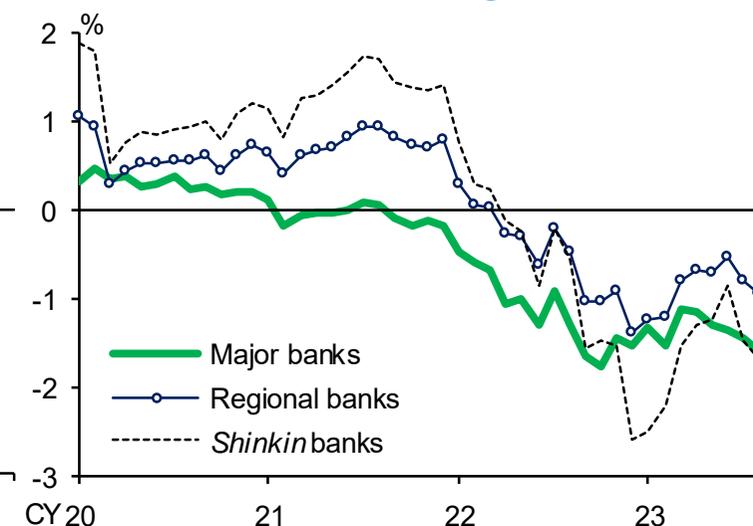
In 2022



From the beginning of 2023



Valuation gains/losses on securities holdings



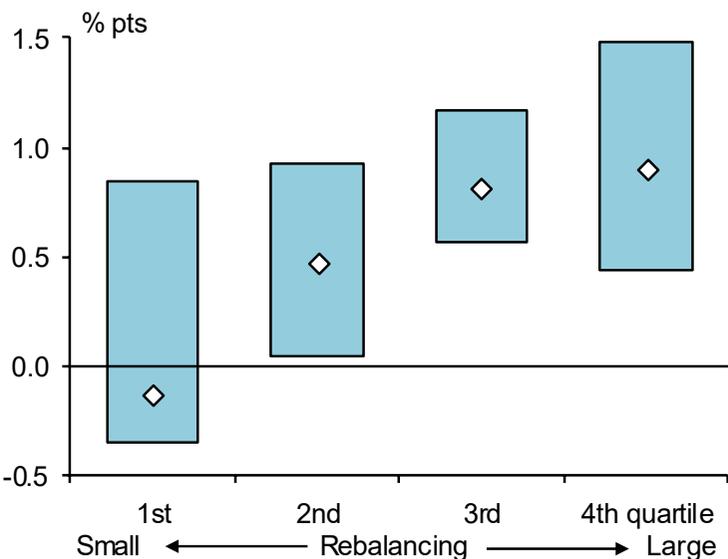
- Note: 1. Shows the medians of changes in market risk as ratios to capital for each quartile of the degree of rebalancing. The right-hand chart shows the changes through August 2023.
 2. "Yen interest rate risk" refers to a 100 BPV; "Foreign currency interest rate risk" refers to a 200 BPV; "Market risk associated with stockholdings" refers to valuation changes in response to a 10% decline in the stock price index. Ratios to capital are calculated using Tier 1 capital for internationally active banks and core capital for domestic banks.
 3. See Chart IV-2-2.

Note: See Chart I-13.

Securities portfolios (2)

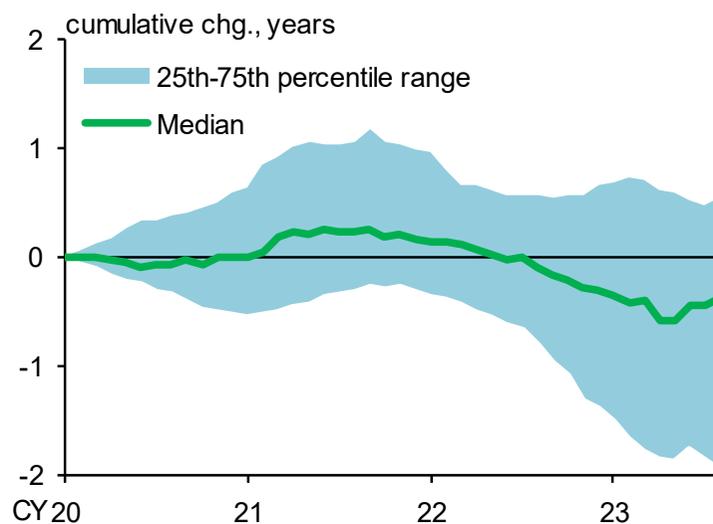
- Banks have reconfigured foreign bond portfolios, increasing holdings of bonds with higher yields and shorter average durations. They have also strengthened hedging against the risk of higher interest rates.
 - However, the inverted foreign yield curves and higher short-term foreign currency hedging costs have made it more difficult for financial institutions to maintain positive interest margins on foreign bond investments.

