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The Shifting Roles of Monetary and Fiscal Policy in Light of Covid-19

By Victoria Meyer and Jack Caporal

Introduction

The Covid-19 pandemic has drastically affected both the U.S. and the global economy. In February 2020, the U.S. unemployment rate was at near lows of 3.8 percent. By April, it reached 14.7 percent—nearly five percentage points higher than the peak of the Great Recession. While many of these unemployment claims were temporary, the economy is still in distress. In October 2020, 40 U.S. states either added fewer jobs than in August or lost jobs. The U.S. national rate of job growth in September and October was less than half its August rate. By January 2021, the economy had over 9 million fewer jobs than prior to the pandemic. Permanent job losses remained elevated in January at 3.5 million, 2.2 million more than the previous February. The labor force participation level was 1.9 percent lower than February 2020, indicating that individuals who left the workforce have not rejoined it. In terms of the global economy, the International Monetary Fund's (IMF) October 2020 World Economic Outlook predicted that the world real GDP would fall by 4.4 percent from 2019.

Over the past decade since the Great Recession, structural factors within developed countries and throughout the global economy have resulted in persistently low interest rates—leaving it unclear how central banks would successfully provide monetary stimulus when the next recession hit. When the pandemic and resulting economic crisis emerged, central banks and governments across the world immediately instituted widespread monetary and fiscal stimulus measures, not just limited changes in interest rates, as many believed that the pandemic was a short-term shock and economies would bounce back in a "V-shaped recovery." Much of the provided stimulus was meant to be short-term, with expiration dates and funding caps. However, as the pandemic continues to wreak havoc well into 2021, some countries have amplified their stimulus programs and advanced their longer-term budget goals, while others have allowed politics to supersede needed stimulus. The varying degrees to which different economies have successfully achieved

cross-institutional cooperation between central banks and federal governments will likely determine both how countries emerge from the pandemic in the short term and countries' global competitiveness in the medium to long term.

This white paper aims to understand how varying economies have changed their monetary and fiscal policies to respond to the pandemic-induced economic crisis. Section II provides a background of the Federal Reserve's dual mandate, Section III outlines major monetary policy tools the Fed has used during U.S. recessions, and Section IV discusses recent changes in the Fed's monetary policy framework. Section V dives into variations in monetary and fiscal policy responses to the pandemic across several key economies: the United States, the European Union, Japan, and South Korea. Section VI explores the implications of the United States' response relative to other countries and how this presents a unique financial opportunity to invest in longer-term U.S. competitiveness.

History of the Federal Reserve's Dual Mandate

Although President Woodrow Wilson signed the Federal Reserve into existence in 1913, the central bank did not establish its dual mandate of price stability and maximum employment until well into its tenure. The Fed had set itself various goals as far back as the 1940s, but it was not until 1977 that the Federal Reserve **established its dual mandate**, which continues to guide monetary policy to this day. In late 1978, the Humphrey-Hawkins Act created clear inflation and employment objectives, even if they were non-binding: Within five years, unemployment should not exceed 4 percent, and inflation should be 3 percent or less. By 1988, inflation should be zero. These inflation targets, however, were not allowed to interfere with the established employment goals.

During the 1970s, the United States faced rampant inflation, reaching highs of more than 13 percent in 1980, with no apparent means of controlling it. In 1979, Paul Volcker became chairman of the Federal Reserve—an appointment that restructured the way the United States pursued economic policy. Taking an economic austerity approach, Volcker twice raised the federal funds rate (the interest rate set by the Federal Reserve) to nearly 20 percent. These rate hikes spurred recessions in 1980 and 1981–82 that ultimately crushed inflation and allowed the economy to "cool down" to acceptable levels. By 1983, inflation was roughly 3 percent. During this time, the Fed was criticized for favoring its inflation target rather than its employment target, and unemployment rose from roughly 7 percent to over 10 percent. However, Volcker's inflation crackdown ultimately resulted in a stable and favorable macroeconomic environment: Throughout the mid to late 1980s, the economy grew, unemployment dropped sharply, and inflation stabilized.

During the mid-1990s, some members of the Federal Open Market Committee (FOMC), the 12-member body that determines the direction of the Fed's monetary policy, called for the Fed to establish an explicit inflation target. It was not, however, until January 2012 that the FOMC set this target at 2 percent.

Major Monetary Policy Tools during U.S. Recessions

To achieve its goals, the Federal Reserve has several tools that it can use: discount rates, reserve requirements, open market operations (OMOs), interest on revenues, and quantitative easing (QE)—the latter emerging during the 2008 financial crisis. During Volcker's reign in the early 1980s, he modernized the use of interest rate changes to stabilize the economy. The federal funds rate has continued to be a vital tool for the Fed, but the interest rate has been on a steady decline since the 1980s (see Appendix 1). Prior to the Great Recession of 2008, the Federal Reserve began raising the federal funds rate to slow the ever-growing level of debt in the United States (see Appendix 2). Rates stabilized around 5.25 percent, leaving at least a little room for the Fed to lower rates to support the economy—as it quickly did once the housing bubble

burst and sent ripple effects throughout the financial and real economies. In December 2008, the Fed lowered rates to near-zero for the first time, where the rates stayed until the end of 2015.

However, the quick rate drop did not provide nearly enough monetary stimulus to support the economy. In 2008, with interest rates near zero, the Federal Reserve introduced quantitative easing, an unconventional monetary policy tool in which the Fed purchased trillions of dollars of government bonds and mortgage-backed securities (MBS). Between 2008 and 2015, over the course of three rounds of QE, the Fed's balance sheet increased fivefold from $900 billion to $4.5 trillion. The Fed aimed to pump liquidity into the economy; however, the impacts are certainly double-edged. According to a study coauthored by Wharton professor Itay Goldstein, the Fed's use of QE to purchase MBS unintentionally led to the crowding out of commercial and industrial (C&I) loans. The study's authors estimate that, for every dollar of additional MBS purchases under QE, additional C&I lending fell by 1.22 cents. This had real effects on the economy: The authors find that firms with relationships with the affected banks reduced investment by 12 cents for every dollar of additional MBS purchased under QE.

