

Challenges of the Japanese Economy

December 8, 2020

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World Economic Outlook (IMF)

Outlook for Real GDP Growth Rate (y/y)

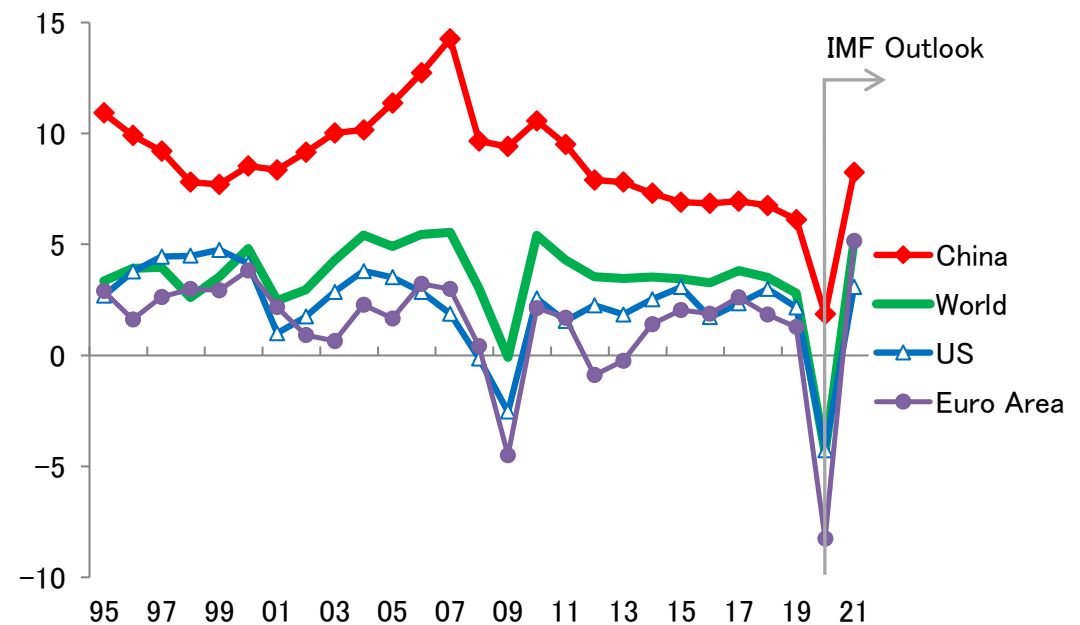
(%, %pt)

| | Performance | Estimation/Prediction | | Revision | |
|--|-------------|-----------------------|------|--------------|------|
| | | as of Oct. 2020 | | Jun-Oct 2020 | |
| | | 2019 | 2020 | 2021 | 2020 |
| World Output | 2.8 | -4.4 | 5.2 | 0.8 | -0.2 |
| Advanced Economies | 1.7 | -5.8 | 3.9 | 2.3 | -0.9 |
| United States | 2.2 | -4.3 | 3.1 | 3.7 | -1.4 |
| Euro Area | 1.3 | -8.3 | 5.2 | 1.9 | -0.8 |
| Germany | 0.6 | -6.0 | 4.2 | 1.8 | -1.2 |
| United Kingdom | 1.5 | -9.8 | 5.9 | 0.4 | -0.4 |
| Japan | 0.7 | -5.3 | 2.3 | 0.5 | -0.1 |
| Emerging Market and Developing Economies | 3.7 | -3.3 | 6.0 | -0.2 | 0.2 |
| Sub-Saharan Africa | 3.2 | -3.0 | 3.1 | 0.2 | -0.3 |
| Emerging Europe | 2.1 | -4.6 | 3.9 | 1.2 | -0.3 |
| Russia | 1.3 | -4.1 | 2.8 | 2.5 | -1.3 |
| Emerging Asia | 5.5 | -1.7 | 8.0 | -0.9 | 0.6 |
| China | 6.1 | 1.9 | 8.2 | 0.9 | 0.0 |
| India | 4.2 | -10.3 | 8.8 | -5.8 | 2.8 |
| ASEAN-5 | 4.9 | -3.4 | 6.2 | -1.4 | 0.0 |
| Middle East and Central Asia | 1.4 | -4.1 | 3.0 | 0.4 | -0.5 |
| Latin America and the Caribbean | 0.0 | -8.1 | 3.6 | 1.3 | -0.1 |
| Brazil | 1.1 | -5.8 | 2.8 | 3.3 | -0.8 |

Source: IMF "World Economic Outlook"; Compiled by DIR.

