Financial System Report

Summary

October 2020

Bank of Japan

Contents

Features and motivations of the October 2020 issue

- This *Report* discusses current developments in financial markets and the financial intermediation activities of Japanese FIs amid the ongoing impact of the COVID-19 outbreak. It then analyzes and assesses the impact on Japan's financial stability as well as the risks posed by the outbreak. It also discusses the issues and challenges that warrant close vigilance going forward.
- The analysis focuses on the following features: the current stress stems from the shock to the real economy; the impact of this shock differs significantly depending on firm size and industry; and fiscal and monetary policy measures have been effective.

Executive summary (1/2)

Current assessment of the stability of Japan's financial system

- Japan's financial system has been maintaining stability on the whole, while COVID-19 continues to have a significant impact on economic and financial activity at home and abroad.
- The Japanese government and the Bank of Japan, in close cooperation with overseas authorities, have swiftly implemented large-scale fiscal and monetary policy measures to support economic activity and maintain the functioning of financial markets. With regard to regulation and supervision, flexible actions have been taken to encourage FIs to smoothly provide funds necessary to support economic activity. Although corporate and household financing is under considerable stress due to the severe downward pressure on the real economy, the smooth functioning of financial intermediation has been maintained due to FIs' robust financial bases both in terms of capital and liquidity as well as such policy and supervisory measures. Financial markets have generally started to regain stability after they were significantly destabilized in March 2020, although they have remained sensitive to uncertainty.

Executive summary (2/2)

Future risks and caveats

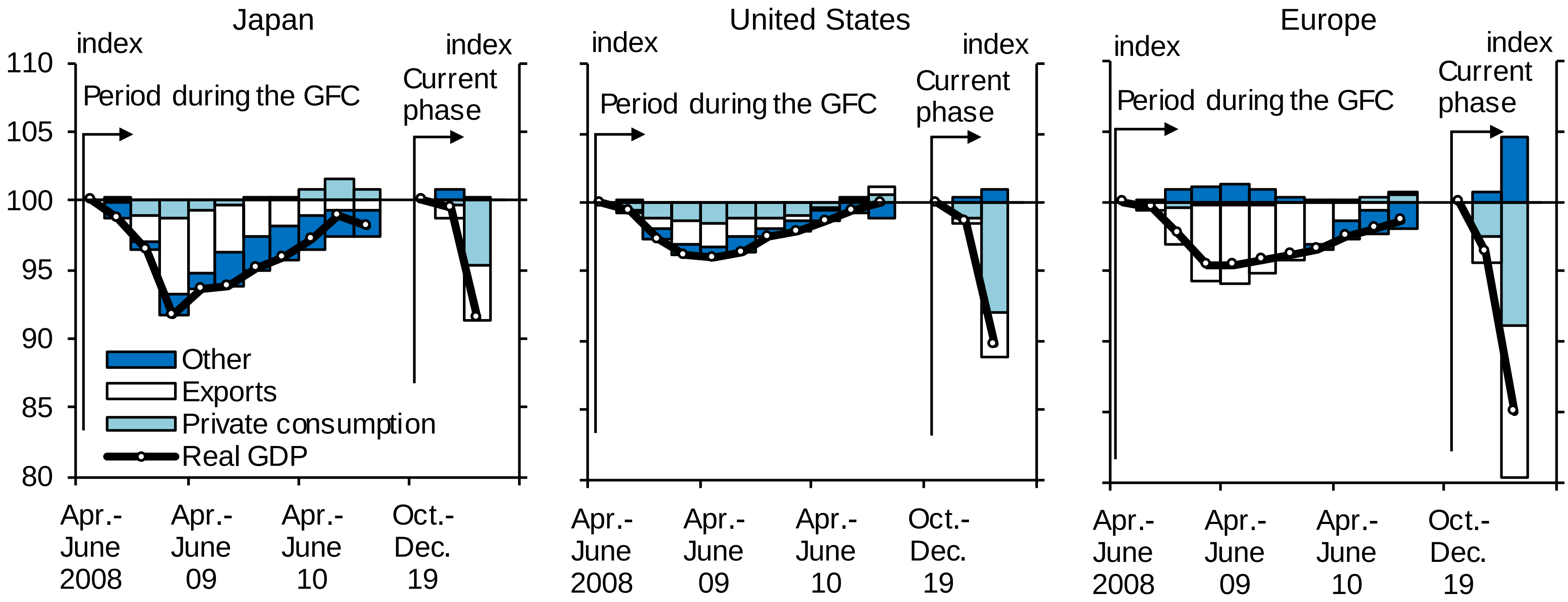
- Even in the case where the economic recovery remains very moderate, Japan's financial system is likely to remain highly robust.
- However, developments in the spread of COVID-19 and their impact on the domestic and overseas economies are subject to considerable uncertainty. Under the severe stress event of the persistently stagnated pace of economic recovery and significant adjustments in financial markets, a deterioration in FIs' financial soundness and the resultant impairment of the smooth functioning of financial intermediation could pose a risk of further downward pressure on the real economy.
- In this regard, the following three risks warrant particular attention: (1) an increase in credit costs at home and abroad; (2) a deterioration in gains/losses on securities investment due to substantial adjustments in financial markets; and (3) destabilization of foreign currency funding due to the tightening of foreign currency funding markets mainly for the U.S. dollar. From a macroprudential perspective, it is important to prepare for these risks and do the utmost to ensure the stability of the financial system and the smooth functioning of financial intermediation.

1. Introduction
2. Domestic credit
3. Overseas credit
4. Securities investment
5. Foreign currency funding
6. Macro stress testing
7. Challenges for FIs

Developments in the real economy

- The current stress stems from the shock to the real economy resulting from the major restrictions on people's activities due to COVID-19.
- The fall in output is much larger than that observed during the global financial crisis (GFC).

Chart IV-1-1: GDP levels in current phase and during GFC

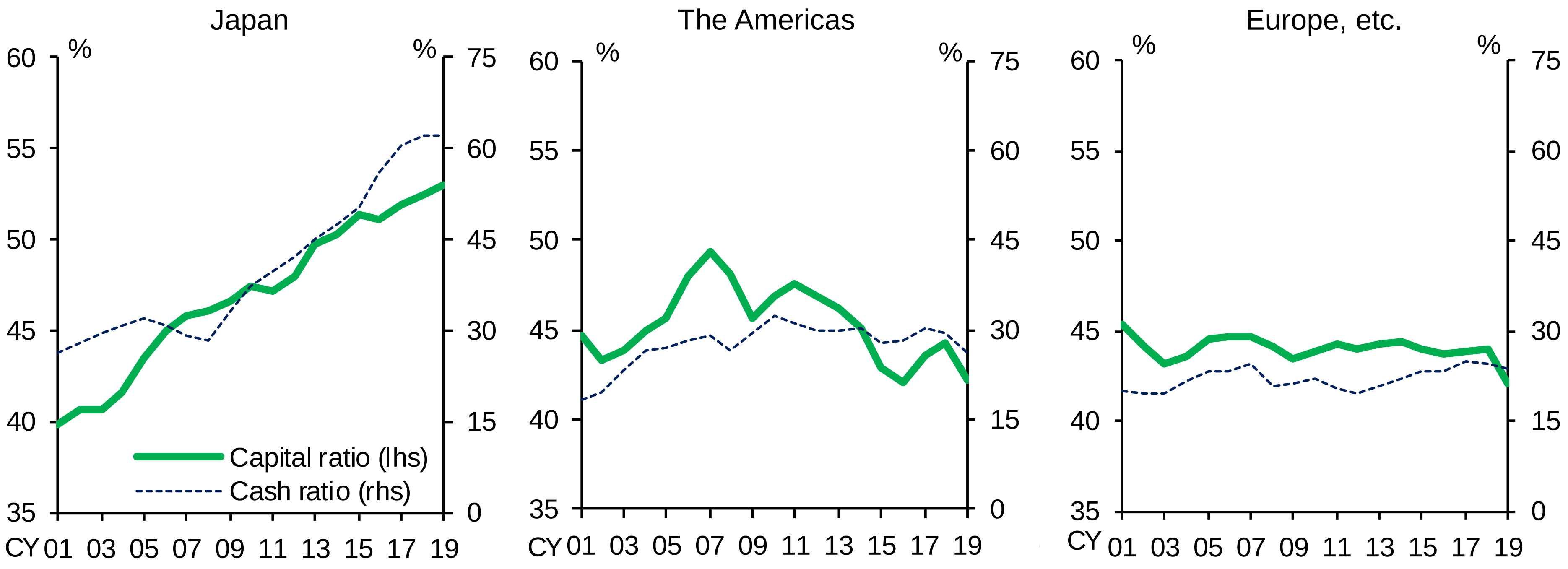


Note: Indexation of real GDP using the April-June quarter of 2008 for the GFC period and the October-December quarter of 2019 for the current phase, respectively.
Source: BEA; Cabinet Office; Eurostat.

Firms' cash reserves and capital

➢ Even under severe stress, the functioning of the financial intermediation has been maintained due to the following reasons: (1) the government and the Bank of Japan have swiftly taken strong policy actions; (2) FIs have considerable resilience in terms of both capital and liquidity; and (3) Japanese non-financial corporates as a whole continued to strengthen their financial base via the build-up of their liquidity and capital.

Chart IV-1-2: Capital ratio and cash ratio of firms by region



Note: "Capital ratio" and "Cash ratio (= cash and cash equivalents / current liabilities)" are the median of the financial indicators of major companies included in S&P Capital IQ.
Source: S&P Global Market Intelligence.

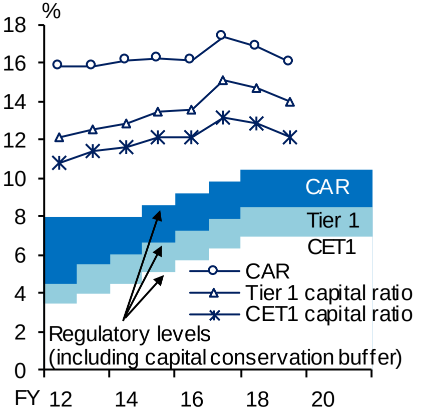
Capital adequacy of FIs

- The capital adequacy ratios of FIs have been sufficiently above the regulatory requirements for all types of banks, although their levels have been falling in recent years. The reason is that their retained earnings have been growing at a slower pace than their risk-weighted assets.
- The capital levels of FIs are adequate relative to the amount of various types of risk they take.

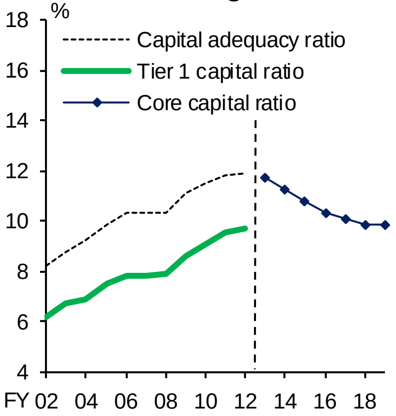
Charts V-1-8 and V-1-10:

FIs' capital adequacy ratios

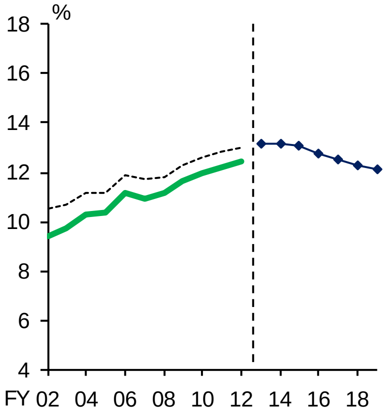
Internationally active banks



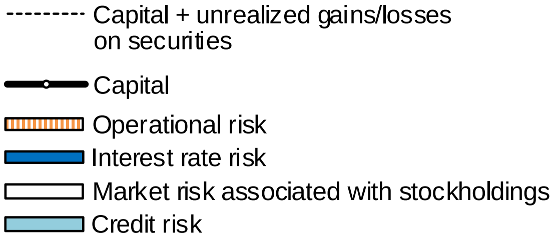
Domestic regional banks

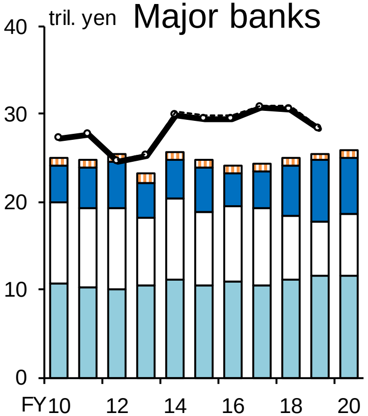


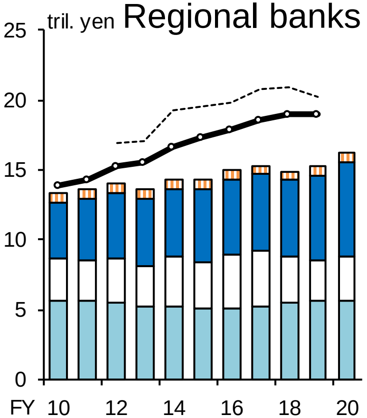
Shinkin banks

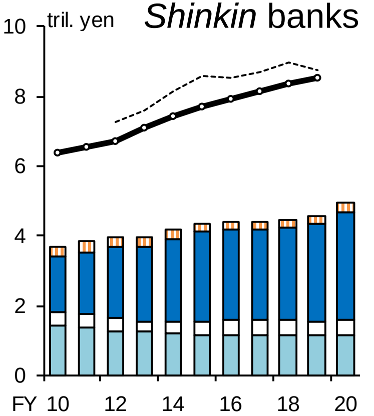


Risks borne and amount of capital by type of bank







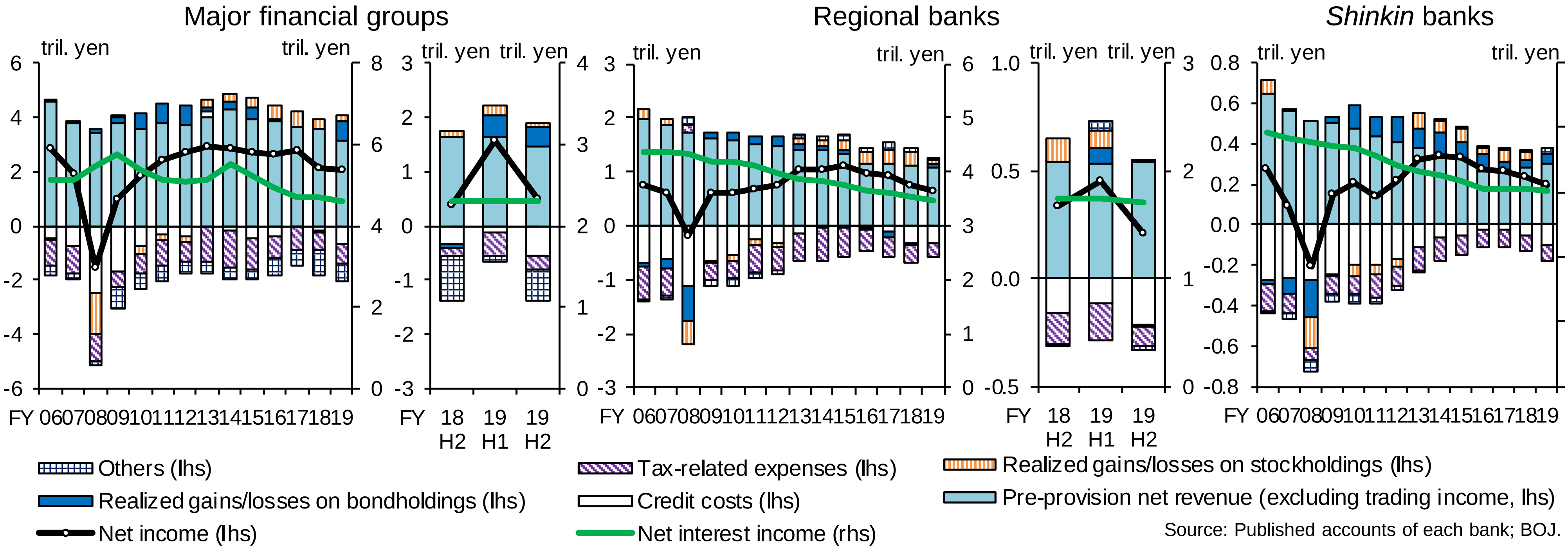


Source: BOJ.

