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Normalization of the Japanese Economy: Overview

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“Normalization of the Japanese Economy: Overview”

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Abstract. The Japanese economy is normalizing in several ways.

1. Introduction

This paper focuses on the Japanese economy after 2013, with an emphasis on the period after the COVID crisis in 2020. Abenomics was introduced in 2013 to combat the deflation and stagnation that plagued the Japanese economy from the early 1990s to 2012 (see Ito (2021a,b)). The three arrows of Abenomics included aggressive monetary policy, flexible fiscal policy, and structural reforms for economic growth. Although the economic policy package corrected deflation and stagnation, it also created unconventional economic conditions. Five aspects of the Japanese macro economy will be examined in light of how the economy had deviated from “normalcy” but has now started taking steps toward normalization. These are unconventional monetary policy, bloated fiscal debt to GDP ratio, steady yen depreciation, slow economic growth, and stagnant productivity.

First, the monetary policy since 2013 has been widely regarded as an example of unconventional monetary policy using the central bank's balance sheet. Similar unconventional monetary policies have also been adopted in the United States and Europe. The inflation targeting framework with a 2% target is common among Japan, the US, and many European countries. In Japan, 2% had not been achieved since its adoption in January 2013 until 2022, when the inflation rate rose above 2%. The Bank of Japan remained patient and continued expansion of the balance sheet, keeping the long rate low. The Bank of Japan hoped the inflation rate would stay around 2% permanently, not just temporarily. However, in March 2024, the Bank of Japan took the first normalization step. Some critics argue that the expansion of the balance sheet has continued for too long. They point out side effects, like making it possible for the fiscal authority to issue more bonds and bad yen depreciation. Going forward, the challenge facing the Bank of Japan is to complete normalization without market turmoil or a recession.

Second, the debt-to-GDP ratio has been rising since 1990. Although the speed of climb varied from year to year, there has been a mistaken upward trend. In 2023, the general government's debt to GDP ratio reached 250%, the highest among G7 by far. The outstanding central government long bonds reached 1,157 trillion yen or 194 percent of GDP in March 2024. Many economists consider the situation unsustainable. Even though the debts increased, interest payments declined

from 1990 to 2022 thanks to the lower and lower government bond yield, partly due to stagnant economy and after 2013, due to unconventional monetary policy. Why did governments' debts pile up so much? Why has the crisis not happened already if it is not sustainable? Going forward, how can the government normalize the fiscal policy fundamentally to make the debt situation sustainable without a severe recession?

Third, the exchange rate is another variable that needs to be normalized. This may sound strange, as the exchange rate is determined mainly by the market every milli-second. It is a consequence of monetary and fiscal policies rather than an independent exchange rate policy. However, the Japanese economy has been influenced by the exchange rate movement. The dollar/yen rate has been very volatile compared to the currencies of other advanced countries. When the yen appreciated too much, or so perceived, the Japanese Ministry of Finance made forex market interventions in an attempt to slow down, if not stop, yen appreciation. There have been numerous periods and occasions interventions were conducted to sell the yen in exchange for the US dollar. In the 1970s and 1980s, there was a clear trend for the yen to appreciate, and, with the benefits of hindsight, it reflected the movement of fundamentals. However, the fluctuations around the trend were volatile and invited yen-selling interventions. On some occasions, yen-buying interventions have been conducted when the yen became too weak or so perceived. The latter was rare, but it happened in 1997-98 and 2022-24. The periods when no interventions occurred, such as one from 2003 to 2009 and one from 2012 to 2021, may be regarded as a normal period for the yen. The above is a view based on the nominal exchange rate. When the real exchange rate is examined, the starkly different view emerges. The yen's real effective exchange rate (REER) had a clear appreciation trend from the mid-1960s to 1995; then, the trend became yen depreciation. The gains (appreciation) in REER from 1971 to 1995 are all but lost by 2024. The weakness of the yen, or put differently, the low purchasing power of the yen became keenly recognized by many Japanese in the phenomenon called "Cheap Japan" in that prices of goods and services in Japan were significantly low compared to the United States, an apparent violation to the purchasing power parity. The long swing of REER and short-term fluctuations around the trend are unique to the yen among the currencies of advanced countries. The yen staying in the range where no interventions are needed and where exporters and importers can conduct businesses without worrying too much about the exchange volatility may be regarded as a normal exchange rate behavior. The experience of the yen has not been normal in this definition.

Fourth, although the third arrow of Abenomics was supposed to raise the growth rate, the trend growth rate since 2013 did not rise compared to the trend growth rate before 2013. In that sense, the third arrow seems to be a failure. There are aggregate supply-side and demand-side explanations. On the supply side, part of the low growth rate is the demographic change that has

made labor input smaller and smaller. The increase in women's labor participation rate helped to keep the decline to a minimum. To be fair, Japan faces a declining working-age population; one can look at the per capita GDP growth rate. However, in the long run, Japan is losing ground in the measure of per capita GDP growth. On the aggregate demand side, consumption has been stagnant, investment has also been low, and trade accounts have been in deficit. Consumption is low due to the shrinking population and household conservative consumption behavior often attributed to low wages and anxiety about the sustainability of the public pension system. Corporations have more eager to invest abroad for fear of yen appreciation and trade conflict – things of the past by now. No export volume boom occurred with 150 yen since 2022 (except for higher profit margins for exporters). Price competitiveness has not been taken advantage of. Slipping in the ranking of per capita income after achieving a near-top status like Japan is unusual. Unless potential (per capita GDP) growth is raised, the standard of living will continue to decline. It is a challenge for the Japanese government to maintain the normal economic maturing by maintaining high (per capita) income.

Productivity increase is key to enhancing economic growth and achieving higher living standards. Indeed, productivity growth will help normalize monetary policy, fiscal policy, yen volatility, and (per capita) growth. Higher overall productivity growth will normalize the potential (per capita) income growth and allow higher wage increases, stimulating consumption. With a higher wage hike and consumption growth, monetary policy normalization can proceed without the concern of a recession. With productivity growth that makes domestic products more competitive in export markets, the REEM will also appreciate.

Now, the challenge is how to stimulate productivity increase. The list of reform plans includes the following: Widespread usage of digital and AI technology, reform of an education system to emphasize Science, Technology, Engineering, and Math (STEM), reform of labor market to allow more mobility among companies and start-ups, and distribution of fair shares to workers with high performance.

2. Monetary Policy Normalization and its macroeconomic impact

2.1 QQE, NIRP, YCC and overshooting commitment

Prime Minister Abe appointed Governor Kuroda in March 2013. Earlier in January, the Bank of Japan and the government agreed on the inflation targeting framework. Governor Kuroda was chosen as the most suitable person to achieve the 2% target. On April 4, 2013, Governor Kuroda unveiled Quantitative and Qualitative Easing (QQE), an unconventional monetary policy, to achieve the target. The announcement stated: “The Bank will achieve the price stability target of 2 percent in terms of the year-on-year rate of change in the consumer price index (CPI) at the earliest possible time, with a time horizon of about two years. In order to do so, it will enter a new phase of

monetary easing both in terms of quantity and quality. It will double the monetary base and the amounts outstanding of Japanese government bonds (JGBs) as well as exchange-traded funds (ETFs) in two years, and more than double the average remaining maturity of JGB purchases.” With the announcement, the yen immediately depreciated and the stock prices sharply rose. This was the beginning of Kuroda’ ten years pursuit for the 2 percent inflation targeting.

A large amount of liquidity was provided to financial institutions as QQE. QQE helped the yen to depreciate, the stock prices to rise, the inflation rate to come up above zero, and the growth rate to rise. Although the inflation rate became positive as the quantitative and qualitative easing (QQE) was introduced, it did not reach the target for the first nine years. Additional measures were introduced along the way. The size of asset purchases grew after the revision in October 2014. In January 2016, the negative interest rate policy (NIRP) was introduced in January 2016, and in September 2016, yield curve control (YCC) and overshooting commitment were introduced. (For detailed analysis of the period, see Ito (2021a).)