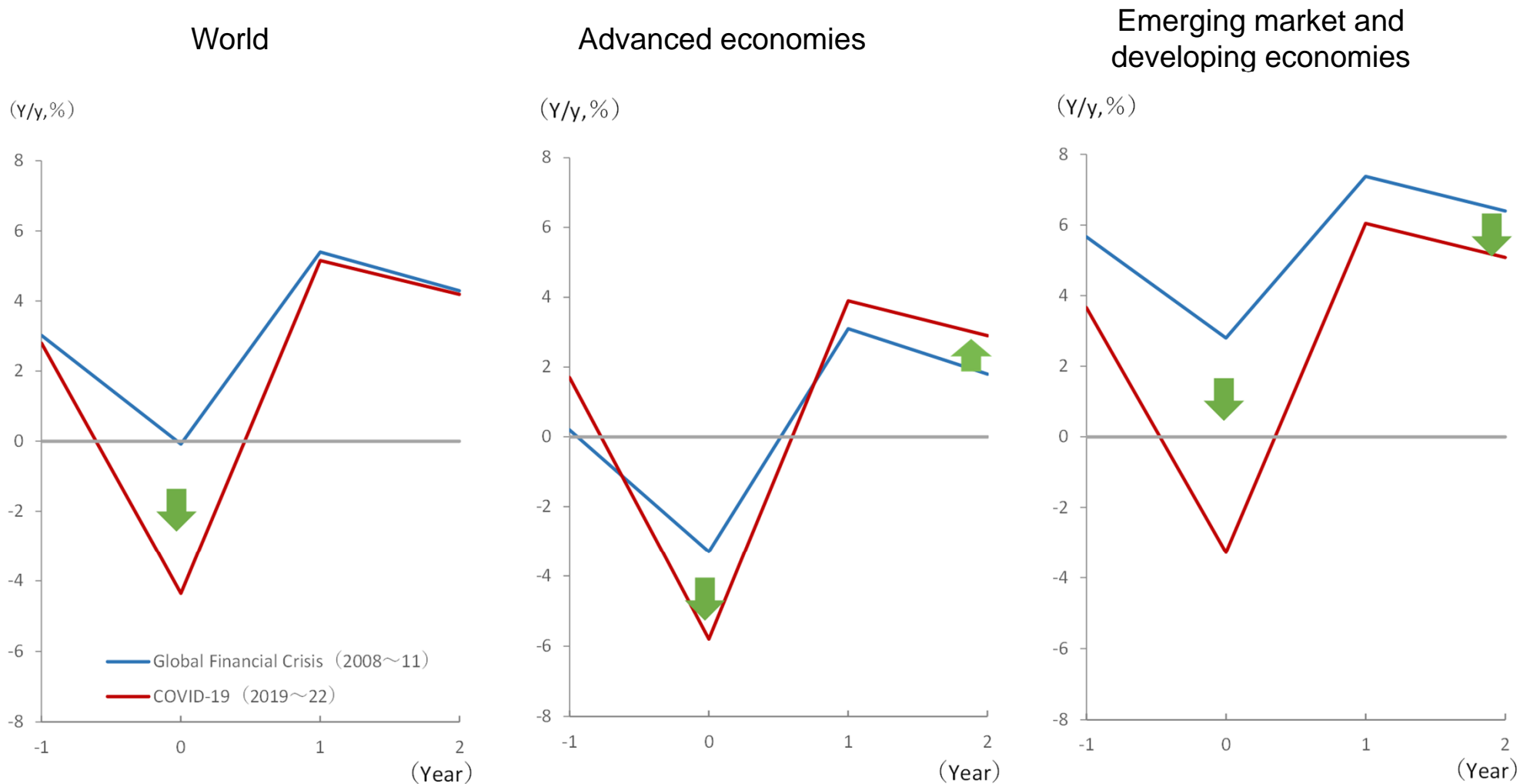
Real GDP Growth Rates of Major Countries & Regions

(Y/y, %)



Source: IMF "World Economic Outlook"; Compiled by DIR.

Real GDP Growth: Comparison with GFC

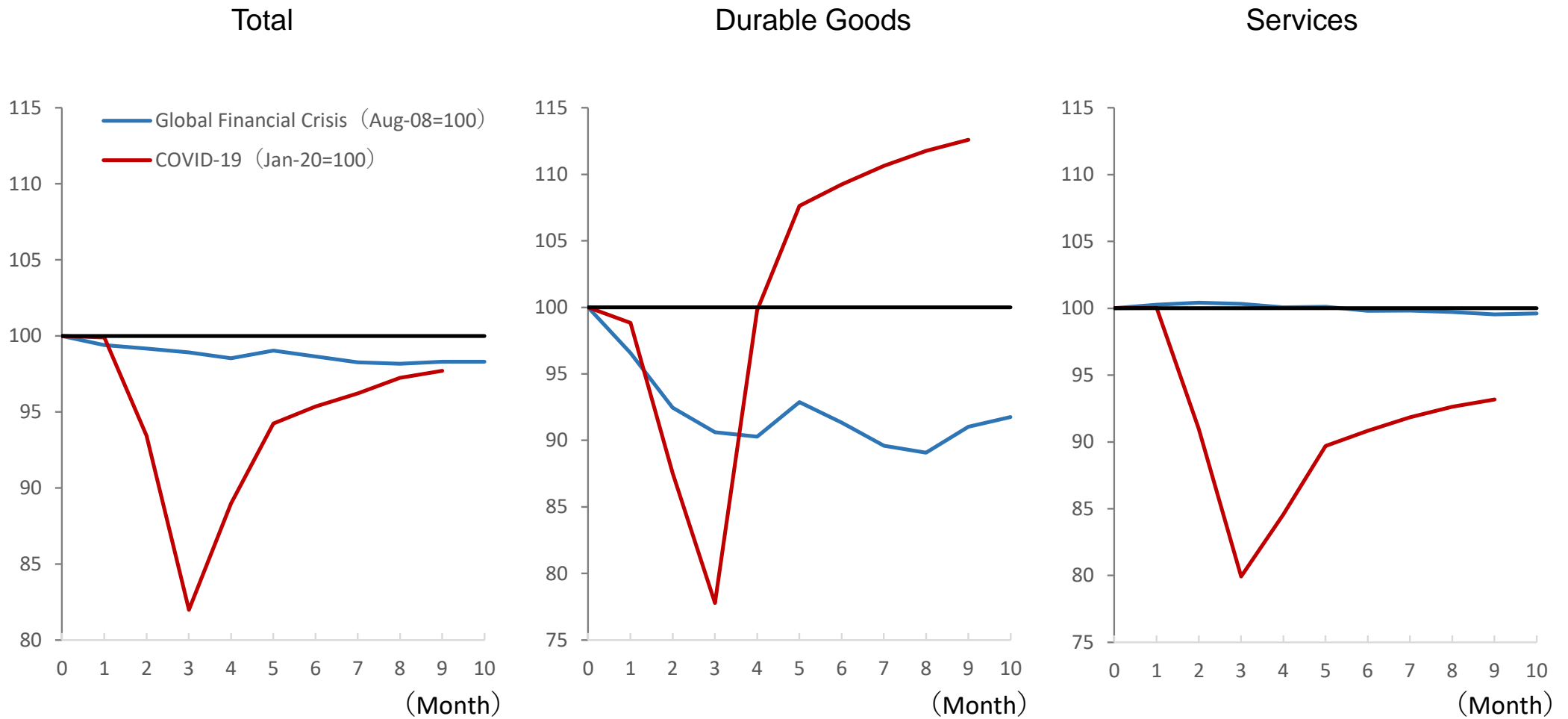


Source: IMF "World Economic Outlook", Haver Analytics ; compiled by DIR.

Note 1) Advanced economies and emerging market and developing economies as defined by IMF.

2) "0" represents 2020 COVID-19 crisis, 2009 Global Financial Crisis.