Changes in yields on foreign bondholdings



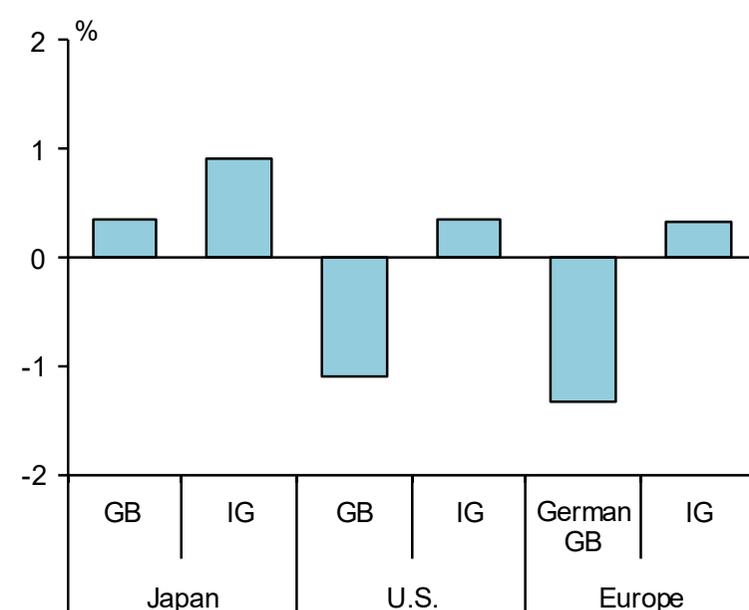
Note: For each quartile of the degree of rebalancing, shows the medians (markers) and 25th-75th percentile ranges (bands) of changes from December 2021 to June 2023 in the yields on foreign bonds and foreign bond investment trusts holdings. See Chart IV-2-4.

Changes in duration of foreign bondholdings



Note: 12-month backward moving averages. The chart covers regional banks. See Chart IV-2-5.

Bond interest margins by currency



Note: "GB" and "IG" indicate 5-year government bonds and 4- to 6-year investment-grade bonds, respectively. U.S. and Europe take into account the currency hedging costs. Data as of end-September 2023. See Chart II-3-3.

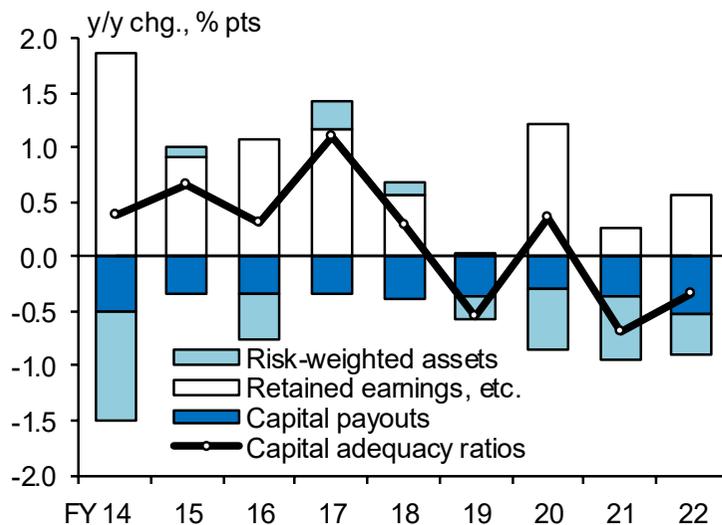
Banks' capacity to absorb losses

➤ Banks have maintained sufficient capital.