From March 2013 to March 2024, the Bank of Japan’s balance sheet grew xx %. With the expansion of purchases of long bonds, the long-term bond rate declined from xx% to yy%. At the end of Fiscal Year (FY) 2023, the Bank of Japan owned over half of the outstanding long bonds. The unusually large balance sheet and low interest rate combatted deflation and stagnation that preceded the period of Abenomics.

The inflation rate rose above the target of 2% in 2022 (see [Figure 1](#)). However, it was due to the supply shocks, including a sudden increase in energy prices due to the Russian invasion of Ukraine. Inflation in 2022-23 was a global phenomenon. The inflation rate in the United States quickly rose above the 8% level, and the Federal Reserve Board raised the policy rate eleven times in 2022-23 from the 0.25-0.50 range to the 5.25-5.50 range. Japan's inflation rate rose above 4 percent, but the Bank of Japan kept the negative 0.1 policy rate throughout 2022-23. The widened interest rate differential caused the yen depreciation. The dollar/yen went from 115 at the beginning of 2022 to 150 in October 2022.

++ [Figure 1](#) about here ++

The Bank of Japan finally ended the NIRP and YCC in March 2024 – the very first normalization step. The policy rate was raised to the 0.0-0.1 range. BY abolishing YCC, the long rate became free to move. This was the first step toward “normalization,” moving toward a world with a positive interest rate. The Bank of Japan took an additional step in July 2024 by reducing the monthly purchases of government bonds, thus reducing the Bank's balance sheet – often dubbed as quantitative tightening (QT). As of March 2024, the Bank of Japan holds more than half of the Japanese government bonds due to the large purchase of government bonds under QQE.

2.2. Opportunistic Overshooting

The inflation rate rose above 2% in 2022 (Headline and Core in April and Core-Core in October) the first time since 1992.¹ The inflation rate rose to 4% in 2023 but declined to below 3% toward the end of 2023. Given that 2% was achieved in 2022, why didn't the Bank of Japan start normalization?

First, the inflation rate increased above 2% in 2022 as a result of the supply-side factors, such as energy price increases and supply chain disruption after Russia invaded Ukraine. Also pass-through from yen depreciation raised goods prices of high import contents. The Bank of Japan thought the inflation could be temporary as the energy prices could come down as sharply as it go up. The Bank of Japan explained that it needs to confirm that the inflation targeting is achieved stably. The Bank wanted to confirm that the supply-side inflation has to be replaced by the demand-side inflation.

Second, in order to cause demand-side inflation, the wage has to increase at a pace, the same or faster than inflation. Wage increases, in turn, will contribute to the rise of consumption demand. In 2022, the spring wage negotiation (*Shunto*) did not reflect inflation since inflation happened after the wage negotiation. The Bank of Japan wanted to wait until 2023 to see whether a good cycle of inflation and wages would occur.

Third, overshooting—the commitment announced in 2016—was necessary to bring inflation expectations toward 2%. In Japan, inflation expectations have been low because actual inflation was low, and wage hikes were lower because the inflation expectation was low.

Putting these arguments together, what the Bank of Japan hoped from 2022 to 2024 can be summarized as opportunistic overshooting on the way to stable inflation targeting. The following schematic description of the intention of the Bank of Japan may be helpful.

- (i) $(\pi, \pi^e, \Delta w) = (0, 0, 0)$ equilibrium prior to 2022:

The inflation rate is zero ($\pi=0$) because corporations' production costs were not rising. Corporations' production costs were not rising because the wages were not rising ($\Delta w=0$), and imported goods prices were not rising. The wages were not rising because workers did not bargain for wage hikes when prices (cost of living) were not expected to rise, namely zero inflation expectation ($\pi^e=0$). The inflation expectation was zero because the actual inflation was zero. The declaration of 2% inflation target did not significantly change the expectation. So, zero inflation is affirmed as a part of the 0-0-0 equilibrium.

- (ii) $(\pi, \pi^e, \Delta w) = (3, 0, 0)$ in 2022-23:

¹ The inflation rate used here is the one adjusted for the consumption tax increases.

The inflation rate rose sharply in 2022 due to the imported inflation, partly due to the global energy price increases and partly due to the sharp yen depreciation. The inflation expectation only slowly rose, and the wages did not rise because the timing of *Shunto* was before the inflation started to rise in 2022. However, a part of the 0-0-0 equilibrium was broken. Inflation occurred because the costs of production rose due to imported inflation, not because of wage hike or strong demand. Corporations

(iii) $(\pi, \pi^e, \Delta w) = (2.5, 1.5, 3)$ in 2024.

The inflation rate is declining from the peak in 2023, with the inflation expectation rising toward, but shy of, 2%. The *Shunto* wage hike exceeded 5% (or 3% when a seniority pay raise portion is deducted)

(iv) $(\pi, \pi^e, \Delta w) = (2, 2, 2)$ or, even better, $(2, 2, 3)$, equilibrium

An ideal new equilibrium will be the state where the inflation rate stay near 2% and the inflation expectation is anchored at 2%. With a higher productivity growth, say, 1% a year, corporations can afford to give a 3% wage hike every year. The inflation rate will be 2% because of corporations' net cost (wage increase minus productivity gains); the inflation expectation is anchored at 2% because the actual inflation is on average 2%; the wage increase should be at least 2% for the cost of living adjustment, and possibly higher if productivity gains warrant it. Thus it will be an equilibrium.

The inflation rate has been above the target of 2% for three consecutive years, and the inflation expectation has been increasing to 2%, notwithstanding a significant lag to the past inflation rate. The wage hikes in 2024 exceed 5%, including a 2% increase for seniority pay hikes. The preliminary result of the *Shunto* negotiation was available, and the Bank of Japan became more confident that the 0-0-0 equilibrium was finally broken. This circumstance gave the Bank of Japan confidence that after 11 years since its introduction, the sustainable 2% inflation target is within reach for the first time. This led to the Bank of Japan's decision in March 2024 to end YCC and to raise the policy rate from -0.1 to a range [0.0, 0.1].

2.3. Why the 0-0-0 equilibrium was inferior

Between the 0-0-0 and 2-2-2 equilibrium, the consequence of the real wage increase is the same: zero. So, one might wonder why the 2% inflation targeting is better than the 0% inflation targeting. The usual explanation is that when a recession comes, and deflation occurs, the real interest rate rises and worsens the recession. Therefore, the buffer to zero is desirable. The inflation rate based on the Laspeyres index contains an upward bias. Thus, in a rigorous economic

sense, the measured zero inflation is a slight deflation. These reasons are frequently cited and accepted as the reason for globally adopting the 2% inflation target framework.

However, Japan's experience of prolonged deflation or about zero inflation for three decades revealed new evidence of the peril of 0-0-0 equilibrium. What happened in Japan was that not only the average but every price tended to have zero inflation. When other firms are not raising the price of similar goods, the firm becomes afraid of changing prices because the company is afraid of losing customers. Customers become so accustomed to “no price” increases that they take them for granted (see Aoki et al. (2019)). As a result, many individual items in the CPI survey show zero inflation., when the price changes of individual goods and services (components of CPI) are shown in the histogram (see Watanabe and Watanabe (2018)).

So, the inflation rate at zero in Japan also meant that the changes in many relative prices were zero. This implies resource allocation inefficiency, namely production, distribution, and consumption distortions. Economics 101 teaches that prices should go up or down depending on a shift in the demand function (e.g., a taste change) or a shift in the supply function (e.g., input cost increases). When the price is fixed, there will be queues in the case of an upward shift in the demand function, and there will be a profit squeeze, a smaller package for the same price, or the exit from the market of producers.