FIs' profitability

- FIs' net income has been on a moderate downward trend. Pre-provision net revenue excluding trading income, which shows FIs' core profitability, has continued to decline. This is due to the downward trend in domestic net interest income caused by the shrinking of deposit-lending margins, as well as to continued low levels of net non-interest income.
- Credit costs had been declining since the GFC, and thereby had been underpinning profits, but have been increasing in recent years. In fiscal 2019, credit costs, especially at major banks, increased further, reflecting the impact of precautionary loan-loss provisioning linked to the spread of the disease. On the other hand, realized gains/losses on securities holdings, particularly realized gains on bondholdings, have improved recently.

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

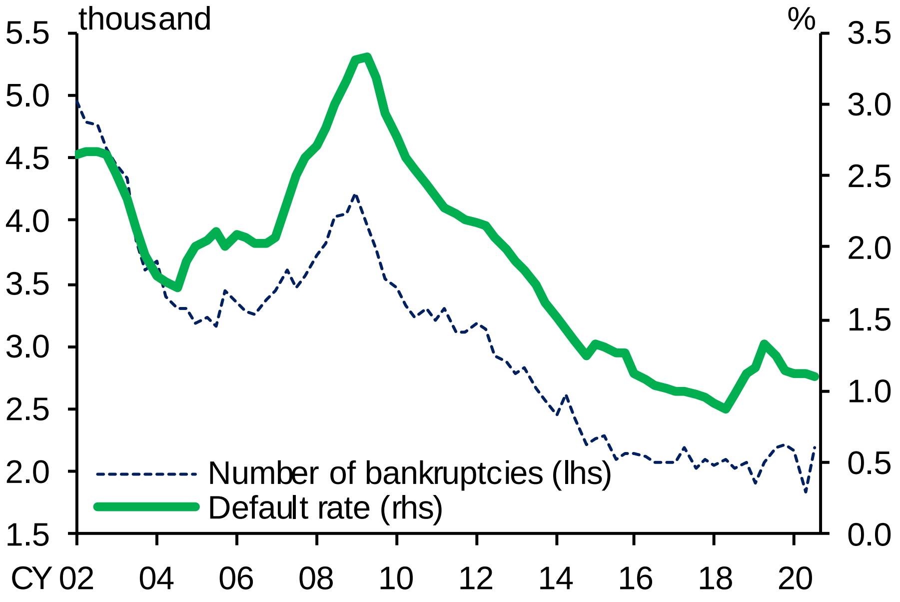


Source: Published accounts of each bank; BOJ.

Developments in bankruptcies and defaults

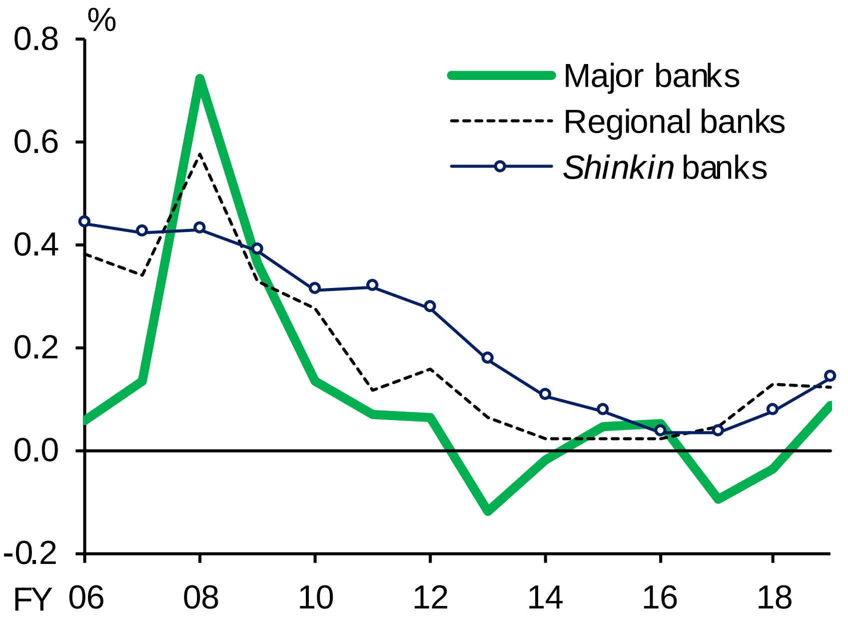
- In the overall corporate sector, a sharp rise in defaults has so far been avoided compared to other stress events such as the GFC.
- The credit cost ratios of Japanese FIs remained low up to fiscal 2019, although they have shown signs of picking up, especially for regional FIs.

Chart IV-1-5: Number of bankruptcies and default rate



Source: The Risk Data Bank of Japan; Tokyo Shoko Research.

Chart IV-1-3: Credit cost ratios by type of bank

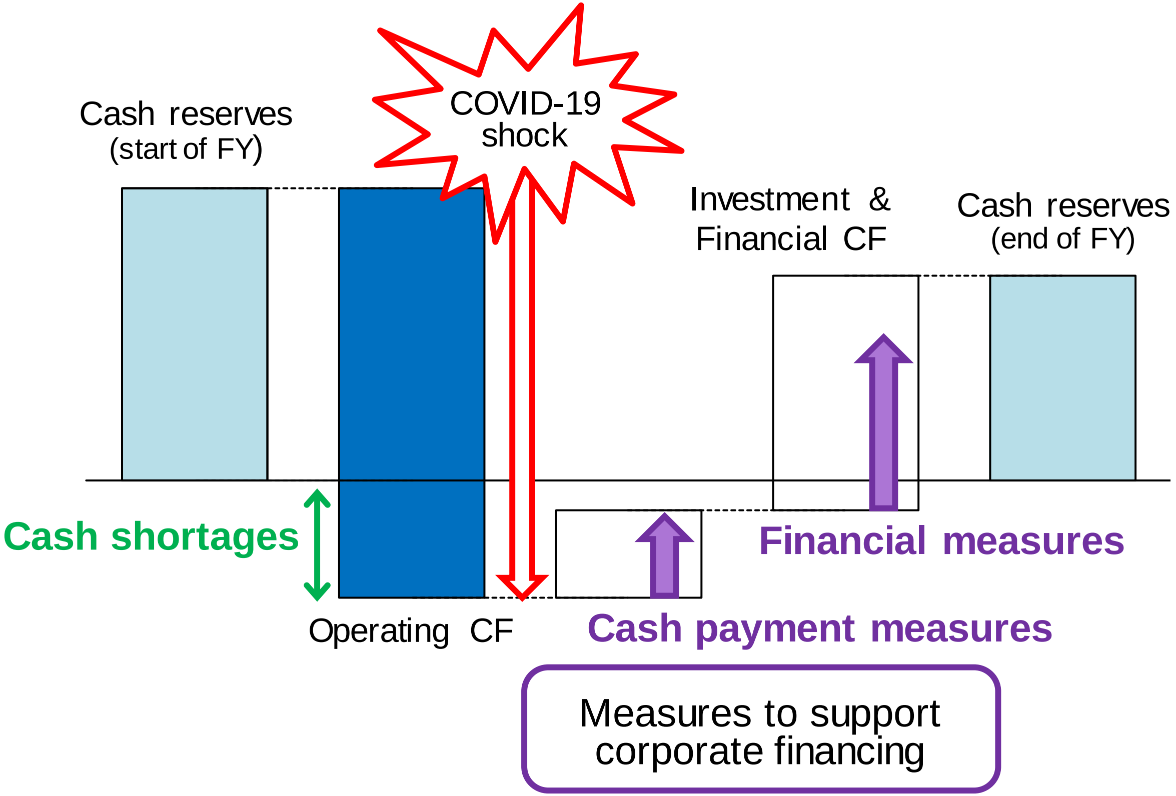


Source: BOJ.

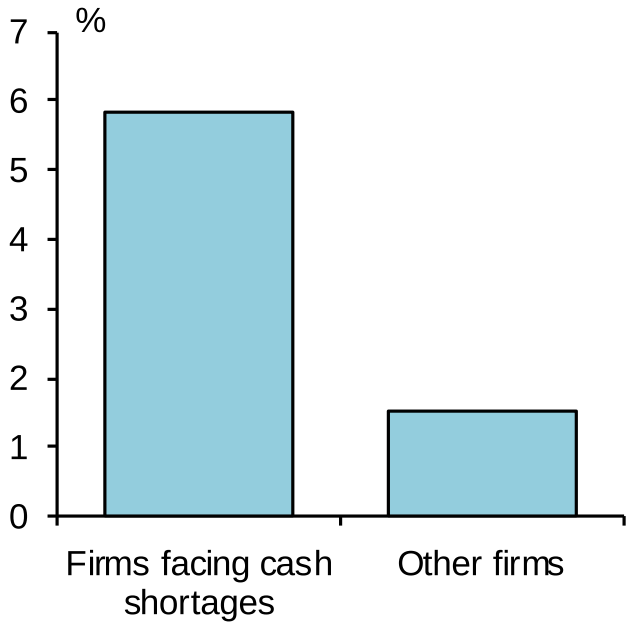
Analysis on firms' operating liquidity and defaults using firm-level data

- Firms can go bankrupt from funding difficulties if sales fall significantly to the point where net operating cash outflow during the year exceeds their cash reserves at the beginning of the fiscal year.
  ⇨ Conduct simulations on cash shortages.

Impact of COVID-19 on firms' operating liquidity



Default rates for firms facing cash shortages (SMEs, FY 2002-2017)

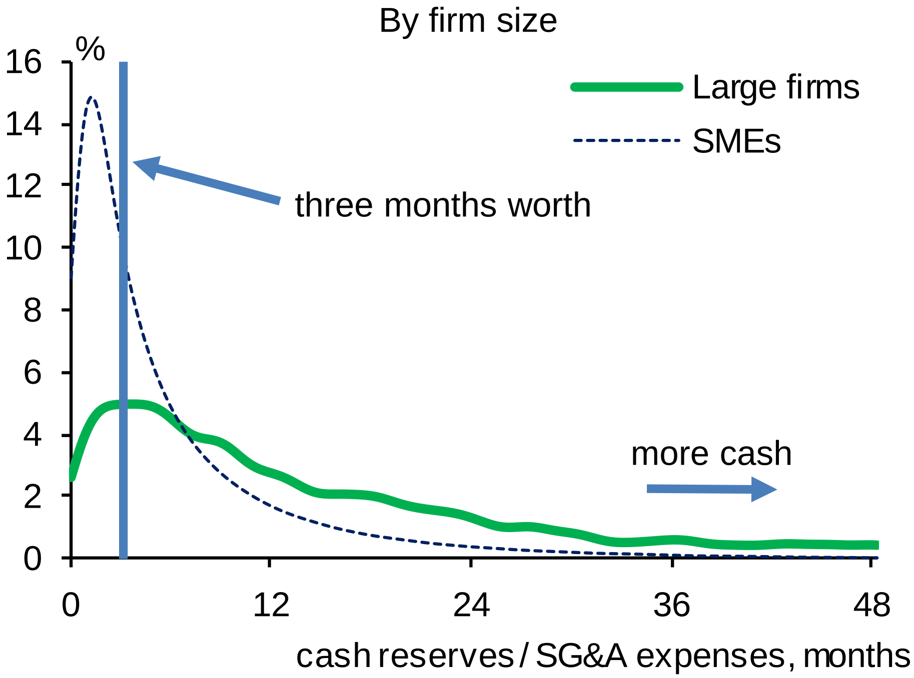


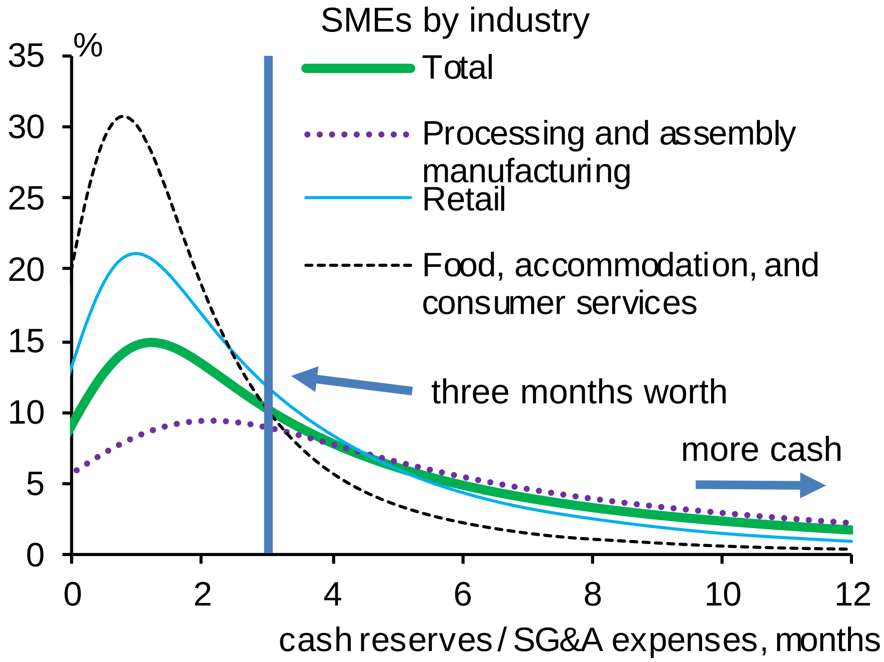
Source: CRD Association.

Distributions of firms' cash reserves

- Looking at the distribution of firms' liquidity (cash reserves), before the COVID-19 outbreak, large firms tended to have more ample liquidity than SMEs.
- SMEs in food, accommodation, and consumer services, which have been heavily affected by the disease, had less sufficient cash reserves than in other industries.
  - The likelihood of cash shortages depends on firm size and industry. ⇨ Firm-level analysis is crucial.