In 2015 and 2016, the economy appeared to be heating up. From 2016 to 2019, the Fed began slowly raising short-term interest rates for the first time in almost a decade (see Appendix 1). Rates reached a high of nearly 2.50 percent in the summer of 2019, as compared to highs of nearly 20 percent in the early 1980s. Meanwhile, quantitative easing tapered off. In 2018, the Fed started unloading some of the previously purchased long-term bonds onto the economy. During the second half of 2019, the Fed realized that the tightening was premature. Concerns over the trade war with China, coupled with other external factors, led the Fed to slowly lower rates and buy back a small amount of bonds. In March 2020, once the pandemic shook the economy, the Fed pursued an aggressive easing strategy: It quickly dropped rates from 1.50 percent to near-zero levels and increased its balance sheet from $4.3 trillion in the beginning of March 2020 to nearly $7.5 trillion by the end of January 2021 (see Appendix 3).

Recent Changes to the Federal Reserve's Monetary Policy Framework

In early 2019, the FOMC conducted an 18-month review of its monetary policy framework. It identified four key structural changes in the economy that warrant a change: (1) the decline in the neutral real interest rate (the rate associated with full employment and target inflation) and uncertainty about how the neutral rate will move in the future; (2) expectations of inflation and inflation staying persistently below the Fed's 2 percent target; (3) estimates of the natural unemployment rate falling to a 50-year low; and (4) monetary policy's diminishing effect on persistently low inflation, which was coinciding with low rates of unemployment. These structural changes reduced the effectiveness of the Fed's monetary policy framework before the pandemic, and the 2020 recession has further illustrated its inability to sufficiently stimulate a contracting economy through monetary policy alone.

On August 27, 2020, the Fed announced the unanimous approval of two major updates to its Statement on Longer-Run Goals and Monetary Policy Strategy. The first change is a new, "flexible form of average inflation targeting" in which the Fed will strive for a 2 percent average inflation target in the long term. This means that if inflation is persistently below 2 percent for a period, the Fed will temporarily allow inflation to run above 2 percent to compensate before tightening the economy. This change in framework implies that the FOMC will allow unemployment to fall below the estimated natural rate if inflation remains low. Following this meeting, a CNBC Fed Survey found that respondents did not predict an increase in interest rates until at least the end of 2023. Second, the Fed announced that, because maximum employment is a broad-based and inclusive goal, policy decisions will now be driven by the Fed's "assessments of the shortfalls of employment from its maximum level," rather than the original "deviations from its maximum level."

Variations in Monetary and Fiscal Policy Reponses to the Pandemic

THE UNITED STATES

The Fed's response to the pandemic-induced recession has differed from that in 2008, as the 2020 recession stemmed from an exogenous shock while the 2008 recession stemmed from endogenous factors within the financial and real estate systems. Additionally, in 2020 the Fed had much less room to use traditional interest rate reductions, as pre-recession rates in March 2020 were 3.75 percentage points lower than pre-recession rates in 2008. While the Fed was quick to lower rates to near-zero levels in March 2020, it also pursued a much more aggressive bond buy-back policy in 2020. As stated earlier, the Fed increased its balance sheet by almost $3 trillion throughout the pandemic, mostly through the purchase of U.S. Treasury securities and mortgage-backed securities (see Appendix 4). During the beginning of the pandemic, the prices of these securities were volatile, making it difficult for sellers to find enough buyers. By purchasing these assets, the Fed increased markets' liquidity, helping them run smoothly. These purchases also injected cash into the economy and increased the public's confidence in the Fed's ability to bolster important parts of the financial system. To support businesses and households more directly, the Fed also introduced temporary lending and funding facilities, including the Paycheck Protection Program (PPP) Liquidity Facility and the Main Street Lending Program. The PPP provides loans to small businesses so they can keep their workers on payroll, and the Main Street Lending Program supports lending to small and medium-sized businesses and nonprofit organizations that were in sound financial condition before the onset of the pandemic.

Following the Covid-19 outbreak, the unemployment rate rose by almost 10 percentage points, from 3.5 percent in February 2020 to 14.7 percent in April 2020. The Great Recession, in contrast, saw a peak unemployment rate of 10.0 percent in October 2009. Although the unemployment rate fell to 6.9 percent by October 2020, this was still nearly double the pre-pandemic rate. To support the temporary layoffs, the federal government approved the Coronavirus Aid, Relief, and Economic Security (CARES) Act at the end of March 2020. Through the act, the government provided a stimulus check of up to $1,200 to taxpayers, provided $250 billion to extend unemployment benefits, approved delayed payroll taxes, and expanded loan access and government funding. In a rare turn of events, the Fed has vocally expressed the need for further government action. In early October 2020, Fed chairman Jerome Powell called on the government to approve an additional stimulus package, stating that the risks of too much stimulus are much lower than the risks of not providing enough stimulus. Even though the short-term benefits of the CARES Act expired, with unemployment claims lasting much longer than anticipated, it took Congress until late December to agree on a second stimulus bill. The $900 billion second pandemic relief bill consisted of $600 stimulus checks; $300 weekly federal enhancement in unemployment benefits; extensions of two additional pandemic unemployment programs that were created in the CARES Act; a reopening of the Paycheck Protection Program for small businesses; $15 billion in grants for live venues, theaters, and museum operators; $82 billion in aid for schools and $10 billion for child care providers; rental assistance; nutrition assistance; vaccine and hospital funding; and payroll tax repayments. The act, however, did not provide any direct funding for state and local governments.

On February 5, the Senate backed President Biden's $1.9 trillion fiscal stimulus package, along with a slew of amendments. This third package is expected to be approved by the House and eventually become law through reconciliation.

The proposed package includes $160 billion for a national vaccination program, expanded testing, a public health jobs program, and other priorities to combat Covid-19; $350 billion for states and localities; $90 bil-

lion for small-business grants and loans; $170 billion to help reopen schools and support higher education institutions; $35 billion for housing assistance; $13 billion for federal nutrition programs; expanded and extended emergency paid leave for 106 million additional Americans; direct payments of up to $1,400 per person; a $400 dollar supplement to unemployment insurance, which would be extended through September; a minimum wage hike to $15 per hour; $40 billion to support childcare and an expanded child care tax credit; an expansion of the earned income tax credit; $1 billion for the Temporary Assistance for Needy Families (TANF) program; $4 billion for the Substance Abuse and Mental Health Services Administration and the Health Resources and Services Administration; $20 billion for veterans health services; and $800 million for federal programs that protect survivors of gender-based violence.

