Analysis of the State of the Economic for Major Countries in 2020

- Based on Policy Response to COVID-19

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Summary

Ⅰ. Analysis Overview

■ **This analysis examines the status of economic for major countries in a situation where there is uncertainty about the resurgence of COVID-19 and the recovery of the global economy, and the domestic and foreign economies have greatly contracted.**

- The economic slowdown is notable in China, the origin of COVID-19, as well as countries where high value-added service industries play a major role, and countries with a high ratio of foreign trade to gross domestic product (GDP).
  - Restriction of movement during the COVID-19 pandemic has contracted not only consumption, investment, and export but also industrial production in countries around the world.
  - The National Assembly Budget Office forecast the 2020 growth rate of the South Korean economy as −1.6% (September 29, 2020).
- Fiscal and financial policies have been announced to mitigate the impact of COVID-19 on the global economy.
  - Unlimited quantitative easing and long-term loan programs are provided to alleviate anxiety in the financial market.
  - Despite the expansionary fiscal and monetary policy, economic activity has been significantly reduced due to movement restrictions, and major countries took a different stance on the speed of economic recovery.
- To accurately understand the domestic and international economic trends related to

COVID-19, it is necessary to systematically analyze key indicators showing the economic and financial conditions of major countries.

- We check the current status of domestic and foreign economies by monitoring key indicators and examine the economic impact of major countries' policy responses to COVID-19.

■ **Systematic review of the economic and financial indicators in major countries and analysis of related issues were conducted to gain insights into the future direction of the global economy.**

- Chapter Ⅱ is divided into the real environment and the financial environment to analyze short and long term trends and directions in the global economy and global financial market before and after COVID-19
  - Economic growth rates, global trade volumes, and consumer inflation rates are examined for the real environment.
  - Credit risks, bond markets, equity markets, foreign exchange markets, and commodity markets are compared to examine the financial environment.
- Chapters Ⅲ and Ⅳ review the short and long term trends of the global economy, the global financial market, and economic and financial indicators in major countries.
  - We examine the real economic indicators (economic growth rate, foreign trade indicators, employment, inflation) of three major developed countries (US, Japan, Germany) and four major emerging countries (China, India, Brazil, Russia).
  - We look at financial price variables, liquidity, net outflow of capital, external soundness indicators, etc. in three developed and four emerging countries to examine the financial environment.
  - We look at major countries' economic and financial policies against COVID-19 and identify key issues.
- Chapter Ⅴ includes quantitative analysis for international comparison, centered on

major economic policy-related issues (COVID-related policy response, monetary policy, and fiscal space in major countries).

- We compare the COVID-related response policies of major countries around the world, focusing on fiscal policy and policy to stabilize the financial market.
- We look at the policy interest rate trend in the first half of 2020 after the spread of COVID-19 and compare and analyze the interest rate spreads in line with the monetary easing policy and the velocity of money circulation in major countries.
- We examine changes in the fiscal space (the government’s ability to expand fiscal spending without jeopardizing debt sustainability) of major countries following their COVID-19 response policy.

Ⅱ. World Economic Environment

■ **Despite large-scale fiscal and monetary government policies to cope with the spread of COVID-19, the IMF forecast a sharp decline in the global economic growth rate in 2020.**

- (Economic growth rate) The world economic growth rate was expected to decline to -4.4%, down 7.2%p from the previous year.
  - The economic growth rate of developed countries was expected to fall from 1.7% in 2019 to -5.8% in 2020 and that of emerging countries from 3.7% in 2019 to -3.3% in 2020.
- (Global trade volume) The global trade volume growth was expected to decrease from 1.0% in 2019 to -10.4% in 2020 with the declining global economic growth rate due to the COVID-19 pandemic.
- (Consumer inflation rate) The consumer inflation rate of developed countries was projected to drop from 1.4% in 2019 to 0.8% in 2020, and that of emerging countries from 5.1% in 2019 to 5.0% in 2020 as oil prices and economic growth are expected to decline.

