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Japan's economy and government policies in the post-COVID-19 context

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ABSTRACT

This research article examines the Japanese government's support policies during the COVID-19 pandemic. The government implemented macroeconomic measures, including monetary and fiscal policies, to mitigate the pandemic's adverse effects and support economic recovery. While these policies achieved certain successes, the Japanese economy continues to face significant challenges, such as slow economic growth, a large budget deficit, and rising public debt, which threaten the long-term sustainability of public finances. Additionally, inflation has exceeded target levels, but workers' wages have stagnated, creating financial hardships for many households. Rapid population aging further undermines the sustainability of the social security system, placing additional pressure on public spending, monetary policies, and fiscal strategies. These challenges complicate Japan's efforts to sustain economic growth and uphold living standards.

1. Introduction

Pandemic conditions throughout the world are now over, and countries all over the world are now facing the consequences it brings. Businesses were severely affected due to closure or slow operation, leading to a significant reduction in resources (Fairlie and Fossen, 2021). In addition, difficulties caused by global inflation have led to countries implementing monetary tightening, significantly affecting economic recovery and development (Schäfer and Semmler, 2024). Supply chains were disrupted for a long time due to the impact of the pandemic. The economies have not fully recovered because of the businesses' limited production and supply capacity. The difficulties caused by the armed conflict between Russia and Ukraine since February 2022 have persisted to this day, leading to many consequences, like the energy crisis and a food crisis that threaten global food security due to sanctions from Europe and the US against Russia (Deng et al., 2022). Recently, the Middle East conflict between Israel and Hamas has been escalating and affecting not only the Gaza Strip but also spreading beyond the territory of Israel and Palestine. Geopolitical conflicts and battles among major countries to gain positions in economic and political fields have affected the recovery of the global economy (Saeed, 2025). Japan is the third largest economy in the world, and it has been a member of the G7 and G20 blocs for many years. This country is considered to have a strong economy and many competitive advantages in the fields of electronics, automobile industry, transportation, infrastructure construction, steel industry, textile, and garment. Bank of Japan also implemented monetary policy measures to achieve the inflation target and support liquidity for the economy with the QQE monetary easing program and the yield curve control policy. These policies have helped Japan achieve specific successes in adapting and recovering from the pandemic, and there are experiences for other countries to refer to in their policymaking.

2. Literature review and theoretical essential for economic development

2.1. Literature review

Ando et al. (2020) initially measured a prime concentration on infection control immediately. Hence, with the evolution of the situation, the focus has shifted because of the comprehensive measures attained. Kobayashi (2023) delivered suggestions concerning increasing the policy measures' effectiveness and stimulating economic growth. Many adverse effects occurred during the COVID-19 pandemic (Yoshino et al., 2020). Wang et al. (2024) analyzed and assessed the factors influencing the resilience of Vietnam's economy. These factors

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include (i) the stability of the macroeconomic environment, (ii) the efficiency of financial markets, (iii) the government's management and administrative capacity, (iv) social development, and (v) public support. The study concludes that maintaining macroeconomic stability and ensuring efficient financial markets are crucial for economic recovery following a crisis.

Chen et al. (2020) summarized the recent research on the effectiveness of the green investment stimulus of the American Recovery and Reinvestment Act on employment growth. Green investments are effective for workers who show the capacity for "green" skills. This study provides evidence that green and brown occupations require skills, including those at risk from COVID-19, to demonstrate that workers can benefit from pandemic-related green stimulus programs. In addition, the study provides evidence that training programs can support the transition to a green economy.

Fu et al. (2020) assessed that the pandemic has affected the global economy as well as China, affecting GDP growth, trade, and investment in the short term. China has implemented stimulus policies at both the central and local levels, resulting in signs of economic recovery in all sectors. The study proposed solutions such as digital transformation during and after the pandemic to help sustain digital economic growth in the short and long term. The development of science, technology, and innovation plays a vital role in controlling the pandemic, reproduction, business, work, and social life.

Sodokin et al. (2022) examined the macroeconomic transmission channels of African countries' post-pandemic economic recovery strategies as governments began to control the pandemic. The study found that African countries should adopt labor-friendly policies and increase wages, as wage growth has a positive impact on increasing gross domestic product; African countries need to create compelling social protection systems around wage distribution and social mobility. The study also found that macroeconomic performance can be enhanced through negotiations and agreements to protect wages, profits, and jobs; African countries have incentives through their relations with the European region, thus needing to increase trade activities with this region in the post-COVID-19 period.

Hung (2022) analyzed the current status of implementing support packages of countries during the period affected by the COVID-19 pandemic as well as the post-pandemic period, evaluating Vietnam's fiscal policies and make recommendations focusing on the need to flexibly adapt fiscal support packages to suit the developments of the pandemic and after the pandemic; Strengthen coordination of monetary policy and fiscal policy for ensuring the effectiveness; thoughtfully and effectively the implement issued support policies; accelerate the disbursement of public investment capital; Promote institutional reform, focusing on improving the investment and business environment, strongly attracting foreign investment, and mobilizing extra budget resources to restore the economy quickly.

Lewkowicz and Woźniak (2024) assessed that the COVID-19 pandemic hurt all aspects of socioeconomic life, business sectors were almost paralyzed, and countries, including Vietnam, had to focus resources on controlling the epidemic in the period 2020-2022. Faced with the adverse effects of the pandemic, the Government of Vietnam has had several policy responses, such as issuing support packages for people and businesses and making several recommendations for continuing policies to support people and businesses. Supportive fiscal and monetary policies were introduced, such as reduction, tax deferral, income support for workers who have lost their jobs; policies to stimulate aggregate demand through promoting public investment, and strengthening loose monetary policy and support solvency, interest reduction, and interest exemption for businesses to prevent the risk of bankruptcy.

2.2. Theoretical basis for economic development and the roles of the government

The Great Depression of 1929-1933 proved that the economic theories of the Classical and Neoclassical schools had limitations and were no longer appropriate. The theory that the Government does not intervene in the economy and that resources will be allocated by the market most effectively based on maximizing profits for individuals and organizations has revealed its shortcomings because of market defects. In that context, the theory of a state-regulated market economy appeared developed by economist John Maynard Keynes (1883-1946) with new arguments about state intervention to regulate the economy during periods of economic crisis to achieve economic stability and growth.

The main focus of Keynes' theory is the use of fiscal policy to impact the economy through savings from the budget, limit regular spending, and increase spending on public investment from regular savings and domestic and foreign debt. This theory was proven correct in the 1960s and 1970s in developing countries. However, it encountered significant challenges when the world economy fell into stagnation in the 1970s or when the economy grew strongly with tax cuts and tightening spending in the 1980s. Mainstream modern economic theory believes that a mixed economy with a balanced role of the State and the market is the optimal model, in which the State regulates the market through programs: Tax, spending, and policy and legal systems. Economic theory can have many different schools and viewpoints. However, they all affirm the role of the Government in macroeconomic regulation, in which fiscal policy is an essential tool and is vital to help the Government carry out this function. However, different dosages and implementation methods can have positive or negative consequences. Experience shows that market information is critical, and the timeliness of policies and the Government's ability to operate and adapt are essential factors determining the success of financial policy.

3. Background data

As in other countries worldwide, Japan faced heavy negative impacts from the pandemic during the COVID-19 outbreak in 2020. The economic growth rate turned negative (4.3% in fiscal year 2020). This growth rate is less severe than that of other European countries and the UK but worse than the world average as shown in Table 1 based on IMF.

This period witnessed a rapid decline in consumption and consumer confidence in 2020 (Fig. 1). The reason is that the Government has applied measures to prevent the spread of infection, such as declaring a State of Emergency. These actions were one of the causes of economic stagnation.