During its February 5 vote, the Senate backed a slew of non-binding amendments to the package barring "upper-income taxpayers" from receiving direct payments in favor of more targeted stimulus checks; barring undocumented immigrants from receiving stimulus money; barring any increase in the federal minimum wage; creating a new child allowance for low- and middle-income families; barring tax increases on small businesses during the pandemic; and establishing a fund to provide grants to restaurants and bars.

The pandemic has brought to light a unique and complicated relationship between the central bank and federal government. The two successfully introduced strong, coordinated monetary and fiscal support during the earliest phases of the pandemic. Some began to wonder whether this would mark a turning point in favor of the heterodox Modern Monetary Theory (MMT). MMT posits that the existence of unemployment shows the government is restricting the supply of money. By working with the central bank, the government could increase the supply of money until the economy reaches full employment, at which point the government should not continue increasing spending, as that will lead to inflation. If too much money is circulating, the government can tax some of it. MMT proponents argue that governments who create and print their own money are not at risk of runaway inflation. Rather than relying on either minimal changes in already-low interest rates or on the central bank purchasing financial assets from investors and corporations—with the hope that money will trickle down to those who need it the most—MMT allows the central government to provide direct and targeted stimulus. MMT critics are quick to point out that there are many concerns associated with trying to implement MMT, including the central government's political bias when directing the central bank; a lack of discipline to stop spending, which could cause inflation; the political impracticality of raising taxes; the important role of tax policy, which may be overlooked if tax money is repurposed to reduce the money supply; the risk of supply-side shocks that reduce economic growth while raising prices, because increasing taxes would worsen the economic slowdown and increase unemployment; the risk of worsening foreign debt, because printing money can depreciate domestic currency and make debt payments more expensive; and the risk of making foreign exchange markets volatile, because investors may be skeptical of MMT and could rush to sell their currency investments for other assets.

However, the joint monetary and fiscal response to the pandemic is not primarily regarded as an MMT approach. On March 26, 2020, Powell stated that the pandemic-induced recession differs from normal recessions, as there was nothing fundamentally wrong with the U.S. economy heading into March, adding that this required a unique monetary and fiscal response. Marek Kolar, an associate professor with Trine University's Ketner School of Business, claims that "the current stimulus strategy aims toward avoiding, or getting the economy out of a recession." This differs from MMT, whose proponents aim to create money as "a standard way of paying for a large share of government expenditures."

Even if the initial response could be viewed as a step toward MMT policy, the declining ability of the central bank and federal government to work together has revealed that cross-institutional cooperation

is difficult to implement, especially when political biases emerge. Despite the Fed's calls for cooperative action, on November 19, 2020, outgoing treasury secretary Steven Mnuchin announced that the Treasury would likely not extend several key lending programs—including ones that support corporate bonds and municipal debt markets and one that extends loans to midsize businesses. These programs expired at the end of 2020, and Treasury Secretary Janet Yellen has signaled that she will not revive them.

THE EUROPEAN CENTRAL BANK

The European Central Bank (ECB) has enacted several policies, many of which are similar to that of the Federal Reserve, to support the European Union during the pandemic. First, the ECB has kept borrowing affordable by maintaining rates at the zero bound (see Appendix 5a and 5b). However, rates have been near-zero for over five years, reducing the effectiveness of this stimulus. Second, the ECB is supporting access to credit for firms and households by increasing the amount of money that banks can borrow from the ECB and improving the ease with which banks can borrow to make loans. For example, the ECB has eased its standards for the collateral that banks give, temporarily expanded the list of assets that banks can use as collateral, and become less strict in how it determines these assets' values. Third, the ECB is ensuring short-term concerns do not prevent lending by offering immediate borrowing options at favorable rates. Fourth, the ECB is increasing banks' lending capacity by temporarily lowering the amount of funds banks are required to hold as a buffer and giving them more flexibility regarding supervisory timelines, deadlines, and procedures. Fifth, the ECB is preserving financial stability through international cooperation: Because customers' demand for foreign currency assets can increase during times of uncertainty, the ECB has reactivated and enhanced existing currency swap lines with central banks across the world to ensure banks have enough foreign currency reserves on hand to meet increased demand.

Additionally, to help the economy absorb the shock of the current crisis, in March 2020 the ECB introduced a €750 billion ($909 billion) pandemic emergency purchase program (PEPP). Through the program, the ECB temporarily purchases public and private sector securities to lower borrowing costs and increase lending in the euro area. The ECB hopes to help citizens, firms, and governments access the funds they may need to weather the crisis, and the program complements the asset purchase programs that the ECB has implemented since 2014. In June 2020, the ECB extended the horizon for net purchases under the PEPP through the end of June 2021 and increased the PEPP budget by €600 billion ($728 billion). In December 2020, the ECB further increased the magnitude of the PEPP by €500 billion ($606 billion), for a total asset purchasing program of €1.85 trillion ($2.24 trillion). The ECB announced that the PEPP will continue until the "COVID-19 crisis phase" is judged to be over but will not end before March 2022 regardless. By the end of January 2021, the ECB's balance sheet had expanded to more than €7 trillion ($8.5 trillion) for the first time (see Appendix 6).

What makes the European Union's pandemic response unique is the coordinated and targeted efforts of the ECB and the European Union. In February 2021, the European Council approved a €1.824 trillion ($2.212 trillion) EU budget, which consists of a €1.074 trillion ($1.302 trillion) long-term budget for 2021–27, called the Multiannual Financial Framework (MFF), and a €750 billion ($909 billion) Covid-19 recovery package. This Next Generation EU (NGEU) package is funded by €390 billion ($473 billion) in grants and €360 billion ($437 billion) in loans. Breaking down the NGEU further, €672.5 billion ($815.5 billion) will be allocated through the Recovery and Resilience Facility (RRF), which is a new tool that provides member states with financial support to step up public investment and reforms following the pandemic. The RRF allows states to address the economic and social impact of the pandemic while pursuing green and digital transitions to become more sustainable and resilient. To receive RRF funding, member states must prepare national recovery and resiliency plans that set out their reform and investment agendas through 2026.

Seventy percent of grants provided by the RRF will be committed in 2021 and 2022, and the remaining 30 percent will be fully committed by the end of 2023.