■ **Due to concerns over the economic downturn caused by the COVID-19 pandemic, 10-year government bond yields in major countries declined, the value of the US dollar and yen temporarily strengthened, and stock prices recovered after a sharp decline.**

- (Credit risk) Global credit risk indicators surged in the first quarter of 2020 but eased in the second quarter.
  - The corporate bond spread in the US rose from 195.3bp in the fourth quarter of 2019 to 394.1bp in the first quarter of 2020, but fell to 290.4bp in the second quarter.

- The emerging market bond spread rose from 277.4bp in the fourth quarter of 2019 to 577.0bp in the first quarter of 2020 but fell to 433.3bp in the second quarter.

- As capital looking for a safe haven flew into bonds in developed countries, the interest rates of 10-year government bonds in major countries declined.
  - The interest rate on 10-year government bonds in the US fell from 1.92% in the fourth quarter of 2019 to 0.67% in the first quarter of 2020 and 0.66% in the second quarter.
  - The 10-year Eurozone government bond yield dropped from -0.19% in the fourth quarter of 2019 to -0.47% in the first quarter of 2020 and -0.45% in the second quarter.
- (Equity market) Stock prices plunged in the first quarter of 2020 for a short period of time but rebounded in the second quarter thanks to expectations for economic recovery and quantitative easing.
  - The developed markets stock index (MSCI) declined from 2,358 in the fourth quarter of 2019 to 1,853 in the first quarter of 2020 but recovered to 2,202 in the second quarter of 2020.
  - The emerging markets stock index (MSCI) fell from 1,115 in the fourth quarter of 2019 to 849 in the first quarter of 2020 but rose to 995 in the second quarter of 2020.
- (Foreign exchange market) The value of the US dollar and yen showed strength but turned weaker as lockdown measures eased and expectations for economic recovery increased.
  - The dollar index rose 1.0% from 97.3 in the fourth quarter of 2019 to 98.3 in the second quarter of 2020.
  - The yen against the dollar appreciated from 108.6 in the fourth quarter of 2019 to 107.5 in the first quarter of 2020 but depreciated to 107.9 in the second quarter as economic indicators such as the Purchasing Managers' Index showed a slow

recovery.

– Exchange rates in major emerging economies depreciated due to a fall in commodity prices, global capital outflows to avoid risks, and an increase in the money supply.

- (Commodity market) Prices of non-ferrous metals, corn and soybeans excluding crude oil and iron ore fell due to sluggish demand during the COVID-19 pandemic while iron ore and wheat prices rose due to a decrease in supply.

– Oil prices (Dubai Crude) fell from $64 per barrel in December 2019 to $23 in April 2020 but recovered to $40 in June 2020.

– Aluminum prices dropped 14.7% from $1,757 per ton in the fourth quarter of 2019 to $1,498 in the second quarter of 2020, and corn prices fell 12.6% from $167 per ton in the fourth quarter of 2019 to $146 in the second quarter of 2020.

Ⅲ. Status of Advanced Economies

1. United States

■ **The US economy continued to grow after the financial crisis, but the economic growth rate fell sharply in 2020 due to the impact of COVID-19.**

- The US economy recorded an annual average growth rate of 2.5% from 2015 to 2019, but in 2020, the growth rate stood at 0.3% in the first quarter and -9.5% in the second quarter.
  - Private consumption in the US grew by 2.7% in 2018 and 2.4% in 2019, but the rate fell to 0.2% in the first quarter of 2020 and -10.7% in the second quarter.
  - The consumer price index also fell to the 0% level in the second quarter of 2020.
- US exports decreased to -0.6% in 2019 and -3.4 and -28.5% in the first and second quarters of 2020, respectively.
- The US employment indicator has deteriorated significantly in 2020.
  - The unemployment rate in the US rose from 3.7% in 2019 to 13.0% in the second quarter of 2020

■ **In the US financial market, stock prices and the dollar index showed a mixed trend, interest rates fell, and real estate prices rose.**

- US stock prices fell 20.0% in the first quarter of 2020 but rose 19.9% in the second quarter while the US dollar climbed 2.7% in the first quarter but fell 1.6% in the second quarter.
  - The US 10-year government bond yield fell from 1.9% at the end of 2019 to 0.7% in the second quarter of 2020.
  - Real estate prices rose 5.3% in 2019 and 5.7% in the first quarter of 2020.
- The year 2020 saw a big increase in the money supply (M2).