2.4. Why is the inflation expectation lagging behind the actual inflation?

When the Bank of Japan introduced QQE in April 2013, the hope was that the announcement is credible enough that inflation expectations would start rising even before the actual inflation rate or the wages would increase. If that had happened, one of the benefits of the inflation targeting framework, namely, the anchoring expectation would have been realized in two years, the time frame 2% actual inflation was projected to be achieved at the time of April 2013 announcement. However, the inflation expectations did not rise. Inflation expectation was stubbornly lagging behind the actual inflation rate. By 2016, the Bank of Japan decided that the inflation expectation formation was “adaptive” after all (see Kuroda (2016)).

Even when the actual inflation rate rose in 2022, the inflation expectation lagged behind the actual inflation rate considerably. **Figure 2** shows that the inflation expectation of future years at the point of forecasting being made, using the JCER ESP Survey. They ask professional forecasters to calculate the average of respondents. The figure also shows the actual core inflation rate for that month. In any month, the survey asks forecasters’ opinions about core inflation rates two to three years ahead. For example, in January 2023, the survey asked the forecasts of the average inflation rate for the FY2023 (April 2023 to March 2024) and for FY2024 (April 2024 to March 2025). The actual inflation rate for that month was 4.2%, while the forecast for FY 2023 was 1.79 and FY 2024 was 1.15%. So, the forecasters had expected that the actual inflation of

4.2% would come down substantially to 1.79% later in the year and further down to 1.15% in a year and half. The forecasters expected that the then-high inflation rate would be temporary and that the inflation rate would plummet within six months and sink to nearly 1%. It was very interesting they thought the high inflation at the time was temporary and, in the medium term, the inflation would go back to the average of the past ten years, about 1%. The backwardness of the expectation formation was very strong, and the inflation targeting did not change the backwardness, and there was no anchoring. The January 2023 example was most striking, but the backwardness and constant downward bias (compared to the current inflation rate at the time of forecast and the actual realization for the months for the forecast periods) from 2022 to 2024 are evident. As of August 2024, the inflation expectation for FY2025 is 1.91, and for FY2026, it is 1.67. Finally, the inflation expectation is coming close to 2%.

+++ Figure 2 about here +++

The inflation targeting of 2%, with the anchoring of expectation, seems to be within reach now in Japan. Econometric analysis on the inflation expectation using the same survey is done in Fukuda and Soma (2025). According to them the anchor is quite close to 2% in 2024.

2.5. Why was the wage so sticky upward as well as downward?

It is well-known that wages have “downward rigidity.” Labor unions fiercely resist wage cuts. However, wages in Japan are “upward rigid,” too. Total wages (shown in the *Shunto* result or real wage statistics) have hardly moved over the years. (See Hoshi and Kashyap (this issue, 2025) for an empirical study on the changing wage dynamics.)

The origin of upward rigidity is not new. After several large financial institutions failed and workers lost jobs in 1997-98, workers stopped demanding pay raises but prioritized the job security. Large companies that provide lifetime employment can hire workers relatively cheap because workers consider job security for the next several decades to be very important. So, young workers are underpaid compared to their productivity because they obtain lifetime job security, at least so they perceive. As they are trained on firm-specific skills and fulfill their expected contribution, their pay increases by age. If they only get the age-related pay raise (*Teiki Shokyu*), there is no wage hike in aggregate statistics. An upward shift of the age earning profile (base up) is a true aggregate wage increase.

Figure 3 shows the aggregate real wage index. It shows the gradual decline since the mid-1990s. Even during the Abenomics years, when labor shortage gradually developed, and more recent years of recovery from the COVID recession, the real wage continued to decline. A caveat should be hastily added. This statistic is an average of all workers, including part-time workers, who are almost always paid low wages compared to lifetime workers. One of the Abenomics achievements was that women's participation rate, especially those in the age brackets of 25-40,

rose sharply. By 2020, the women's participation rate in Japan surpassed that of the United States, and the M-shape (a dip in the participation rate for ages 25-40) has disappeared. Many of women who entered or re-entered the labor market find part-time jobs with lower pay than average of the age group or men.

+++ Figure 3 about here +++

There are at least four frequently stated reasons why wages have been sticky upward even in the years of labor shortage and economic recovery (such as 2006-07, 2018-19, 2022-2023) in Japan. First, large corporations, bureaucracy, and public schools say they can still hire new graduates with constant entry-level wages. Perceived job security is an overwhelming attraction. If you can hire workers at low wages (compared to productivity), why would you give a pay raise? Second, a job security commitment, which means no layoffs but labor hoarding in a recession, makes the company extremely reluctant to attract high-wage workers. Lifetime workers are fixed costs. Companies worry about future recessions when workers become redundant but cannot be dismissed due to legal protection. A shrinking population does not help. With an expectation of declining sales, it is natural that companies try to reduce capital expenditures and workers under lifetime commitment.

Third, many large manufacturing companies operate globally. It is not uncommon that more than half of their earnings and profits are from operations abroad. Even when large corporations are showing record high sales and/or profits, which is the case in 2023-24, companies argue that there is no case for wage hikes for domestic workers. They are not contributing to company-wide productivity gains or profits. This may result from rapid expansion of overseas production and the consequential decline in exports from Japan, in the past three decades. If this argument is valid, the lack of correlation between company-wide productivity and wages of the Japanese workers may be rational. With the inflation rate close to zero, the constant real wages meant constant nominal wages.

2.6. Critics of QQE and overshooting

Critics of the Bank of Japan's policy have argued that QQE continued too long. The Bank of Japan purchased government bonds to the level of more than half of the outstanding government bonds. The 10-year bond rate was kept very low under YCC. Critics argued that maintaining the low interest rate for so long (more than ten years) made its marginal benefits minimal and its bad effects emerge. Iwata and Samikawa (2018) examined the controversial issues associated with continuing QQE for long.

When the negative interest rate policy was introduced in January 2016. The yield curve shifted down immediately and got flattened in the following days and weeks. When the 10-year bond rate becomes negative, along with all shorter maturities, from February to November, critics pointed

out that the negative long rate is probably counterproductive to an objective of stimulating economy. There must be a threshold rate below which the low interest rate monetary easing “reverses and contractionary for lending” (Abadi, et al. (2023) and Brunnermeier and Koby (2019)). Indeed, the negative interest rate policy was criticized by Japanese commercial banks that faced the collapsed term premium and adverse to lending.

The Bank of Japan adopted the YCC in September 2016, and explicitly set a target range of 10-year bond rate in September 2016. The policy was intended to keep the yield curve positively sloped, but the 10-year bond rate would not become too high. The initial range of YCC was 0.0% plus/minus 0.1% and later expanded gradually to 1%.

Critics argued that keeping the interest rate low for too long created an environment in which the fiscal authority was not restrained by increasing the bond rate when it increased new government debt issues. This is often called the moral hazard of the fiscal authority. From 1998 to 2022, the interest payment expenditure in the general budget decreased gradually. The reduction in the bond rate more than offset the higher amount of outstanding government bonds. This will be further examined in the next section.

Another criticism of Abenomics, QQE, and YCC was that it helped only the rich who held equities. The criticism is based on an observation that the most notable achievement of Abenomics was the increase in stock prices. When the general election was called in December 2012, in which the LDP led by Mr. Abe would win, the Nikkei was around 9000. It more than doubled and rose to 20,000 by April 2015. This helped financial institutions and high-income households that held equities, but not directly low-income households. In contrast, wages stagnated throughout the years of Abenomics, as shown above. Thus, income and wealth inequality have increased.

Another line of critique concerns the continuing purchases of assets under QQE. As this continued for ten years, the amount of government bonds and equity ETFs the Bank of Japan owned became substantial. Now, the Bank of Japan owns more than 50% of the outstanding government bonds, which is criticized as destroying the bond markets' market function and price discovery.