Horizon Europe, the EU's framework for research and innovation, will receive €5 billion ($6 billion) of the NGEU budget. Its objectives include conducting basic and applied research as well as "missions" to tackle specific challenges, but there is growing concern that funding will be reshuffled to fight climate change and Covid-19—as well as conducting applied digital research, commercialization, and market uptake—at the expense of basic research. The NGEU is also allocating €5.6 billion ($6.8 billion) to the InvestEU Fund, which will act as a single EU investment support mechanism for internal action, replacing all financial instruments. InvestEU has a goal of supporting EU policy objectives, including the European Green Deal and "the digitalization transition," by mobilizing public and private investment to address market failures and sub-optimal investment situations that hamper the achievement of EU goals regarding sustainability, competitiveness, and inclusive growth. ReactEU, a crisis response and repair fund "based on the twin objectives of a green and digital transition," will receive €47.5 billion ($57.6 billion); the Rural Development Fund will receive €7.5 billion ($9.1 billion); the Just Transition Fund (JTF), which focuses on a transition to climate neutrality, will receive €10 billion ($12 billion); and €1.9 billion ($2.3 billion) will go to RescEU, which strengthens European preparedness for disasters (see Appendix 7).

THE BANK OF JAPAN

Japan's interest rates have been at near-zero levels for over two decades and negative for almost five years, leaving little room for traditional monetary stimulus measures (see Appendix 8). Bank of Japan (BOJ) governor Haruhiko Kuroda signaled that it would be years before interest rates rose at all. As a result, the BOJ instituted a Special Program to Support Financing in Response to the Novel Coronavirus, which was expanded to reach roughly 120 trillion yen ($1.2 trillion) in May 2020. The Special Program supports corporate financing by purchasing up to 20 trillion yen ($191 billion) in commercial paper and corporate bonds; this marks an increase in the upper limit for its purchases by 2 trillion yen ($19 billion). The program also includes the Special Funds-Supplying Operations, through which the BOJ can provide up to 100 trillion yen ($1 trillion) in favorable-term funds to financial institutions that make loans in response to the pandemic; the operation includes a scheme in which the government takes the credit risk while the BOJ provides liquidity, thereby supporting financing together.

The BOJ is also providing more U.S. dollars to enhance liquidity for Japanese banks and purchasing Japanese Government Bonds (JGBs) without limit to support its yield curve control policy, through which it is guiding short-term interest at –0.1 percent and the 10-year bond yield at around 0 percent. Finally, the BOJ doubled the target for net purchases of exchange-traded funds (ETFs) to 12 trillion yen ($115 billion) and increased purchases of Japanese Real Estate Investment Trusts to prevent volatility in financial markets that could undermine firms' and households' confidence. In terms of regulatory responses, the BOJ is delaying the full implementation of the finalized Basel III standards for mitigating liquidity risks by one year and, together with the Financial Services Agency of Japan, announced in April it would ease the leverage ratio requirement. On June 12, the Diet approved an amendment to the 2004 Act on Special Measures for Strengthening Financial Functions, extending the deadline for regional banks' applications to receive a government capital injection to March 31, 2026, providing relaxed application conditions for regional banks affected by Covid-19, and expanding the limit of government guarantees for these capital injections from 12 trillion yen to 15 trillion yen ($115–143 billion).

In terms of fiscal stimulus, the Japanese government enacted the Emergency Economic Measures to Cope with Covid-19, which consist of two packages totaling 234 trillion yen ($2.23 trillion). The first package

covers a one-time 100,000-yen ($954) cash payment to every resident of Japan, an additional allowance of 10,000 yen ($95) per child, emergency microcredit to troubled households, enhanced rent support for low-income households, reduction or exemption of social security contributions, cash payments to small and medium-sized enterprises (SMEs), and enhanced subsidies for paid leave. The second package includes 33 trillion yen ($315 billion) in direct spending, as well as higher medical spending, aid to firms struggling to pay rent, and additional corporate subsidies. The government increased financial assistance to firms from 45 trillion yen ($429 billion) in the initial package to 140 trillion ($1.34 trillion) in the second package by boosting interest-free lending and offering subordinate loans and supply of capital. Of the 11.5 trillion yen ($110 billion) set aside in reserve funds to fight the virus, about 7.8 trillion yen ($74 billion) remain. The costs will be funded by the issuance of an additional 31.9 trillion yen ($304 billion) in JGBs under the second supplementary budget for the fiscal year ending in March 2021.

In addition to the two Emergency Economic Measures to Cope with Covid-19 packages, the government of Japan announced a Comprehensive Economic Measures to Secure People's Lives and Livelihoods towards Relief and Hope package on December 8, 2020. The 73.6 trillion yen package ($698 billion) focuses on containing Covid-19, promoting structural change and post-pandemic economic growth, and securing disaster management safety and relief. Certain provisions provide incentives for companies to invest in digitization and green technologies. In total, annual government bond issuance will reach a record of 236 trillion yen ($2.24 trillion), and Japan's debt-to-GDP ratio has reached new highs (see Appendix 9).

SOUTH KOREA

The Bank of Korea (BOK) has taken several measures to provide monetary support during the pandemic. First, the BOK cut the base interest rate from 1.25 percent to a record low of 0.5 percent (see Appendix 10). In addition, the bank removed limits on funds available through OMOs, expanded the list of eligible OMO participants to include certain non-bank financial institutions, and expanded eligible OMO collateral to include bank bonds, certain bonds from public enterprises and agencies, and government-guaranteed securities issued by the Korea Housing Finance Corporation. The bank also eased collateral requirements for net settlements in the BOK payments system and purchased 6.0 trillion won ($5.4 billion) of Korean Treasury bonds, further committing in September to purchasing an additional 5.0 trillion won ($4.5 billion) in bonds by the end of 2020. Finally, to provide additional funding for SMEs, the BOK raised the cap on the Bank Intermediated Lending Support Facility by 18 trillion won ($16.3 billion) and lowered the interest rate from 0.5–0.75 percent to 0.25 percent.

In addition to traditional monetary policies, President Moon Jae-in announced a financial stabilization plan worth 100 trillion ($91 billion) to expand lending to companies of all sizes; purchase corporate bonds, commercial paper, and financial bonds; promote corporate bond issuance through collateralized bond obligations and direct bond purchases by public institutions; use stock finance loans, BOK repurchases, and refinancing support to provide short-term money market financing; and create an equity market stabilization fund. An additional package worth 25 trillion won ($23 billion) was approved on April 22, including allocating 10 trillion won ($9 billion) to purchase corporate bonds and commercial paper and an additional 10 trillion won ($9 billion) to lend to SMEs. The same day, a 40 trillion won ($36 billion) key industry stabilization fund was announced to support the airline, shipping, shipbuilding, automobile, general machinery, electric power, and communications sectors. This built upon an earlier package worth 36 trillion won ($33 billion), which increased trade credit and expanded trade insurance to support exporters.