The employment rate dropped while unemployment rose gradually (2.8%). The COVID-19 pandemic has quickly caused job loss; unemployed people have increased by nearly one million, primarily concentrated in industries and sectors strongly affected by COVID-19 restrictions (food and beverage services, accommodation). Job losses were more severe for women, but employed people subsequently increased faster than men. Overall, the unemployment rate increased gradually from 2.5% before the pandemic to 3.1% in October 2020 (Fig. 2).

Table 1: Major economies' growth rates

	CY 2020	CY 2021	CY 2022	CY 2023 [Forecast]	CY 2024 [Forecast]
World	2.8	6.3	3.5	3.0	3.0
Advanced economies	4.2	5.4	2.7	1.5	1.4
United States	2.8	5.9	2.1	1.8	1.0
Euro area	6.1	5.3	3.5	0.9	1.5
United Kingdom	11.0	7.6	4.1	0.4	1.0
Japan	4.3	2.2	1.0	1.4	1.0
Emerging markets and developing economies	1.8	6.8	4.0	4.0	4.1
China	2.2	8.4	3.0	5.2	4.5
India	5.8	9.1	7.2	6.1	6.3
ASEAN5	4.4	4.0	5.5	4.6	4.5

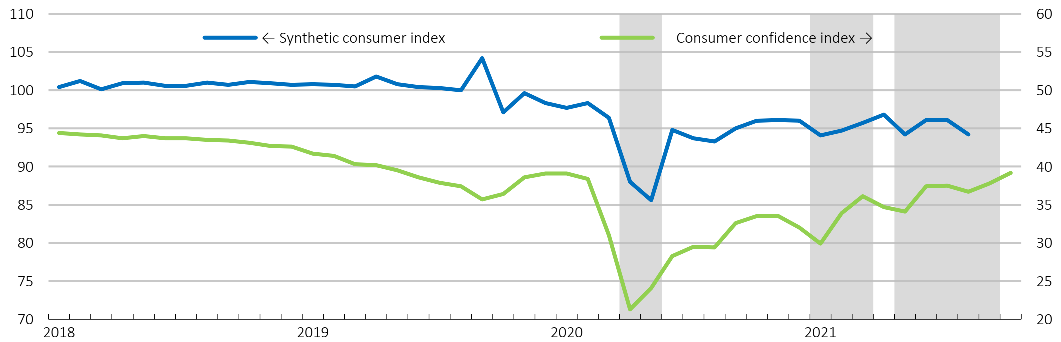
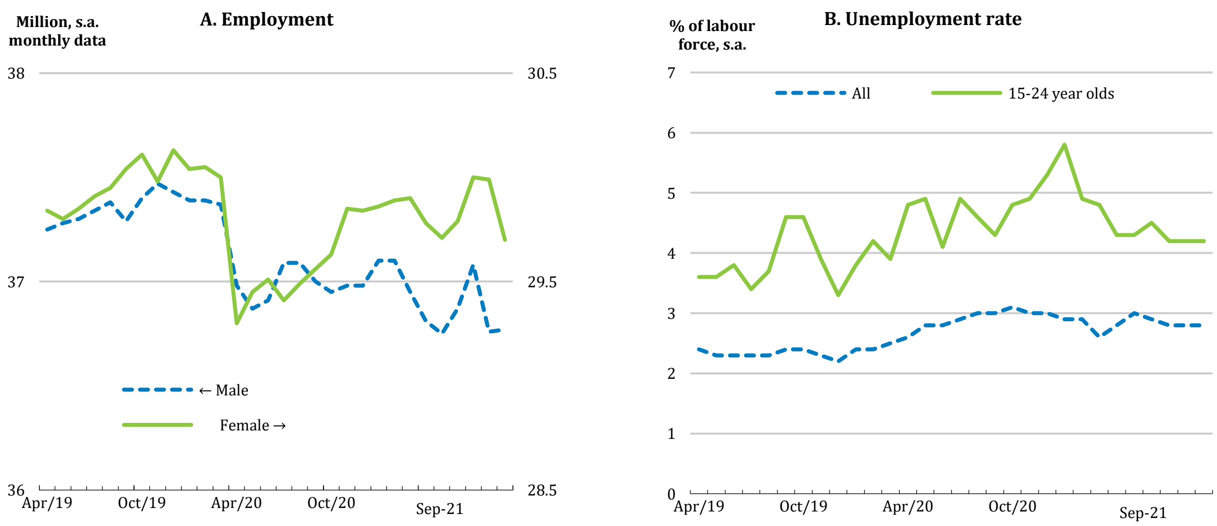


Fig. 1: Synthetic consumer index and Japanese consumer confidence index for 2018-2022 (OECD, 2021)



Note: s.a.: seasonally adjusted

Fig. 2: Employment decreased rapidly (A) while unemployment rose more gradually (B) (OECD, 2021)

Due to disruption in the supply chain, exports and imports of goods and services decreased to 11.97 % and 7.3% in 2020, respectively (Table 2). Another reason is the inventory shortage and intermediate goods, for example, in the automobile manufacturing industry, which reduced export output by 15% in August 2021. Total domestic demand decreased to 3.8% despite a 2.8% increase in public demand. The reason is that private consumption decreased by 5.8% in 2020.

Table 2: Fundamental indicators related to consumption and export of goods and services in 2018-2023 (OECD, 2023)

Year	2018	2019	2020	2021	2022	2023
	Current prices JPY trillion	Percentage changes, volume (2015 prices)				
Private consumption	305.0	0.3	5.8	1.3	4.2	1.7
Government consumption	108.9	1.9	2.8	2.7	1.1	1.7
Gross fixed capital formation	140.1	0.9	4.2	0.6	4.4	1.9
Final domestic demand	554.0	0.4	3.7	1.1	3.5	1.0
Stock building	2.0	0.0	0.1	0.2	0.1	0.0
Total domestic demand	556.1	0.5	3.8	1.0	3.6	1.0
Exports of goods and services	101.9	1.5	11.7	11.3	4.3	3.4
Imports of goods and services	101.8	1.0	7.3	6.0	4.9	2.6

Nonperforming loans appear, although they are high-lowered in countries such as Italy or France. However, this level is relatively high compared to other countries such as the US and European countries. Besides, the return on assets was low compared to Canada, the UK, and Germany (Fig. 3).

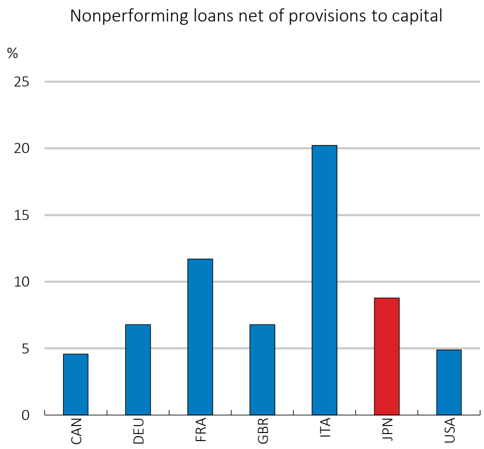


Fig. 3: Nonperforming loans of net provisions and return on assets compared with some countries in the world in 2020 (OECD, 2021)

4. Results and discussions

Japanese Government released support packages in many areas, both in monetary policy and fiscal policy.

4.1. Monetary policy

Since the end of 2019, the Bank of Japan has announced support packages through a series of monetary policies, specifically continuing to use QQE and Yield Curve control to maintain interest rates at a low level (short-term: 0.1%; 10-year government bonds yield around zero) and keep the Yield curve relatively flat. The BoJ provided funds through purchasing JGBs and US dollar funds provisioning activities and supplying operations. Many financial supports for businesses, such as providing special funds for COVID-19-related financial support, providing loans for private debt as a mortgage at 0% interest, and providing the upper limit for purchases of corporate bonds and commercial papers, are up to 2 million JPY. In order to cope with surging loan demands, BoJ continued to purchase JGBs without an upper limit and increased purchase of T-bills; purchased ETFs, JREITs, and corporate bonds—new funding for lending type measures; introduced an 'Interest Scheme to Promote Lending' and Climate Response Financing Operations.