– The growth rate of the money supply was 6.7% in 2019, 7.9% in the first quarter of 2020, and 20.6% in the second quarter of 2020.

■ **Economic conditions of households, businesses, and the government have stabilized after the financial crisis but overall declined in 2020.**

- The net worth of US households, which had been on the rise, declined in 2020 while household disposable income increased due to emergency support from the government.
  – Meanwhile, household debt and mortgage loans are on the rise.
- US corporate profits have stabilized at the level of 2 trillion dollars since 2013, but profits in the first quarter of 2020 decreased by 6.7% year-on-year and 12.0% from the previous quarter.
- The ratio of government expenditure to GDP in the US stabilized at around 33% in 2016-2018 but expanded to 55.0% in the second quarter of 2020 due to COVID-19.
  – Meanwhile, the ratio of government debt to GDP in the US stabilized at around 135% in 2017-2019 but rose to 140.9% in the first quarter of 2020.

2. Japan

■ **The Japanese economy, which had grown since 2012, recorded negative (−) growth in 2020 for the second consecutive quarter due to COVID-19.**

- While the industrial production index in Japan has been on the decline since 2019, private consumption recorded negative (−) growth in the first and second quarters of 2020.
  – Japan's consumer price index grew at an annual average rate of 0.9% from 2013 to 2019, but the growth rate declined to 0.4% in the first quarter of 2020 and 0.1% in the second quarter.
- Japan's exports, which had been on a decline since 2019, decreased by 6.4% in the

first quarter of 2020 and 25.4% in the second quarter.

– However, the current account has been in surplus since the 2000s.

• Employment conditions in Japan have improved since 2010 but deteriorated in 2020.

– In 2020, the number of employed decreased amid rising unemployment rates.

■ **In the Japanese financial market, stock prices have recently shown a mixed trend, interest rates have stabilized at the 0% level, the yen has been strong, and real estate prices have risen.**

• Japanese stock prices fell 18.5% in the first quarter of 2020 but rose 11.1% in the second quarter with a mix of the negative effects of the COVID-19 outbreak and the positive effects of expansionary monetary policy.

– The value of the yen against the dollar rose 0.4% in the first quarter of 2020 and 0.9% in the second quarter, and housing prices were also up 11.5% and 5.8% in the first and second quarters of 2020, respectively.

• While the money supply continues to increase, the money supply growth rate expanded to 3.0% in the first quarter of 2020 and 5.3% in the second quarter.

– The ratio of foreign debt to GDP in Japan reached 84.2% at the end of 2019 but increased sharply in 2020, recording 93.7% in the first quarter.

■ **By economic entity, the conditions of households, companies, and the government in Japan overall declined.**

• Japan's household net assets and personal disposable income were on the rise but decreased in 2020 due to the impact of COVID-19.

– In the first quarter of 2020, the net assets of Japanese households decreased by 4.0% from the end of the previous year, and personal disposable income dropped by 0.3% YoY(Year on Year, hearafter YoY) and 0.1% from the end of the previous year.

- Non-financial corporate debt in Japan has declined since 2019.
  - The profit growth rate of non-financial companies in Japan was -3.6% in 2019, -28.4% YoY in the first quarter of 2020, and -14.3% compared to the end of the previous year.
- The ratio of the Japanese government's fiscal deficit to GDP declined from 9.8% in 2009 to 2.6% in 2018 but increased to 2.7% in the third quarter of 2019.
  - On the other hand, the ratio of government debt to GDP in Japan rose from 222.2% in 2017 to 225.3% in the third quarter of 2019.