Chart IV-1-6: Distributions of cash reserves to SG&A expenses ratios (FY 2018)
(selling, general and administrative expenses)





Source: CRD Association; Development Bank of Japan.

Assumptions on sales and costs by firm size and industry

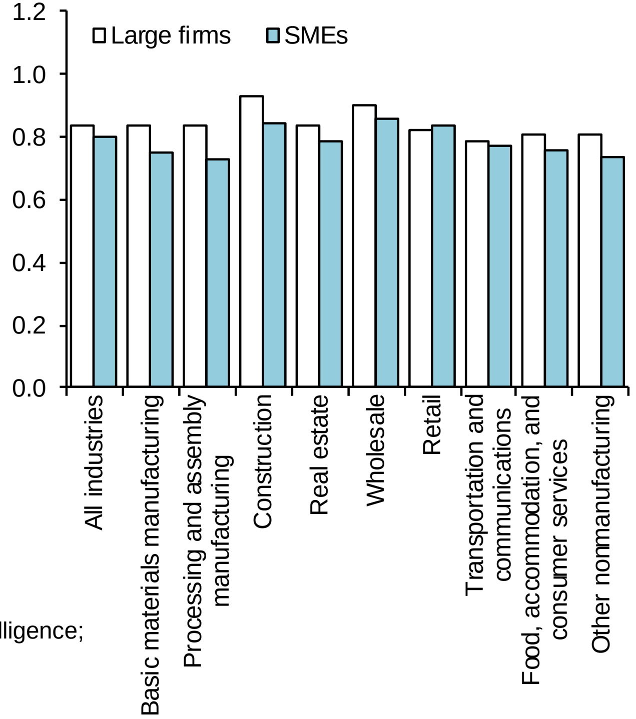
- For the simulation, the assumptions regarding the sales declines in fiscal 2020 are as follows. For large firms, the forecasts for individual listed firms are used, while for SMEs, the industry-level forecasts from the *Tankan*, adjusted by private-sector forecasts for real GDP growth, are used (firm-level variation not considered).
  - (1) the shock to SMEs is more severe; and (2) among SMEs, a large fall in sales is expected particularly in industries heavily affected by COVID-19, such as food, accommodation, and consumer services.
- Costs are assumed to fall in line with the sales scenario using the estimated elasticities to sales by firm size and industry.

Chart IV-1-8: Assumed sales changes

year-on-year change, %

	Large firms	SMEs
All industries	-8.8	-22.0
Basic materials manufacturing	-11.2	-21.3
Processing and assembly manufacturing	-11.3	-22.2
Construction	-6.4	-21.1
Real estate	-2.8	-21.6
Wholesale	-6.6	-21.1
Retail	-3.6	-13.1
Transportation and communications	-6.2	-15.7
Food, accommodation, and consumer services	-16.5	-47.0
Other nonmanufacturing	-6.4	-23.1
All firms	-14.4	

Chart IV-1-9: Cost elasticity to sales changes



Source: (left-hand chart) Development Bank of Japan; Nikkei Inc., "NEEDS-Financial QUEST"; S&P Global Market Intelligence; Published accounts of each firm; BOJ,
(right-hand chart) CRD Association; Development Bank of Japan.

Simulation results (firms facing cash shortages)

- The share of firms making losses in fiscal 2020 among large firms could increase by around 5 percentage points, while, among SMEs, it could increase by more than 40 percentage points; about three quarters of all SMEs make losses (the impact of measures to support corporate financing is not considered).
  - The severity of the stress this time is most pronounced among SMEs. This is in contrast with the GFC, when it was domestic large manufacturers that faced relatively strong stress.
- The share of large firms facing potential cash shortages could remain almost unchanged, while for SMEs, such share could rise from around 8 percent to around 20 percent (the impact of support measures incorporated later).
  - The build-up of cash reserve buffers has contributed to preventing cash shortages across firm sizes.

Charts IV-1-10 and IV-1-11: Firms with losses and cash shortages

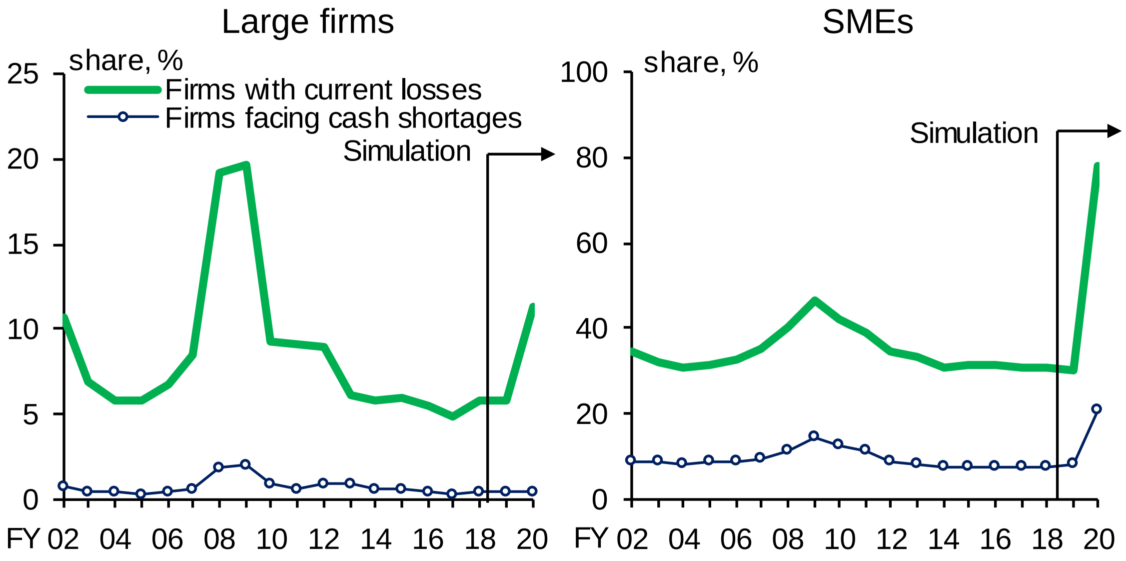


Chart IV-1-12: Share of firms facing cash shortages by industry

%

	Large firms	SMEs
All industries	0.5	20.5
Basic materials manufacturing	0.8	22.1
Processing and assembly manufacturing	0.4	16.4
Construction	0.8	15.3
Real estate	0.0	8.2
Wholesale	0.0	16.3
Retail	1.7	19.5
Transportation and communications	0.6	12.7
Food, accommodation, and consumer services	0.8	53.6
Other nonmanufacturing	0.0	23.5

Source: CRD Association; Development Bank of Japan.

Measures to support corporate financing

➢ Among measures to support corporate financing, the focus is on the impact of cash payments and financial measures in mitigating firms' cash shortages and rises in firms' probability of default (PD).

Chart IV-1-19: Contents of major measures to support corporate financing

	Major measures to support corporate financing	Overview of measures	Fiscal expenses and total size of measures	
			First supplementary budget	Second supplementary budget
Cash payments	Subsidies for sustaining businesses	Cash payments for SMEs and sole proprietors (up to 2 mil. yen)	2.3 tril. yen	1.9 tril. yen
	Rent assistance subsidy	Cash payments for supporting rent payments (up to 6 mil. yen)	-	2.0 tril. yen
	Expansion of employment adjustment subsidies program, etc.	Subsidy rates increased for leave allowance (up to 100% for SMEs and up to 75% for large firms)	0.8 tril. yen	1.3 tril. yen
Tax measures	Special tax measures such as tax payment moratorium	National and local taxes and/or social insurance contributions possibly deferred for one year	26 tril. yen	-
Financial measures	Effectively interest-free loans by government-affiliated financial institutions	Interest subsidies provided to government-affiliated financial institutions	Approx. 15 tril. yen	Approx. 33 tril. yen
	Effectively interest-free loans by private financial institutions	Interest subsidies provided to private financial institutions through local governments' loan programs	Approx. 24 tril. yen	Approx. 28 tril. yen
	Crisis response loans to medium-sized and large firms by government-affiliated financial institutions	Long-term loans with preferential interest rates through government-affiliated financial institutions	Approx. 5 tril. yen	Approx. 5 tril. yen
	Equity support by government-affiliated financial institutions and funds	Equity support mainly through subordinated loans and capital injections	-	Approx. 12 tril. yen

Source: Cabinet Office; Ministry of Finance.

Impact of cash payments and financial measures on firms' liquidity

- According to the simulation, the annual decline in Japanese firms' overall current profits amounts to over 40 trillion yen.
- The scale of the program to provide effectively interest-free loans is more than twice that amount.
- There may be some firms that cannot resolve their potential cash shortages due to an upper limit on the support provided to individual firms, even though the support available in aggregate may be sufficient. On this basis, firm-level data are used to examine the share of firms that still cannot resolve their cash shortages even with the help of cash payments and financial measures.
- SMEs' potential cash shortages increase by a total of about 2.2 trillion yen. This amount is smaller than the scale of available cash payments. Moreover, even if firms face cash shortages even after receiving cash payments, most of them can resolve such cash shortages to a considerable degree with the help of effectively interest-free loans.

Chart IV-1-20: Firms' profit decrease and scale of support measures

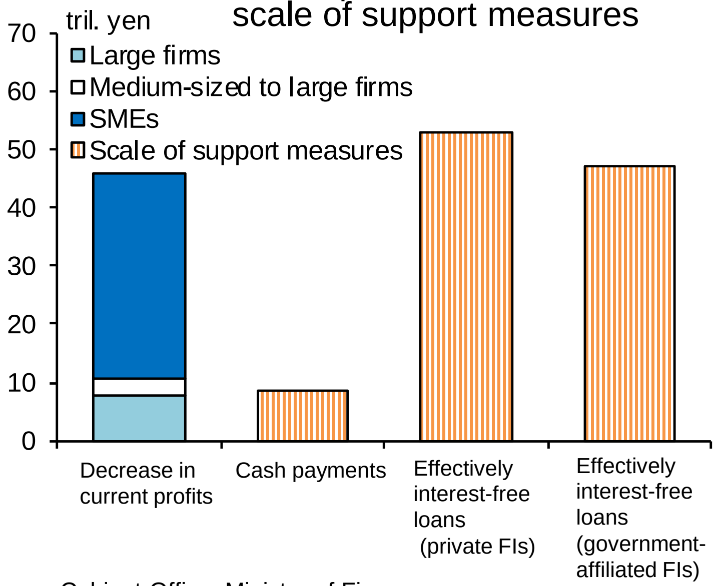
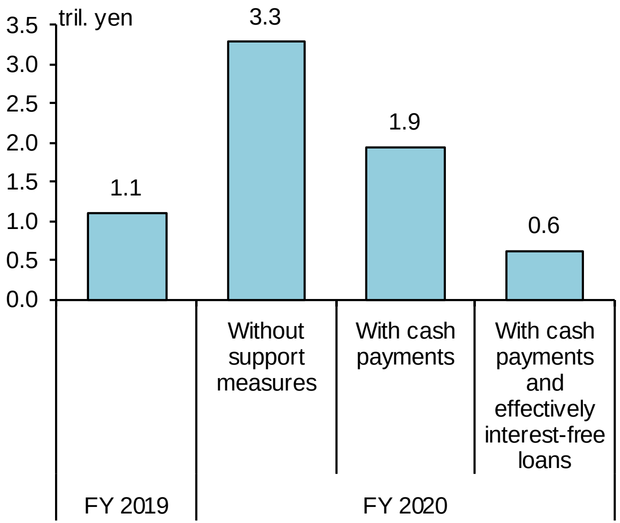
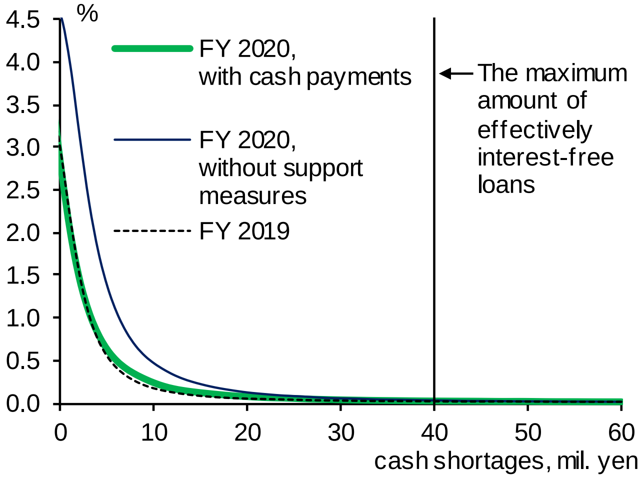


Chart IV-1-22: Impact of support measures on cash shortages (SMEs)

Total amount of cash shortages



Distribution of cash shortages



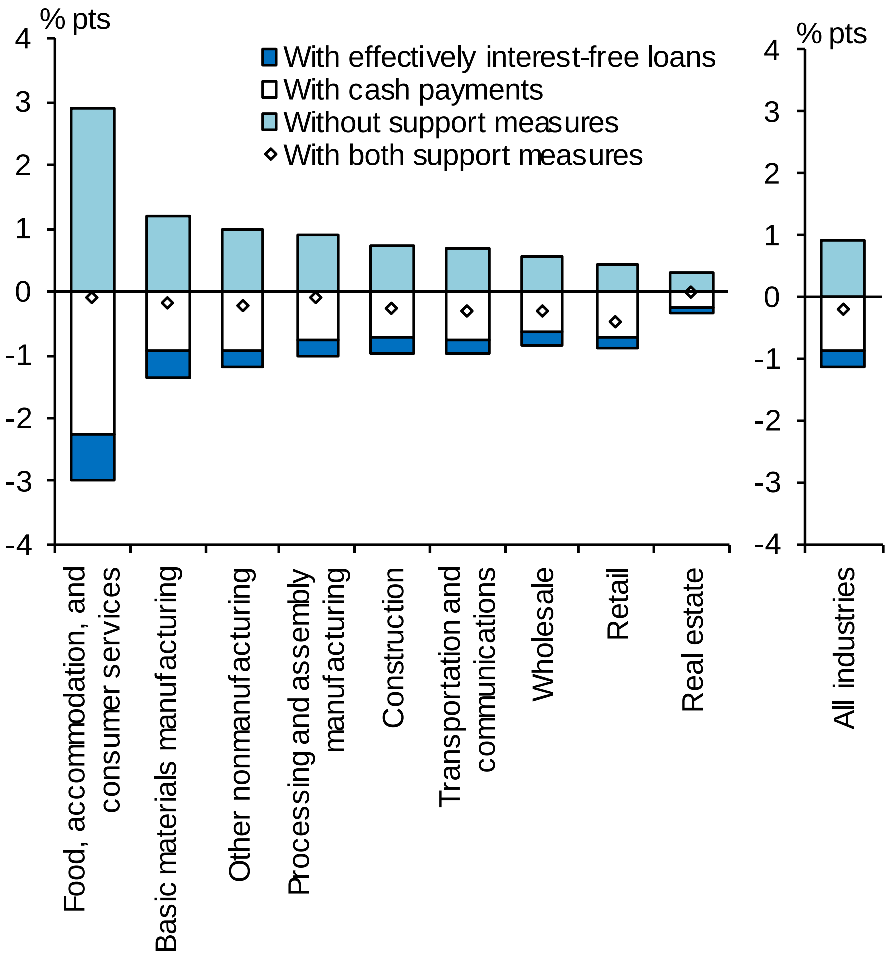
Source: Cabinet Office; Ministry of Finance.