4.2. Fiscal policy

The Japanese Government introduced two economic policy packages. The fiscal support packages during the epidemic period focus on supporting:

- During the COVID-19 pandemic: In the emergency phase, the Government focused on maintaining liquidity for enterprises, providing direct money subsidies to families, individuals, SMEs, and medical care and sanitary measures; provided health systems to prevent epidemics and lending to small and medium-sized businesses affected by epidemics; enhanced access to loans from local financial institutions. From there, these leading financial organizations supported lending to small and medium-sized enterprises (SMEs). Other

Government support was direct monetary support for small and medium-sized businesses affected by the pandemic, 100,000 JPY support for all residents, and security support for households, children, the elderly, and people who have lost their jobs.

- In the post-pandemic period: A new economic policy support package was issued in November 2021 for the 2021-2022 fiscal year with a total value of 78.9 trillion JPY (equivalent to 14.6% of annual GDP) of support measures. Supports focused more on supporting economic recovery and growth: Support for research and development (R&D) towards carbon neutrality, establishing subsidies for business restructuring, rebuilding the locality after the pandemic (Rural–Urban Digital Integration and Transformation), support for university funds (University Endowment Fund), and support for localities to develop digital technology, support for salary increases, human resource development, and human resource redistribution, along with vocational training and salary increases in the public sector; support to improve natural disaster management capacity and resilience with the Government's established goals in the five-year plan (fiscal year 2021-2025).

According to the IMF estimate, the discretionary fiscal response (additional spending and foregone revenues) to the COVID-19 crisis was 16.7% of GDP, on par with the average of advanced economies. In comparison, financial support was 28.3% of GDP, much higher than the average of advanced economies (Fig. 4).

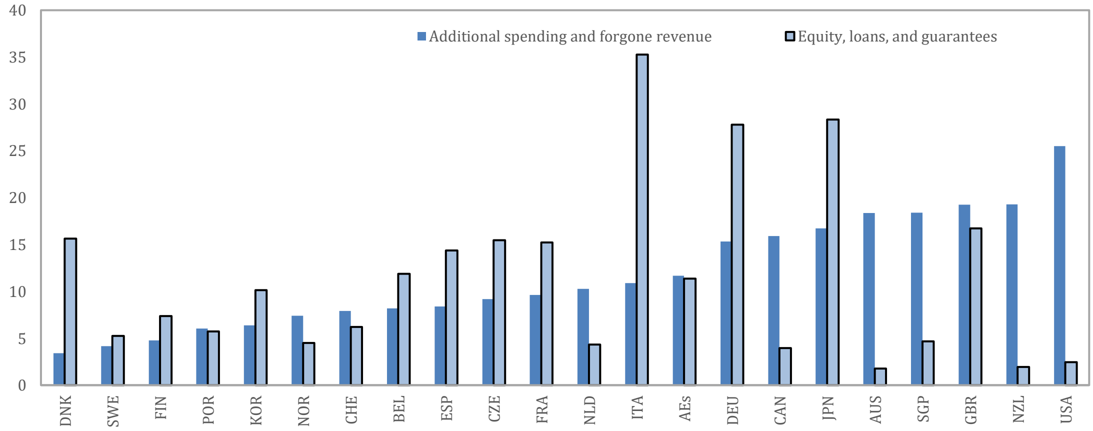
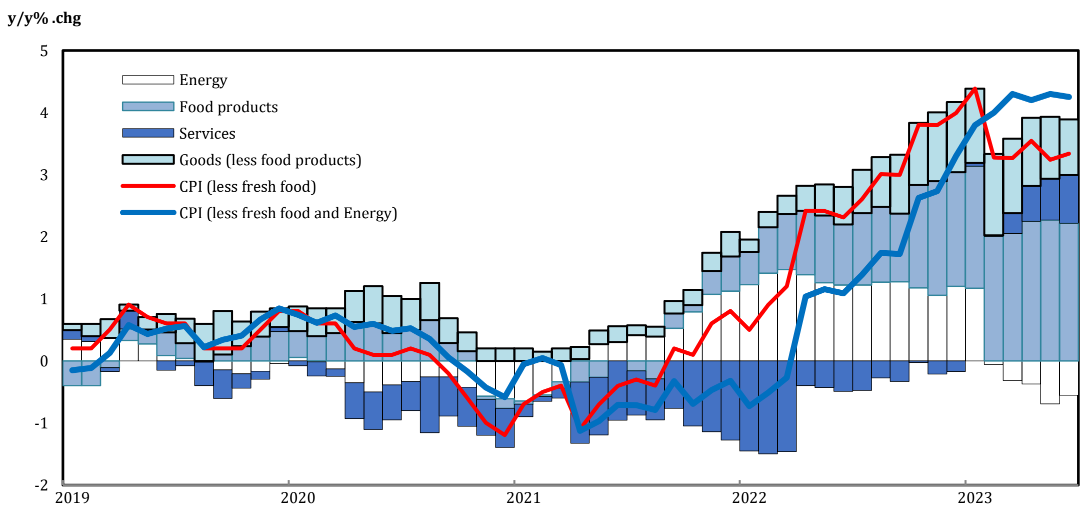


Fig. 4: Discretionary fiscal response to COVID-19 pandemic (%GDP): IMF database of fiscal policy responses to COVID-19 (IMF, 2021)

4.3. Some achievements

The economic growth rate recovered to 2.7% in the 2021 fiscal year and 1.4% in 2022, following a decline of 4.1% in 2020. The government projects a growth rate of 1.5% for the 2023 fiscal year. According to Pope (2023), Japan's inflation rate has been increasing since April 2022, despite a decline in energy prices, which had previously helped lower inflation in recent years (Fig. 5). This trend is expected to support the government in implementing economic development policies and may create opportunities to adjust its long-standing monetary easing policy, which has included negative interest rates and government bond yields near 0%.



Note: chg: change

Fig. 5: BoJ's forecasts for the PCI

Successfully protected jobs have allowed businesses to continue operating and avoid collapsing. The Government has provided Employment Adjustment Subsidies worth 833 billion JPY to support job protection for workers. Under certain conditions, companies can receive this support by paying a leave allowance instead of laying off workers. This leave allowance can be more than 60% of their daily salary. This support was considered quite generous as it covers most of the support for employees of small and medium-sized enterprises. In addition, the Government set aside 2,318 billion JPY to support small and medium-sized businesses to avoid facing closure. This amount would support businesses that have lost more than 50% of their revenue compared to the previous year before the pandemic. Small and medium-sized enterprises would receive a maximum of two million JPY. The procedure to receive these subsidies was quite convenient thanks to the simple process, and in just 15 days (from May 115, 2020), the number of aid applications reached 900,000 (Ando et al., 2020).

Monetary policy ensured ample liquidity for the financial sector and the economy. According to BoJ's assessment, the financial sector has better withstood the shock of the COVID-19 pandemic. Efforts to strengthen the financial system's capacity, giant banks after the great crisis in 2018, and this pandemic resilience test confirmed that the financial system could cope with future crises according to the Bank of Japan. The abundant capital of large financial institutions was equivalent to that of a large economy (Fig. 6), while bad debts remained relatively low.