Consumption In US: comparison with the GFC



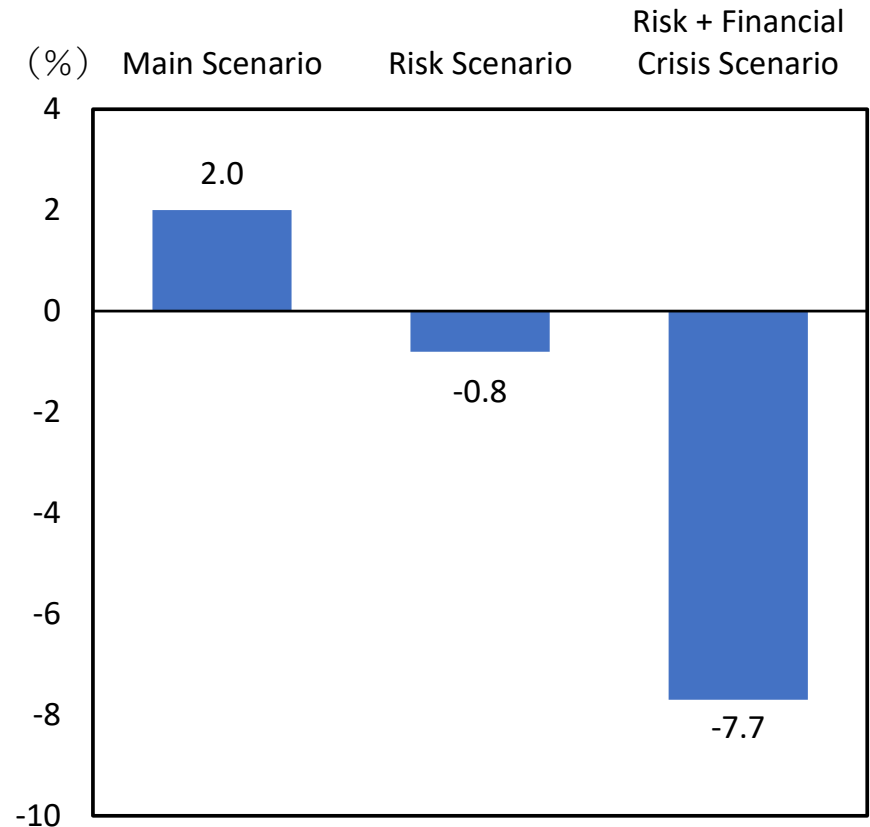
Source: Haver Analytics; compiled by DIR.
Note: Latest data as of end September 2020.

DIR Outlook for Japan's Economy (November 20, 2020)

| Stage | the status of infections |
|-------|--------------------------|
| I | Zero, sporadic |
| II | Gradual increase |
| III | Rapid increase |
| IV | Explosion |

| | Main Scenario | Risk Scenario | Risk + Financial Crisis Scenario |
|---|--|--|----------------------------------|
| Status of Spread of Infection | Stages I-III | Stage IV occurs twice in 2021, once in the first half and then in the second half of the year | |
| Measures to prevent spread of the COVID-19 infection | Requests on a regional basis to cease operations and practice self-restraint in going out as appropriate | Stage IV: Month-long state of emergency declared for all prefectures (lockdown occurs during same period in the US and Europe) | |
| Outlook for real GDP growth rate in 2021 (2020:-5.3%) | +2.0% | -0.8% | -7.7% |

Outlook for Japan's real GDP Growth Rate in 2021

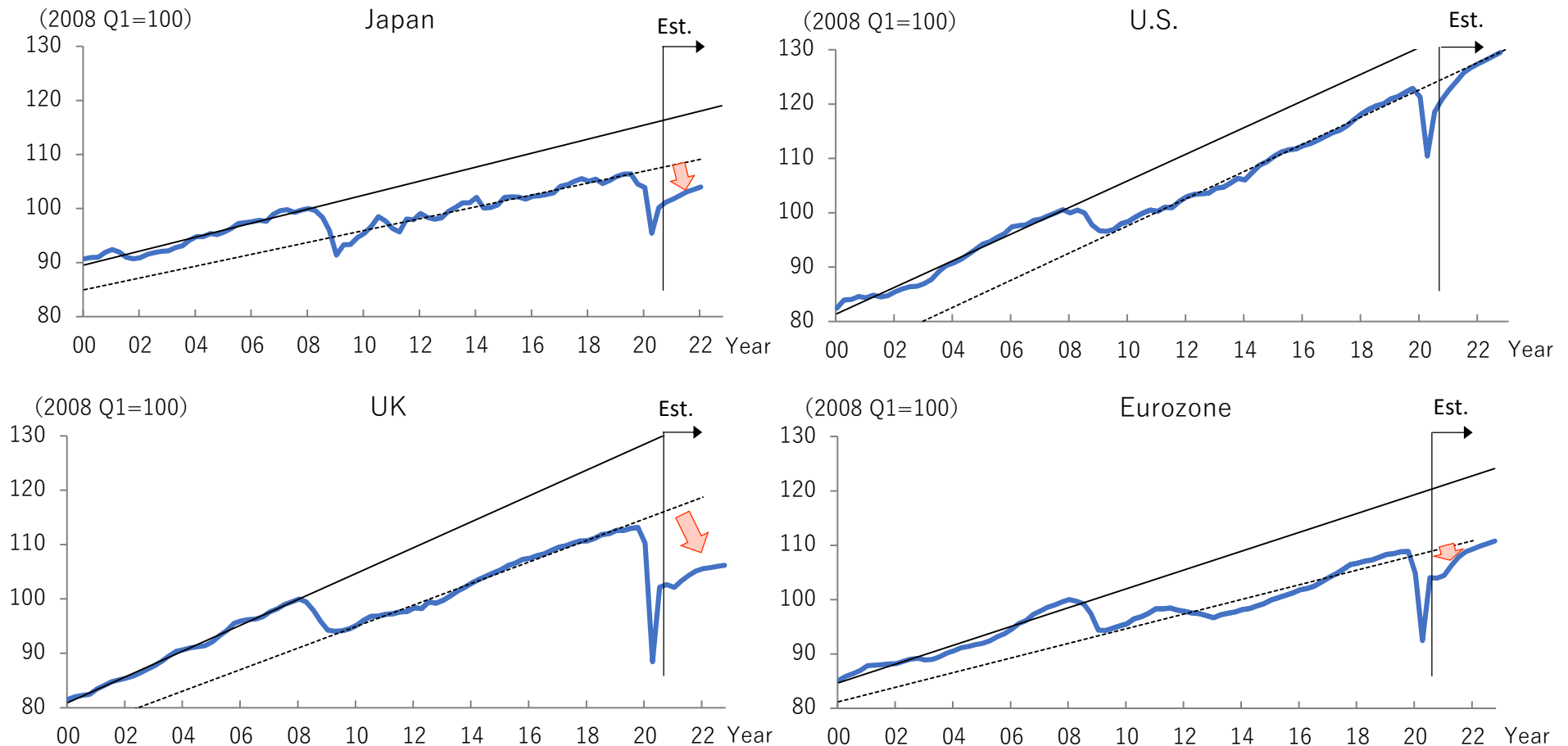


Source: Statistics from Each Country; compiled by DIR.