Impact of support measures to suppress a rise in the PD

- Measures to support corporate financing have suppressed a rise in the PD across sectors.

Chart IV-1-23:

Impact on probability of default by industry (SMEs)



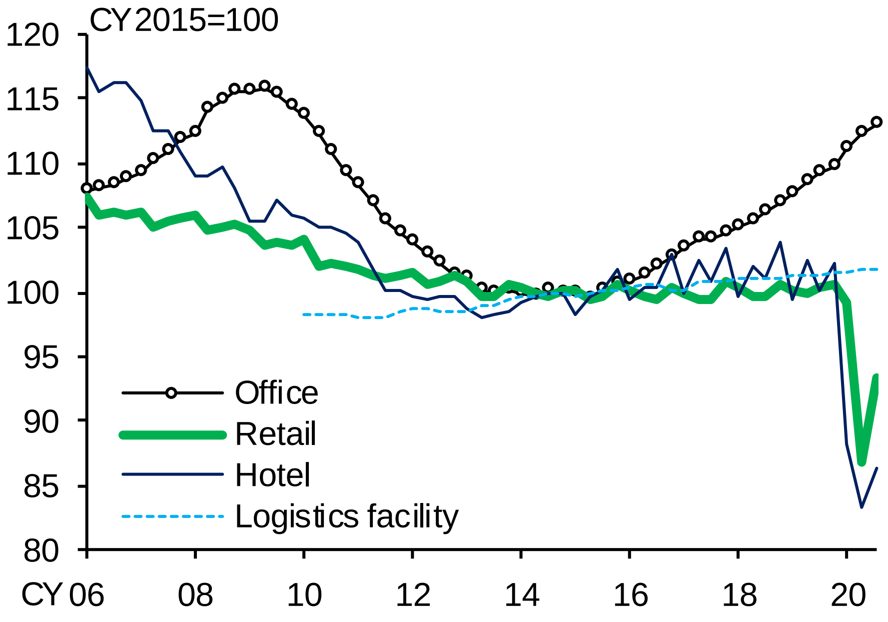
Caveats on the simulation results

- First, the forecast of the future sales decline is subject to considerable uncertainty, since the forecast depends on developments in the spread of COVID-19 and the size of their impact on the Japanese and overseas economies. Furthermore, bold assumptions are made on quantifying the impact of support measures; for example, SMEs can receive the full amount of cash payments available, and can obtain a loan of up to 40 million yen when they are expected to face potential cash shortages even after receiving cash payments.
- Second, for simplicity, it is assumed that SMEs in the same industry experience the same magnitude of decline in sales. Also, since firms are facing unprecedented acute stress, it may be difficult for them to take the type of cost-cutting measures suggested by past averages, as assumed in the simulation.
- Third, the analysis focuses on firms' liquidity during the current fiscal year only. Attention should be paid to the possibility that, if sales remain sluggish and firms cannot make up for the lost sales in the future, then even if they can avoid liquidity problems in the short term, their creditworthiness will suffer in the medium to long term.
- Fourth, due to analytical limitations and simplifications, the simulation here cannot fully reflect the divergence in the severity that individual SMEs face. In reality, demand recovery may not be realistic for all firms and in fact some of them have decided to go out of business.

Real estate rents

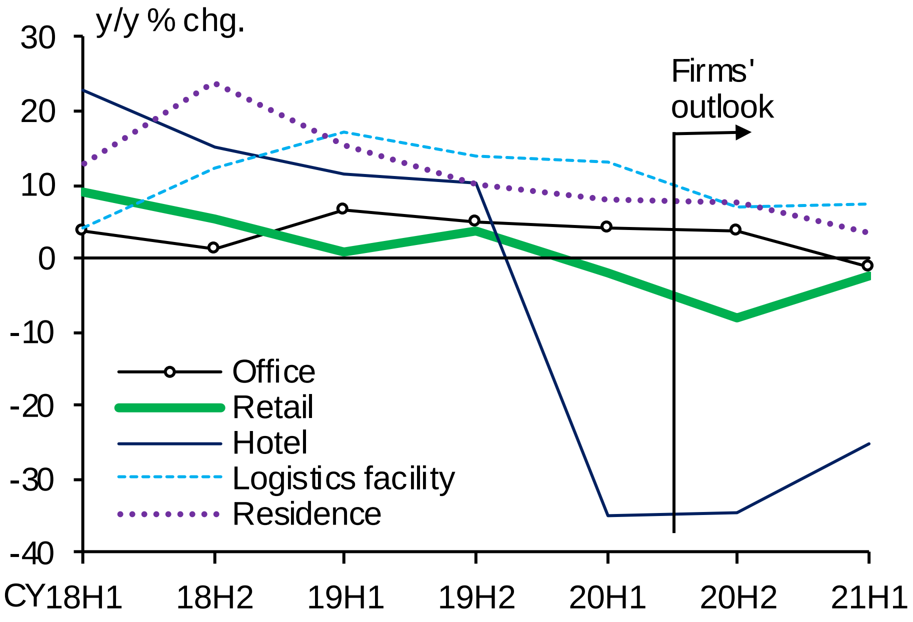
- Real estate rents, especially for hotels and retail stores, have fallen substantially. Earnings projections for J-REITs by sector show that the earnings of those investing in hotels are forecasted to fall by around 30 percent year-on-year from the first half of 2020 to the first half of 2021.
- Future trends in rental income warrant close attention.

Chart IV-1-17: Developments in real estate rent



Source: BOJ.

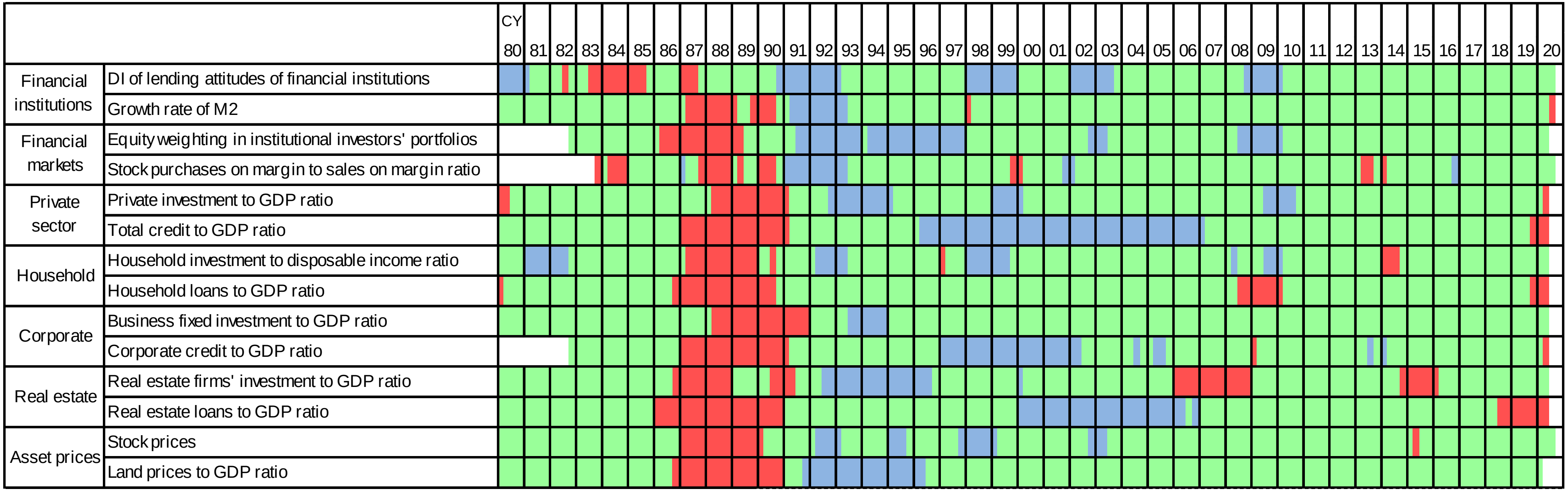
Chart IV-1-18: Earnings projections for J-REITs



Source: Nikkei Inc., "NEEDS-Financial QUEST"; Published accounts of each firm.

Heat map

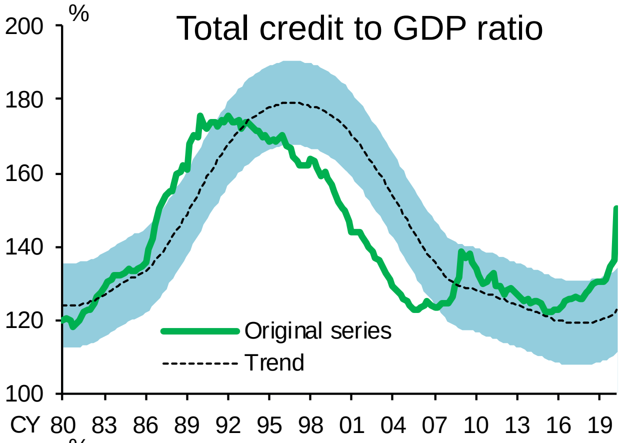
- The heat map is a tool to regularly monitor and assess developments in Financial Activity Indexes (FAIXs), comprising indicators that deviated substantially from their trend during the bubble period in the late 1980s, for the early detection of financial imbalances caused by overheating of financial activities.
- In this *Report*, six FAIXs are "red." Among those, the following four FAIXs have turned from "green" in the previous *Report* to "red," as they respectively have shown a large upward deviation from the trend: the *private investment to GDP ratio*, the *growth rate of M2*, the *household loans to GDP ratio*, and the *corporate credit to GDP ratio*. The *total credit to GDP ratio* and the *real estate loans to GDP ratio* were "red" in the previous issue.

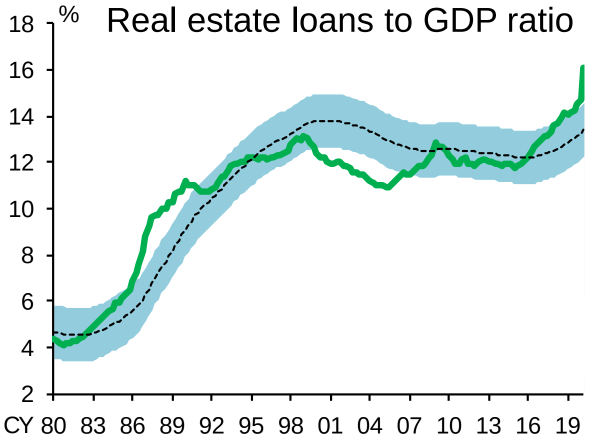


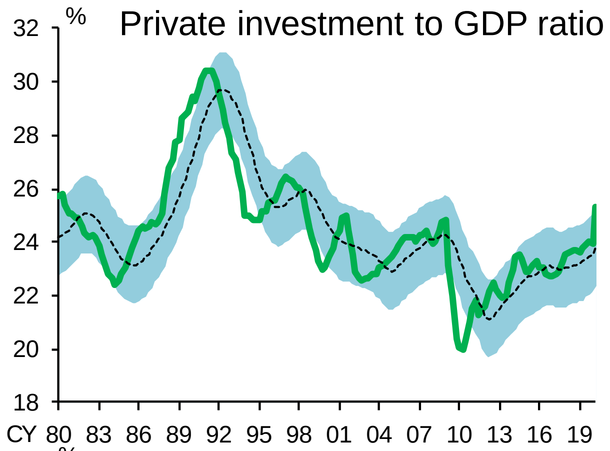
Source: Bloomberg; Cabinet Office, "National accounts"; Japan Real Estate Institute, "Urban land price index"; Ministry of Finance, "Financial statements statistics of corporations by industry"; Tokyo Stock Exchange, "Outstanding margin trading, etc."; BOJ, "Flow of funds accounts," "Loans and bills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

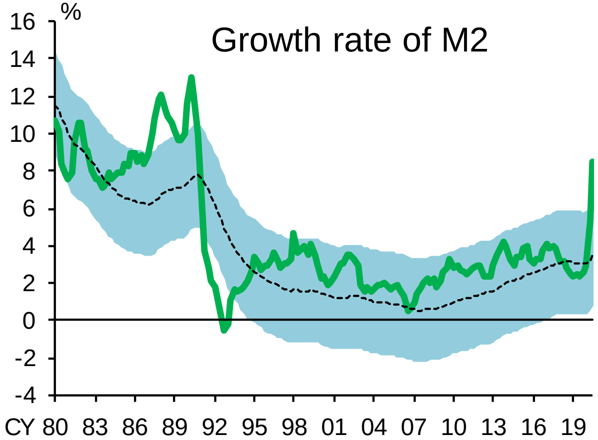
Red FAIXs

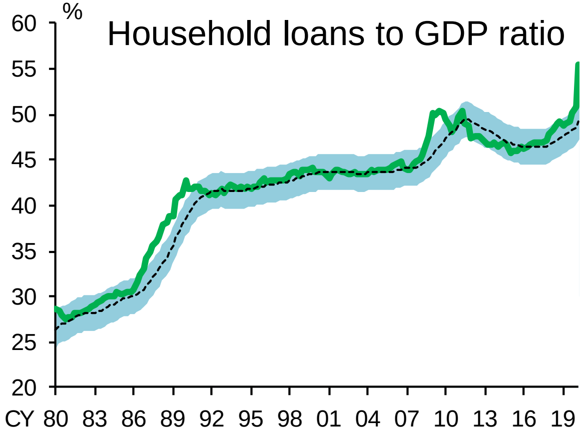
- The five red FAIXs except for the *growth rate of M2* were the result of a sharp decline in nominal GDP due to the spread of COVID-19.
- The five red FAIXs other than the *private investment to GDP ratio* relate to credit or money. These red FAIXs were the result of vigorous financial intermediation activities to ensure the operating liquidity of firms.

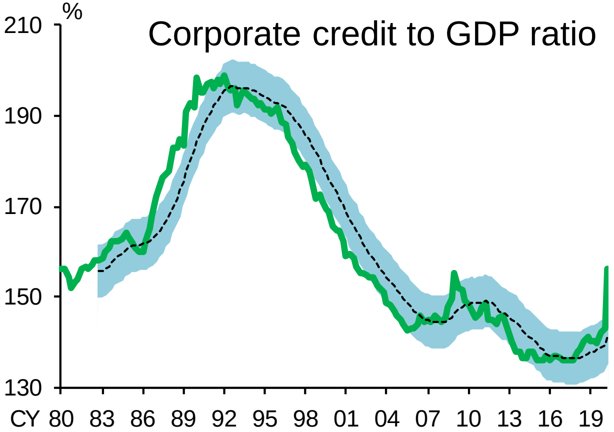












Source: Cabinet Office, "National accounts"; BOJ, "Flow of funds accounts," "Loans and bills discounted by sector," "Money stock."