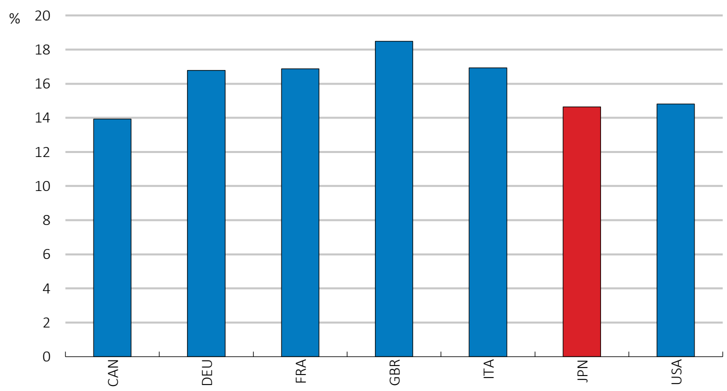


Fig. 6: Regulatory tier 1 capital to risk-weighted assets (OECD, 2021)

The unemployment rate remains relatively low (3.1% at the highest) compared with other countries. Thanks to the Government's support, businesses can retain workers by providing paid leave instead of firing workers.

Imports and exports have increased strongly since 2021 because the Government has relaxed restrictions due to the epidemic and promoted the vaccination process. Export activities have strongly supported economic recovery. Major export recovery came from East Asia and the US. The recovery of exports was faster than that of imports due to weak domestic consumption demand.

Bankruptcy numbers have fallen to their lowest level in many years. Emergency support measures were issued to prevent the wave of corporate bankruptcy, thanks to which only 7,773 businesses went bankrupt in 2020, a low record as shown in Fig. 7 based on Tokyo Shoko Research. Of these, one-tenth of bankrupt businesses were directly related to difficulties caused by the COVID-19 pandemic, such as hospitality and restaurant services.

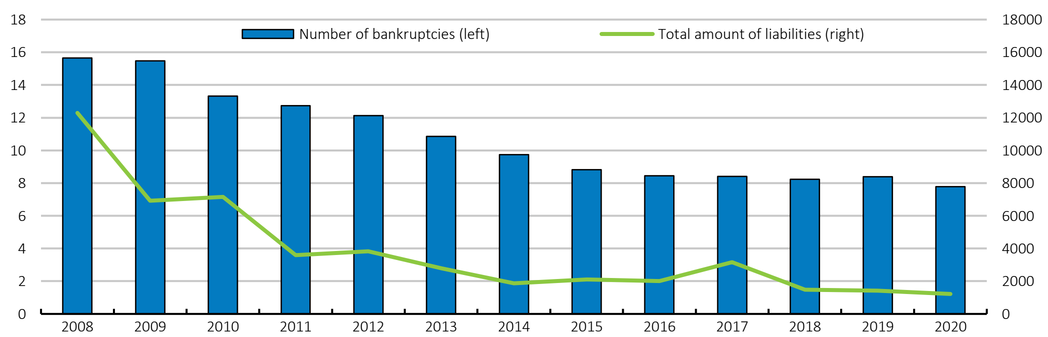


Fig. 7: The number of bankruptcies has fallen

Inbound tourism started to proliferate in late 2023. In recent years, tourist arrivals to Japan have increased rapidly, and with the relaxation of visa requirements and efforts to promote tourism, international visitors to Japan have quadrupled between 2010 and 2019 up to nearly 32 million, most visitors from China, Hong Kong and Korea (Fig. 8). However, due to the impact of the COVID-19 pandemic in line with entry restrictions, tourists in Japan had only 4 million people left in 2020 and remained low until 2021. However, as of the first nine months of 2023, tourists to Japan have increased sharply to 17.3 million visitors, nearly equivalent to 2019 (JNTO, 2023).

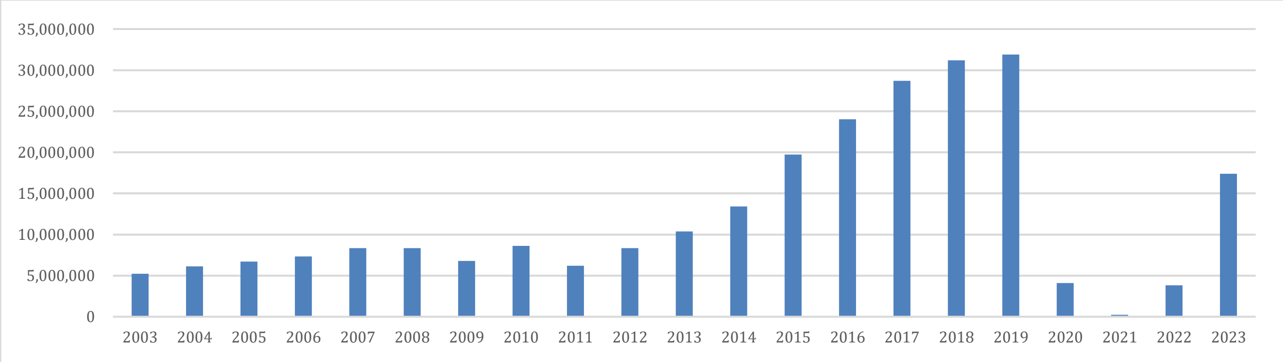


Fig. 8: The number of foreign tourists coming to Japan (JNTO, 2023)

4.4. Some factors threaten the recovery of the economy

The growth of the economy remains subdued. According to IMF calculations, in 2023, Japan's economic growth rate will reach 1.4%, and in 2024, it is expected to reach 1.0%. This increase is still meager compared to the world average growth rate of 3.0%. Increased export prices lead to inflation, sometimes exceeding 4% in early 2023, then gradually decreasing to 3% by the end of 2023. This level has exceeded the Bank of Japan's target inflation level as shown in Fig. 9 based on the Ministry of Finance of Japan.

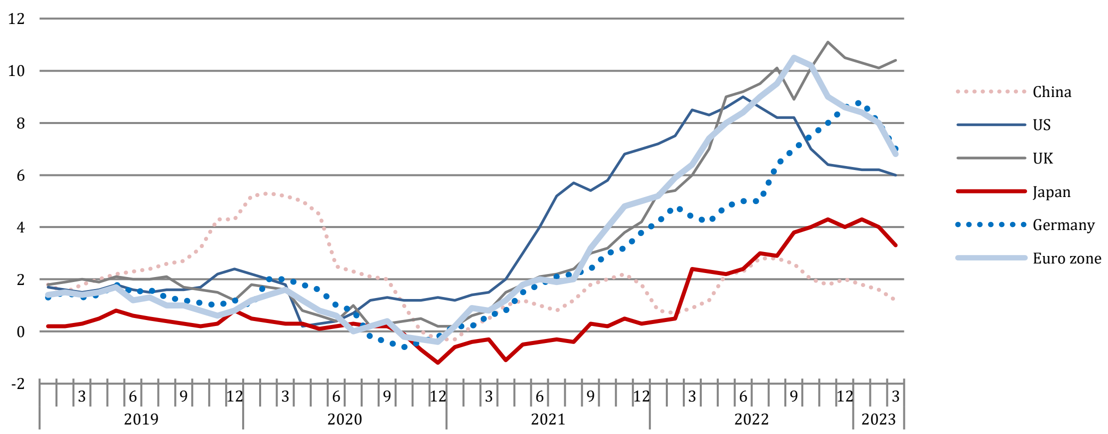


Fig. 9: Japan's inflation correlates with several countries and the European region

The general Government's financial balance dropped by 9.5 % of the GDP (deficit) in 2020, the highest level in a decade as shown in Fig. 10 based on the Ministry of Finance of Japan.