3. Germany

■ **The German economy had shown solid growth after the global financial crisis, but the economic growth rate declined due to the recent impact of COVID-19.**

- Major global organizations forecast Germany's 2020 economic growth rate to be -6.3% due to COVID-19, US-China trade conflict, and Brexit.
  - Germany's economic growth rate in the first and second quarters of 2020 recorded -2.2% and -11.7% YoY, respectively.
- The industrial production index has declined since 2019, and the consumer inflation rate has been stable at around 1%.
  - The German industrial production index fell to 83.6 in the second quarter of 2020 due to the impact of COVID-19. It is a 19.1-point drop from the second quarter of 2019.
- German exports have increased overall since 2017 but declined recently.
  - The current account has remained in deficit since 2002, but product exports in the second quarter of 2020 decreased by 23.7% YoY due to COVID-19.
- Employment conditions in Germany continued to improve but have recently been slowed by COVID-19.

– The unemployment rate in the second quarter of 2020 was 6.0%, up 0.8%p YoY.

■ **Germany's stock prices have been mixed since 2017, interest rates have been at negative levels since 2019, the euro has continued to weaken, and real estate prices remain on the rise.**

- German stock prices were on the decline due to the 2008 financial crisis and the European financial crisis in 2011, then rebounded after 2018. They fell again due to the recent COVID-19 impact but are back on the recovery track.
  - German government bond yields have continued to decline since the third quarter of 2018 and remained at negative (-) levels since 2019.
- The money supply has continued to increase since 2010, and the ratio of foreign debt to GDP has declined overall since 2012.
  - In the second quarter of 2020, the growth rate of the money supply was 7.3%, and the ratio of foreign debt to GDP was 149%.

■ **By economic entity, German household and business conditions have improved, but fiscal conditions have deteriorated due to the recent COVID-19 outbreak.**

- German households' net assets and disposable income are on the rise, and households' financial liabilities and mortgage loans also continue to increase.
  - The net worth of German households increased from 2.53 trillion euros in 2008 to 4.59 trillion euros in 2019, and the household net worth was 4.45 trillion euros in the second quarter of 2020.
  - Household mortgage loans in Germany stood at 1.55 trillion euros in the second quarter of 2020, a YoY increase of 5.5%.
- German corporate profits, which had continued to rise, turned downward in 2020; non-financial corporate debt surged; private investment plummeted.
  - Profits of German companies increased from 553.3 billion euros in 2009 to 858.1

billion euros in 2019 but decreased by -8.5% YoY in the second quarter of 2020.

- Non-financial corporate debt, which has been on the rise since 2011, jumped by 11.5% YoY in the second quarter of 2020, marking the largest increase in the last 20 years.
- German private investment in real terms increased from 342.5 billion euros in 2013 to 409.0 billion euros in 2019, but fell 20.4% YoY to 81.2 billion euros in the second quarter of 2020.

• The ratio of fiscal balance to GDP continued to be in the black but recently turned to a deficit due to COVID-19.

- Government expenditures have decreased since 2012 but expanded to 92.3% in 2020.

■ **Private consumption in major developed countries significantly decreased in 2020 due to the impact of COVID-19, but individual disposable income varied by country due to differences in government policies.**

• US private consumption growth was up by 4.0% in the fourth quarter of 2019 YoY but posted 0.2% in the first quarter of 2020 and -10.7% in the second quarter.

- The growth rate of private consumption in Japan recorded -1.3% in the fourth quarter of 2019, -2.7% in the first quarter of 2020, and -11.1% in the second quarter of 2020 while Germany recorded 2.5%, -0.6%, and -11.7% during the same period, respectively.

• Personal disposable income in the US increased by 3.1% in the first quarter of 2020 and 12.1% in the second quarter from the same period last year due to the effect of disaster relief funds.

- The growth rate of personal disposable income in 2020 in Germany was 1.7% in the first quarter and -0.1% in the second quarter, and in Japan, it was 0.3% in the first quarter.