The BOK has also expanded repurchasing operations and created lending programs for non-banks while temporarily easing loan-to-deposit ratios for banks and other financial institutions. Notably, the BOK

opened a bilateral swap line with the U.S. Federal Reserve for up to $60 billion in dollars, in addition to other foreign exchange policies.

In terms of fiscal response, South Korea passed a supplementary budget on March 17 that included an additional 10.9 trillion won ($9.9 billion) for "disease prevention and treatment, loans and guarantees for business affected, support for households affected, and support for local economies affected." A second supplementary budget was passed on April 30, which added 8 trillion won ($7.3 billion) to an emergency relief payment program providing transfers to households. A third supplementary budget was passed on July 3, which included an additional 35.1 trillion won ($31.8-billion) package consisting of a 11.4 trillion won ($10.3 billion) in revenue reduction and 23.7 trillion won ($21.5 billion) for "financial support for companies, expansion of employment and social safety, disease control, and spending on digital and green industries." Finally, a fourth supplementary budget for 2020 was approved on September 22, including 3.9 trillion won ($3.5 billion) for supporting SMEs, 1.5 trillion won ($1.4 billion) for employment support, 0.4 trillion won ($0.4 billion) for cash transfers to low-income households, and 2 trillion won ($1.8 billion) for daycare and similar services.

In addition to the supplementary budgets, President Moon successfully passed a "Korean New Deal" in July investing in digital and green sectors—36.4 trillion won ($33.0 billion) and 45.9 trillion won ($41.6 billion), respectively—and allocating an additional 17.8 trillion won ($16.1 billion) to employment safety nets. By 2025, an accumulated total of nearly 160 trillion won ($145 billion) will be invested, with 114.1 trillion won ($103.4 billion) in fiscal investment and another 45 trillion won ($40.8 billion) in corporate and local government investment. The deal is expected to create 1.9 million jobs by 2025 and to "create 230,000 energy-saving buildings, produce 1.13 million electric cars, invest in establishing more renewable energy projects to reduce the reliance on fossil fuels, and provide unemployment insurance to sustain the livelihoods of workers during the economic crisis."

Conclusion

Since the beginning of the Great Recession, the U.S. Federal Reserve, along with many other central banks across the world, has struggled to provide monetary stimulus through traditional changes to interest rates. Throughout the United States' historic expansion from mid-2009 to March 2020, inflation remained low, and the Fed was reluctant to raise rates and preemptively induce a recession. Persistently low interest rates and inflation caused fear that the Fed would have no tools to combat the next economic downturn. Global concerns regarding monetary policy tools were further exacerbated during the early 2010s, with the Eurozone hitting the lower bound of interest rates during the European debt crisis. Such problems already existed in Japan, which has been struggling with a long-term deflationary spiral since the late 1980s. These concerns proved to be valid in 2020, as central banks across developed countries were unable to provide large cuts to near-zero rates. However, central banks were able to use other tools, with large-scale lending programs playing an essential role in supporting small and medium-sized businesses and households.

In particular, the varying degrees to which different economies have achieved cross-institutional cooperation between central banks and federal governments will likely determine both how countries emerge from the pandemic-induced recession in the short term and countries' global competitiveness in the medium to long term. U.S. agencies' dwindling ability to cooperate and provide joint fiscal and monetary support means that further stimulus may be insufficient and even slow the speed of recovery, as Fed chairman Powell has predicted. The European Union and South Korea have both used the pandemic as an opportunity to increase fiscal spending to provide short-term stimulus, while at the same time advancing longer-term goals of digital transformation and setting global green standards. When the two economies

emerge from the current recession, they will have already established a budget allocation for programs that will boost EU and South Korean competitiveness at the expense of other countries, such as the United States. In contrast, Japan has used a combined monetary and fiscal policy for decades to combat its deflationary spiral, to no avail; the 2020 recession further adds to Japan's pre-existing trends. Despite the long-term structural impediments to Japan's economy, the government of Japan has followed the EU and South Korea's example, acknowledging the importance of investing in digitization and green technology in its latest Covid-19 relief package.

Given the current tension between the Federal Reserve, various government agencies, Democratic and Republican politicians—as well as concerns that such cooperation could snowball into MMT territory—it is unlikely that the United States will pursue a stimulus path similar to that of Europe or South Korea. On the other hand, with the Federal Reserve's new average-based inflation targeting, the United States will likely be able to withstand the current recession and avoid a deflationary trap like Japan's. However, a lesson can be learned from the European Union and South Korea, lending the United States a unique financial opportunity. Given the likelihood that interest rates will stay at near-zero levels in the short to medium term, the federal government can borrow more than usual to finance additional packages and plans without the fear of driving up interest rates, increasing the cost of borrowing, and crowding out non-government investments. Although the ever-increasing federal deficit must be considered and addressed in the longer term, Powell has **stated** that "the risk of overdoing [stimulus] is less than the risk of under doing it" and that now is not the time to focus on debt sustainability.

To take advantage of this unique opportunity, U.S. policymakers should first put their partisan biases aside and incorporate top economists' recommendations to prioritize passing a stimulus package that sufficiently supports vulnerable businesses and populations, starting with the $1.9 trillion package that is currently working its way through Congress. While certainly not perfect, the proposed package may help prevent the United States from going further into a recession despite the continuous rise in Covid-19 cases. U.S. policymakers also need to address the fact that competitors and allies alike keep investing in long-term productivity initiatives. The United States should identify key areas that will define its international competitiveness—such as digital technology and green initiatives—and use this period of near-zero rates to invest in the long-term development of education, innovation, and global standards setting. Covid-19 relief and the investment plans do not need to be bundled into one major stimulus package, but prioritizing these two goals will allow the United States to overcome the economic crisis and boost its longer-term competitiveness. ■