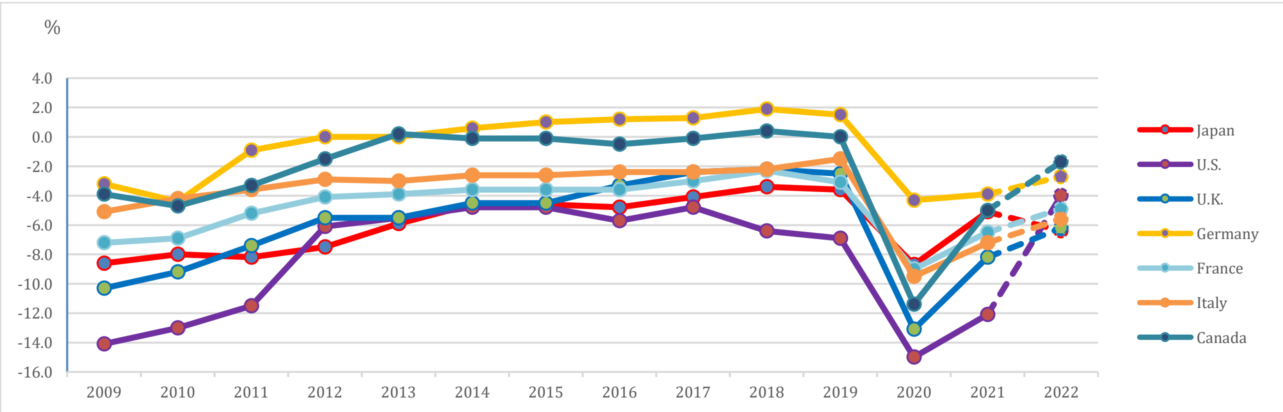


Fig. 10: Japan's budget deficit is higher than that of some countries

Government gross debt (a general government basis) rose to nearly 250%. In response to the COVID-19 pandemic, the Government has announced many support packages to prevent the epidemic and support welfare and economic recovery. These support packages have increased budget spending and caused a significant deficit of nearly 10% of GDP in 2020 and over 6.5% in 2021. Along with that, the public debt ratio increased at an unpredictable level to a record number of nearly 250% of GDP (Fig. 11).

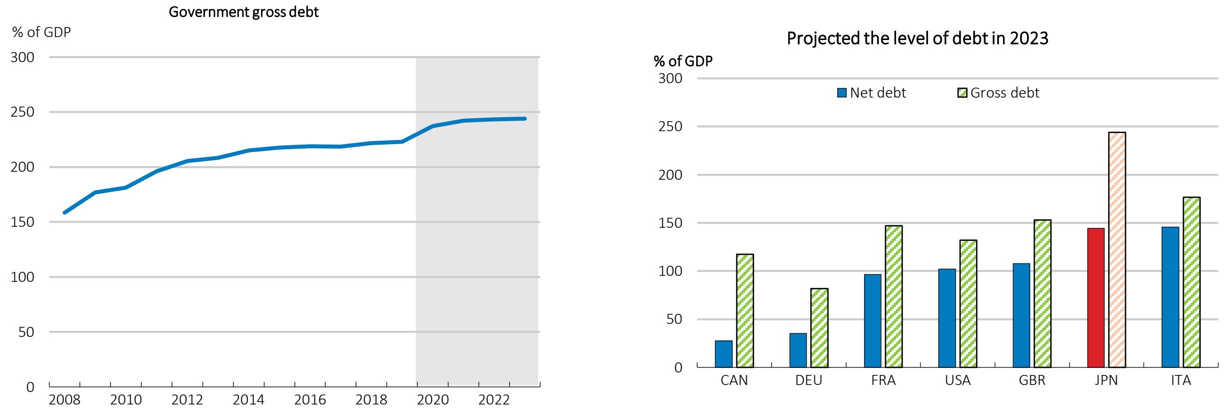


Fig. 11: The public debt situation in Japan and some countries (OECD, 2021)

The working age force in Japan (Age 1564) was 82.3 million people (accounting for nearly 64,5% of the population), and the proportion of older adults aged 65 and over was approximately 28 million people (accounting for nearly 22% of the population). According to estimates, with the current rate of population aging and low birth rates, by 2050, Japan's population will only be about 92 million people (down 29% compared to 2008), of which the number of people of working age is 48.6 million (accounting for 52.9%). The proportion of older adults increased to 39% of the population (about 35.8 million people) based on the IPSS (IPSS, 2023) (Fig. 12).

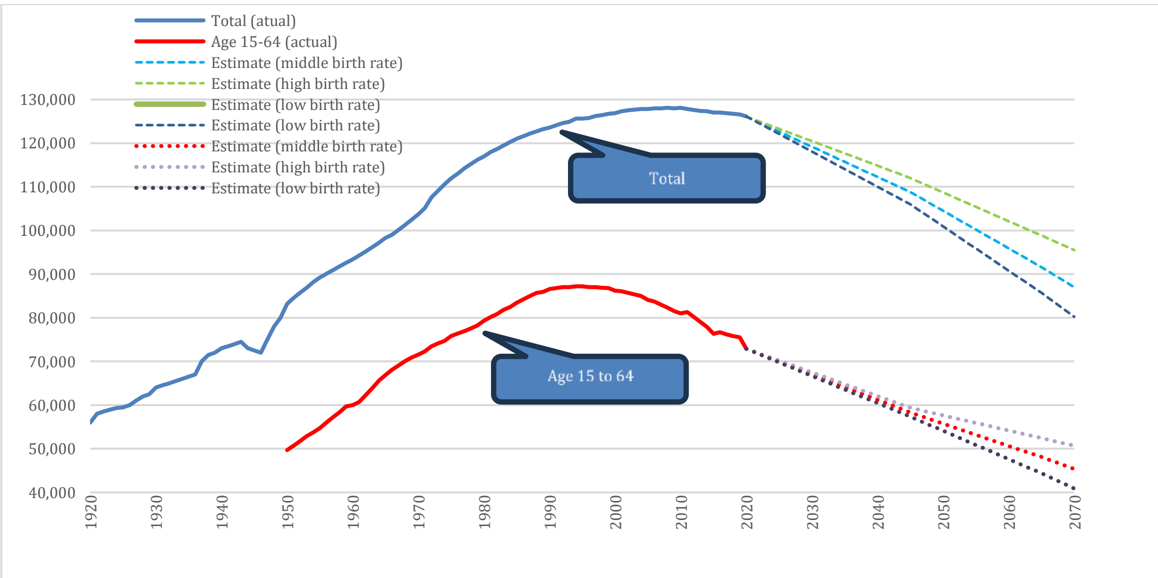


Fig. 12: The projection of Japan's population by age by 2070

The movement of the overall interest rate does not reflect the long-term interest rate that has been fixed at near zero as shown in Fig. 13 the Bank of Japan. As a result, the sense might have spread among politicians and policymakers that the Government can borrow any amount of money without risk, so it has become challenging to restrain profligate fiscal expenditures (Kobayashi, 2023). One challenge is the creation of large-scale government funds to deal with spending that has been disbursed over the past years, although the state budget operates on a single–year basis. These funds have been disbursed over many years for vaccine development, green transition, long-term research and development, support for semiconductor development, and other infrastructure as shown in Fig. 14 based on the Japan Ministry of Finance. The use of these funds is quite flexible and can last for many years. However, the discretionary use of these significant funds by organizations using them leads to a lack of transparency and accountability. Therefore, in the future, the Government needs to have a mechanism to control, monitor, and evaluate the effective use of these funds.