Large purchases of equity ETFs started with an aim to reduce risk premia. Still, the purchase continued even after the Nikkei recovered to a level many considered broadly reflecting fundamental values. The central bank's purchase of equities is unusual by international standards, and critics point out the risk associated with stock price volatility. However, the Bank of Japan now enjoys high returns from stock holdings and unrealized capital gains.

Critics were also concerned that the accumulated low-coupon long bonds in the Bank of Japan's balance sheet could threaten its insolvency when the eventual exit and normalization came. Since unrequired reserves on the Bank's liability are remunerated at the policy rate, a rapid increase in the policy interest rate would create negative seigniorage and unrealized losses on the

bond holding that could make the Bank insolvent. This argument is examined below.

2.7. First steps of the normalization

As of the beginning of 2024, the actual inflation rate had gradually declined toward 2%, and the inflation expectation had gradually risen toward 2% (see arguments above), the Bank of Japan decided that the time was ripe to take the first step of normalization would take place. In March 19, 2024, the Bank of Japan decided to end the Negative Interest Rate Policy (NIRP) by raising the policy rate to the range of 0.0-0.1, to end YCC, and to end purchase of ETFs and REITs. However, the monthly purchase of long bonds would be maintained at the current level, which is about 6 trillion yen, just enough to match the maturing bonds. The level of the balance sheet would be maintained. The market responded to a policy change calmly. This was because the Bank of Japan had communicated that the first step would come soon.

Although the first step toward the exit from QQE was executed smoothly, the Bank of Japan started to face a growing concern on the renewed yen depreciation. The yen/dollar rate was around 142 at the end of December 2023. By the March 19 decision, the yen had reached 150. Some exchanges between Governors and the press were received to be more dovish than expected. The US macroeconomic data are mixed, and the expected timing of the FRB rate cut has been pushed back. For these reasons, the yen depreciation continued after the March decision. The yen/dollar crossed the level 155 on April 25 and continued the depreciation trend. The Ministry of Finance intervened on April 29 and May 1 for the first time since the October 2022 intervention. Around this time, the public, business leaders, and politicians, who regarded the yen/dollar at the time (about 150) as bad for households and businesses, started to call for BOJ's actions (raising the interest rate) to contribute to efforts to stop yen depreciation.

The BOJ was not mandated to maintain certain yen levels. Currency policy is the jurisdiction of the Ministry of Finance. The Bank of Japan's number-one priority is to firmly establish an inflation target of 2% or the 2-2-2 equilibrium. Raising the interest rate to stop yen appreciation was not in the Bank's playbook. The Bank of Japan regarded the pass-through of yen depreciation to domestic inflation as either negligible or not a concern.²

On June 14, the Bank of Japan announced that the reduction in monthly purchases of government bonds will be disclosed and implemented in the July meeting. At the July 31 meeting, the Bank of Japan announced a gradual reduction of government bond purchases from 6 trillion yen to 2.9 trillion yen by the end of FY 2025. This would result in the reduction of government bond holding by 7 to 8 percent. This is the start of Quantitative Tightening (QT). At the same time,

² In the press conference on April 30, a reporter asked “[I]s the effect [of yen depreciation this time] on the increase of underlying prices can be negligible?” Governor Ueda answer succinctly “yes.” https://www.boj.or.jp/about/press/kaiken_2024/kk240430a.pdf.

the Bank of Japan announced the second policy rate hike in the normalization process. The policy rate was set to 0.25%. The decision caused yen appreciation and stock prices to decline, but the magnitude of the changes was small. However, the US weak job market report was released on Friday, August 2, causing dollar depreciation and a sharp US stock price decline. On Monday, August 5, the Japanese stock market suffered one of the worst declines. The Nikkei suffered 4,451 yen (the record largest decline), or a 12.4% drop. However, the stock market recovered all the losses in one week. The market turmoil turned out to be short-lived. However, this shows the potential volatility going forward with normalization.

2.8. Challenges during the exit

The first challenge of this normalization process is where the goal is: when the policy rate will reach neutral, where the interest rate is neither stimulating nor tightening. Since the Bank of Japan has continued QQE for so long, it is not clear where the neutral rate is, theoretically or empirically. If one believes that the neutral rate reflects the marginal productivity of capital, it should be positive. In an economy with innovation and productivity growth, demand for capital would be higher, driving up the interest rate. The positive real neutral rate means the policy rate near or higher than the target inflation rate of 2%. There is a long way to go from the current policy level. However, different views and estimates exist. The Bank of Japan has said that their estimates of the (nominal) neutral rate ranges between 1% and 2.5%.³

Several challenges await the Bank of Japan in its quest for normalization. Can the 2% inflation target be sustained in the coming years, despite expected interest rate hikes? The real wage that would stimulate consumption will only increase in the medium run. Without continuous wage increases, consumption would stagnate again, and the inflation rate may come down from the 2% target rate. As normalization continues (i.e., the policy rate hikes), it may strain the government budget, where the interest payment and amortization shares have reached 25% of the budget. The government has to pay higher interest on outstanding JGBs. As higher coupon JGBs replace them, the interest payments will rise. This will squeeze fiscal space for other essential government expenditures unless tax rates are raised. The sustainability of public debts will be questioned more in the world with a higher interest rate.

If the policy rate increases quickly, the Bank of Japan may post negative profit (seigniorage) due to increased interest payments to remunerated excess reserves. The Bank earns interest income from its holding of JGBs and other assets. The interest income from JGBs will not rise quickly as the average maturity is 6.5 years, and most JGBs are of the fixed interest rate type. The Bank is earning increasing dividends from its holding of ETFs accumulated through its QQE.

³ Governor Ueda's answer to the reporter's question on June 14.

2.9. Potential changes in P/L during the normalization

From the balance sheet and profit loss statements, the effect of normalization on the profits of the Bank of Japan can be simulated. [Table 1](#) shows the exercise that I conducted.

+++ Table 1 about here +++

During the FY 2023, the interest payment to excess reserves was 0.18 trillion yen. Until February 2024, there was a three-tier system for excess reserves in terms of interest payment: the large portion of excess reserves was paid at positive 0.1%, another large portion at 0.0%, and only a fraction was applied negative 0.1%. After March 2024, the Bank of Japan decided to treat all excess reserves the same (one-tier system) and applied (top of the range of) the policy rate. From here on, the policy rate hike means additional payments to excess reserves. Quantitative tightening (QT) means reducing the amount of excess reserves on the liability side of the Bank of Japan balance sheet and reducing the amount of bonds on the asset side. Suppose 7% QT by FY 2025, which is implied by the July announcement. The excess reserve will be 474 trillion yen, 93% of the excess reserves in FY 2023. Interest payment to excess reserves in FY 2025 is just a multiplication of the policy rate to 474 trillion yen. By subtracting the amount of interest payment to Excess Reserves (under the three-tier system) in FY 2023, which was 0.19 trillion yen, the simulated amount of interest payment to Excess Reserves (Row A of Table 1).

Calculating the change in interest income from holding government bonds is a bit more complicated, and some simplification assumptions are needed. From the list of government bonds that the Bank of Japan owns, maturing bonds by the end of March 2026 is 141.3 trillion yen. The coupon rate of these bonds can be found on the Ministry of Finance site. The interest rate they earned in FY 2023 was 0.53 trillion yen. The QT schedule announced in July means the amount that the Bank of Japan will hold at the end of March 2026 will be 93 percent of that of the end of March 2024. This can be achieved by rolling over only 93 percent of maturing bonds between April 2024 and March 2026. This means a purchase of 131.5 trillion yen. Then, we need the average bond rates at the time of rollover, but for simplicity, it is assumed that the average bond rate would be 1% above the policy rate of FY 2025. (The transition, the shape of the yield curve, and the maturities the Bank of Japan chooses to roll over are simplified.) The interest income from rollover bonds will be higher (even though the bond amount will be 93%) as the normalization proceeds.