Interpretation of the heat map

- The current situation is the result of FIs' response to meet the demand for working capital that has increased at an exceptional speed and to an exceptional extent due to the impact of COVID-19. Under these circumstances, it is not appropriate to interpret the red FAIXs as a signal of overheating of financial activities; they represent vigorous financial intermediation activities to underpin firms' operating liquidity as a result of, for example, measures to support corporate financing.
- As the economy recovers from the severe downturn, the demand for working capital will slow down. Going forward, attention needs to be paid to the fact that the *total credit to GDP ratio* and the *real estate loans to GDP ratio* were "red" before the COVID-19 outbreak.
- As indicated in the previous issues of the *Report*, in recent years, FIs have been actively taking risks mainly in (1) lending to middle-risk firms, (2) lending to rental real estate businesses, and (3) lending to high-leverage projects such as large-scale M&A deals. Meanwhile, lending to low-return borrowers, for which the loan interest rate is not necessarily high enough to cover the credit risk, was on an uptrend.
- It is necessary to closely monitor how the spread of COVID-19 and the resultant increase in lending will affect the existing vulnerabilities. It warrants attention that the current level of lending might end up causing excessive credit relative to the real economy, if the disease has a deeper and longer impact that leads to a substantial decline in the growth rate of the economy.

Overseas loans by type of product and credit rating

- Japanese banks' overseas lending, most of which is by major banks, has increased from a long-term perspective. The share that overseas loans account for in loan portfolios overall remains near record levels.
- Overseas corporate loans comprise 80 percent of total overseas loans. The quality of such loans has remained high on the whole, with investment-grade loans (rated BBB and above) accounting for about 70 percent of the total.
- However, the share of non-investment-grade firms is relatively high in natural resource- and energy-related project finance loans and object finance loans for the acquisition of vessels and aircraft.

Chart IV-2-1: Overseas loans outstanding of major banks

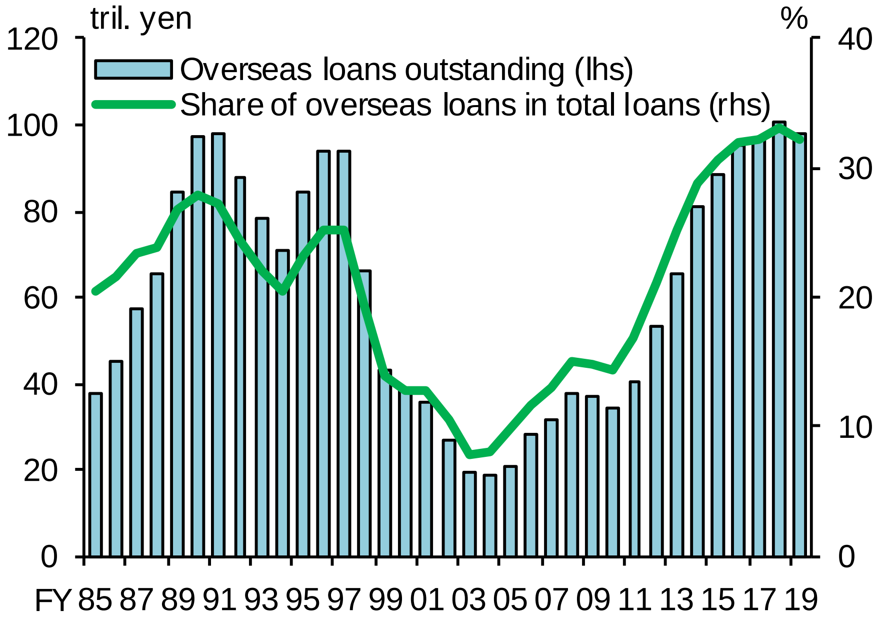
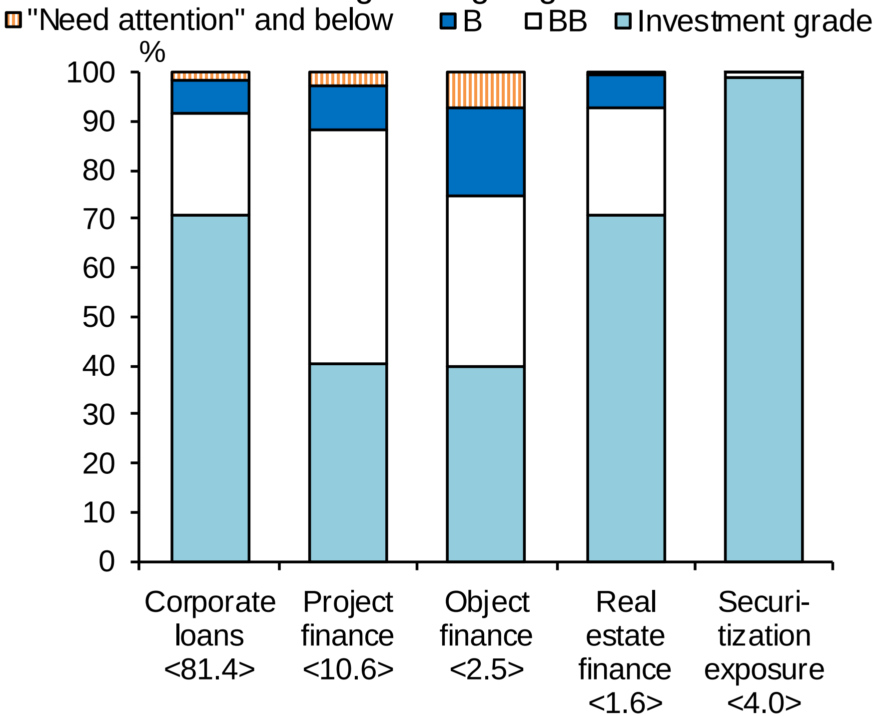


Chart IV-2-3: Composition of overseas loans by type of product and credit rating among large FIs



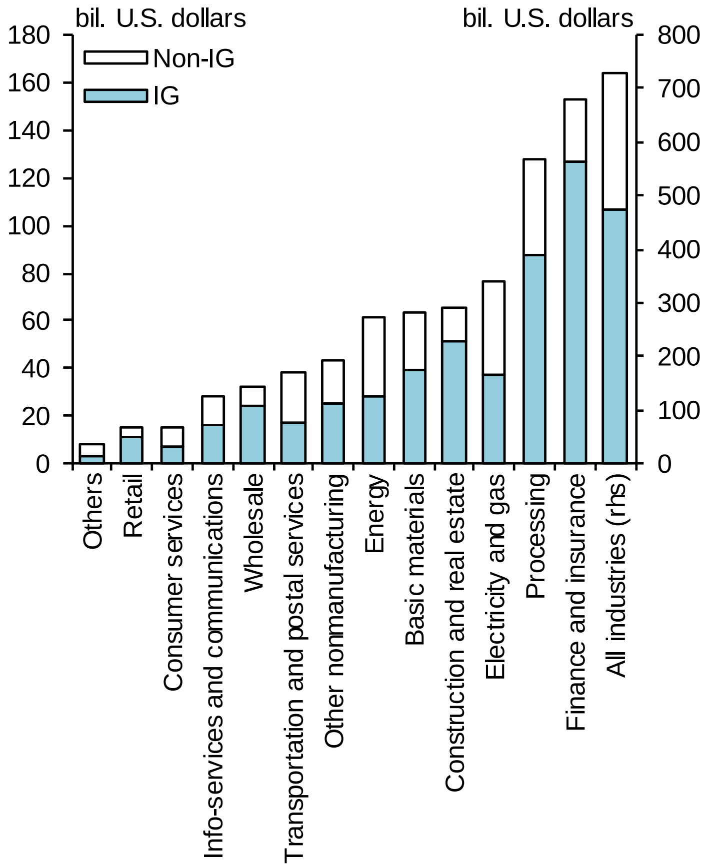
Note: In the right-hand chart, the figures in parentheses indicate the share of the respective product types. Data as at end-March 2020.

Source: BOJ.

Overseas corporate loans by industry

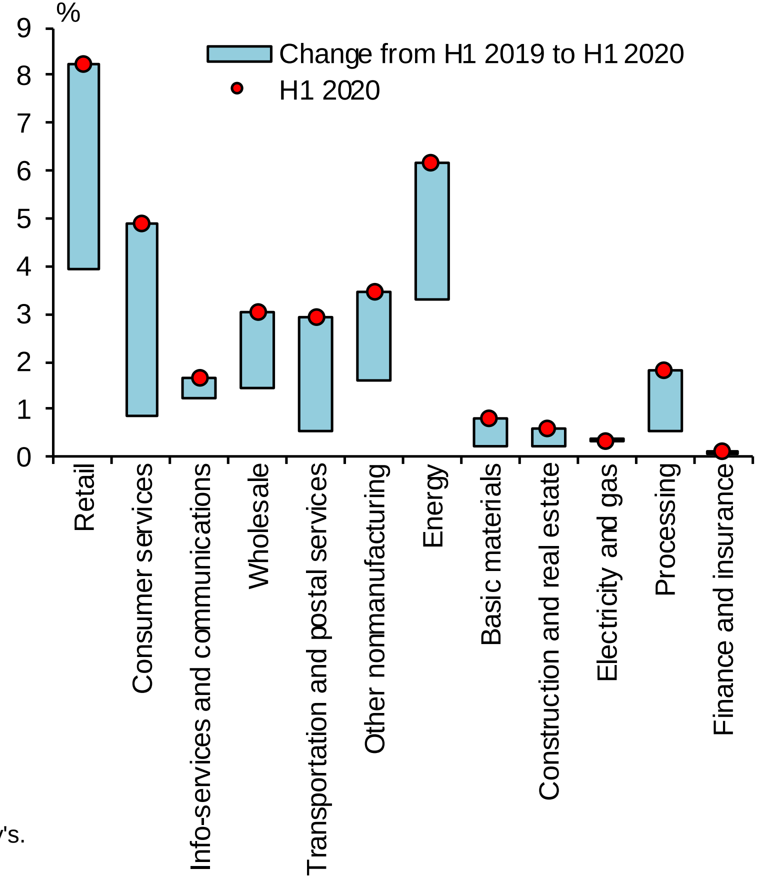
- Focusing on overseas corporate loans by industry, loans to the finance and insurance industry make up the largest amount, followed by loans to the processing manufacturing and electricity and gas industries. Excluding the energy sector, lending volume is relatively small to industries experiencing rises in default rates due to the spread of COVID-19, such as retail, consumer services, and transportation and postal services.

Chart IV-2-2: Overseas loans outstanding by industry and rating



Source: BOJ.

Chart IV-2-7: Default rates by industry



Source: Moody's.

Impact of COVID-19 on overseas corporate loans portfolios

- Since the COVID-19 outbreak, changes in ROA are negatively correlated with changes in corporate bond default rates.
- The larger the impact of the disease on firms' creditworthiness in a particular industry, the smaller is the share of that industry in Japanese banks' overseas corporate loans.
  - This pattern is more evident for Japanese banks than overseas banks. This suggests that the creditworthiness of Japanese banks' overseas corporate loan portfolios may be less likely to be affected by the spread of the disease.
- The above assessment is based on the data for January-June 2020; thus, it should be noted that this trend will not necessarily continue.

Chart IV-2-8: Changes in default rates and ROA

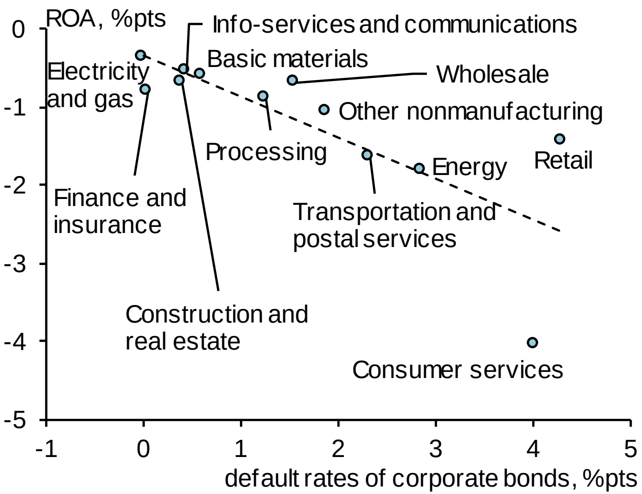
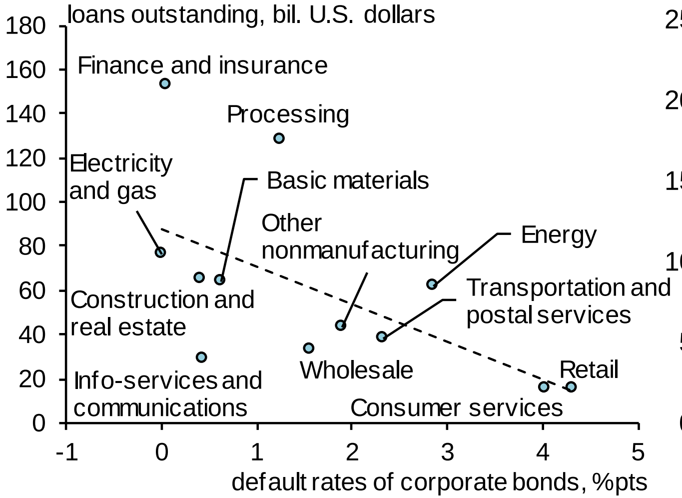
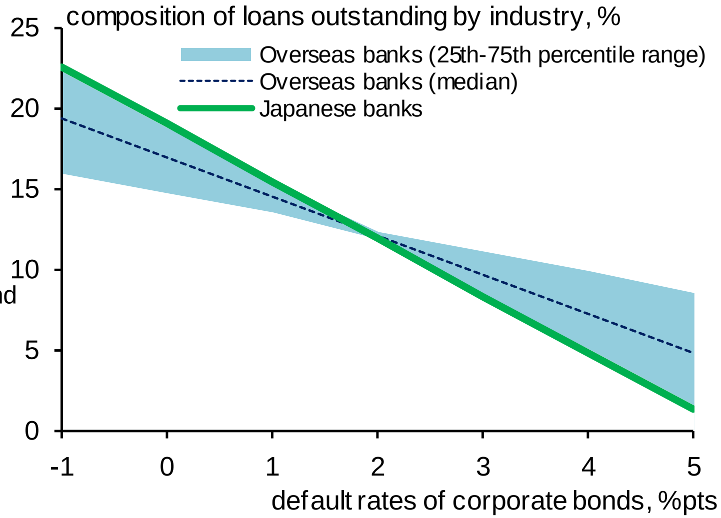


Chart IV-2-9: Outstanding loans and default rates by industry

Japanese banks' outstanding loans and default rates



Comparison of Japanese banks and overseas banks



Note: The default rates of corporate bonds and ROA are the changes from H1 2019 to H1 2020. "Overseas banks" in the right-hand chart covers 14 G-SIBs with outstanding loans listed by industry in their disclosures.