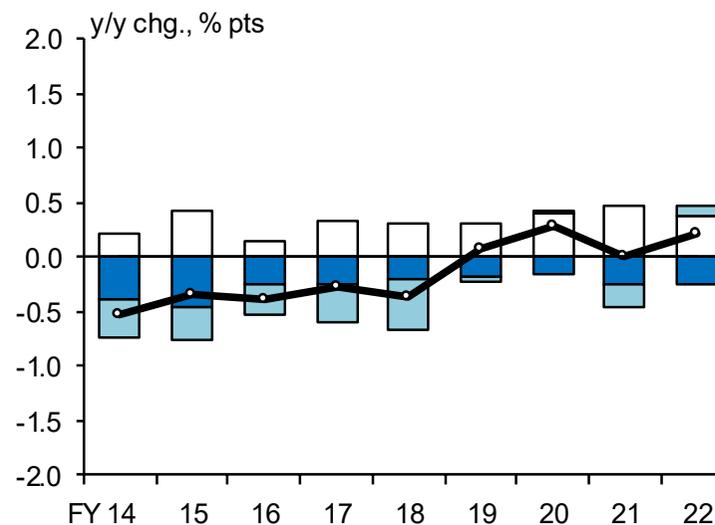
- Banks have sufficient capital bases overall, which will enable them to continue with risk-taking.
- However, even banks with low loss-absorbing capacity have been making payouts at more or less the same levels as other banks. As a result, a certain level of capital payouts has continued at banks as a whole, regardless of changes in their profits before dividends and the increase in risk-weighted assets.

Factors affecting capital adequacy ratio

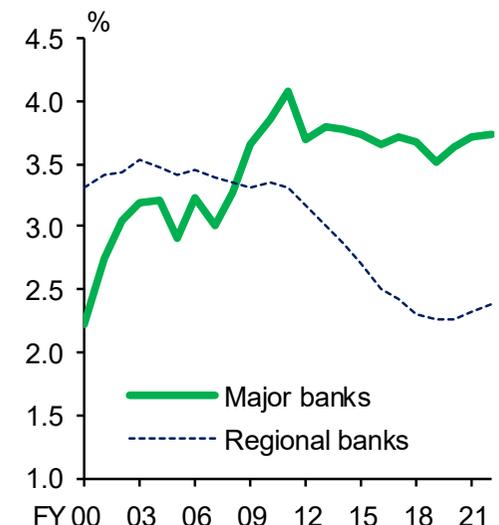
Internationally active banks



Domestic banks



RORA based on gross operating profits from core business



Note: The left-hand chart shows the CET1 capital ratio of internationally active banks; the right-hand chart shows the core capital ratio of domestic banks. In principle, on a bank group basis. The transitional arrangements are taken into consideration. See Chart V-1-7.