Note 1) We used a classification into four stages with reference to the definitions of the Novel Coronavirus Infectious Diseases Control Subcommittee established by the government.

2) Assumptions: Public works spending is expected to grow by +2.3% in FY20, and +1.0% in FY21. We see an average exchange rate of Y105.5/\$ in FY20, and Y104.0/\$ in FY21. US real GDP growth is seen at -3.6% in CY20 and +3.6% in CY21.

Real GDP Growth Trends Shift Downwards



Real GDP Growth Rates after 2000 Q1 (Annual Average Rate, %)

| | Japan | U.S. | UK | Eurozone |
|--|-------|------|-----|----------|
| Before Global Financial Crisis: ~2008 Q1 | 1.2 | 2.4 | 2.6 | 2.0 |
| After Global Financial Crisis: ~2019 Q4 | 0.7 | 2.0 | 1.7 | 1.3 |
| After the Outbreak of COVID-19: ~2020 Q3 | 0.5 | 1.8 | 1.1 | 1.0 |

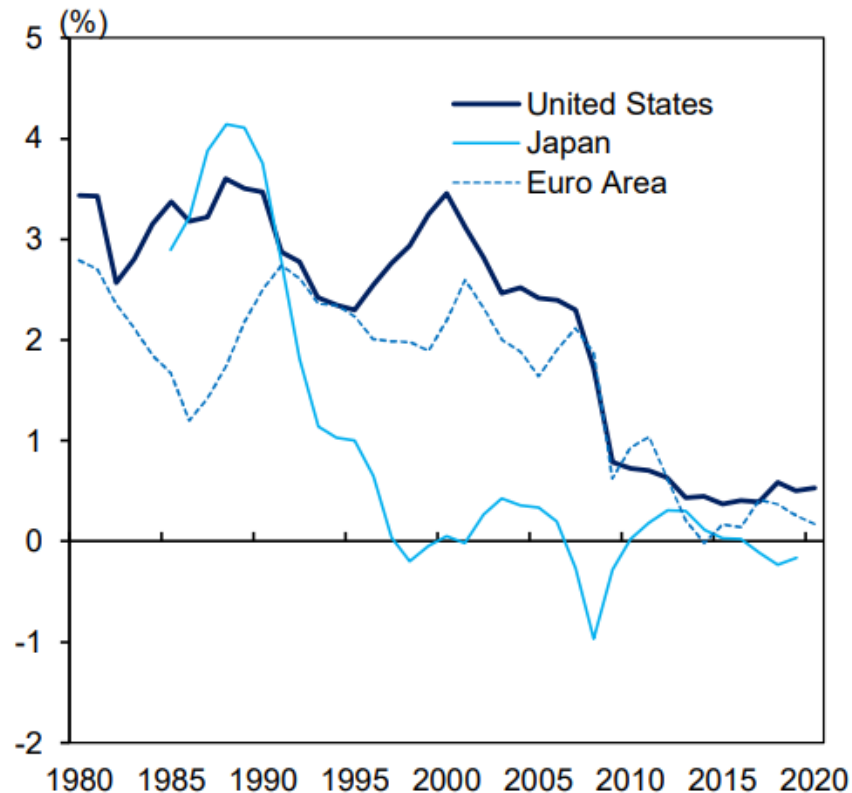
Source: Japan Cabinet Office, Japan Center for Economic Research, U.S. Department of Commerce, U.S. Congressional Budget Office, UK Office for National Statistics, European Commission; compiled by DIR.

Note 1) Solid lines indicate GDP trends from 2000 Q1 to 2008 Q1. Dotted lines indicate GDP trends from 2009 Q3 to 2019 Q4.

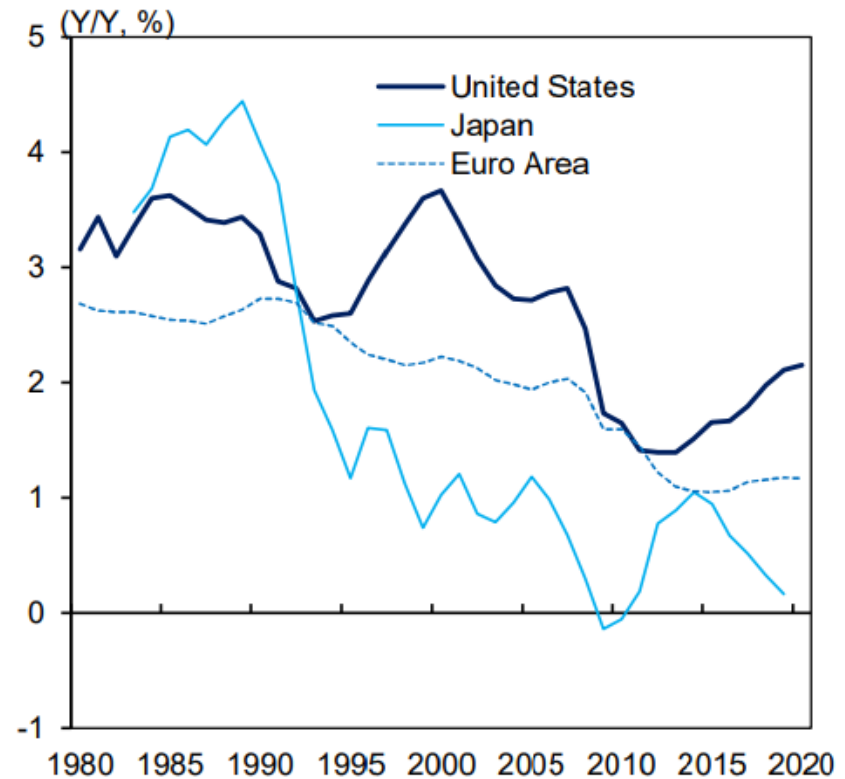
2) The prediction references the ESP Survey of the Japan Center for Economic Research in the case of Japan (11 Nov. 2020), and the U.S. Department of Commerce and U.S. Congressional Budget Office in the case of the U.S. (2 Jul. 2020). The European Commission is referenced for the UK and the Eurozone (5 Nov. 2020).