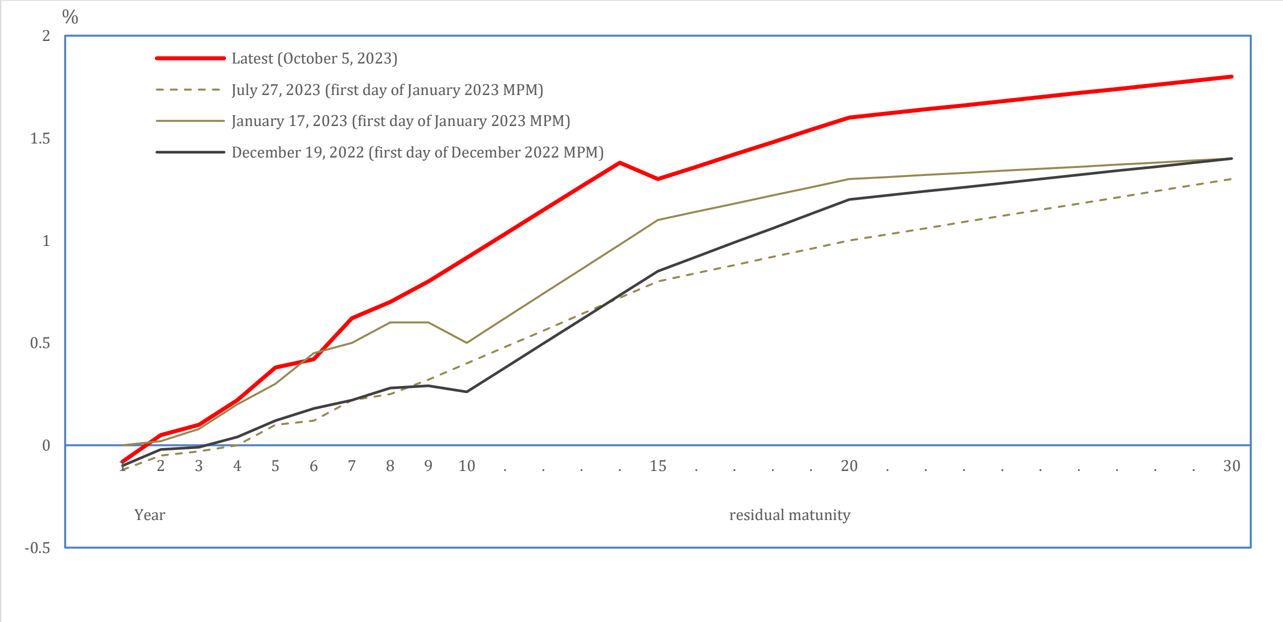


Fig. 13: Volatility of the 10-year bond yield curve

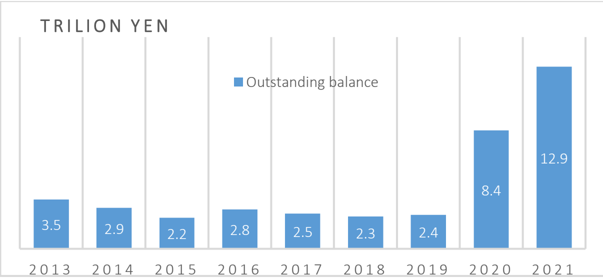


Fig. 14: Scale of Government funds for the period 2013–2021

Policymaking is not based on convincing evidence (Evidence-based Policymaking). The proof is that in the early stages of coping with the epidemic, the Government initially introduced a support policy for each family of 300,000 JPY to meet the conditions of having low income or having lost much income due to the impact of the COVID-19 pandemic. However, this policy received wide public criticism because it is difficult to confirm and calculate the amount of lost income, and any delay causes thoughts of unfairness. That is why the Government changed the subsidy policy of 100,000 JPY for all Japanese people, including immigrants (Ando et al., 2020). Theoretically, in 2020, due to the impact of the pandemic, the Government can increase supplementary budgets to meet the requirements of epidemic prevention and support businesses. However, after that, the Government continued to keep the supplementary budget level at a high level of 36 trillion yen in 2021 and 31.6 trillion yen in 2022.

Moreover, in 2023, a 13 trillion yen supplementary budget was prepared, which is still much higher than the pre-pandemic period. These figures are decided through political negotiations without solid evidence. The deficit in the state budget widened, and the gap between revenue and public expenditures continued to be risky for fiscal finance as shown in Fig. 15 based on OECD.

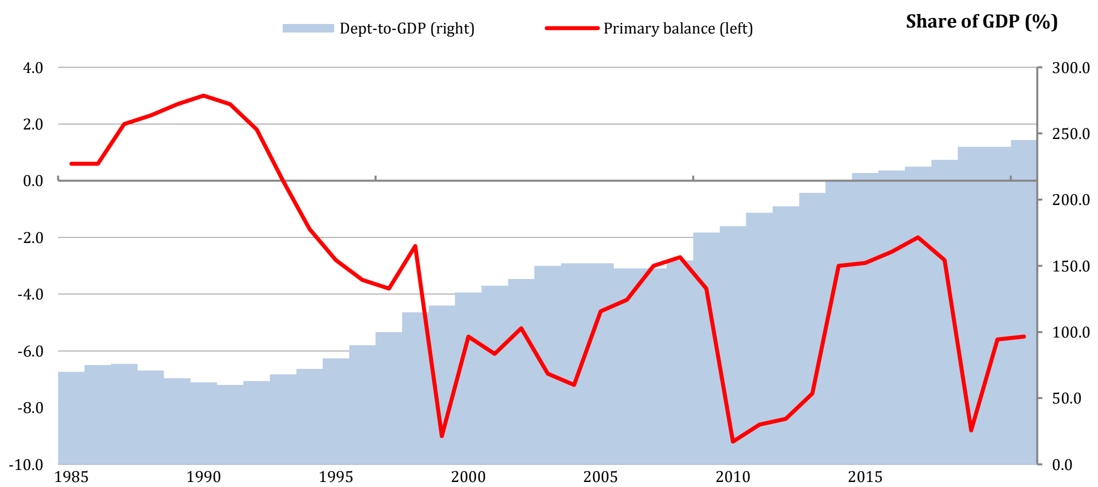
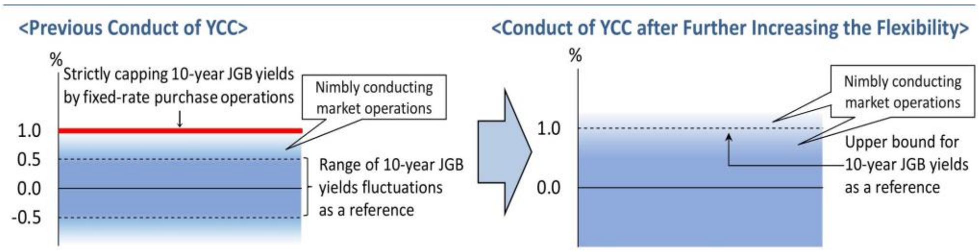


Fig. 15: Balancing Japan's primary budget and public debt until 2022

4.5. Recommendations for sustainability in development

4.5.1. For the monetary policy

To strengthen quantitative easing, support economic development, and control prices, the BoJ introduced a tool to control the yield curve (YCC) and keep operating interest rates at a harmful level in 2016. The goal is for the BoJ to keep the 10-year government bond interest rates (JGP) at nearly 0% and the market yield at 0.1%. By 2018, the BoJ had adjusted yields to increase or decrease around 0.1% depending on economic growth and prices. From 2021, through many adjustments, the yield fluctuation ranges from 0.5% to +1.0% in July 2023 and up to now (November 2023), the upper limit of 1.0% is considered the reference level, and adjustment depends on market signals, not the ceiling anymore as shown in Fig. 16 based on the Bank of Japan. In the future, BoJ needs to continue to loosen and control YCC more flexibly according to fluctuations in domestic and international markets.



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y/y % chg.