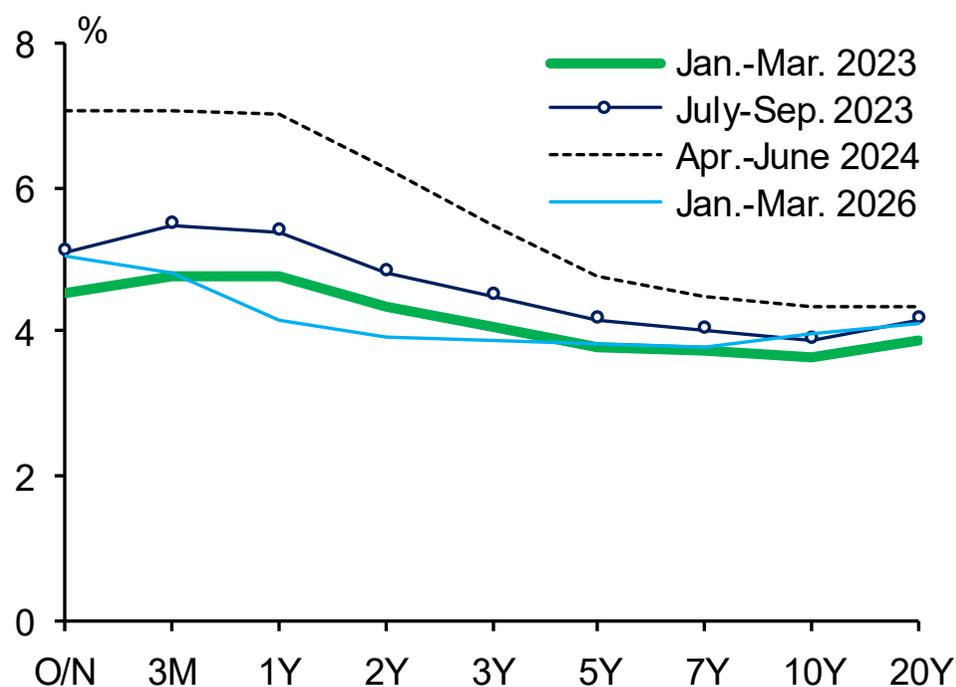
Note: On a consolidated group basis. From fiscal 2012, profits and losses from investment trusts due to cancellations are excluded. See Chart V-1-9.

Macro stress testing (1) Inverted yield curve scenario

➤ The risk of inverted foreign yield curves remaining higher for longer is examined by considering the same scenarios used in the previous *Report*.

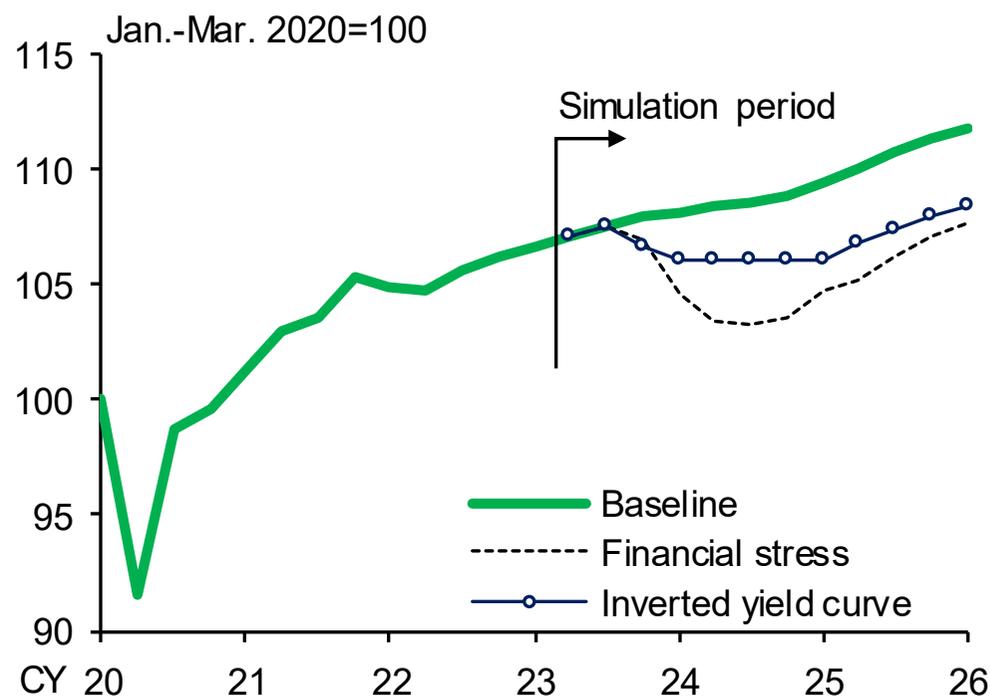
- The inverted yield curve scenario assumes that the FF rate is 2%pts higher than in the baseline scenario and remains high for one year before decreasing toward the end of the simulation period. The growth rate of the U.S. economy is assumed to turn slightly negative and remain zero thereafter for one year.
- The financial stress scenario is assumed as another downside scenario.

U.S. yield curves



Note: See Chart V-2-3.