■ **Unemployment rates in major developed countries rose in 2020 due to COVID-19, but the rate of increase varied by country.**

- The unemployment rate in the US increased by 9.5%p from 3.5% in the fourth quarter of 2019 to 13.0% in the second quarter of 2020.
  - The unemployment rate in Japan rose 0.5%p from 2.3% in the fourth quarter of 2019 to 2.8% in the second quarter of 2020 while that of Germany climbed 1.0%p from 5.0% in the fourth quarter of 2019 to 6.0% in the second quarter of 2020.
- This is likely because countries have different industrial structures and employment security policies related to COVID-19.
  - As of 2019, the share of employment in the service industry was 82.1% in the US, 73.0% in Japan, and 74.5% in Germany. The share of employment in the manufacturing industry was 8.2% in the US, and 15.8% in Japan and 17.1% in Germany.
  - After the spread of COVID-19, major European countries including Germany have focused on maintaining employment such as shortening work hours and temporary leave for employment security while the US has focused on relieving the unemployed by providing unemployment benefits.

Ⅳ. Status of Emerging Economies

■ **In China, key economic indicators have deteriorated due to the recent trade conflict between the US and China as well as COVID-19 while internal fiscal soundness has also weakened.**

- While China saw a steady decline in economic growth due to the US-China trade conflict, the economic growth rate fell sharply due to COVID-19 in the first quarter of 2020 but rebounded in the second quarter.
  - China's economic growth rate fell sharply to -6.8% YoY in the first quarter of 2020, but the economic shock caused by COVID-19 was mitigated to 3.2% in the second quarter.
  - According to the average forecasts of major global organizations, the Chinese economy is expected to grow by 1.8% in 2020 and 8.0% in 2021.
- The People's Bank of China (PBOC) has maintained the one-year loan interest rate but continued to lower the Loan Prime Rate (LPR), which was introduced in August 2019.
  - In order to expand liquidity supply and stabilize the financial market in response to the COVID-19 outbreak, PBOC announced the LPR of 3.85% in April 2020, a 0.2%p cut from the previous month (4.05%).
- According to the IMF standards, China's internal and external macro soundness is good, but fiscal soundness has deteriorated due to worsening fiscal balance and increasing government debt.
  - The ratio of fiscal balance to GDP in China has been deteriorating since 2010, recording a deficit of -6.4% in 2019.
- At the National People's Congress, China announced that it actively implement fiscal policy and maintain monetary easing policy in response to COVID-19.
  - However, unlike previous years, China did not set an economic growth target for

2020 due to uncertainties in the external environment, such as the COVID-19 pandemic and the trade conflict with the US.

■ The Indian economy continued to grow rapidly until 2019, but key economic indicators deteriorated in 2020 due to COVID-19.

- India had continued to grow rapidly after the global financial crisis, but the economic growth rate fell sharply in the first and second quarters of 2020 due to the impact of COVID-19.
  - India's economic growth rate declined to 3.1% in the first quarter of 2020 and plummeted to -23.9% in the second quarter. Major international organizations projected India's economic growth rate in 2020 to be -3.2 to -4.5%.
- India's key economic indicators (industrial production, private consumption, unemployment rate, stock prices, etc.) deteriorated overall in 2020.
  - In the second quarter of 2020, the unemployment rate in India increased to 19.3%, and the industrial production index and the stock index decreased by 35.9% and 25.0% YoY, respectively.
- Based on the IMF vulnerability indicators, India appeared to have weak internal sector soundness due to the accumulated fiscal deficit and high government debt ratio, but its external soundness turned out to be okay.
  - India's fiscal balance to GDP ratio in 2019 was -7.4%, and the government debt ratio was 69.3%.

■ **Brazil had seen positive (+) growth since 2017, but the economy contracted significantly due to COVID-19 in 2020.**

- Brazil's economy recovered from the recession and grew 1.1-1.3% in 2017-2019, but the economic growth rate declined due to the COVID-19 pandemic in 2020.
  - Brazil's economic growth rate fell to -0.3% in the first quarter of 2020 and plunged to -11.4% in the second quarter. Major international organizations forecast Brazil's

economic growth rate to be −8.0 to -9.1% in 2020.