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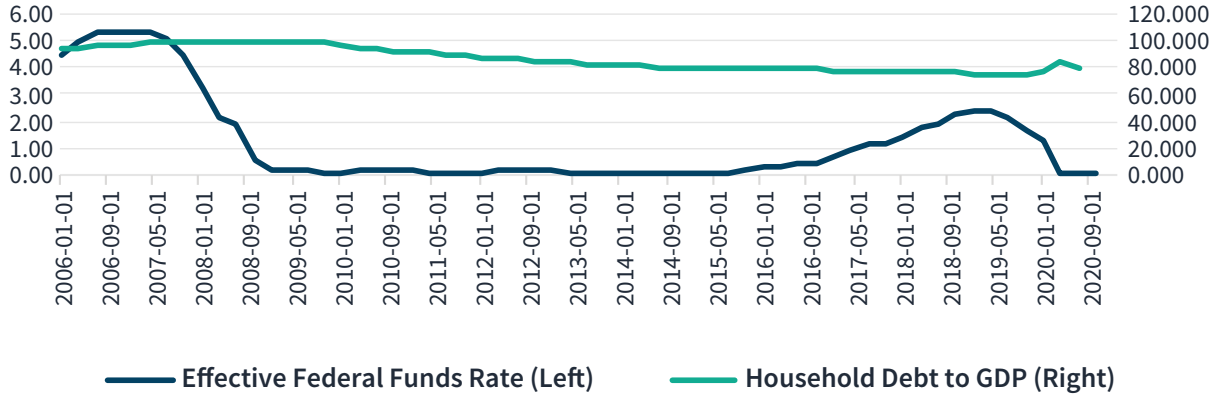
Appendix 1: Effective Federal Funds Rate

Source: Economic Research Division, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org.

Appendix 2: Effective Federal Funds Rate and Household Debt to GDP

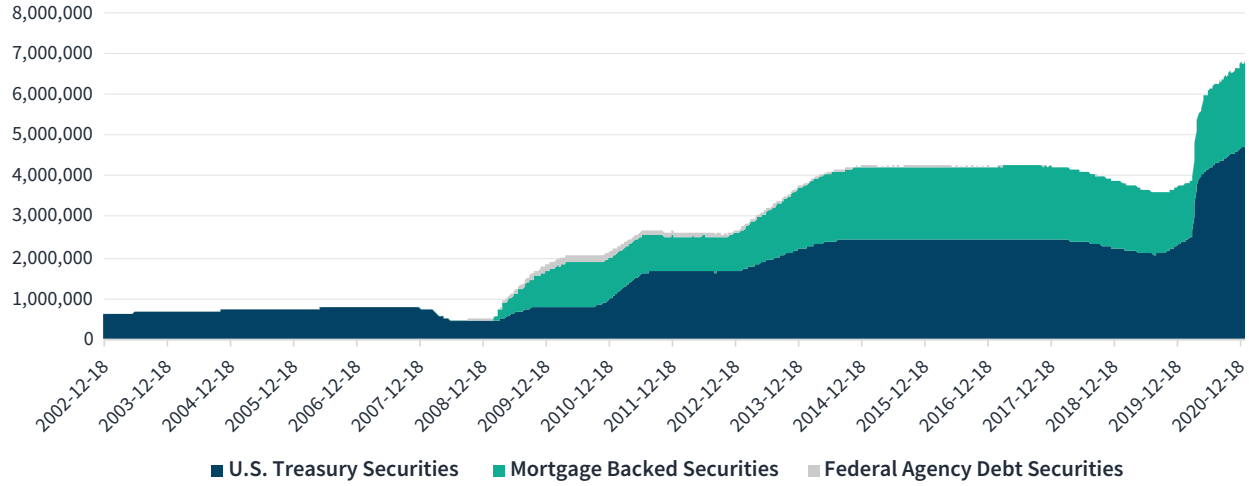


Source: Economic Research Division, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org.

Appendix 3: Total Value of the Assets of All Federal Reserve Banks

Source: Economic Research Division, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org.

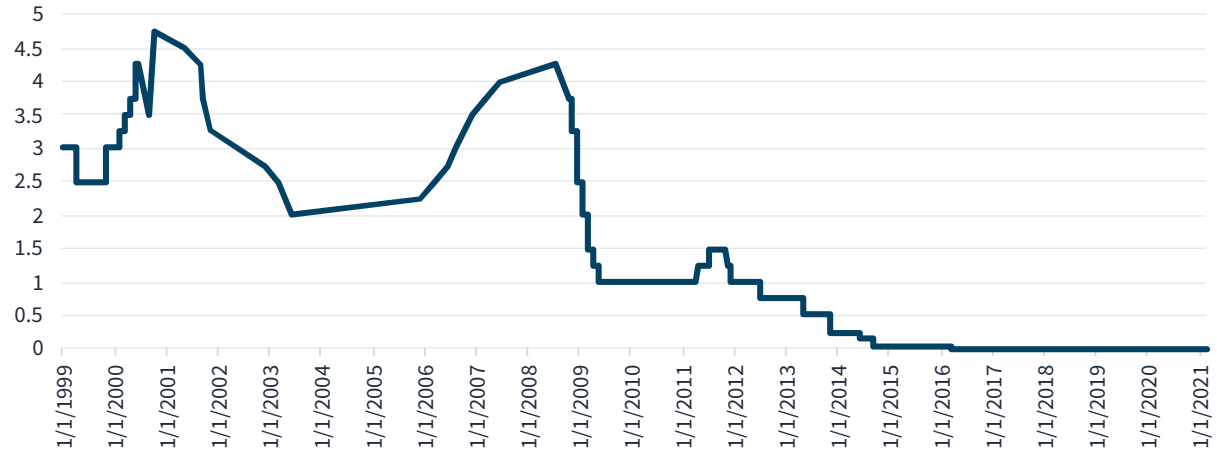
Appendix 4: Breakdown of the Federal Reserve's Balance Sheet



Note: This graph shows that the Fed's holdings of assets, including U.S. Treasury securities and mortgage-backed securities, have increased since mid-March 2020. The Fed has bought more of these securities to help these key markets function smoothly.