U.S. GDP

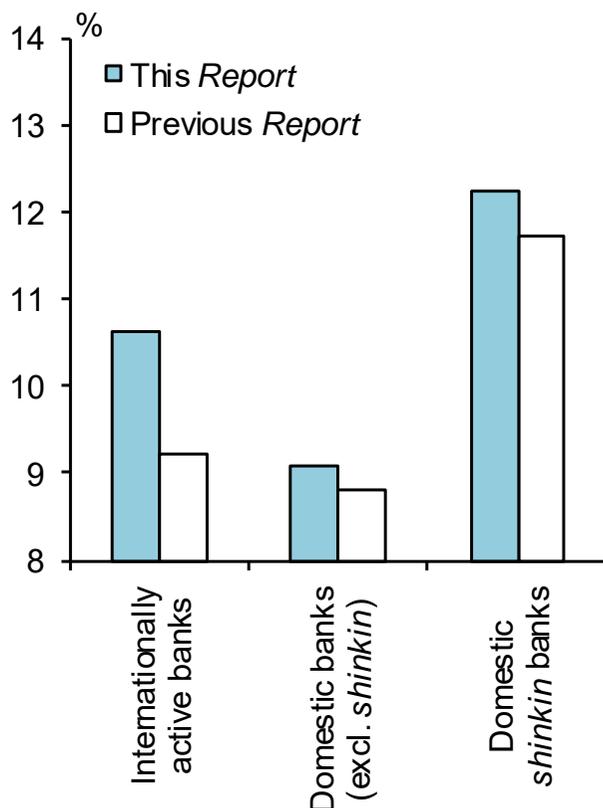


Note: See Chart V-2-4.

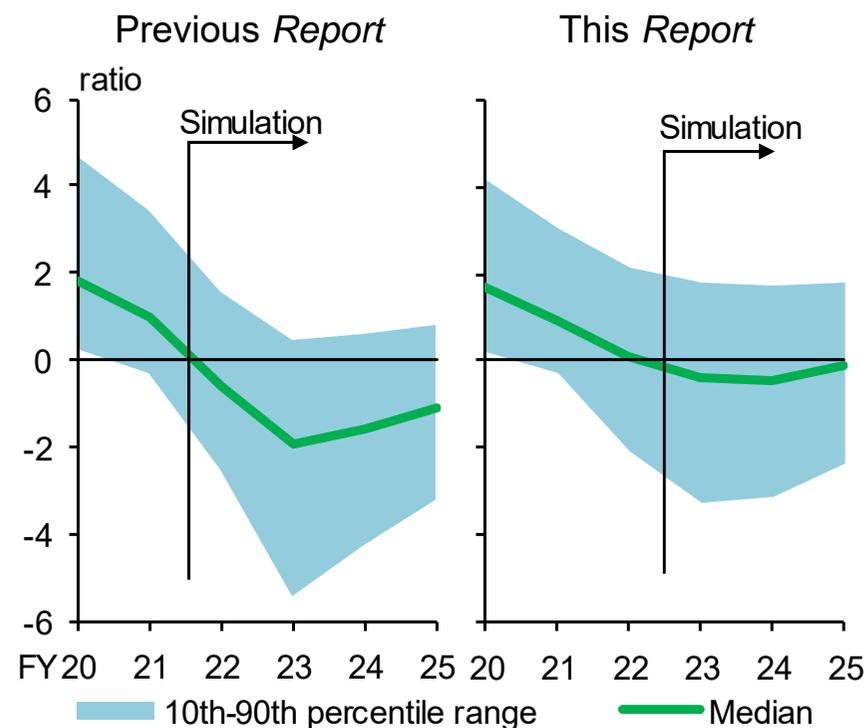
Macro stress testing (2) Impact on loss-absorbing capacity

- Banks are more resilient against the stress of foreign yield curves remaining inverted for a long time, compared to the simulation results in the previous *Report*.
 - For all types of banks, capital adequacy ratios in the event of stress are higher than in the previous *Report*.
 - The decline in banks' room for realizing gains, which represents their loss-absorbing capacity on an economic value basis, is smaller than in the previous *Report*.