	Fiscal 2023	Forecasts made in July	Fiscal 2024	Forecasts made in July	Fiscal 2025	Forecasts made in July
CPI (all items less fresh food)	+2.8	+2.5	+2.8	+1.9	+1.7	+1.6
(Reference) CPI (all items less fresh food and energy)	+3.8	+3.2	+1.9	+1.7	+1.9	+1.8

Note: Figures indicate the medians of the Policy Board members' forecasts (point estimates).

Fig. 16: YCC in flexibility

Consider continuing to use QQE with the short-term interest rate at negative % while avoiding distortions on 10-year JGBs. BoJ should revise the QQE on purchasing JGBs with the upper limit. During the complicated COVID-19 epidemic, to support economic recovery, the BoJ implemented monetary easing at the highest level when committing to unlimited purchases of Japanese Government Bonds and other types of corporate bonds and bonds. However, not setting an upper limit on the purchase of JGPs will lead to the mentality that the Government can spend without limit, issuing bonds at any level to meet spending. This thinking can lead to increased public debt and the risk of public debt crisis in the future.

4.5.2. Fiscal policy

- Restore the spending structure to a regular time.: In the 2008-2009 period, the supplementary budget increased slightly due to dealing with the global financial crisis. To cope with the COVID-19 pandemic, the Government established an additional budget amounting to over 70% of the original budget. These funds focused on medical support, epidemic prevention, and direct support for individuals and businesses. However, in the following years, the Government continued to use large-scale supplementary budgets, which led to burdens on the budget, the resulting budget deficit, and the increase in public debt as shown in Fig. 17 based on the Ministry of Finance. In the coming time, the Government should consider returning to regular budget spending.
- Rectify the problems with the single-year budget principle: The practice of formulating large-scale annual supplementary budgets led to an increase in expenditures that take a long time to arise or are not planned. Establishing more binding fiscal consolidation targets or a long-term budget plan will help all sectors of the economy plan their long-term plans based on assessments of the Government's long-term priority plans.
- Reform the tax policy and public expenditures: The budget deficit and the growing gap between budget revenues and expenditures require the Government to take measures to reform the budget, with the principle of increasing consumption tax and tax related to CO2 emissions. At the same time, government expenditures should be restructured on the principle of increasing investment in science and technology, green growth, and sustainable development, increasing investment through public-private partnerships (PPP), and promoting entrepreneurship and innovation. These situations will make it difficult for the Government to achieve a primary budget balance by 2025. This target depends heavily on recovering economically after the pandemic. According to recent calculations by the Cabinet Office, with high economic growth rates, the primary balance could reach a surplus by fiscal year 2027 without further spending reforms. It can reach the balance target by 2025 if efforts in public spending reform continue.

• Fiscal policy should mainly focus on boosting potential growth rates and addressing social issues: In the period before 2020, the proportion of contribution to GDP growth was dominated by investment capital. From 2000 to 2015, the contribution to GDP growth came mainly from the total factor productivity (TFP) due to advances in science and technology and administrative reforms. From 2015 onwards, Japan's potential growth rate decelerated. Although there was still an enormous contribution from TFP, labor resources reduced GDP growth due to a decline in labor input due to the impact of an aging population and a decline in working hours as shown in Fig. 18 based on the Bank of Japan. Therefore, in the future, the Government will continue to promote policies to improve labor productivity (support for skill improvement through upskilling and reskilling, facilitate labor transfer into growth areas), reverse the trend of declining birthrate (by strengthening childcare and childrearing support), and digital transformation, develop technology and have policies to deal with the population aging and population decline due to a low birth rate. In addition, systematic wage increases positively impact economic growth by increasing aggregate demand and enhancing trade activities with other countries, which are the driving forces of economic growth (Sodokin et al., 2022).

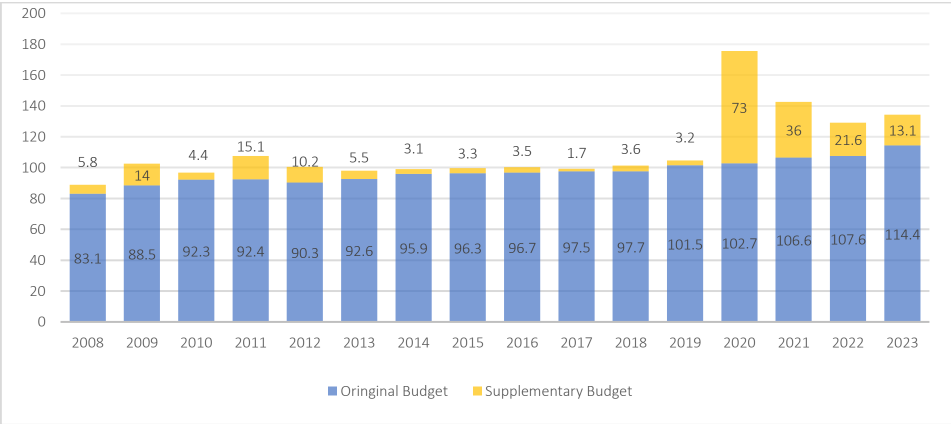

Fig. 17: The large scale of supplementary budgets

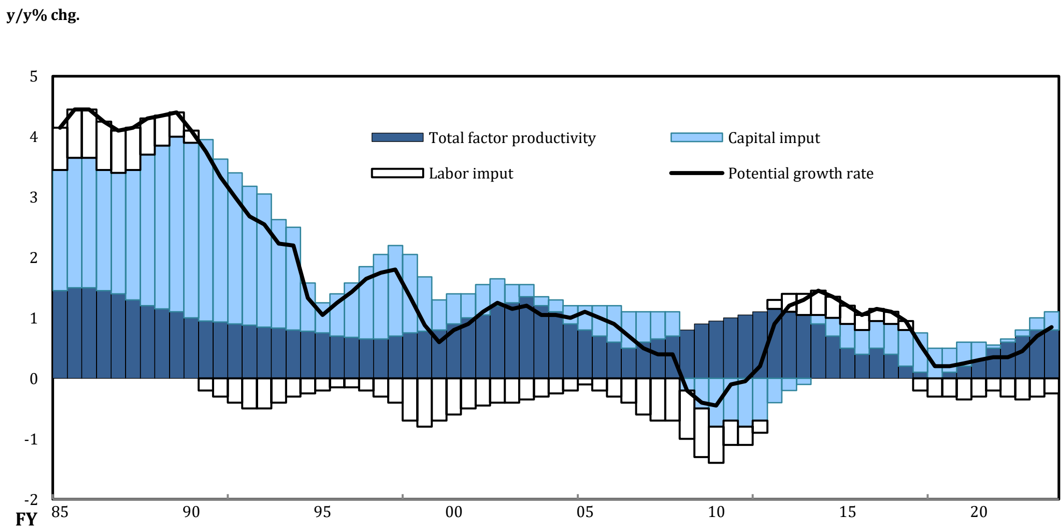

Fig. 18: Contributing to Japan's GDP growth from 1985 to present

Through the practices during the COVID-19 pandemic, many weaknesses of banks in localities and rural areas have been revealed, such as the fact that many large businesses have moved to big cities. As a result, several small and medium-sized enterprises were still operating in these areas, leading to banks' revenue needing to meet operating costs. This circumstance can be resolved if banks enhance digital transformation and provide financial services associated with financial technology (FinTech). Digitalization of banking services creates opportunities and challenges for policy (Fu et al., 2020). One of the issues that needs to be addressed is the widespread problem of cyber-attacks that occur when using computers and working remotely. In addition, competition occurs as technology has enabled nonbank financial institutions to provide financial services.

Japan has committed to reducing greenhouse gas emissions, with net zero emissions by 2050. According to that roadmap, 2030 emissions will be only 50% lower than 2015 emissions (expected 70 million tons of CO2 equivalent) (Fig. 19). This is a big challenge that requires large investment resources for green finance.