- In 2020, economic indicators in Brazil, such as industrial production, private consumption, and stock prices, deteriorated due to COVID-19, and the benchmark interest rate is at a record low.
  - In the second quarter of 2020, private consumption in Brazil decreased by 13.7% from the previous quarter, industrial production dropped by 19.4% YoY, and the benchmark interest rate was at an all-time low of 2.0% in August.
- Based on the IMF vulnerability indicators, Brazil has weak internal financial soundness, but its external soundness is good.
  - In 2019, Brazil's fiscal balance to GDP ratio was -6.0%, and the government debt ratio was 88.7%, exceeding the IMF standard.

■ **Russia has maintained its growth trend, but the economic growth rate slowed in 2019 and the growth rate declined due to COVID-19 in 2020.**

- The Russian economy had continued to grow, but due to the negative impact of COVID-19, it sharply declined in the first and second quarters of 2020.
  - Russia's economic growth rate fell to 1.6% in the first quarter of 2020 and -9.6% in the second quarter, and major international organizations projected the economic growth rate of Russia in 2020 to be -6.0 to -6.1%.
- In 2020, indicators such as industrial production, unemployment, and stock prices deteriorated in Russia, and the benchmark interest rate was at the lowest level since 2014.
  - In the second quarter of 2020, industrial production in Russia decreased by 8.5% YoY, and the stock index fell by 21.4% from the previous quarter. As of the second quarter of 2020, Russia's benchmark interest rate stood at 4.5%.
- Based on the IMF vulnerability indicators, Russia’s internal and external soundness are good.

- In 2019, Russia's inflation rate was 4.5%, the ratio of fiscal balance to GDP was 1.9%, and the government debt ratio was 14.6%, representing relative soundness compared to other emerging countries.

Ⅴ. International Comparative Analysis of Major Economic Policies

1. COVID-related Response Policies in Major Countries

■ **COVID-19 has spread worldwide since the WHO declared a pandemic on March 11, 2020.**

- The cumulative number of COVID-19 cases around the world exceeded 33 million as of September 30, 2020, and the daily number of confirmed cases subsided in April after a surge in March but increased again from May to around 300,000.

■ **As major countries around the world have implemented social distancing and economic stimulus measures in response to the spread of COVID-19, the level of government policy response has significantly increased.**

- Since January 2020, as countries have taken social distancing measures such as movement restrictions and business suspensions, the level of government policy response to COVID-19 has risen significantly around the world.
  - Oxford University has published the Government Response Index, which indicates the degree of social distancing and economic support, and the global index average surged from 9.1 in February 2020 to 70.6 in April.
  - However, since May, the Government Response Index has been decreasing as countries have eased social distancing measures.
- In response to the unusual economic crisis triggered by COVID-19 and social distancing, countries have taken prompt action by making full use of a mix of fiscal, monetary, and financial policies.
  - People around the world agree on the need for high-intensity policy measures to protect small businesses and support people’s livelihoods due to social distancing.
  - Governments directly handed out cash as a policy tool that is rarely used, provided tax support such as tax reduction and exemption from payment of social

security contributions, and implemented fiscal policies including loans for companies to maintain employment.

– Governments also implemented expansionary fiscal policy and eased monetary and financial policies to prevent credit crunch and stabilize financial markets.

■ **Developed countries actively used not only budgetary measures but also measures to provide liquidity such as loans, equity acquisitions, and guarantees through state-owned banks and companies.**

- According to the IMF (as of June 2020), the scale of budgetary measures in developed countries accounted for 8.8% of GDP, and non-budgetary measures accounted for 10.9%.
- In developing countries, budgetary measures accounted for 3.1% of GDP, and non-budgetary measures accounted for 2.0%.