In general, the interest payments rise faster than the interest rate income increases. Since a large share of bonds that the Bank holds do not mature in the next two years. (Selling bonds to obtain higher-coupon bonds will result in heavy realized losses since the market value of the long bonds will decrease as the market rate rises.) Exactly how much the decrease in profit would result has to be simulated. Table 1 summarizes the result.

In case, the policy rate is at 0.5% and the bond rate at 1.5% in FY 2023, the change in profits as the difference between interest income from bond rollover and income payment to excess reserves is negative 0.7 trillion yen. Profit in FY 2023 was 4.6 trillion yen, so that profits in FY 2025 is positive. Similarly, in cases of the policy rate of 0.75% and 1.75%, a change in profit becomes larger, 1.6 trillion yen, but still below profits in FY 2023. Positive profits are secured even when the policy rate and bond rate are (1%, 2%) and (1.5%, 2%). But when the policy rate is hiked to 2% and the bond rate becomes 3%, the decline in profits become 5.9 trillion yen, exceeding the profits of FY 2023 by 1.2 trillion yen. In this case, the provisioning for loss from bond transaction, 7 trillion yen as of March 2024, can be used to fill the gap.

Going through the simulation, the normalization of monetary policy would not significantly threaten the Bank of Japan's financial condition. As for the balance sheet, the unrealized capital loss from the decline of long bond prices would not be a problem, as the Bank of Japan is adopting book value accounting. Also, there is no need for a plan to sell government bonds to realize the unrealized loss.

3. Fiscal Policy Normalization

3.1 Ratchet deficits

Back in 1990, the fiscal deficits were almost zero. The debt-to-GDP ratio was about 65%, the level that was the average of G7. Thirty-four years later, the debt-to-GDP ratio is about 250%, the worst of G7 countries and close to some emerging market crisis countries. Greece went into a sovereign debt crisis at a much lower debt-to-GDP ratio. The

Since the beginning of the 1990s, fiscal deficits have been rising as a trend. **Figure 4** shows expenditures (upper line), tax and other revenues (lower line), and the new bond issues (a bar) as the difference between them, all in the ratio to GDP. The deficits, namely the new bond issues, went up and down, reflecting economic booms and recessions, as the Japanese government has practiced Keynesian counter-cyclical fiscal policies. The problem after 1990 was that deficit reduction in boom years was insufficient. Before the deficits became zero, which would be expected in the Keynesian counter-cyclical policies, the next crisis came, and the deficits soared. The Japanese banking crisis in 1997-98, the global financial crisis in 2008, and the COVID crisis of 2020 caused the jump in the size of deficits. After the jump, the level deficits only crawled down. But before they reached zero or even the level of pre-jump low, the next crisis came. Thus, deficits had a ratchet effect; it was hard to come down once the level went up. The ratchet effect explains how the debt level rose to 250%. The ratchet effect will eventually make Japanese debts unsustainable, if not already.

+++ Figure 4 about here +++

2.2. Sustainability

Many authors attempted to answer whether the Japanese sovereign debt was sustainable. First, one has to define sustainability. One definition is whether the current level of the debt-to-GDP ratio can be achievable in the future—near future or distant future—under a reasonable set of assumptions on the tax rate, expenditure needs (such as social security), the bond interest rate, the potential growth rate, and other macroeconomic variables (e.g., Broda and Weinstein (2005) and Doi, Hoshi, and Okimoto (2011) among others adopted the criterion). The bond interest rate will be influenced by the neutral rate of interest rate, discussed in the monetary normalization section. Also, household savings and investment demand will be essential in determining the bond rate. Katagiri, et al. (2025) presented a theoretical model and projection results for the Japanese situation and concluded that current policies are not sustainable in the sense that the debt-to-GDP ratio will explode.

Another criterion is whether there will be enough domestic household savings to absorb the stock of government bonds. Since the Japanese government bond's credit rating is low and the yen/dollar rate is volatile, foreign investors are not expected to buy and hold Japanese government long bonds without requiring a high-risk premium. As of December 2023, Foreigners' share of Japanese government long bonds was 6.7%, and of government long bonds and short-term bills (financing bills), it was 13.5%. Hoshi and Ito (2013, 2014) showed simulations of how household savings would decline as the economy ages—retired dis-savers would increase and the working-age population would decrease. Also, aging would increase social security expenditures and fiscal deficits if other expenditures and tax revenues were equal. Declining household savings and growing deficits would cross sometime in the future. They predicted a fiscal crisis in mid- to late 2020s. But it did not happen. These papers could not predict the Bank of Japan's QQE from 2013 to 2024, and the Bank of Japan now owns more than 50%. This certainly prevented the bond rate rise from rising.

Another condition for sustainability is whether the government has a policy rule that would prevent the debt-to-GDP ratio from rising forever. Simply put, the policy rule to tighten fiscal conditions when the debt-to-GDP ratio increases would make the debts sustainable. This is known as the condition of Bohn (1998). However, the ratchet deficits shown in [Figure 4](#) strongly suggest that this rule was not working or working to a sufficient degree. Sakuragawa and Hosono (2011) rigorously applied the Bohn condition to Japan and argued that a significant increase in consumption tax—12 points in ten years and 16.4% in 20 years—would be needed to apply the Bohn condition to stabilize the debt-to-GDP ratio. The actual course of the deficits and debts since their writing shows the run-away debt in Japan, despite the consumption tax rate hikes.

2.3. Which is higher r^* or g ?

The condition of whether the debt-to-GDP ratio would increase from one year depends on the primary balance and the relative magnitude of the growth rate (g) and the interest rate (r). The primary balance is the fiscal balance, excluding new bond issues on the revenue side and the interest payments on outstanding government bonds.

If the primary balance ≤ 0 and $g < r$, then debt/GDP rises

If the primary balance ≥ 0 and $g > r$, then debt/GDP declines

If the primary balance < 0 and $g > r$, then debt/GDP may rise or decline

If the primary balance > 0 and $g < r$, then debt/GDP may rise or decline

In Japan, the primary balance has been negative for many years. It was large enough that the debt-to-GDP ratio continued to increase even in the years of $g > r$. The government maintained an intermediate target of balancing the primary balance in the future. The problem is that the target year has been postponed a few times. The latest revision was in June 2018, when the target year for primary balance surplus was pushed back from FY 2020 to FY 2025. The primary balance target has been a soft target in Japan.

2.4. Are high debts allowed if the interest rate continues to be low?

Since the beginning of the 1990s, the long bond rate has gradually declined in most advanced countries, including Japan. It became very low and stayed low for longer than expected (Bean et al. 2015). Many economists point out reasons for the low bond rate, which include demographic transition and an aging society, the lack of productivity progress and low growth, and the successful taming of inflation (or, in the case of Japan, deflation). A secular stagnation hypothesis proposed by Summers (2016) belongs to this literature.

As the low bond rate and $r < g$ continued to be the case for many years, some people regarded that the low bond rate would stay for many years to come, if not permanently, while others regarded that the uptick would come sometime in the future. If one takes the low-forever view, the stance for the

As long as the long bond rate stays lower than the growth rate, more deficits can be incurred without increasing the debt-to-GDP ratio, allowing the government more room to maneuver. The lower the bond rate, the more deficits can be endured. New bonds allowed to be issued thanks to the low interest rate can finance infrastructure investment that will raise the growth rate or other welfare-enhancing ways.

Blanchard (2022) argued for more active use of fiscal policy financed by bonds, with his

conviction that $r < g$ will continue for some time.⁴ After discussing the sustainability issue in Chapter 4, he discusses welfare costs and benefits of debt and deficits in Chapter 5. The welfare in a growth model uses the criterion analysis in a stochastic environment. He discusses the golden rule and welfare (defined by consumption) in the growth theory literature, such as Phelps (1961) and Diamond (1965). The condition $r < g$, where r is the marginal product of capital, implies that too much capital is accumulated. Fiscal deficits and reducing capital formation would increase (steady state) consumption. The state where r is equal to g is the golden rule where consumption is maximized. Blanchard expanded the model and insight to a stochastic model and showed that the basic insight does not change. However, there could be several criticisms and questions regarding the literature on the golden rule. However, many of them would be a separate paper.