Natural Rate of Interest and Potential Growth

The natural rate of interest (r^*)



Potential growth rate (y^*)

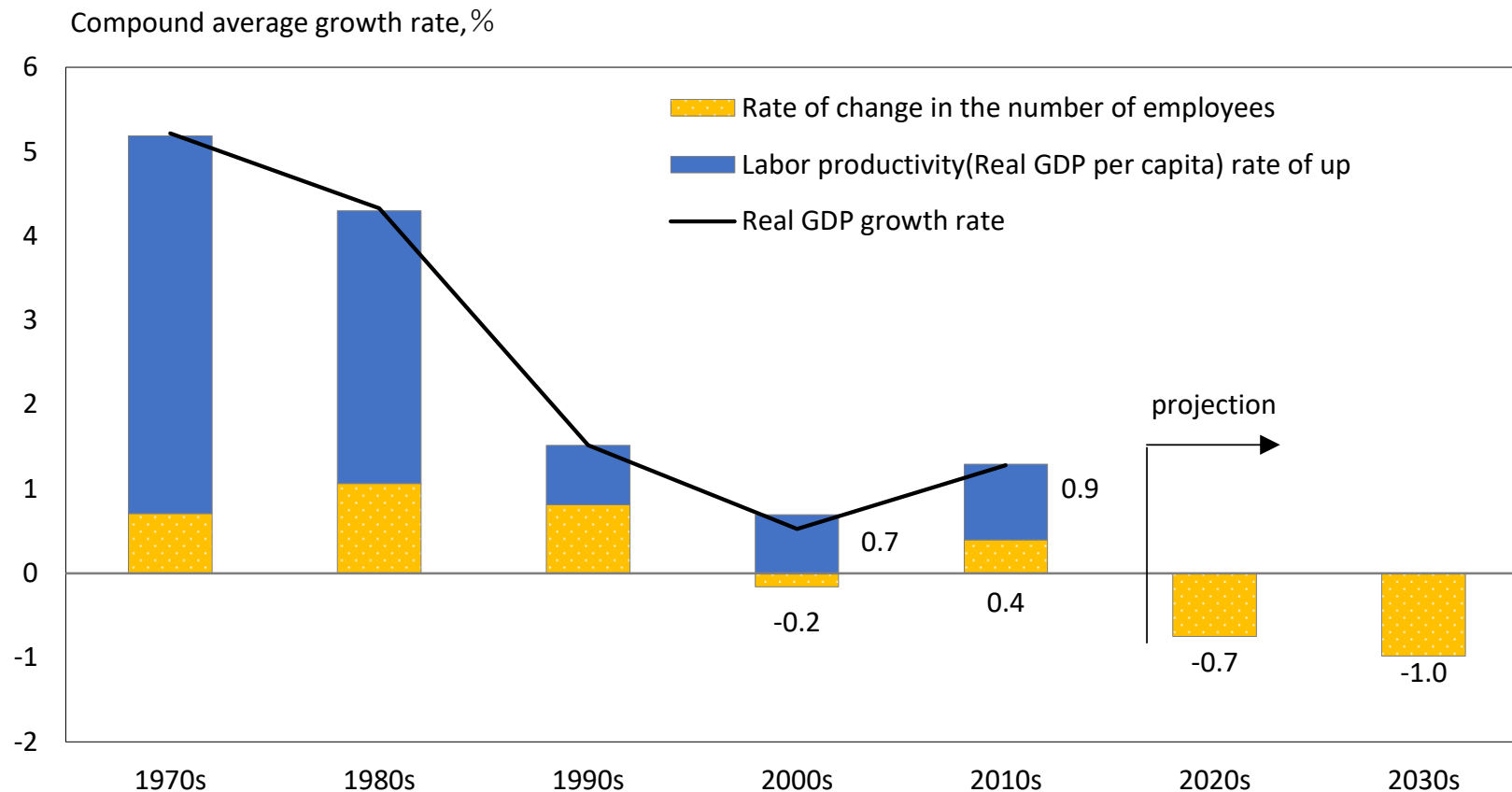


Source: Holston, K., T. Laubach, and J. C. Williams (2017): "Measuring the Natural rate of Interest: International Trends and Determinants," *Journal of International Economics*, Fujiwara et al. (2016): "Supplementary Paper Series for the "Comprehensive Assessment" (2): Developments in the Natural Rate of Interest in Japan," Bank of Japan Review Series 16-E-12, Bank of Japan

Source: Toshitaka Sekine, Hitotsubashi University "Economic Crisis and Recovery with COVID-19" (September 9, 2020)