■ **Unprecedented fiscal and monetary policies in response to the crisis increased flexibility in existing fiscal rules, monetary policy stance, and financial supervisory standards.**

- Europe made an exception to its existing fiscal soundness rule of having a budgetary deficit of no more than 3% of GDP and a rule of not providing subsidies to companies.
- Central banks of multiple countries also actively implemented liquidity supply policies, such as buying corporate bonds as well as government bonds and allowing unlimited purchases of bonds when necessary.
- After overcoming the COVID-19 crisis, it is also necessary to assess the risks of a sharp increase in fiscal deficit and the size of fiscal debt due to increased flexibility in fiscal rules and concerns about non-performing loans following eased monetary policies.

2. COVID-19 and Monetary Policy

■ **In the first half of 2020, policy interest rates fell markedly due to COVID-19.**

- As the volatility of capital flows between countries increases amid rising external uncertainty, major countries are striving to avoid the negative impact on their economy.
  - A shift in monetary policy is the central bank's preemptive response to sluggish demand due to COVID-19 and a negative economic outlook.

■ **The low interest rate trend intensified in 2020 as major countries eased monetary policy to cope with the COVID-19 pandemic.**

- Since the beginning of 2020, long-term government bond yields in Japan and the eurozone have fallen sharply or turned negative (−) as major countries cut their benchmark interest rate and preferred safe assets.
  - 10-year government bond yields as of June 2020: Korea 1.37%, US 0.66%, Japan 0.03%, Germany -0.47%, France -0.12%, China 2.90%
- The spreads between 10-Year and 3-month yields and between 10-Year and 1-year yields widened in major countries due to their eased monetary policy to cope with COVID-19.
  - As of June 2020, the 10 year-3 month spread ranged from 0.10 to 0.73%p and the 10 year-1 year spread ranged from 0.09 to 0.67%p in major countries.

■ **After the global financial crisis, the rate of money circulation in major countries has continued to decrease while the rate of increase in the money supply surged in 2020 compared to the previous year.**

- In the process of responding to COVID-19, the growth rate of the broad money (M2) surged in 2020 compared to the previous year.
  - As of June 2020, the YoY growth rate of the money supply (M2) was 10.0% in

Korea, 20.6% in the US, 5.3% in Japan, 11.0% in the UK, 7.2% in Germany, and 11.1% in China.

- Looking at the changes in the money multiplier by country, it decreased after an increase in the US, it continued to increase in China, it continued to decrease in Korea and Germany, and it increased after remaining at a certain level in Japan and the UK.
  - A decline in the money multiplier means that economic entities tend to hold more cash and the credit creation effect is slow.
  - As of June 2020, major countries' money multipliers (M2/M0) were 24.5 in Korea, 3.5 in the US, 10.3 in Japan, 22.9 in the UK, 3.1 for Germany, and 26.9 in China.
- After the global financial crisis, the rate of money circulation in major countries continues has continued to decrease.
  - A decrease in the money circulation rate means that the rate of currency rotation in the market declines and may affect the effectiveness of monetary policy.

■ **Asset purchases by central banks in countries are accelerating due to quantitative easing policies in which central banks purchase assets such as government bonds to supply liquidity to the market.**

- Central bank assets have increased significantly in major countries (US, Japan, Eurozone) that adopted quantitative easing policies.
  - As for the ratio of central bank assets to GDP, countries that sought quantitative easing showed a high increase rate of 200-400% in 2019 compared to 2006.
  - Looking at the central banks' balance sheet, as of the end of June 2020, their assets totaled 567 trillion won in South Korea, 7,165 trillion dollars in the US, 639 trillion yen in Japan, 6.236 trillion euros in Eurozone, 608.8 billion pounds in the UK (as of March 2019), and 37 trillion yuan in China.