The growth literature does not clarify what level of resulting debt is associated with the golden rule. Nakajima and Takahashi (2017), using a heterogeneous agent, incomplete markets model, showed that the optimum quantity of debt is actually negative, or -50% of GDP. This should imply that the government should have a sovereign wealth fund rather than accumulating debts.

When the optimum level of debt is discussed in the current Japanese context, considerations other than consumption are needed. A high debt-to-GDP ratio makes the country vulnerable to additional large shocks like a big earthquake or a sudden increase in defense expenditures. A large expenditure in an emergency should be financed by deficits immediately but will be paid for by increased taxes over the years (just like what Japan did for the East Japan Great Earthquake in 2011). How Japan and other advanced countries could rapidly issue government bonds in the first several months in fight against COVID in 2020 is often praised as a benefit of deficits (Eichengreen, et al. (2021)). The new issuance of government bonds rose sharply in 2020 during the pandemic, but the rate did not increase. The low interest rate kept the interest payment from the budget low and there was no pressure on the government to reduce deficits. Maybe, the debt level of 250% of GDP is still considered by the market to be sustainable.

Another concern of a high level of debt is the credit rating of sovereign debt. Japanese government bonds are rated 4 notches down from AAA (or Aaa) in S&P and Moody's and 5 notches down for Fitch. If credit rating continues to go down it will cause interest rate hikes (with higher risk premia) on corporate bonds as well as the government bonds. It is rare that credit rating of corporate bonds can be higher than government bonds of the same country. Financial

⁴ Blanchard writes "The US fiscal stimulus of 2021, the resulting overheating, and the risk that higher inflation forces the Fed and other central banks to raise interest rates may lead to higher interest rates for awhile. The underlying factors behind the steady decrease in real rates over the last 30 years are still present, however, and suggest a likely return on sustained low rates afterward." (Blanchard (2022: pp. 139-140))

institutions would also find it difficult to borrow in the dollar market.

One question remains. How demographic transition, namely, population is decreasing and the old age dependency rate is rising, would affect the calculation of welfare analysis of debt in an overlapping generation model. The benefits of fiscal deficits—especially for government consumption—may be enjoyed by the generation that are living in that year. Bonds that are issued in that year will be repaid in the future generation with a fewer population. Unless the wage growth is much higher than price inflation, they will have less resources to pay. Of course, the next generation can pass it on to the next, next generation that will have even fewer population. This sounds like a Ponzi scheme. This insight should be examined in a formal model.

2.5. Normalization of fiscal policy

Generating surpluses in the primary balance is only the first step of normalizing the fiscal policy. With some help from the Bank of Japan to keep r stays lower than g , there is a chance that the debt-to-GDP ratio will stop rising around 250-260 percent in the near future, provided that the target of primary balance surplus in FY 2025 is achieved. That may be judged to satisfy the sustainability condition. However, achieving sustainability in terms of stable debt-to-GDP ratio is not the same; a stable level is “desirable” that is welfare-enhancing for all generations. Even if it is stable, the high level of debt may not be normal.

As monetary policy is normalized, the interest rate—both the policy and bond rates—will rise. In FY 2023, the outstanding amount of government bonds was 1,105 trillion yen, but the interest payments were mere 9.7 trillion yen. Suppose the bond rate will rise to 2.5% when the 2% inflation targeting regime is firmly established (namely, monetary policy is normalized). Suppose also that the outstanding amount of government bonds stay the same (namely, no new bond issues). Then, interest payment would increase to 28 trillion yen. That is an increase of interest payment by 18 trillion yen (an equivalent of the consumption tax rate hike by 7.5% point). That sounds large, but the government can take time, as the average maturity of outstanding government bonds is about 9 years. The higher inflation rate will generate higher tax revenues as the income tax is progressive. The higher inflation rate will also require higher expenditures if the expenditures are fully indexed to inflation. But social security pensions, for example, is not one-to-one indexed to inflation.

A country with a high level of debt will be vulnerable to a significant shock to the economy, to which fiscal policy would like to respond quickly. The normal fiscal policy should be defined as a state where (i) the debt-to-GDP level is as an appropriate level, which may not be specified a priori; (ii) fiscal deficits may be deployed without a worry of hiking the interest rate when a big recession or a big shock, such as a natural disaster, hit the country; (iii) there should be a fiscal rule to bring the debt-to-GDP back to the appropriate level when it deviates; (iv) some

mechanism to rectify the intergenerational inequity that may arise from issuing bonds should be adopted.

Many studies have been carried out on the sustainability issue. However, fewer studies have been conducted on the welfare aspect of Japanese debts, including the issue of the desirable size of debts and implications for intergenerational conflicts. The actual step of fiscal policy normalization and academic study on normalization in Japan have only begun.

4. Yen normalization

The yen has been volatile both in the long and short term. Since the end of the Bretton Woods fixed exchange rate regime to the mid-1990s, the yen had a clear trend to appreciate. The nominal bilateral dollar/yen exchange rate went from 360 yen/dollar in 1971 to 80 yen/dollar in April 1995, when the trade conflict with the United States climaxed. The yen vis-à-vis the US dollar (“yen” for short) weakened to 147 amid the Japanese banking crisis of 1997-98. Between 1999 and 2008, the dollar/yen fluctuated between 100 and 130. From 2008 to 2011, the yen appreciated from 100 to 75. Many screams were heard from the exporting sectors, and the high yen passing through to domestic prices contributed to deflation, a number one macro problem at the time. Japanese exporters had to cope with yen appreciation by innovating their production processes and later shifting production abroad. The Ministry of Finance forex interventions checked an abnormally strong yen and high volatility. When the yen is too appreciated, or so perceived, the Japanese Ministry of Finance conducted selling-yen-buying-USD interventions. The frequency of interventions fell after 2004. However, when the yen approached 80 in 2010 and 2011, the yen selling interventions were implemented. (See Ito and Hoshi (2020, chapter 12 for a complete description of the exchange rate movement and interventions up to 2019.)

The Bank of Japan’s QQE helped the yen certainly put pressure on the yen to depreciate. After 2014 the yen stayed between 115 and 130, and complaints about the exchange rate were quickly diminished. There was no intervention between 2012 and 2021. In 2022, the yen depreciated rapidly from 115 yen to 150 yen per dollar due to the widening interest rate differential. Interventions were conducted in September and October to halt further yen depreciation. In 2022, countering the high inflation rate reaching 8%, the Federal Reserve hiked the interest rate rapidly seven times and by 425 basis points; in 2023, the US interest rate hike continued, and the federal funds rate became the 5.25%-5.50% range, while the Bank of Japan continued the negative interest rate policy. This prompted portfolio outflow pressure from Japan and speculative positions betting on yen depreciation. From January to April 2024, the yen depreciated from 142 yen to 160 yen per dollar. There were outcries of too much depreciation of the yen or bad depreciation. Some politicians mentioned that the Bank of Japan should hasten normalization (i.e.,

hiking the policy rate) to stop yen depreciation. This contrasts with screams heard in 2012 about too much appreciation. Interventions were conducted on April 29 and May 1. Why does the yen fluctuate so much and to the extreme that it needs interventions, an unconventional tool?