Japan's Real GDP Growth Rate

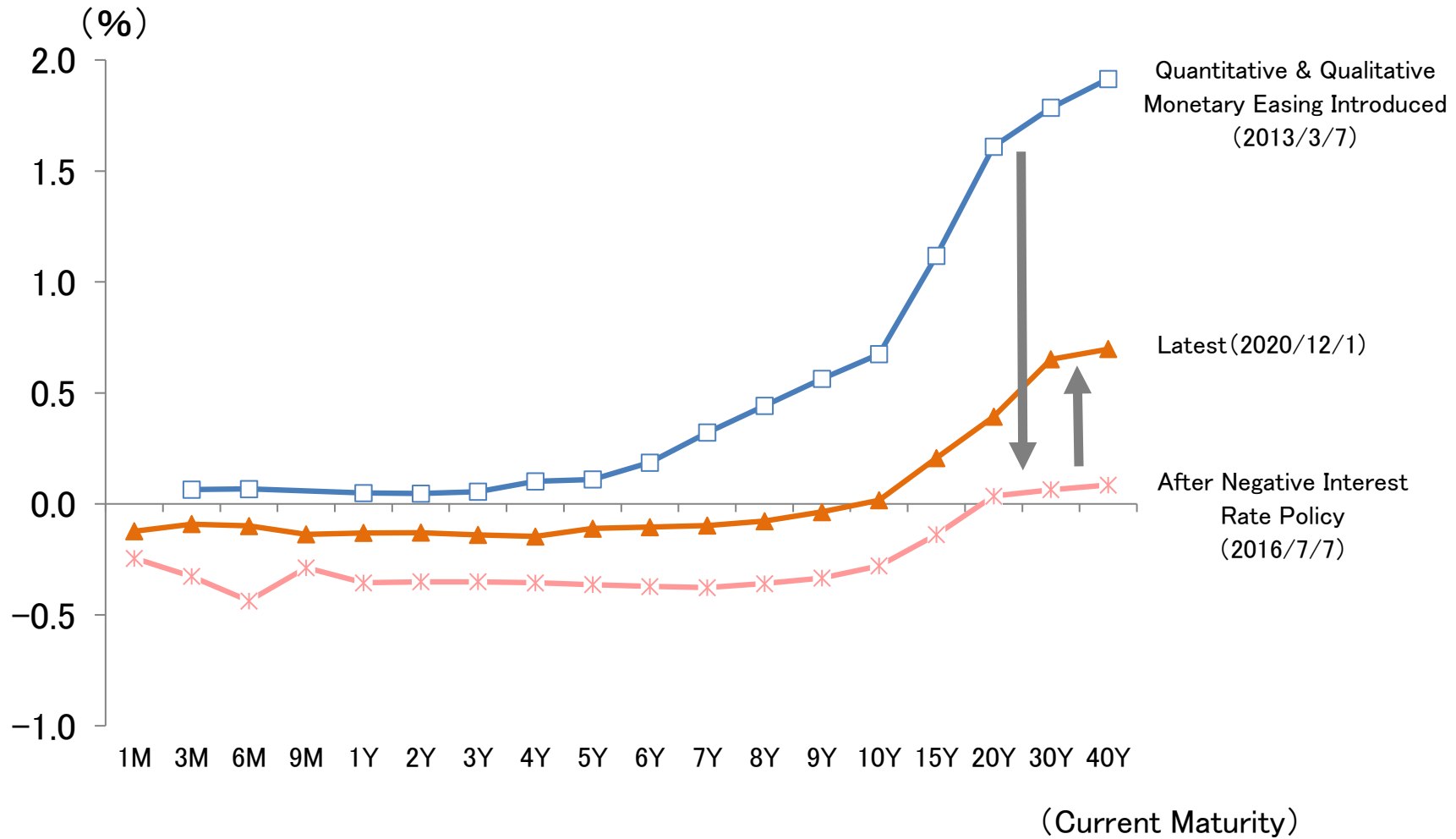
Japan's Real GDP Growth Rate



Source: Prepared by DIR based on Cabinet Office data, Ministry of Internal Affairs and Communication, National Institute of Population and Social Security Research

Note: The rate of change in the number of workers after 2020 is the average annual rate of change in the number of employees which was calculated based on the estimated future population (based on both birth and death at mid-level) and the outlook of employment rate (based on a scenario whereby employment rate for each age group and gender stays at 2019 level).

Change in Shape of Yield Curve

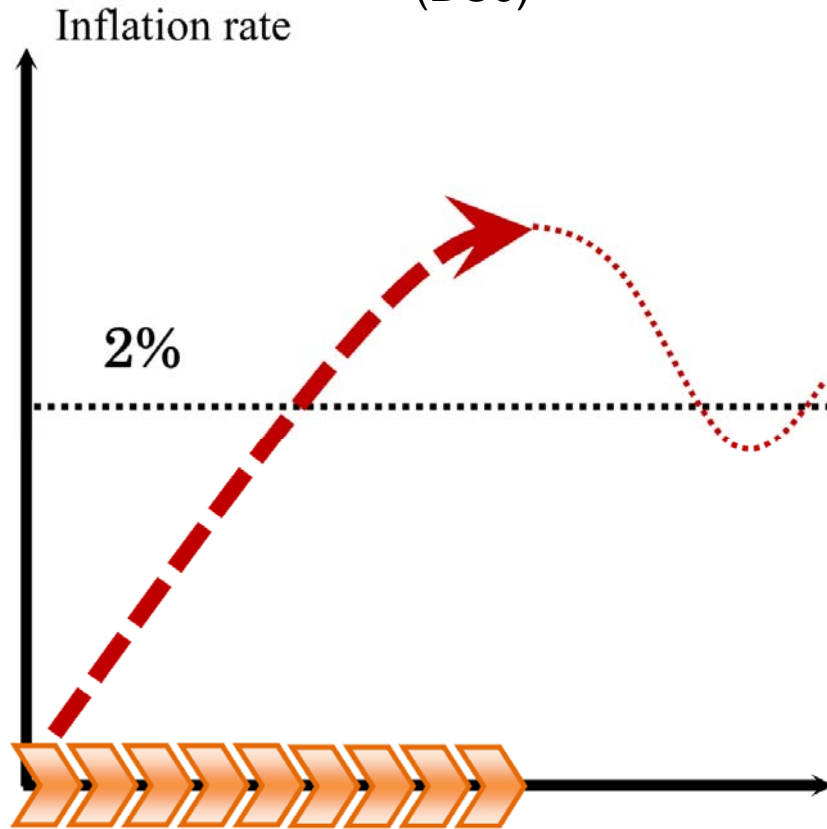


Source: Haver Analytics; compiled by DIR.

Inflation-overshooting Commitment (BOJ) and Average Inflation Targeting (Fed)

Targeting (Fed)

Inflation-overshooting Commitment (BOJ)