Capital adequacy ratios under stress



Room for realizing gains of banks



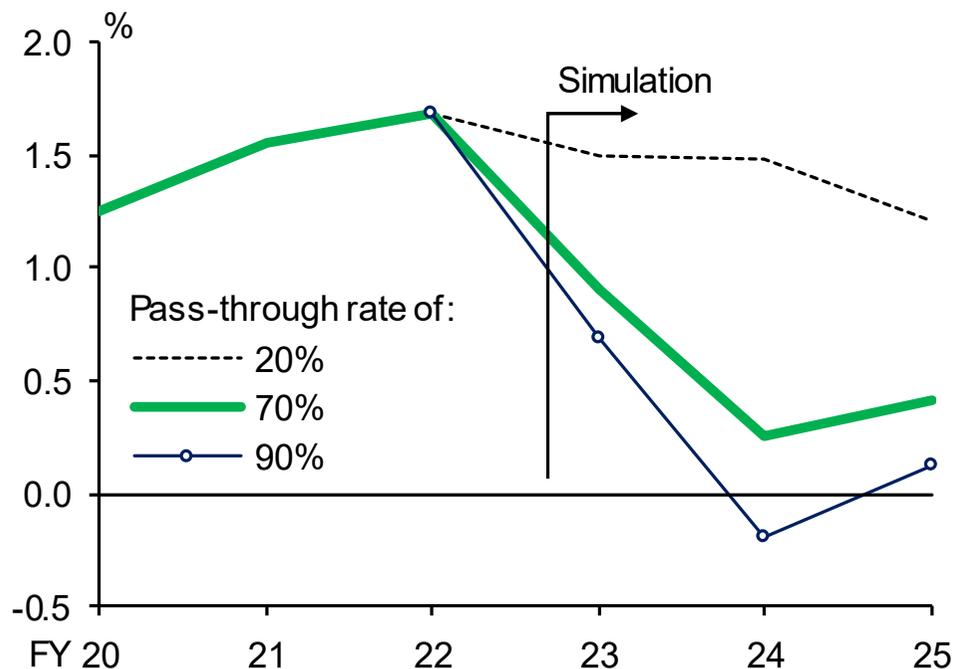
Note: Room for realizing gains = valuation gains/losses on securities holdings / previous 3-year average of PPNR excluding trading income. See Chart V-2-6.

Note: Shows the capital adequacy ratios at the end of the simulation period. See Chart I-14.

Macro stress testing (3) Impact through the deposit cost channel

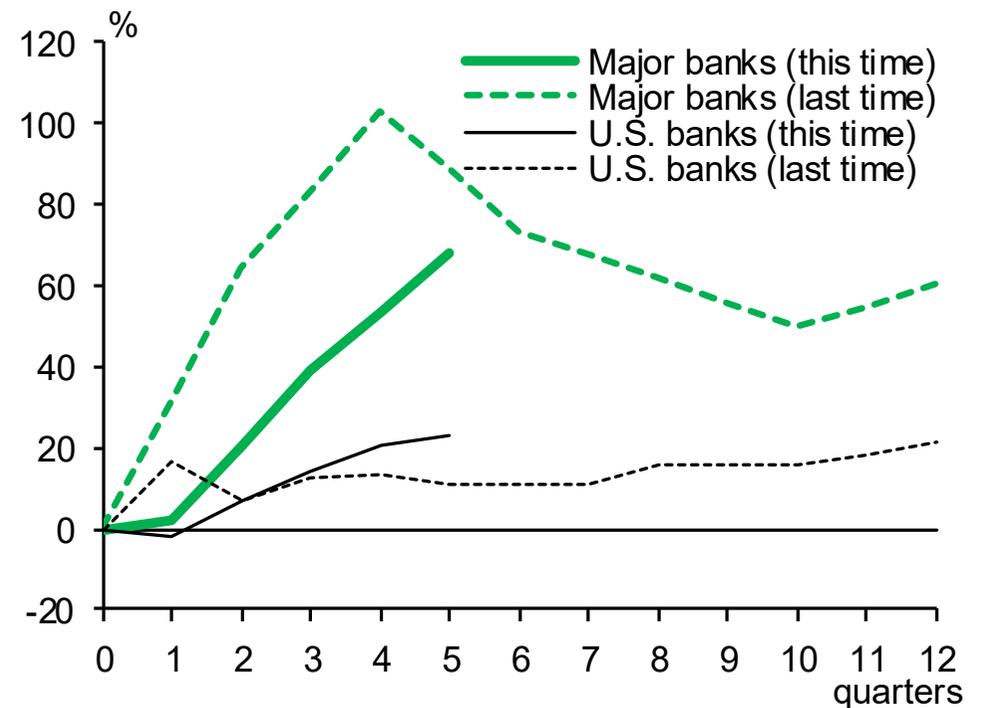
- Note that there remain downside risks to loss-absorbing capacity during the simulation period.
- If there is additional stress on the foreign currency deposit market and the interest rate pass-through to deposit funding rises above the historical average of 70%, the break-even credit cost ratio will be negative.
 - This means that banks cannot absorb foreign credit costs through foreign net interest income.