The above narrative based on the nominal dollar/yen is incomplete as a description of the exchange rate in two counts. First, the exchange rate relevant to exports and imports should be the average of yen vis-à-vis currencies of the major trading partners. Second, the exchange rate relevant to macroeconomic activities is the real exchange rate, that is the exchange rate changes adjusted for the inflation rate differential. The nominal effective exchange rate (NEER) is the index of the multiple currency pairs with yen with major trading partners. The real effective exchange rate (REER) is NEER adjusted for inflation rate differentials between Japan and trading partner countries. [Figure 5](#) and [Figure 6](#) shows the NEER and REER, respectively, for G7 and Switzerland.

+++ Figures 5 and 6 about here +++

NEER in [Figure 5](#) shows that the yen appreciated by five times between 1970 and 2011 and then declined to the three times level compared to 1970 by 2024. The NEER of the yen in 2024 is about the same as in 1990. The Swiss Franc is also consistently appreciated, along with the Japanese yen. The Swiss Franc level in 2024 is close to 5 times of 1970. The fluctuation around the trend is much higher for the yen compared to the Swiss Franc. G7 currencies other than the yen stayed very stable compared to the yen. The dollar appreciation from 1981 to 1985, which motivated the Plaza Agreement, was also visible. The US dollar in NEER hit record high in 1985. An exceptionally high yen volatility, clearly seen in [Figure 5](#), may justify more frequent Japanese interventions than other countries.

The REER yen in [Figure 6](#) shows the record high was April 1995. The level in 2024 is the same as in 1970. The REER yen appreciated, and its value in 1995 became three times that of 1964. However, the gains from 1970 to 1995 were all but lost in the depreciation from 1995 to 2024. The REER is often regarded as a measure of the purchasing power of the currency. The yen in 2024 is as weak as when the nominal dollar/yen was 360. No wonder foreigners find all prices in Japan “cheap” when converted in the US dollar. Or Japanese tourists in New York find everything from a bowl of ramen to clothing to a taxi ride to college tuition is expensive when converted back to the yen. But where does this cheap Japan of 2024 come from? Is it the nominal exchange rate or prices that contributed to REER decline?

[Figure 7](#) shows the NEER and REER of the yen. When they move in parallel, like from 1964 to 1995, the inflation rates of Japan and trading partners are relatively comparable. When the two indices deviate little by little, like from 1995 to 2024, it implies the inflation rate in Japan is much lower than the trading partners. So, the long slide of the REER yen from 1995 and 2024 are due to both nominal depreciation of the yen and domestic deflation until 2012 and positive

but low inflation after 2013 in Japan.

+++ Figure 7 about here +++

If one views the REER decline from 2011 to 2024 as a nominal exchange rate phenomenon, blaming the Japanese monetary policy that kept QQE too long is reasonable. However, if one views domestic deflation and low inflation as culprits, the Bank of Japan did not do enough QQE to cause inflation earlier. Both views assume the exchange rate is relatively independent from the domestic price levels but influenced more by capital flows.

The normalcy of the exchange rate, in general, can be viewed as the exchange rate moving according to macro fundamentals without too much volatility, and interventions by the monetary authority are not called for. We have seen that normalcy is hard to obtain under the floating exchange rate regime, but the degree of deviation from the fundamentals seems to be much higher in the case of the yen.

In the future, achieving 2% inflation target will eliminate the inflation differential between Japan and major trading partner that all adopt the 2 % inflation target. This eliminates one source of REER volatility. Monetary normalization will bring the Japanese interest rates similar to those of trading partners. Fiscal policy normalization is also important in achieving the interest rates close to other countries without a fiscal crisis. That would eliminate the source of volatile capital flows based on the interest rate differential. The normalization of the exchange rate is dependent on the success of monetary policy normalization and fiscal policy normalization.

5. Economic growth normalization

Japan used to be number 2 in the world's GDP (converted to the US dollar) until China took over in 2010. In 2023, Germany became number 3, overtaking Japan. Japan is now number 4 but will soon be overtaken by India. Japan's relative decline in GDP size is due to slower growth of per capita GDP, a faster population decline, and the depreciation of the Japanese yen (NEER).

Figure 8 compares the GDP per capita (current price in USD) of the G7 and Switzerland relative to the US. Japan went from 20% of the US in 1960 to 140% in 1995 and then declined to 40% of the US. Japan has done exceptionally well until the mid-1990s, but it is now no different from other G7 countries. In this sense, Japan converged with the advanced European countries and Canada in terms of per capita GDP relative to the US. **Figure 9** compares the GDP per capita in US Dollars of the US, Japan, and four Asian economies (Hong Kong, Korea, Singapore, and Taiwan). The US and Singapore have grown steadily. After Singapore caught up with the US, it stayed with it. Japan grew and overtook the US in the mid-1990s but then stagnated. Japanese growth in GDP per capita has been flat in the last 30 years. Japan is about to be overtaken by Asian countries. Is Japan slipping back to an emerging market category?

+++ [Figure 8 and Figure 9](#) about here +++

Many papers have discussed the stagnation in growth since the 1990s. See Ito and Hoshi (2020, chapters 3 and 14) for a summary of the literature and discussions. Economic growth is a function of labor input, capital input, and technological progress (productivity gains). With some simplifying assumption, per capita growth is a function of capital per capita and labor productivity growth. The slowdown in per capita growth is due to slow investment and/or slow productivity gains.

For various reasons, Japanese firms, first manufacturing firms and later other firms, have been investing abroad for the last three decades. Their domestic investment has lagged behind. Japanese firms' profits have grown steadily since 2013, but much of it is due to their overseas operations. This contributes to stagnation in capital per capita.

[Figure 10](#) shows the time series of GDP growth rate, corporate capital investment growth rate (both taken from GDP statistics), and TFP growth rate (taken from Japan Productivity Center). The correlation among the three variables is obvious, with investment being highly volatile. According to theory, low productivity growth and low investment after 1992 explain the slow growth. But this would shift a question to productivity growth, namely, why did it become so slow after 1990.

+++ [Figure 10](#) about here +++

Ikeuchi, et al. (2022) summarize the literature identifying the sources of productivity slowdown. First, the decline in productivity growth comes from inside the company. This is due to sluggish investment in information and communication technologies, research and development, and human capital. Second, while firms' entry and exit and reallocating resources among surviving firms raise productivity in the US and Europe, this is much less in Japan. In Japan, many low-productivity firms may shrink but continue to exist, and some high-productivity firms do exist. Since the latter would drag down the average productivity of surviving firms, they call it the negative exit effect. They go on to measure it. Third, the TFP growth performance of small and medium-sized enterprises (SMEs) has considerably lagged behind the large firms and factories. This may be due to insufficient investment in ICT and a lack of spillovers from large corporations. Hosono and Takizawa (2022) distinguished technical efficiency and allocative efficiency by using a framework of the aggregate production possibility frontier. They found that allocative efficiency declined among survivors of the banking crisis, and technical efficiency declined during the global financial crisis.

Fukao (2023) examined corporate-level data and argued that a key for productivity growth is to increase the human capital of part-time workers who are not covered in lifetime employment; the labor productivity of small and medium enterprises still lag behind the large firms due to a lack of investment, for example, in software. The TFP growth rate between Japan

and other advanced countries is still large, suggesting significant growth potential. Fukao found that TFP stagnation after 2010 occurred mainly in electronics, auto-related, and semi-conductors. Investment aimed at raising the quality of human capital, increasing capital investment, plus comprehensive policies to stop hollowing out or re-shoring, is needed. If these measures are adopted, the room to accelerate TFP growth is large.

6. Conclusion

This paper has clarified that monetary policy normalization is very important and has implications for both fiscal policy normalization and yen normalization. Monetary normalization is within reach. However, fiscal normalization would take much longer. Yen normalization means that the exchange rate stays stable and fluctuates in a certain range. Having normalized monetary policy with the 2% inflation target would contribute to yen normalization.

Thanks to higher labor productivity, workers can accept domestic inflation when per capita income rises. This helps monetary policy normalization and yen normalization. Productivity growth will be important for raising the potential growth rate. A higher growth rate and yen normalization would be needed to keep per capita GDP close to other G7 countries and Asian neighbors. Productivity growth will also be required to reverse the decline in REER.