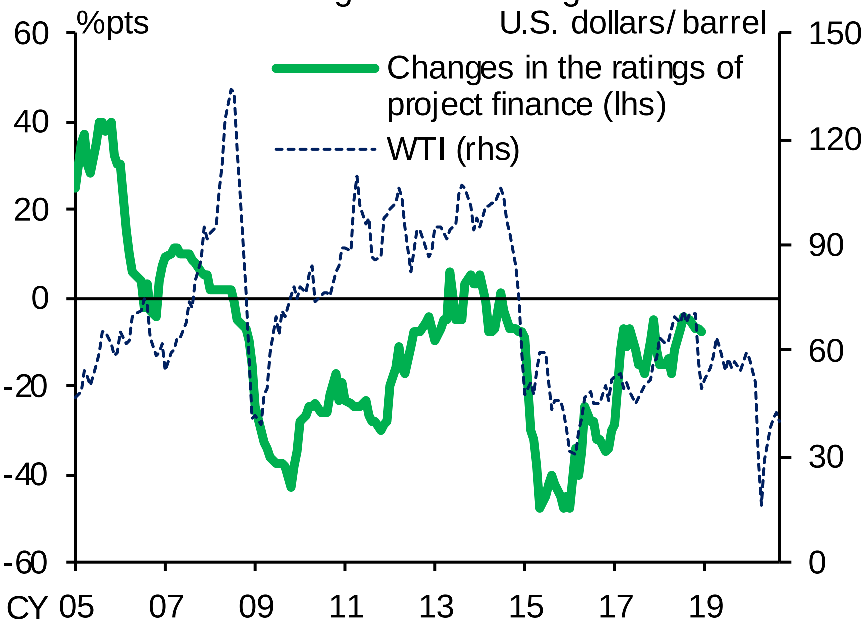
Source: (left-hand chart) Moody's; S&P Global Market Intelligence, (right-hand chart) Moody's; published accounts of each bank; BOJ.

Project finance

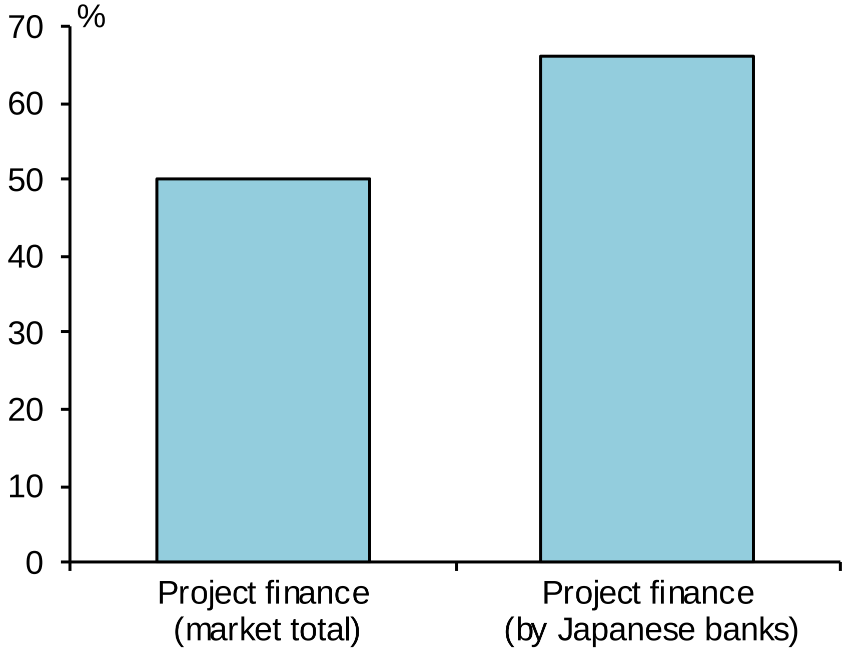
- Changes in the rating of energy-related project finance loans (the difference between the number of upgrades and downgrades) show that there were major downgrades when crude oil prices fell sharply in 2009 and 2015.
- Crude oil prices have plummeted since the beginning of 2020, and although they have recently recovered slightly, they remain sluggish.
- The non-IG share of Japanese banks' resource- and energy-related project finance loans is higher than that of the market overall. If crude oil prices remain sluggish, there is a risk that firms' creditworthiness will deteriorate further, especially in projects with relatively high costs for exploration, extraction, and refining and weak ability to generate cash flow.

Chart IV-2-10: Changes in ratings and non-IG ratio of energy-related project finance

Changes in the ratings



Non-IG ratio

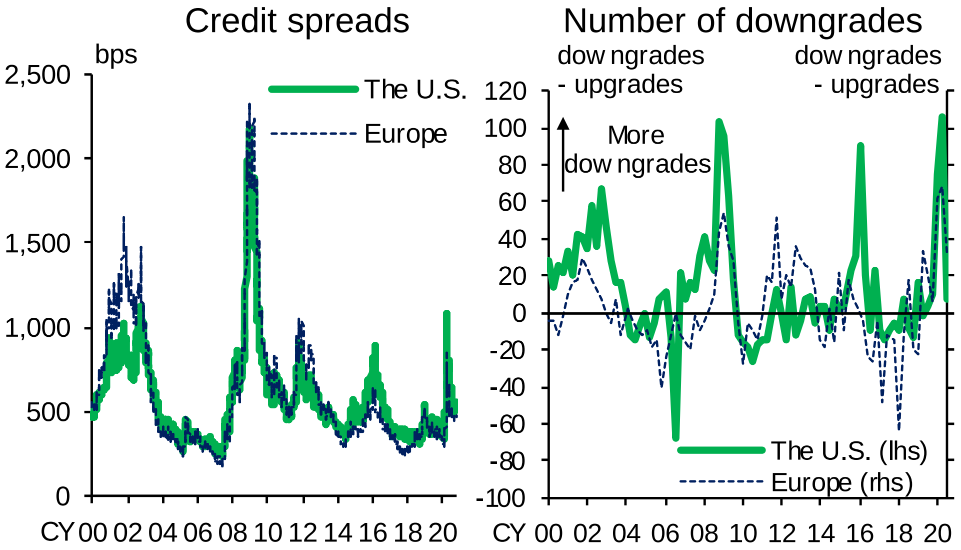


Source: EIA; Moody's; BOJ.

Overseas credit products and investment trusts

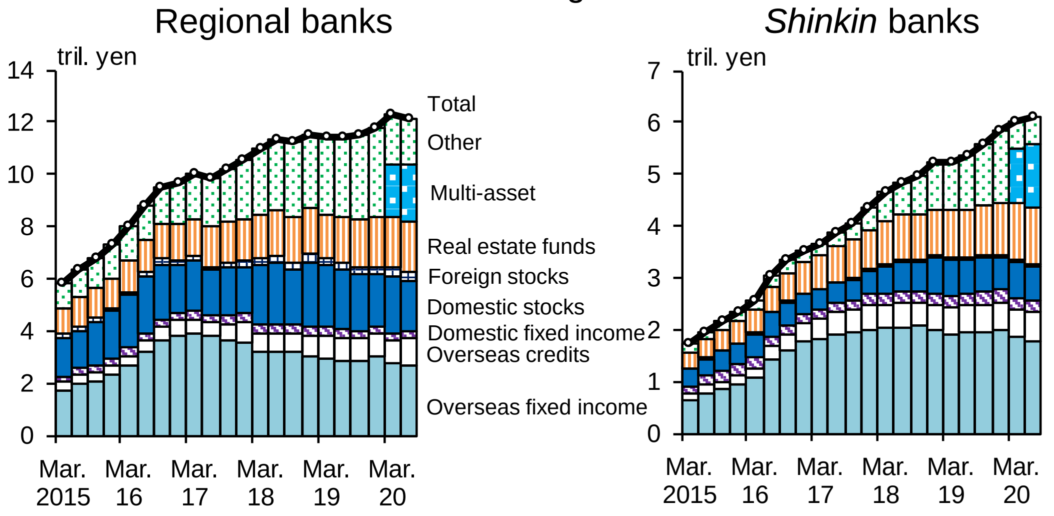
- Under the prolonged low interest rates, Japanese FIs, large FIs in particular, have actively invested in overseas credit products. The overall quality of these portfolios remains high. However, certain indices in overseas credit markets have worsened since the start of this year.
- Regional FIs have actively increased their share of investment trusts. The main risk factor of these portfolios has gradually shifted from overseas interest rate risk to a wide range of risks. Some regional FIs have increased their holdings of multi-asset investment trusts, for which changes in the amount of risk are difficult to gauge in a timely manner.
- Although the impact of COVID-19 on gains/losses on securities holdings has been limited, it is necessary to examine whether the existing risk management framework was effective under the market adjustments in March 2020 and push ahead with efforts to enhance the effectiveness of the framework.

Chart IV-3-5: Developments in high-yield bonds



Note: Latest data as at end-September 2020 in the left panel, and as at July-September 2020 (up to September 6, 2020) in the right panel.
Source: (left-hand chart) Bloomberg; Moody's, (right-hand chart) BOJ.

Chart IV-3-6: Breakdown of outstanding amount of investment trusts



Note: Based on book values. Latest data as at end-June 2020.

Foreign currency funding risk of Japanese banks

- In recent years, Japanese banks have been actively expanding their overseas business, and as a result, their foreign currency funding needs have increased substantially. To meet these needs, Japanese banks have been making steady efforts to increase the stability of foreign currency funding.
- Since March 2020, Japanese banks' overseas loans have increased, as major non-Japanese firms have drawn funds from their committed lines due to the COVID-19 outbreak. Funding through the CD and CP markets has deteriorated as inflows of cash from money market funds have lessened. The liquidity of the FX and currency swap markets has also deteriorated.
- As a result of Japanese banks' efforts to increase the stability of funding as well as the enhancement of the U.S. dollar liquidity swap line arrangements by the six central banks, major disruptions to foreign currency funding have been prevented. Japanese banks need to make continuous efforts to strengthen their foreign currency funding bases and liquidity management.

Chart IV-4-2: Stability gap among major banks

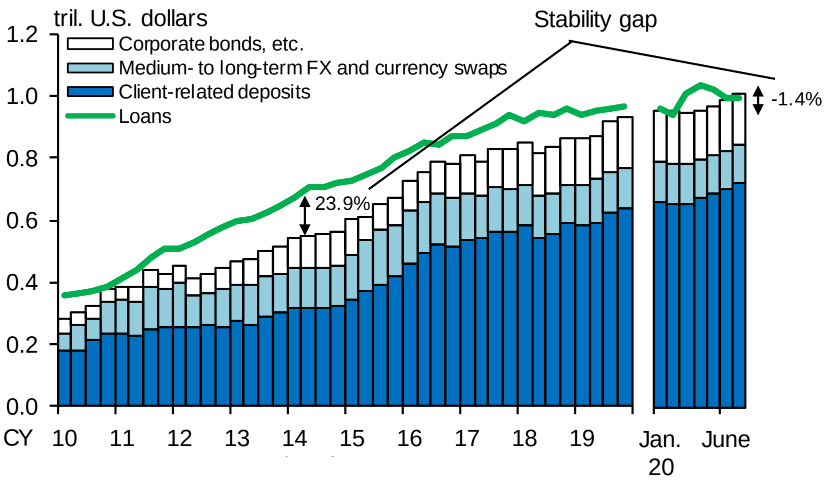


Chart IV-4-4: Financial CP rates

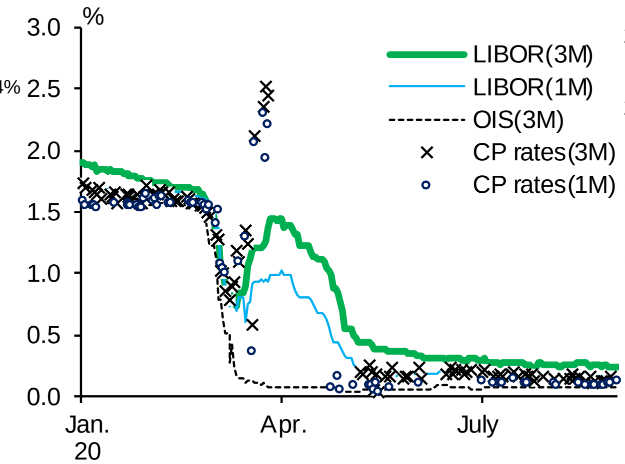


Chart IV-4-5: Outstanding amount of U.S. Dollar Funds - Supplying Operations

The stability gap is defined as the difference between loans and stable funding (defined as the sum of components in the left chart).

Note: Figures in the left chart indicate the ratios of the gaps to the loans (as at end-April 2014 and end-July 2020).

Source: (left-hand chart) BOJ, (middle chart) Bloomberg; FRB, (right-hand chart) BOJ.

Scenarios for macro stress testing

- Up until the previous issue of the *Report*, the tail event scenario assumed a deterioration in economic and financial conditions at home and abroad to levels comparable to those during the GFC.
- Given that domestic and overseas economies are already under severe stress, this *Report* examines the robustness of FIs with several scenarios regarding the pace of the future recovery of the domestic and overseas economies and the corresponding response of financial markets.
  - The severity of the depressive pressure on the domestic and overseas economies in the downside scenario is roughly the same as that assumed by major overseas central banks in their stress testing.