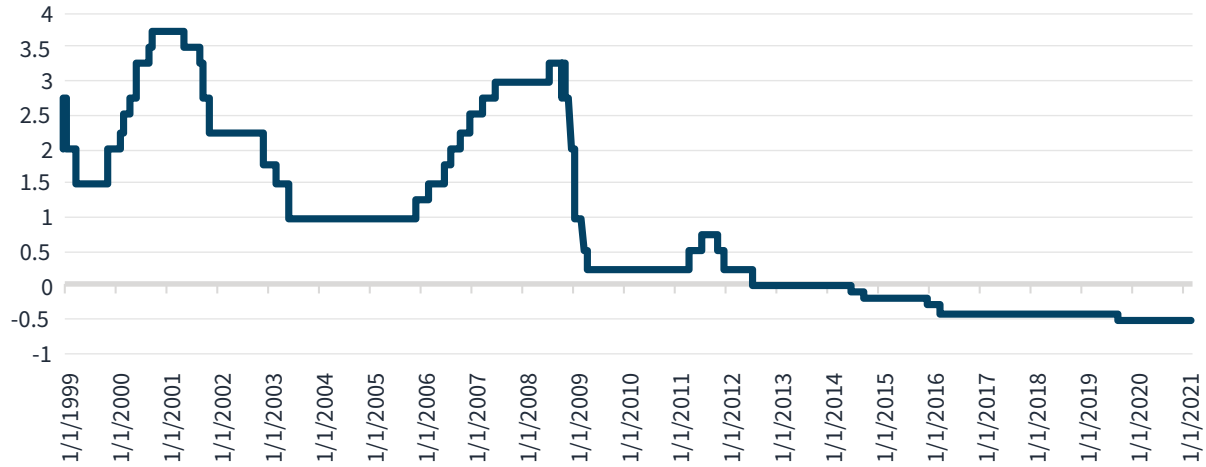
Source: Economic Research Division, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org.

Appendix 5a: Euro Area ECB Interest Rate, Main Refinancing Operations



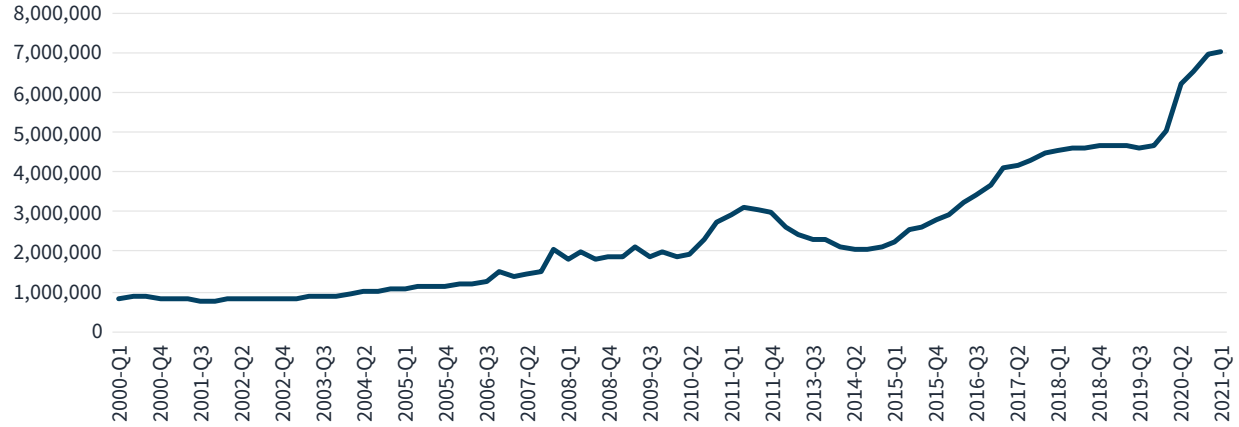
Source: "ECB Main refinancing operations – fixed rate tenders (fixed rate) (date of changes) – Level," Statistical Data Warehouse, European Central Bank, https://sdw.ecb.europa.eu/quickview.do?org.apache.struts.taglib.html.TOKEN=8d333a3127ddddf85179f69bb6885b34&SERIES_KEY=143.FM.D.U2.EUR.4F.KR.MRR_FR.LEV&start=&end=&submitOptions.x=0&submitOptions.y=0&trans=N.

Appendix 5b: Euro Area ECB Deposit Facility Interest Rate



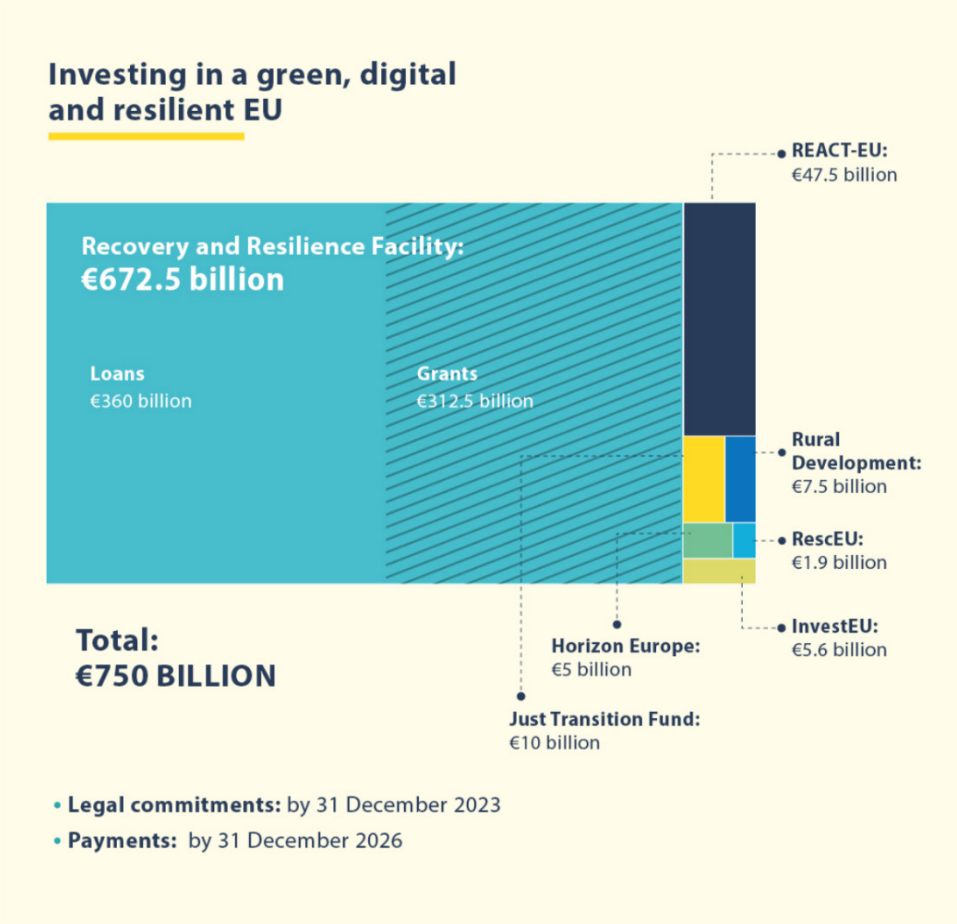
Source: "ECB Deposit facility – date of change (raw data) – Level," Statsitical Data Warehouse, European Central Bank, https://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=143.FM.D.U2.EUR.4F.KR.DFR.LEV.