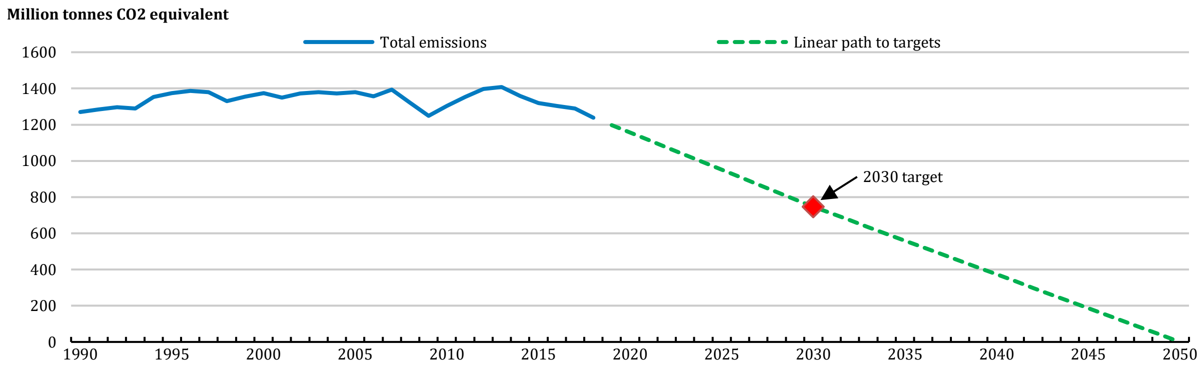

Fig. 19: Japan's greenhouse gas emission reduction target (MOFA, 2021a; 2021b)

The Japanese Government has initiated expanding the green bond market and introduced policies to support green bond issuance, such as developing a Green Bond Guide and establishing a Bond Issuance Promotion Platform (GoJ, 2021). With these initiatives in the public and private sectors, Japan's green bond market has grown. The Issuance of green bonds increased about sevenfold in two years from 2016 to 2018, and both the issuers and uses of proceeds diversified. By 2023, the green bond market has grown more than 2.0 times to over 20 billion USD as shown in Fig. 20 based on the Ministry of Environment.

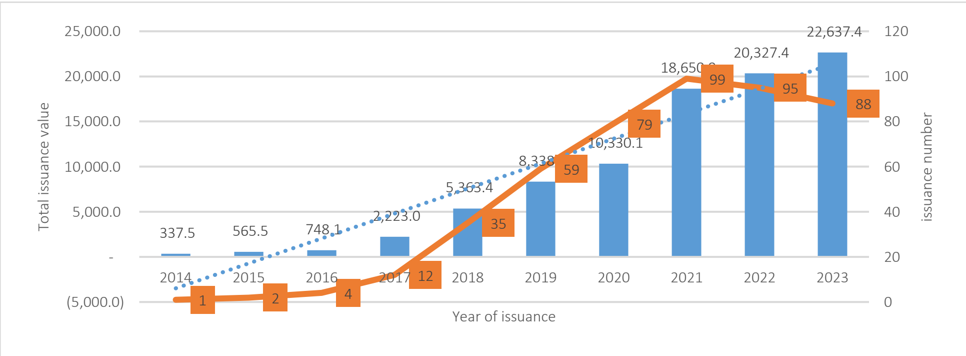

Fig. 20: Issuance of green bonds by Japanese businesses and other organizations

4.5.3. Other recommendations

Economic policy should encourage medium-term investment by enhancing the predictability of the private sector. According to several studies on the impact of policies on economic growth, some economists believe that one of the key policies is to support the development of the private economic sector. Fiscal policy has a particular impact, but on the condition that the Government needs to have policies to encourage revenue and intelligent spending. In addition, monetary policies ensure the cash flow and support growth in the long term (Kobayashi, 2023). The policy, therefore, aims to encourage medium-term investment for the private sector by increasing their predictability in establishing medium and long-term plans. The Government needs to strengthen evidence-based policymaking. Building policies based on evidence will ensure highly feasible policies and avoid controversies on a scientific basis and in practice.

Besides, the Government should promote administrative reform using digital technology. The total productivity factor TFP has been considered essential to Japan's GDP growth in recent years. According to Fu et al. (2020), digital transformation during and after the pandemic helps sustain digital economic growth in both the short and long term. In addition, management capacity is essential in developing science and technology to create this contribution level. The Government continues to apply digital technology in reforming administrative procedures and state governance, which are critical to economic recovery.

5. Conclusions

After studying Japan's experience in implementing macro policies, with the main focus being monetary and fiscal policies to recover the economy after the pandemic, some lessons can be learned and drawn in establishing macro policies.

Regarding monetary policies, in the post-COVID-19 period, countries have implemented monetary easing policies with low interest rate control to support development investment, in addition to controlling government bond interest rates and committing to buy government bonds to supply money to the market in an amount appropriate to the market signals. However, for Japan, a country with a unique and unconventional monetary policy, applying Japan's lessons also requires careful consideration. However, ensuring the independence of the Central Bank is also one of the positive points in implementing monetary policies, instead of being influenced by the Government in making policies like the model of some countries.

Regarding fiscal policy, the Government needs to quickly re-establish the state budget expenditure structure to the regular State before the pandemic. During the pandemic, governments must establish additional expenditures to deal with the health and social security crisis and programs and support packages to promote socioeconomic development after the pandemic. However, maintaining these programs and support packages can create budget imbalances and increase the state budget deficit, especially for countries with high deficits. In addition, developing a long-term budget plan instead of an annual budget estimate can cause passivity for economic organizations when developing long-term strategies and plans. In addition, reforming the tax policy system and public spending ensures the increase and good management of revenue while public spending is used effectively. Investments should be focused on areas with potential growth. In the case of Japan, total productivity (TFP) tends to increase, but labor has a negative impact on its contribution to GDP growth.

For other policies, promoting green investment to achieve the Net zero target by 2050 as committed at COP26, as studied by Chen et al. (2020), green investments have a positive impact on creating green jobs and contributing to the transition to a green economy. In addition, policymaking must be based on evidence from empirical research instead of the subjective opinions of managers. Digital economic development and digital transformation are also some of the lessons to be learned from the case of Japan, as studied by Fu et al. (2020), proposed solutions for China such as digital transformation during and after the pandemic to help sustain digital economic growth in both the short and long term. The development of science, technology, and innovation plays a vital role in controlling the pandemic, reproduction, business, work, and social life.

Since the article focuses on studying specific monetary and fiscal policies for Japan's pandemic and post-pandemic period, the collected data is mainly secondary data because the research scope is quite broad and requires official data from state management agencies or international organizations for analysis and evaluation. Therefore, this study has focused little on using primary data. In addition, some other macro aspects have yet to be mentioned, such as foreign trade activities, foreign exchange management issues, and the stock market. These contents are expected to be improved in further research.

List of abbreviations

BoJ	Bank of Japan
CG	Consumer goods
COVID	Coronavirus disease
FM	Financial markets
FY	Fiscal year
GDP	Gross domestic product
GHG	Greenhouse gas
IMF	International Monetary Fund
INDC	Intended nationally determined contributions
IPSS	National Institute of Population and Social Security Research
JGP	Japanese government bonds
JNTO	Japan National Tourism Organization
JPY	Japanese yen
KW	Kilowatt
MK	Market knowledge
MOFA	Ministry of Foreign Affairs
MZ	Market zones
NT	Network technology
OECD	Organisation for Economic Co-operation and Development
PCI	Personal consumption index
PPP	Public-private partnerships
QQE	Quantitative and qualitative easing
TFP	Total factor productivity
UK	United Kingdom
US	United States
USA	United States of America
USD	United States dollar
YCC	Yield curve control

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Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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