Break-even credit cost ratios



Note: Shows the ratios at which foreign credit costs equal foreign net interest income. Covers internationally active banks. See Chart V-2-9.

Pass-through to dollar deposit interest rates



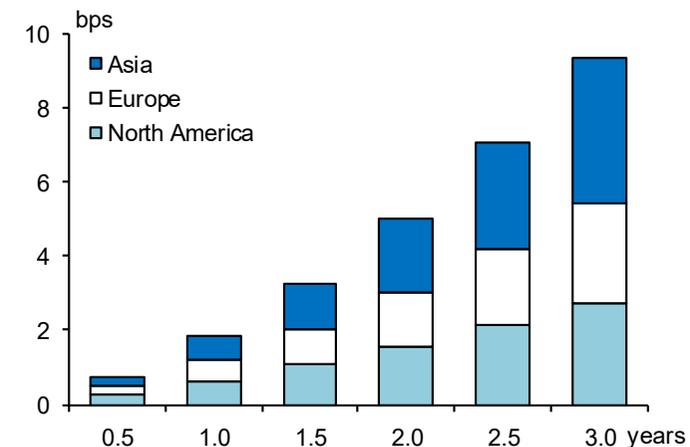
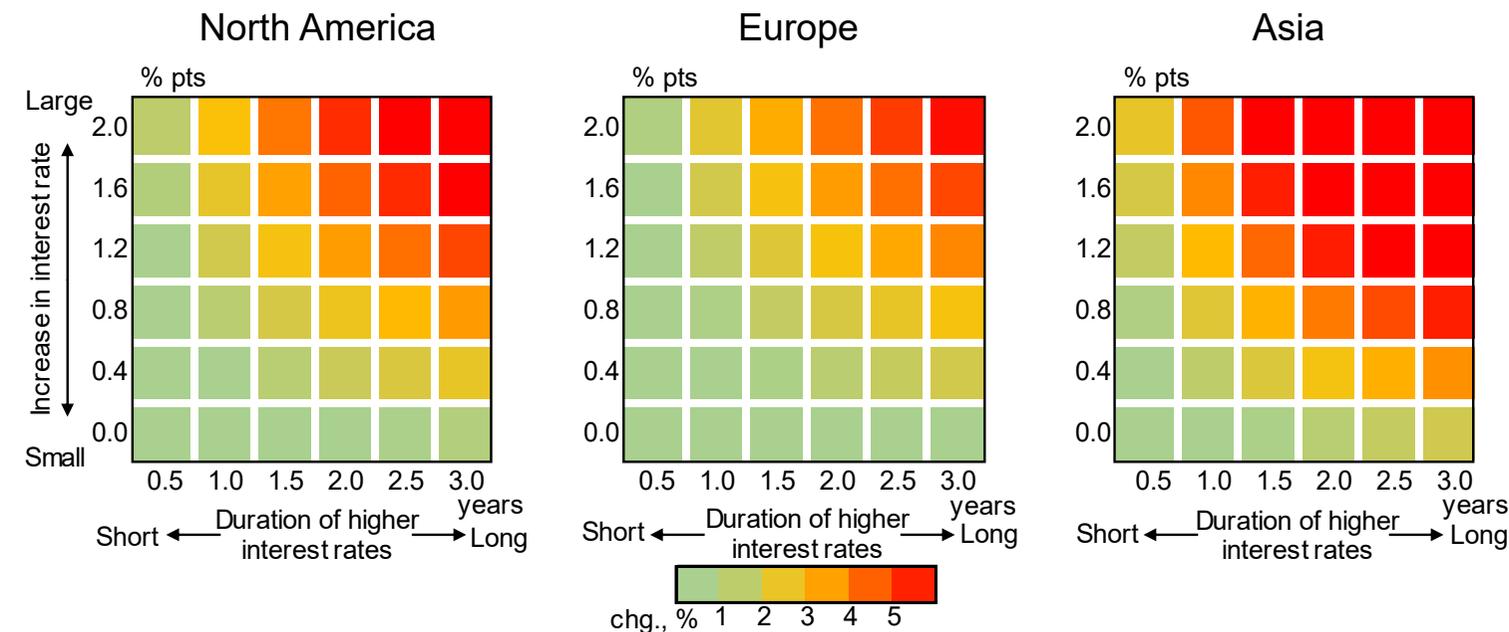
Note: Shows the pass-through rates of the 3-month T-bill rate to deposit interest rates. "0" on the horizontal axis represents the July-September quarter of 2015 for "last time" and the October-December quarter of 2021 for "this time." See Chart IV-4-7.