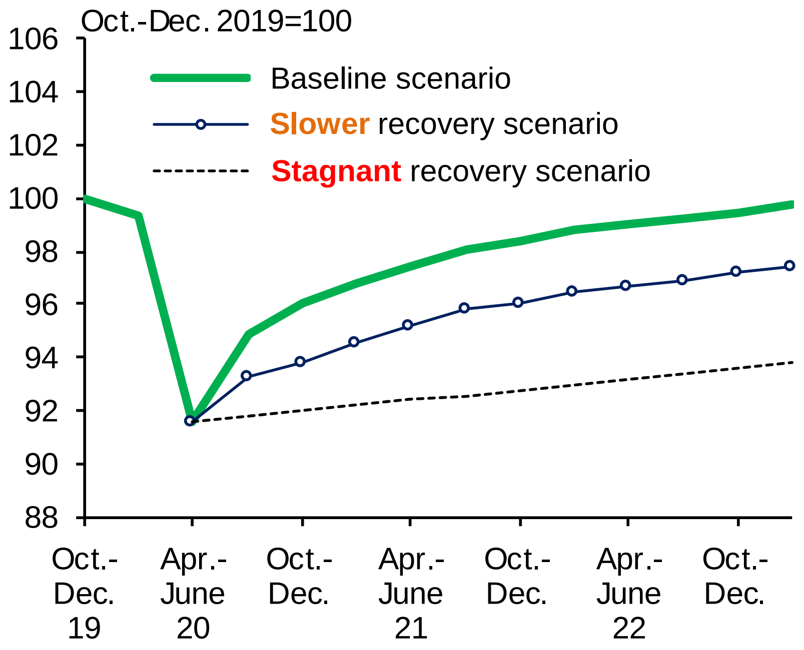
Chart V-2-1: Scenarios for simulation

	Real economy	Financial variables
Baseline scenario	Average forecasts of professionals and markets	Unchanged from the level at end-August 2020
Downside scenario	"**Slower** recovery" compared to the baseline	**Historical average** reaction (50th percentile)
Severe downside scenario (markets)	"**Slower** recovery" compared to the baseline	**Highly sensitive** reaction (90th percentile)
Severe downside scenario (real economy)	"**Stagnant** recovery" compared to the baseline	**Historical average** reaction (50th percentile)

Scenarios for the real economy

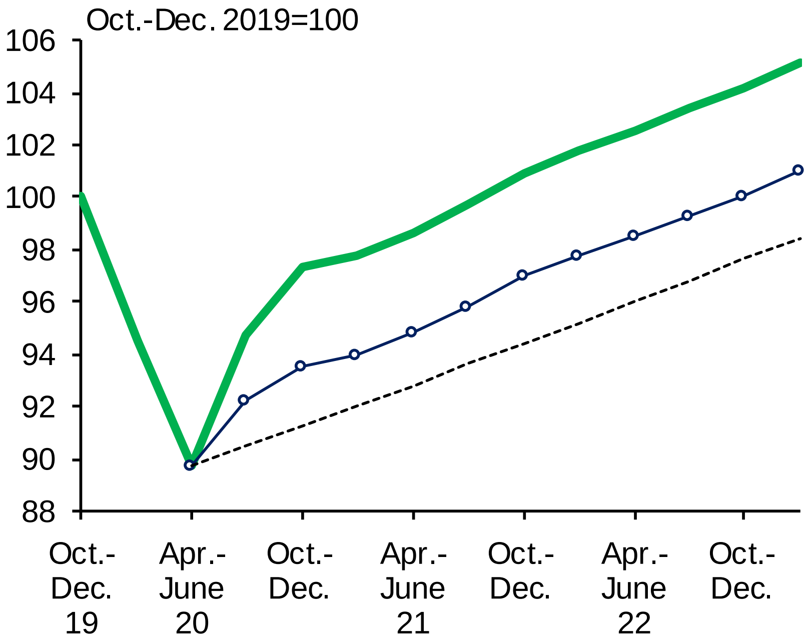
- Baseline scenario: methodology unchanged from previous *Reports*; the strong stress has already materialized.
- Slower recovery scenario: the real GDP growth rate in the second half of 2020 is half of that in the baseline scenario.
- Stagnant recovery scenario: the real GDP growth rate remains at the historical average (an extremely weak scenario that assumes that the pent-up demand, which normally arises after a large negative shock, barely arises).

Chart V-2-2: Economic scenarios for simulation (Japan)



Source: Cabinet Office; Japan Center for Economic Research, "ESP forecast."

Chart V-2-3: Economic scenarios for simulation (Overseas)

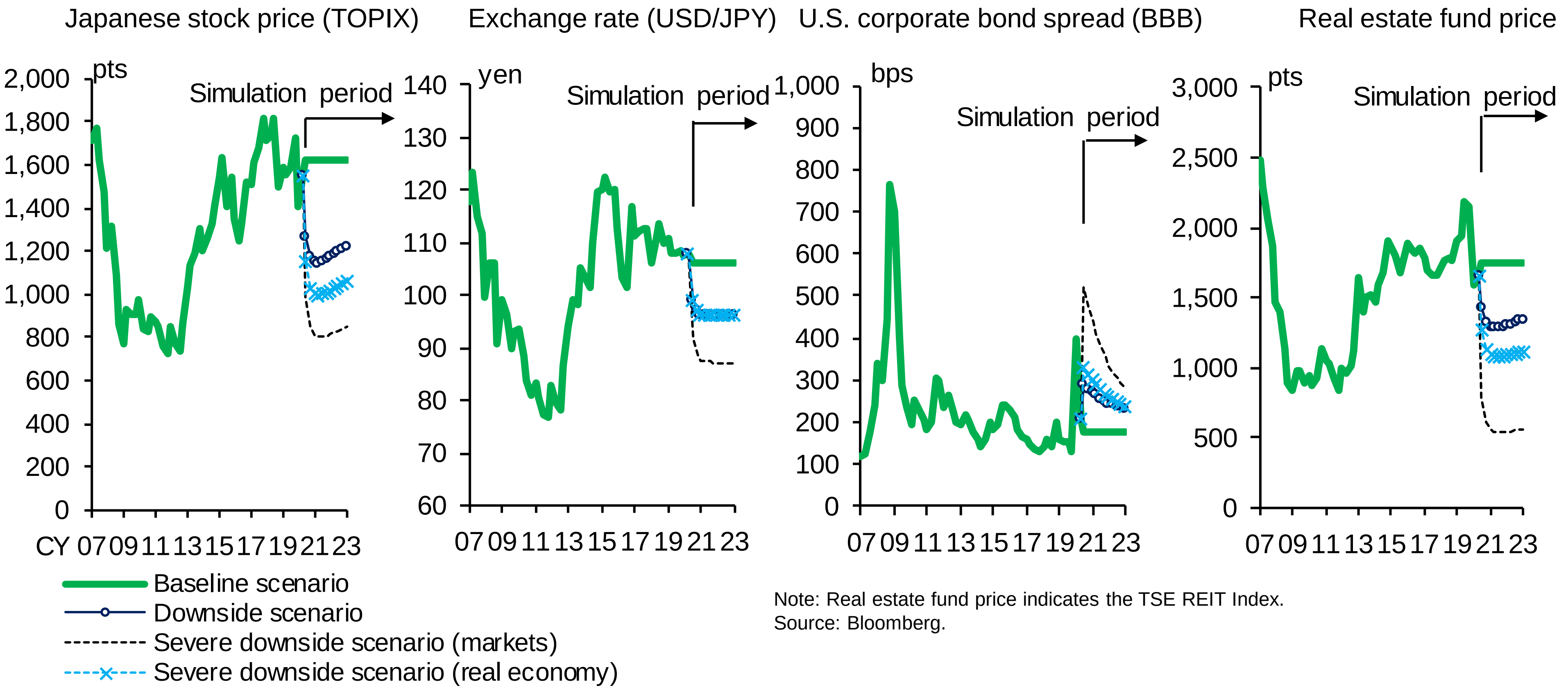


Source: IMF.

Financial market scenarios

➢ Under the downside scenario the decline in TOPIX is about half as large as during the GFC, while under the severe downside scenario (markets), it is almost as severe as during the GFC.

Chart V-2-4: Financial market scenarios for simulation



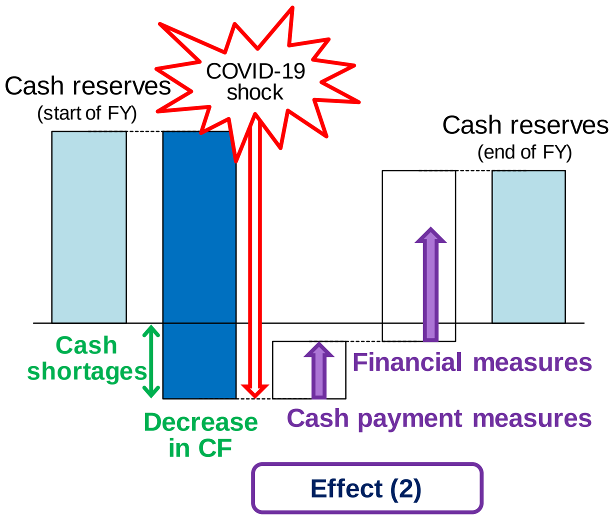
Note: Real estate fund price indicates the TSE REIT Index.
Source: Bloomberg.

Impact of measures to support corporate financing

- Cash payments push up ROA of SMEs in fiscal 2020 (**effect (1)**).
- In aggregate, the impact of support measures offsets the impact of credit costs from bankruptcies due to funding difficulties (**effect (2)**).
- On the other hand, the impact of support measures may, due to the increase in firms' debt, lead to a rise in default rates if the deterioration in profits is prolonged and firms' debt servicing capacity declines (**effect (3)**).

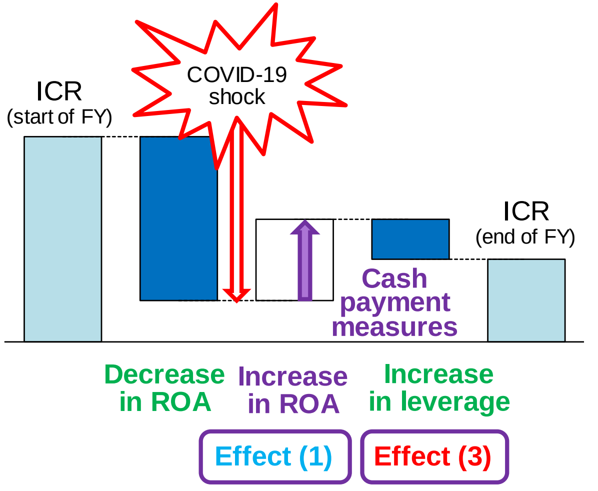
Incorporating the effects of measures to support corporate financing

Liquidity



Note: The size of the effectively interest-free loan program is assumed to be identical to the net increase in outstanding loans by regional FIs since the start of fiscal 2020 for all scenarios.

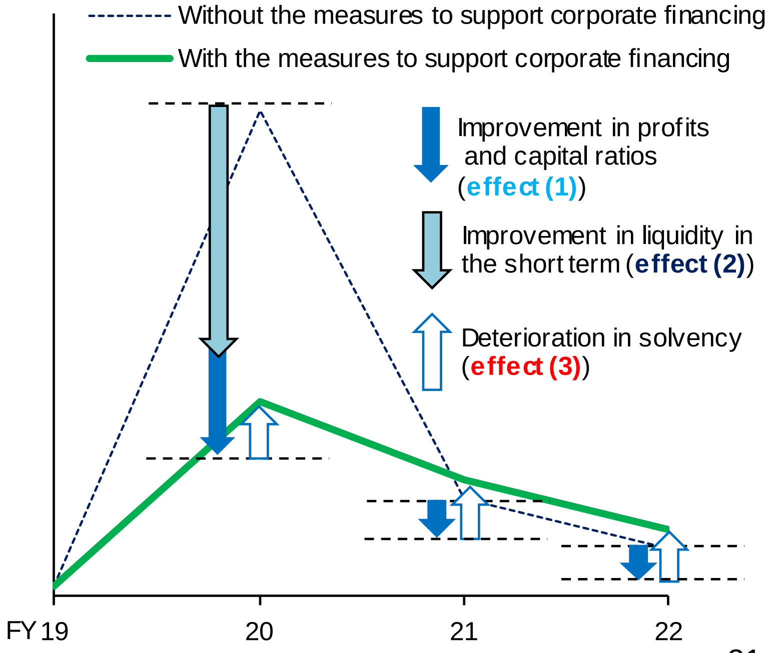
Solvency



$$\underset{\text{ICR}}{\left(\frac{\mathit{Profit}}{\mathit{Interest\ payment}}\right)} = \underset{\text{ROA}}{\left(\frac{\mathit{Profit}}{\mathit{Asset}}\right)} \times \underset{\text{Leverage ratio}^{-1}}{\left(\frac{\mathit{Asset}}{\mathit{Interest\text{-}bearing\ debt}}\right)} \times \left(\frac{1}{\mathit{Interest\ rate}}\right)$$

Impact of measures to support corporate financing

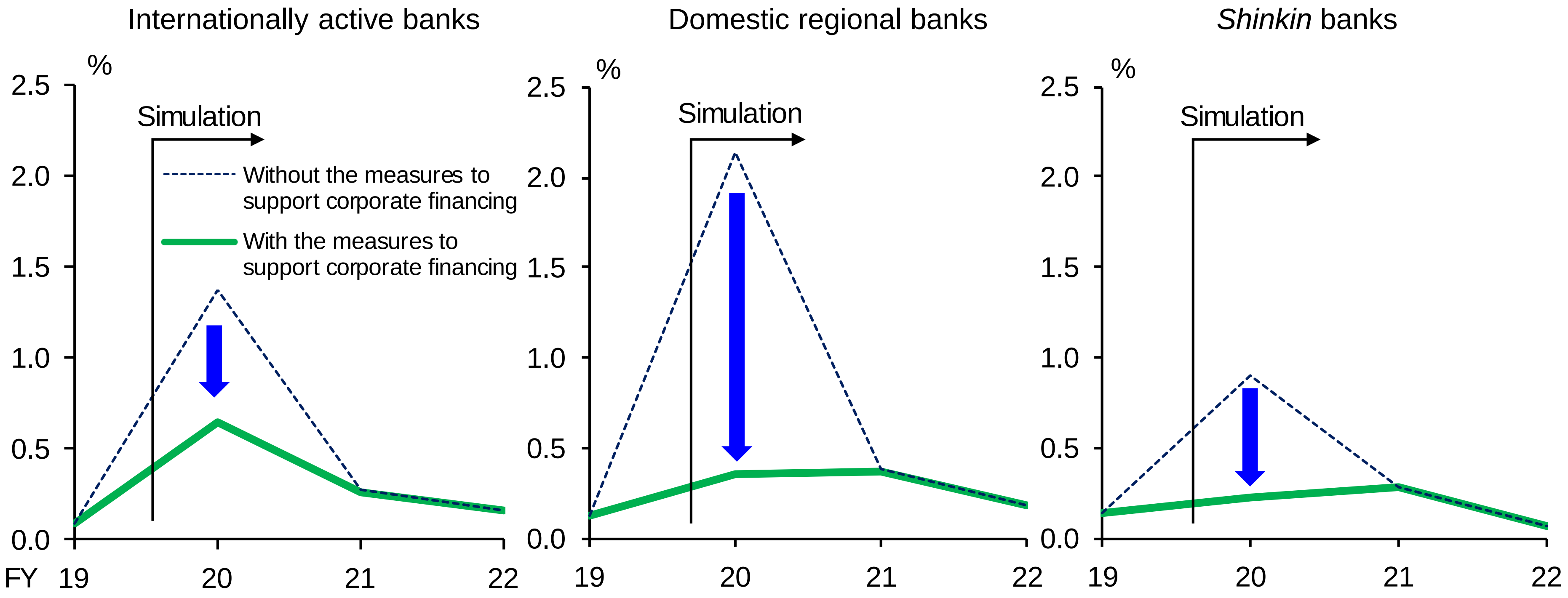
Credit cost ratios



Credit cost ratios under the baseline scenario

- Under the baseline scenario, the credit cost ratios peak in fiscal 2020 for internationally active banks and in fiscal 2021 for domestic regional banks and *shinkin* banks, and then decline moderately in fiscal 2022, the final year of the simulation.
- Credit cost ratios would increase substantially in fiscal 2020 for all types of banks when the impact of support measures is not incorporated into the simulation.