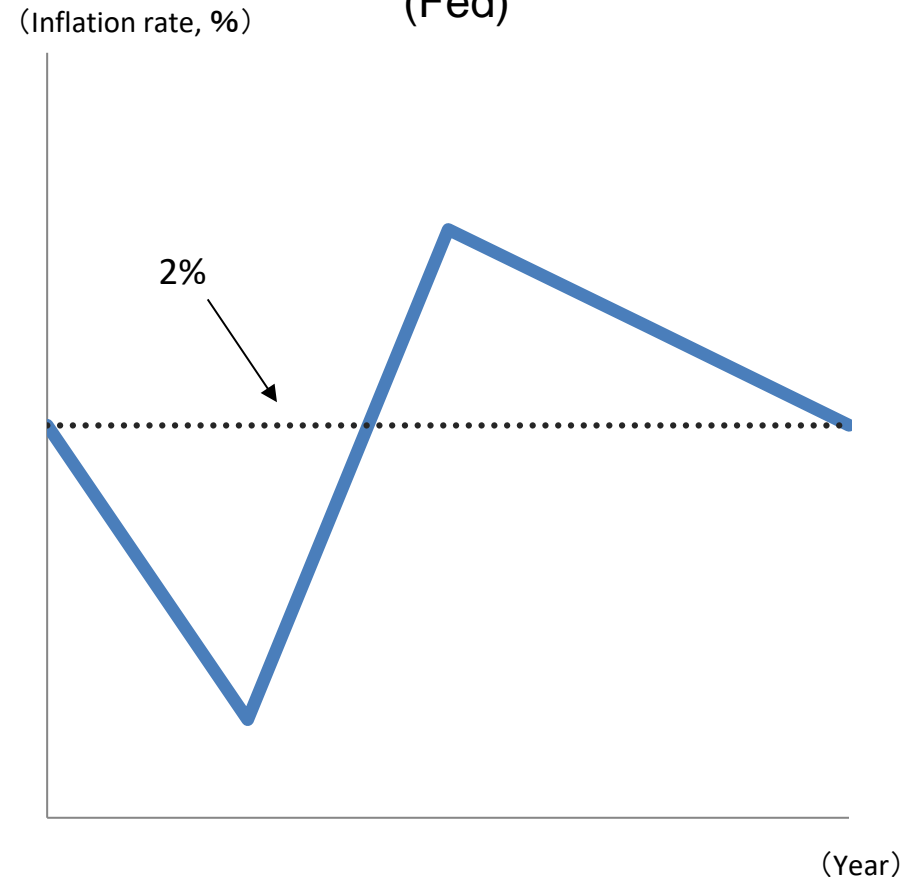


Expansion of monetary base continues

BOJ will continue expanding its monetary base until the year-on-year rate of increase in the observed CPI exceeds 2 percent and stays above that level in a stable manner.

Source: Bank of Japan; compiled by DIR.

Average Inflation Targeting (Fed)



“Following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time.”

Source: Fed; compiled by DIR.

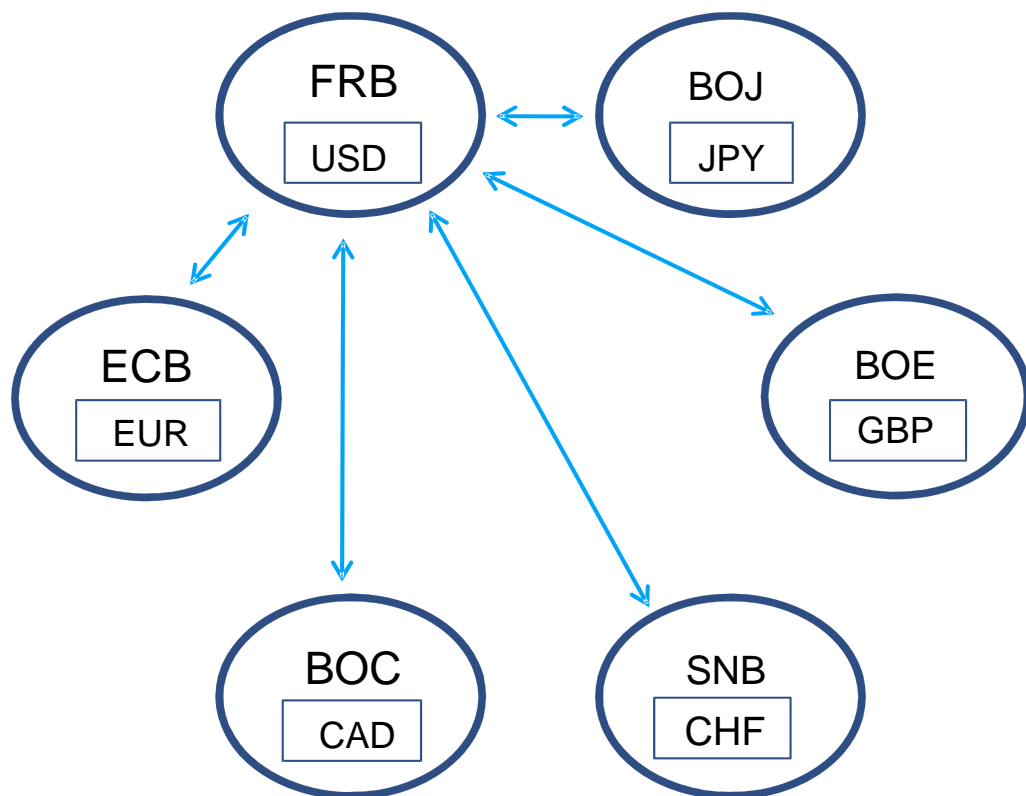
New Lender of Last Resort

| New LLR | Example |
|---|--|
| MMLR (Market Maker of Last Resort) | (ECB) Temporary asset purchase programme of private and public sector securities. (Fed) Outright Purchases of CP, Corporate Bonds, and Government bonds. (BOJ) Outright Purchases of CP and Corporate Bonds |
| GLLR (Global Lender of Last Resort) | Central Bank Dollar Liquidity Swap Line |
| ELLR (Expanded Lender of Last Resort) | (ECB) TLTRO III, PELTRO (Fed) Main Street Lending Program (MSLP) (BOJ) Special Funds-Supplying Operations to Facilitate Financing in Response to the Novel Coronavirus (COVID-19) (BOE) Term Funding Scheme with additional incentives for SMEs (TFSME) |