Macro stress testing (4) Impact through the credit cost channel

- Foreign interest rates remaining higher for longer also lead to a deterioration in firms' financial conditions.
- For loans to any region, the larger the increase in interest rates and the longer it lasts, the greater the risk of downgrades (to "special attention" and below).
 - Credit cost ratios reflecting downgrades increase non-linearly with interest rates staying higher for longer.
 - Credit risks are pronounced in loans to Asia, where firms with high financial leverage and low ICRs are concentrated.

'Higher for longer' and downgrades

'Higher for longer' and credit costs



Note: Shows the percentage increase in loans classified as "special attention" and below, applying different combinations of the increase in foreign interest rates relative to the baseline scenario and duration of higher interest rates, in different colors. Covers the three major banks. See Chart V-2-10.

Note: Shows the cumulative foreign credit cost ratios corresponding to the duration of foreign interest rates remaining 2 percentage points higher relative to the baseline scenario. Covers the three major banks. See Chart V-2-11.

Stability assessment and caveats

- Japan's financial system has been maintaining stability on the whole.
 - Banks have sufficient capital bases and stable funding bases. Even after uncertainty over the financial sectors in the United States and Europe heightened in March 2023, Japan's financial system has been sound and resilient.

Banks' interest rate risk

- Borrowing terms for corporate and household loans have become longer with the increase in private debt. Reflecting the longer borrowing terms, banks' duration gap has widened.
- Banks need to manage risk more prudently as the duration gap has become wider than in the past.



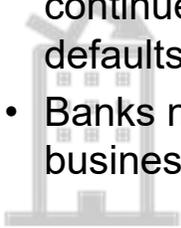
Real estate valuations

- No major financial imbalances can be observed.
- However, changes can be seen in terms of liabilities and assets of real estate businesses, as well as real estate prices. In some limited areas, transactions in the higher price range have been increasing.
- Developments in the real estate market continue to warrant close monitoring.



Firms' defaults

- For SMEs as a whole, the increase in liquidity buffer due to pandemic-related loans restrains defaults.
- In contrast, distressed firms' liquidity buffer has continued to decline, and its effectiveness in curbing defaults has been weakening.
- Banks need to accelerate support for borrowers' core business to improve their business conditions.



Higher-for-longer foreign interest rates

- Banks are more resilient against the stress of inverted foreign yield curves.
- However, there remain downside risks to banks' loss-absorbing capacity with foreign interest rates remaining higher. Banks need to be prepared to appropriately manage a variety of risks associated with interest rate fluctuations.