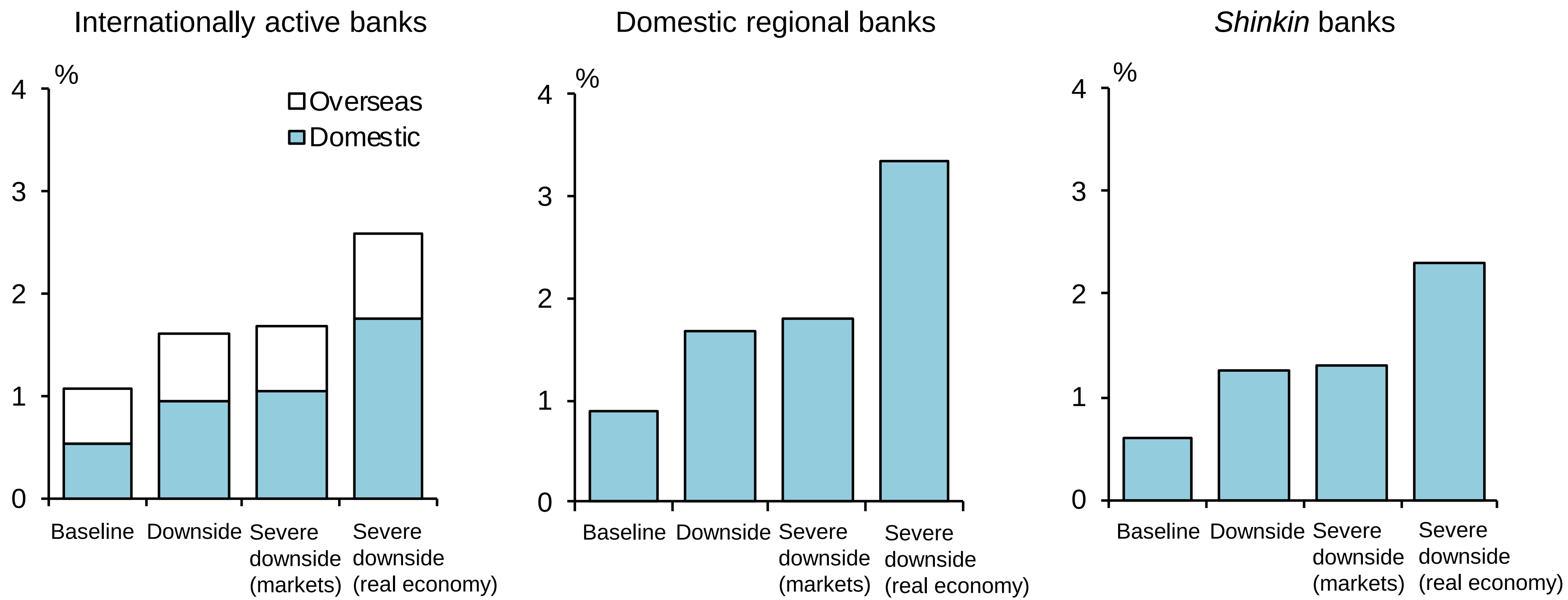
Chart V-2-8: Credit cost ratios (baseline scenario)



Credit cost ratios under each scenario

- In all three downside scenarios, credit cost ratios increase substantially relative to the baseline for all types of banks.
- At internationally active banks, in all three downside scenarios, the credit cost of overseas loans accounts for about 30 percent of their overall credit cost, given the relatively large credit cost of their overseas loans, which account for about 20 percent of their loans outstanding overall.

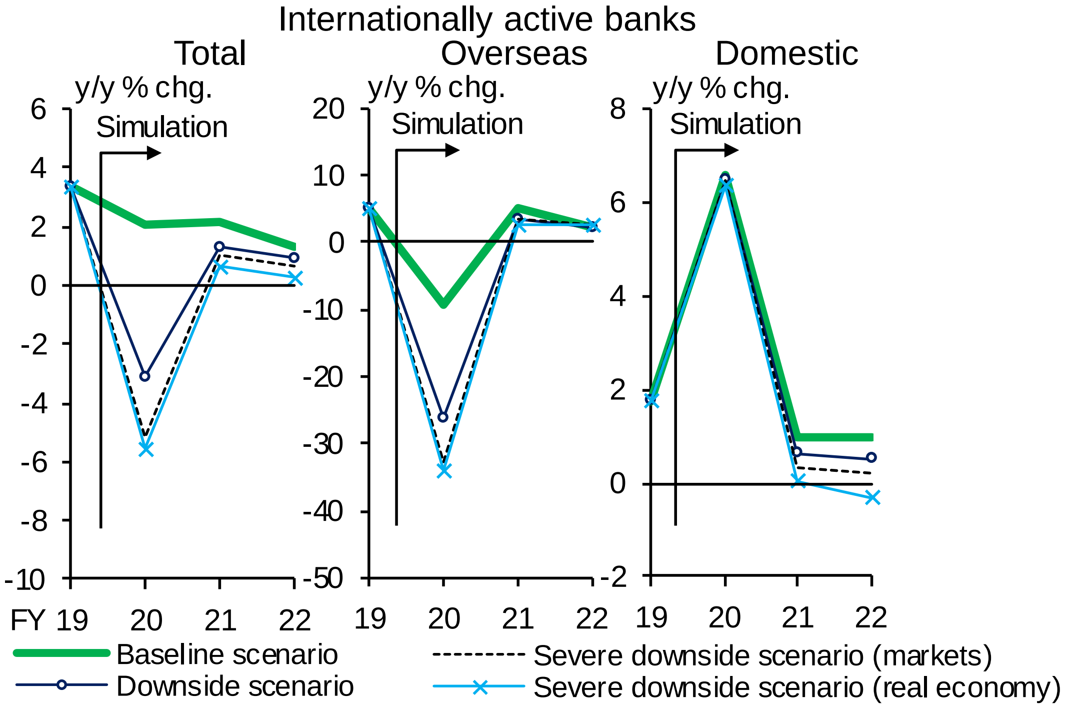
Chart V-2-9: Credit cost ratios (3-year cumulative totals, FY2020 to FY2022)



Loans outstanding (year-on-year changes)

- In the baseline scenario, loans outstanding continue to show positive growth for all types of banks. Loans outstanding to the domestic sector increase sharply among all types of banks in fiscal 2020, mainly due to the impact of the corporate financing measures, and continue to exhibit moderate growth thereafter.
- In the downside scenario, growth rates of loans outstanding are lower than under the baseline scenario.
- In the severe downside scenario (real economy), the overall domestic loans outstanding decline in fiscal 2022 on a year-on-year basis, due mainly to a decline in demand for funds amid the downturn in the domestic and overseas economies and to a deterioration in lending capacity amid lower capital adequacy ratios.

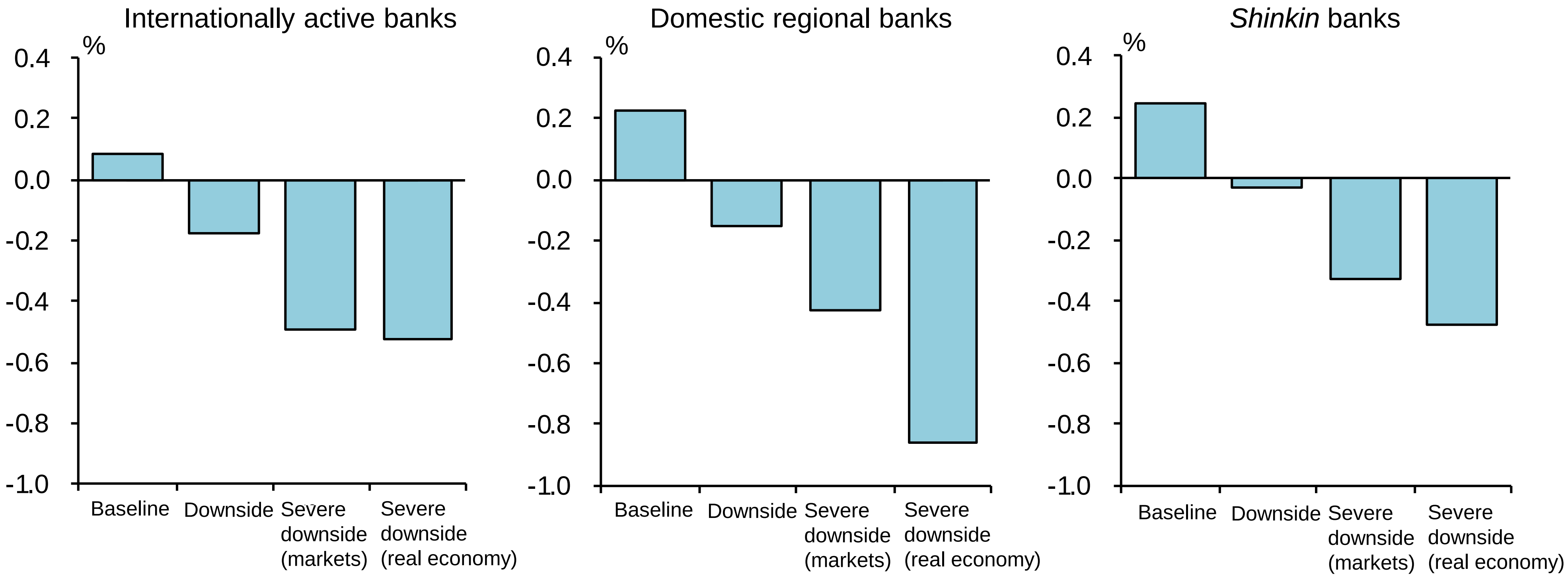
Chart V-2-10: Loans outstanding



Net income

- In the baseline scenario, the cumulative net income during the simulation period remains positive for all types of banks.
- In the downside scenarios, the cumulative net income over the simulation period is unlikely to remain in the black, due to increases in credit costs, deterioration in realized gains/losses on securities holdings, and decreases in net interest income.

Chart V-2-14: Net income (3-year cumulative totals, FY2020 to FY2022)

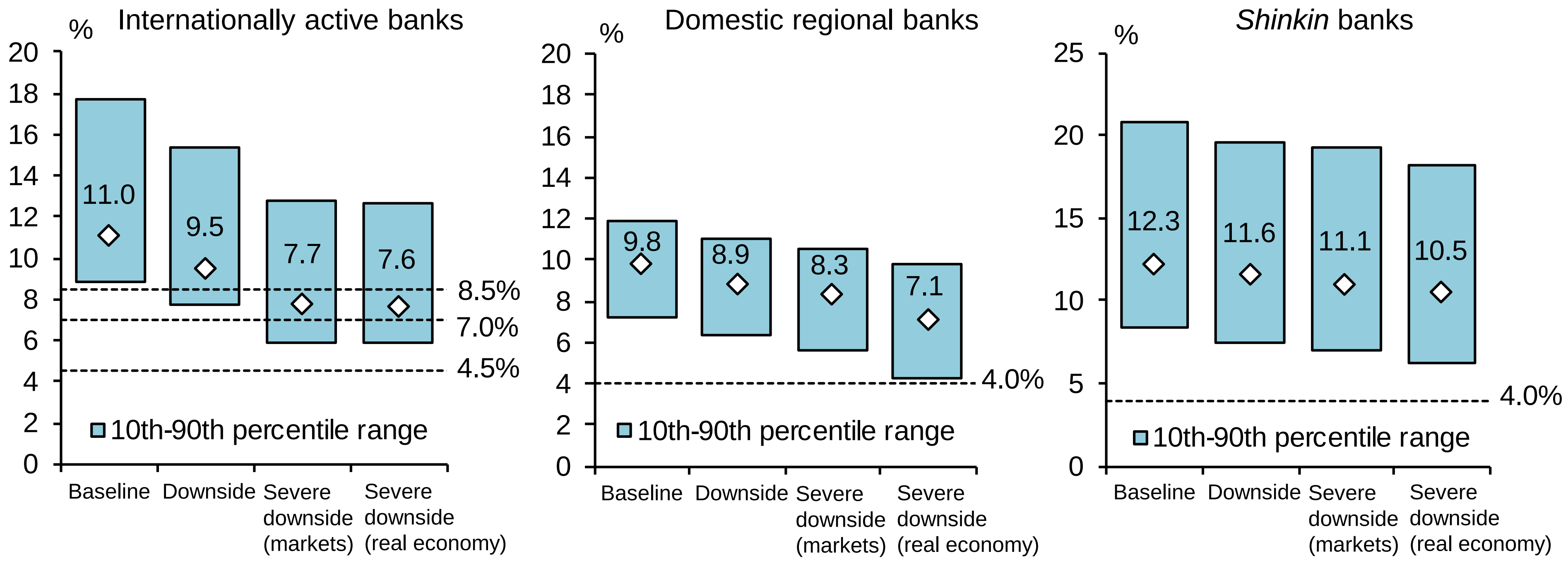


Note: The charts indicate the ratio of net income to total assets.

Capital ratios (FY 2022) and summary of macro stress testing

- Even in the case where the economic recovery remains very moderate, Japan's financial system is likely to remain highly robust.
- However, under the severe stress event of the persistently stagnated pace of economic recovery and significant adjustments in financial markets, a deterioration in FIs' financial soundness and the resultant impairment of the smooth functioning of financial intermediation could pose a risk of further downward pressure on the real economy.

Chart V-2-15: CET1 capital ratios and core capital ratios (FY 2022)



Note: The left-hand chart shows the CET1 capital ratios of internationally active banks. The middle and right-hand charts show the core capital ratios of domestic regional banks and *shinkin* banks. The transitional arrangements are taken into consideration.

Challenges for FIs and actions by the Bank of Japan

(Challenges for the time being)

- The major challenge for FIs is to smoothly fulfill their financial intermediation function and support the economy by balancing their financial soundness and risk taking, in a situation where the impact of COVID-19 continues to be observed.
- Careful assessment of the sustainability of the borrowers' businesses, in addition to the provision of swift liquidity support, will become increasingly important. In this respect, providing effective support tailored to the needs of borrowers by assisting with their core business and financing as well as facilitating their business succession, transfer, and restructuring will become more essential. Financial soundness is one of the primary foundations for FIs to play these roles, and to this end, FIs need to take actions to address the following challenges:
  1. strengthened risk management capabilities in areas where they actively take risks,
  2. adequate loan-loss provisioning based on accurate identification and measurement of risks as well as the assessment of the sustainability of borrowers' businesses,
  3. sound capital planning under considerable uncertainty.

(Challenges in the medium- to longer-run)

- The environment surrounding Japanese society is undergoing major changes, including population declines and aging, digital transformation and labor system reforms, as well as heightened interest in climate change. In the medium to long run, FIs are expected to contribute to achieving a sustainable society in the post-COVID-19 era by offering higher value-added financial services. To face the challenges, they need to improve their capability to contribute to vitalizing the national and local economies and step up their efforts to enhance operating efficiency and business bases.

(Actions by the Bank of Japan)

- The Bank of Japan, in close cooperation with the Japanese government and overseas financial authorities, will make efforts to ensure the stability of the financial system and the smooth functioning of financial intermediation. From a medium- to long-term perspective, the Bank will actively support FIs' initiatives by preparing institutional frameworks for the financial system and taking measures to facilitate digital transformation.