3. Effective Interest Rate on Government Bonds in Major Countries

■ **As countries use fiscal policy more actively than in the past in responding to the economic crisis caused by COVID-19, discussions on fiscal space are underway.**

- Before COVID-19, there was a growing awareness that the interest burden on government debt decreased and the fiscal space increased as the effective interest rate on government bonds was lower than the economic growth rate in major countries.
  - Fiscal space is the capacity for the government to expand fiscal spending without weakening market economy functions and the sustainability of government debt
- As the economic growth rate fell sharply in 2020 due to the impact of COVID-19, major countries considerably increased fiscal spending, and market interest rates on governments dropped.
  - Looking at the ratio of budgetary measures to GDP compiled by the IMF (as of June 2020), it was about 8.8% in developed countries and about 3.1% in developing countries.
  - As of June 2020, the 10-year government bond yield declined to 1.37% in Korea, 0.66% in the US, 0.03% in Japan, -0.47% in Germany, and 2.90% in China compared to 2019.
- By estimating the effective interest rate of government bonds by country, we examined whether there is room for issuing government bonds for deficit financing without increasing the government debt ratio.
  - If the government debt ratio rises, it is difficult to keep the market interest rate low through monetary easing policy, and the effect of increased fiscal spending may be reduced.

■ **Changes in the government debt ratio and fiscal balance ratio have a negative (-) relationship.**

- Considering that the government debt ratio and fiscal balance ratio are the key indicators that determine fiscal space, we looked at changes in the two indicators in the last five years in major countries.

- We analyzed 30 countries among 36 OECD member countries that recorded nominal GDP of more than $100 billion in 2018 and six BRIICS countries.[1)]

- Over the past five years (2015-2019), the government debt ratio of major countries declined, mainly in Europe, and turned upward in the course of responding to COVID-19 in 2020.
  - The average government debt ratio of 36 countries over the past five years fell by −1.9%p from 71.2% in 2014 to 69.3% in 2019.
- Over the past five years (2015-2019), the fiscal balance ratio of major countries has increased slightly, mainly in Europe, and turned downward in the course of responding to COVID-19 in 2020.
  - The average fiscal balance ratio of 36 countries over the past five years increased by 1.0%p from -2.5% in 2014 to -1.6% in 2019.

■ **According to the average effective interest rate index for government bonds in major countries as of 2019, the government debt ratio could be lowered under a balanced fiscal policy.**

- Ghosh et al. (2013) estimated the response curve of primary balance to the government debt ratio and the effective interest payment, then estimated the fiscal space based on the relationship between the two.
  - Effective interest payment is calculated by multiplying the existing debt size by the effective interest rate on government bonds (interest payment rate minus economic growth rate).
  - Blanchard (2019) estimated the effective interest rate on US government bonds,

1) Seven OECD countries with a GDP of less than $100 billion in 2018 are Latvia, Luxembourg, Lithuania, Slovakia, Slovenia, Iceland, and Estonia, and the six BRIICS countries are South Africa, Russia, Brazil, India, Indonesia, and China.

indicating that the effective interest rate remained below the economic growth rate.

- As of 2019, out of the 36 countries analyzed, 32 countries had a negative effective interest rate on government bonds.
  - These countries have the capacity to temporarily expand fiscal spending as the government debt ratio may decrease over time if they maintain balanced fiscal performance.

■ **In the future, there will likely be considerable variation among countries in terms of the level of effective interest rate on government bonds and the direction and extent of change.**

- It is estimated that the effective interest rate on government bonds increased considerably in 2020 as the fiscal balance ratio fell and the government debt ratio rose while responding to COVID-19.
  - Before and after the COVID-19 outbreak, the number of countries with a negative effective interest rate on government bonds decreased from 32 to 4, and the effective interest rate on government bonds increased in those 4 countries.
- The level of effective interest rate on government bonds in these countries is expected to be greatly influenced by the speed and extent of recovery from the impact of COVID-19.
  - If the fiscal deficit is accompanied by an increase in the government bond interest rate, it is possible to maintain the existing effective interest rate level only when the economy grows to a sufficient level.
  - The future trend of the effective interest rate may vary depending on the economic growth rate, the market interest rate on government bonds, the maturity structure of government bonds, and tax incentives on the investment income of government bonds.
- Efforts are needed to lower the effective interest rate on government bonds by improving the economic growth rate and issuing government bonds.