Appendix 6: Euro Area Central Bank Balance Sheet (in Thousands of Euros)



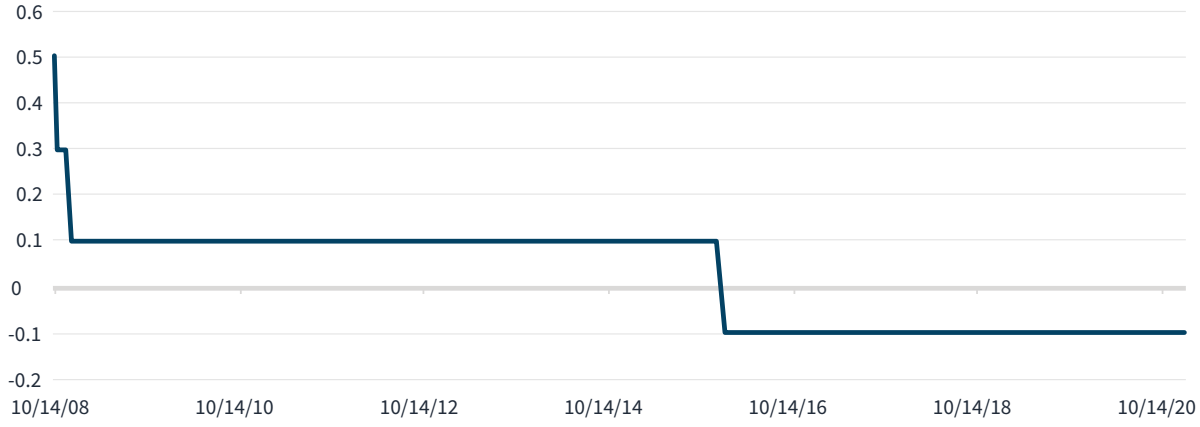
Source: "Total assets/liabilities – Eurosystem," Statistical Data Warehouse, European Central Bank, https://sdw.ecb.europa.eu/quickview.do?org.apache.struts.taglib.html.TOKEN=acd55bec83159e3e8bc480093b804445&SERIES_KEY=123.ILM.W.U2.C.T000000.Z5.Z01&start=&end=&submitOptions.x=0&submitOptions.y=0&trans=QF.

Appendix 7: Next Generation EU Budget Breakdown



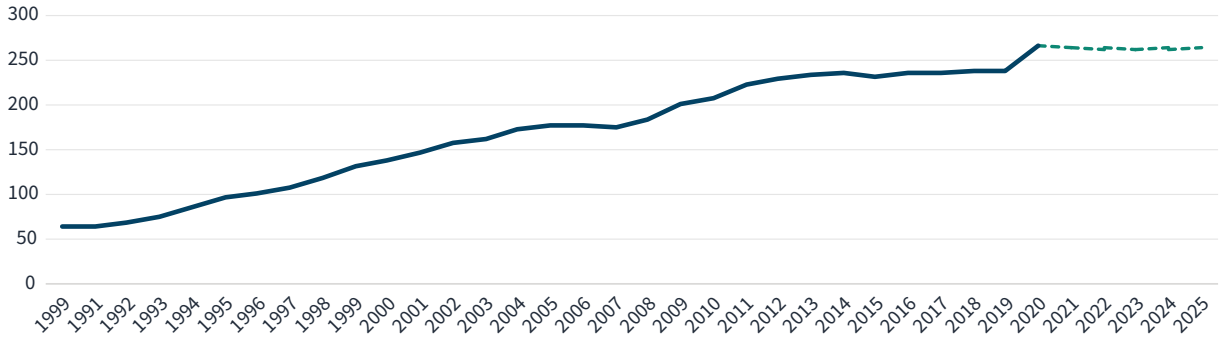
Source: "Infographic - Next Generation EU – COVID-19 recovery package," Council of the European Union, https://www.consilium.europa.eu/en/infographics/ngeu-covid-19-recovery-package/.

Appendix 8: Bank of Japan Interest Rates



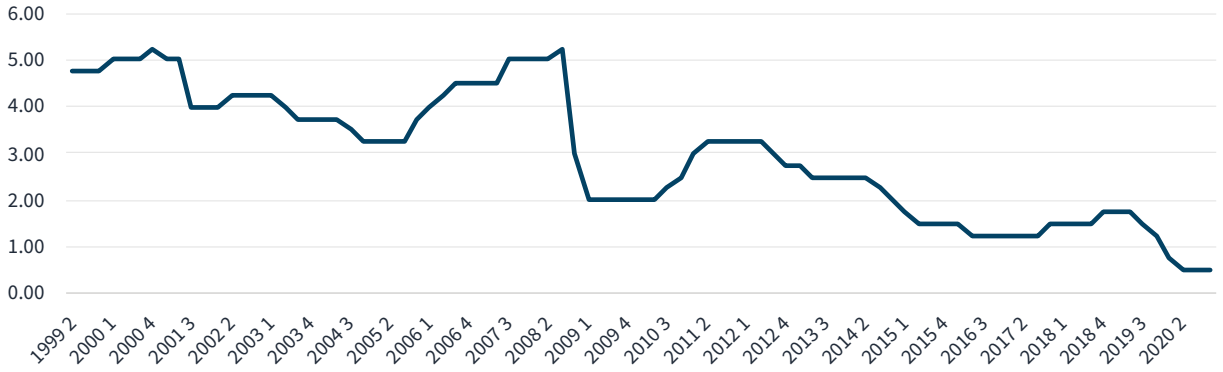
Source: Author's compilation based on numerous "Statements of Monetary Policy" from the Bank of Japan.

Appendix 9: Japan's Debt-to-GDP Ratio



Source: "Gross debt position," International Monetary Fund, https://www.imf.org/external/datamapper/G_XWDG_G01_GDP_PT@FM/JPN?year=2021.

Appendix 10: The Bank of Korea Interest Rates



Source: "The Bank of Korea Base Rate," Bank of Korea, https://www.bok.or.kr/eng/singl/baseRate/progress.do?dataSeCd=01&menuNo=400016.