Source: BOE, BOJ, Fed, ECB; compiled by DIR

Progress of Currency Swap Lines

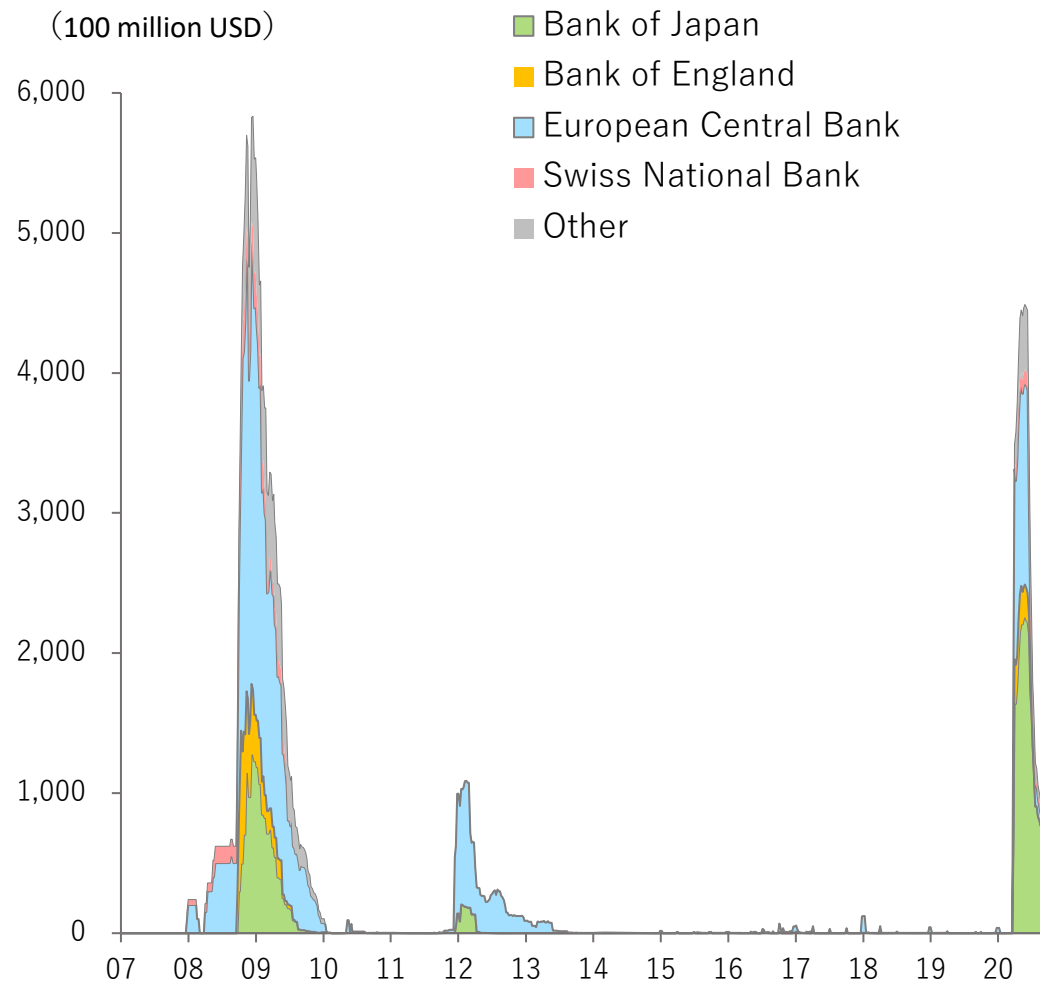
Aftermath of GFC



Source: DIR

Note: FRB: Federal Reserve, BOJ: Bank of Japan, ECB: European Central Bank, BOE: Bank of England, BOC: Bank of Canada, SNB: Swiss National Bank.

Transition of USD-Supply Outstanding in Major Countries



Source: NY Fed; compiled by DIR

Number of Deposit-taking Institutions

After Economic Bubble Burst

| | City Banks | Long-Term Credit Banks | Trust Banks | Subtotal | Regional Banks | Credit Unions | Credit Cooperatives | Total |
|----------------|------------|------------------------|-------------|----------|----------------|---------------|---------------------|-------|
| End FY1971 | 14 | 3 | 7 | 24 | 132 | 483 | 524 | 1,163 |
| End FY1989 | 13 | 3 | 16 | 32 | 132 | 454 | 415 | 1,069 |
| End FY2019 | 5 | 0 | 14 | 19 | 102 | 255 | 145 | 553 |
| Change | -8 | -3 | -2 | -13 | -30 | -199 | -270 | -516 |
| Rate of Change | -62% | -100% | -13% | -41% | -23% | -44% | -65% | -48% |

Source: Deposit Insurance Corporation Japan; Compiled by DIR.

Notes: 1) Subtotal is total of city banks, long-term credit banks, and trust banks.

2) Total includes other financial institutions.

Measures to Enhance Resilience of Regional Financial System

❑ Antimonopoly Special Provisions Law

Exempting mergers between regional banks from antimonopoly rules.

❑ Special Deposit Facility to Enhance the Resilience of the Regional Financial System

Eligible financial institutions that meet (i) To strengthen business foundations to a designated degree, or, (ii) To make an institutional decision on mergers, business integration, or certain forms of acquisitions toward strengthening business foundations shall be remunerated in excess reserve balances.

❑ Subsidy for regional financial institutions

Regional financial institutions who make decisions on mergers will receive subsidies from the government.

❑ Act on Special Measures for Strengthening Financial Functions

Encouraging regional banks affected by the impact of COVID-19 to request government capital injection by easing collateral conditions (e.g. those regional banks are exempted from the obligation of setting specific management goals with respect to improvement in profitability and efficiency).

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- In addition to the purchase price of a financial instrument, our company will collect a trading commission* for each transaction as agreed beforehand with you. Since commissions may be included in the purchase price or may not be charged for certain transactions, we recommend that you confirm the commission for each transaction. In some cases, our company also may charge a maximum of ¥ 2 million (including tax) per year as a standing proxy fee for our deposit of your securities, if you are a non-resident.
- For derivative and margin transactions etc., our company may require collateral or margin requirements in accordance with an agreement made beforehand with you. Ordinarily in such cases, the amount of the transaction will be in excess of the required collateral or margin requirements**.
- There is a risk that you will incur losses on your transactions due to changes in the market price of financial instruments based on fluctuations in interest rates, exchange rates, stock prices, real estate prices, commodity prices, and others. In addition, depending on the content of the transaction, the loss could exceed the amount of the collateral or margin requirements.
- There may be a difference between bid price etc. and ask price etc. of OTC derivatives handled by our company.
- Before engaging in any trading, please thoroughly confirm accounting and tax treatments regarding your trading in financial instruments with such experts as certified public accountants.

* The amount of the trading commission cannot be stated here in advance because it will be determined between our company and you based on current market conditions and the content of each transaction etc.

** The ratio of margin requirements etc. to the amount of the transaction cannot be stated here in advance because it will be determined between our company and you based on current market conditions and the content of each transaction etc.

When making an actual transaction, please be sure to carefully read the materials presented to you prior to the execution of agreement, and to take responsibility for your own decisions regarding the signing of the agreement with our company.

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