Structural reform policies will be needed for higher productivity growth. Unproductive firms should be allowed to exit. More investment in information and communication technology is needed to catch up with US and European firms. On-shoring (return to home) investment would also raise workers' productivity in Japan. Due to the weak yen and low inflation, investment in Japan may make sense, depending on the industries.

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Figure 1.

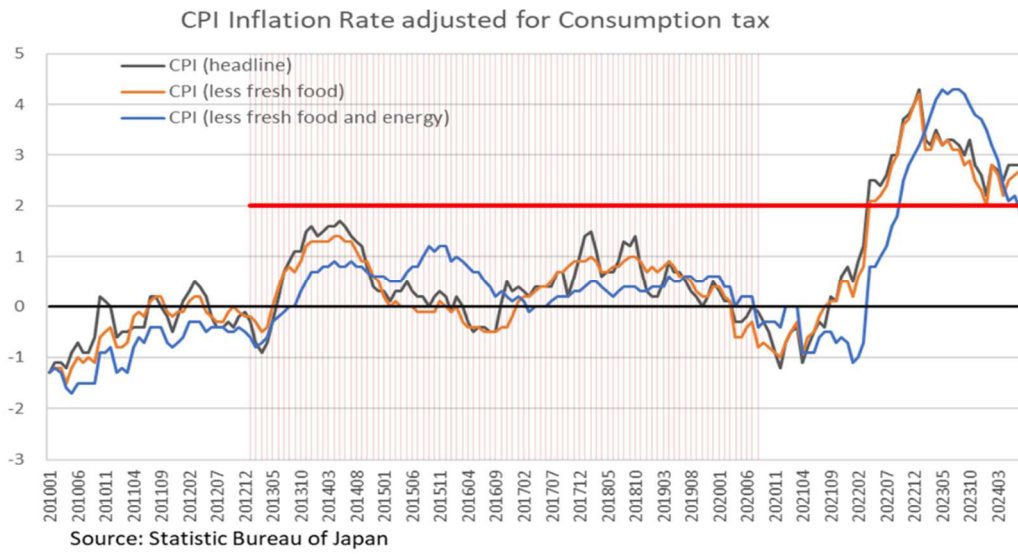
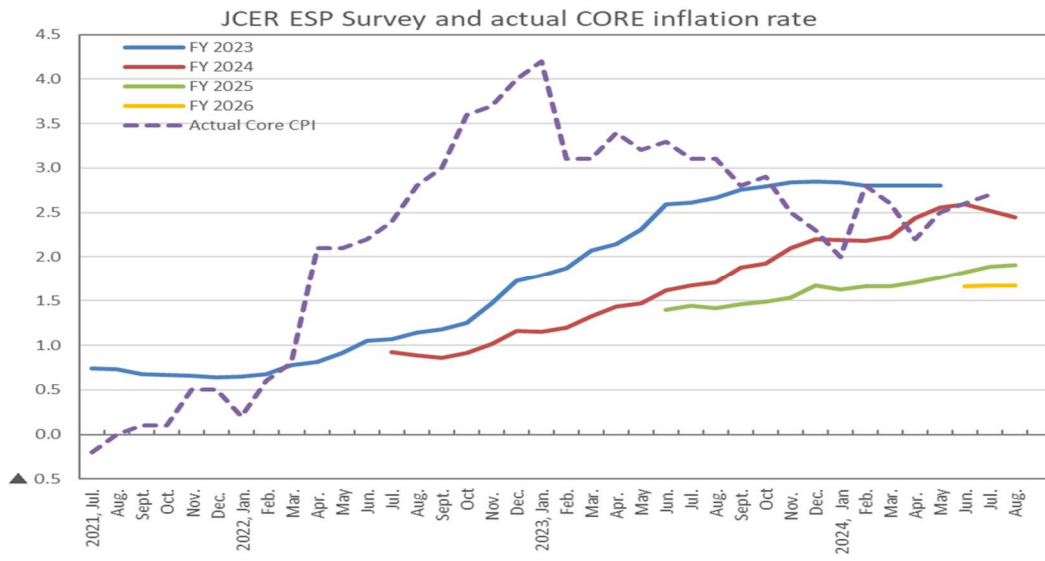


Figure 2.



Source: Author's creation based on JCER ESP Survey

Figure 3

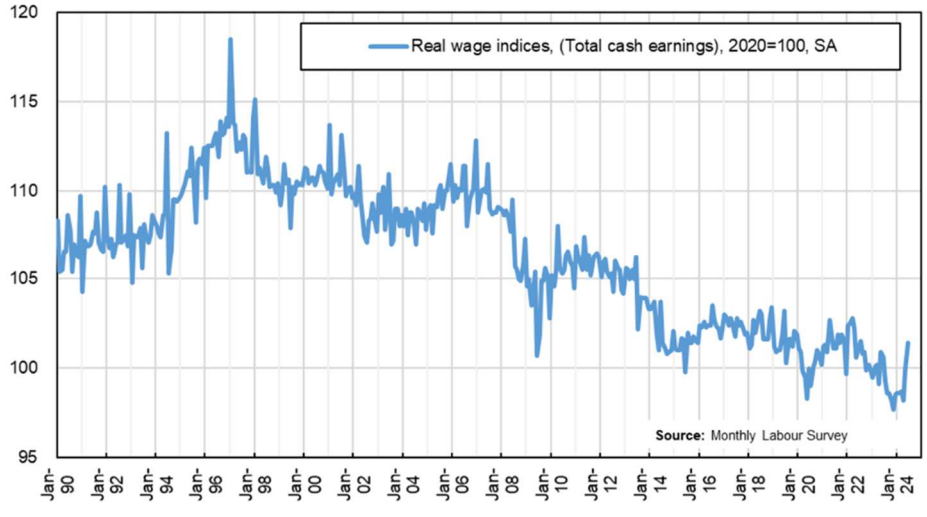
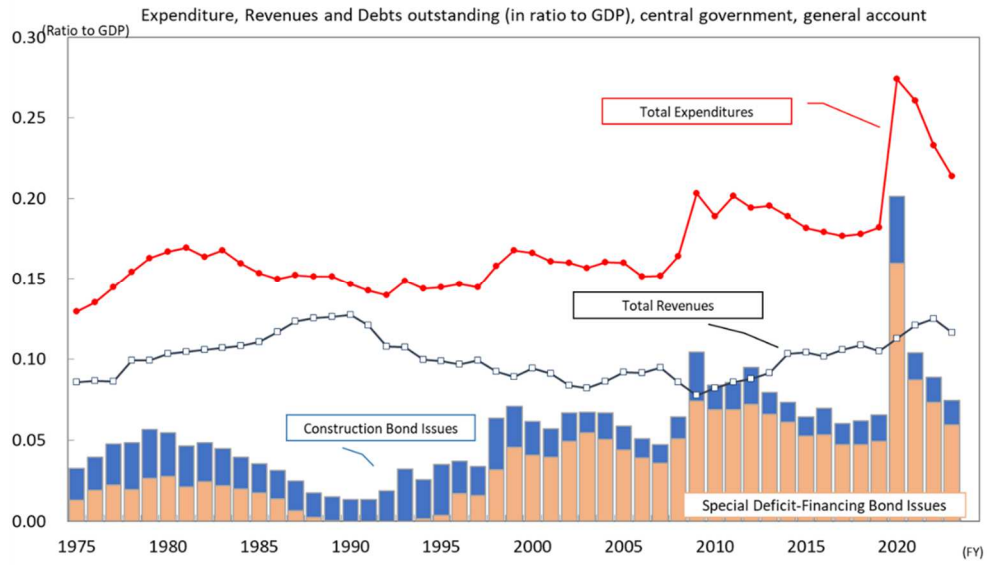
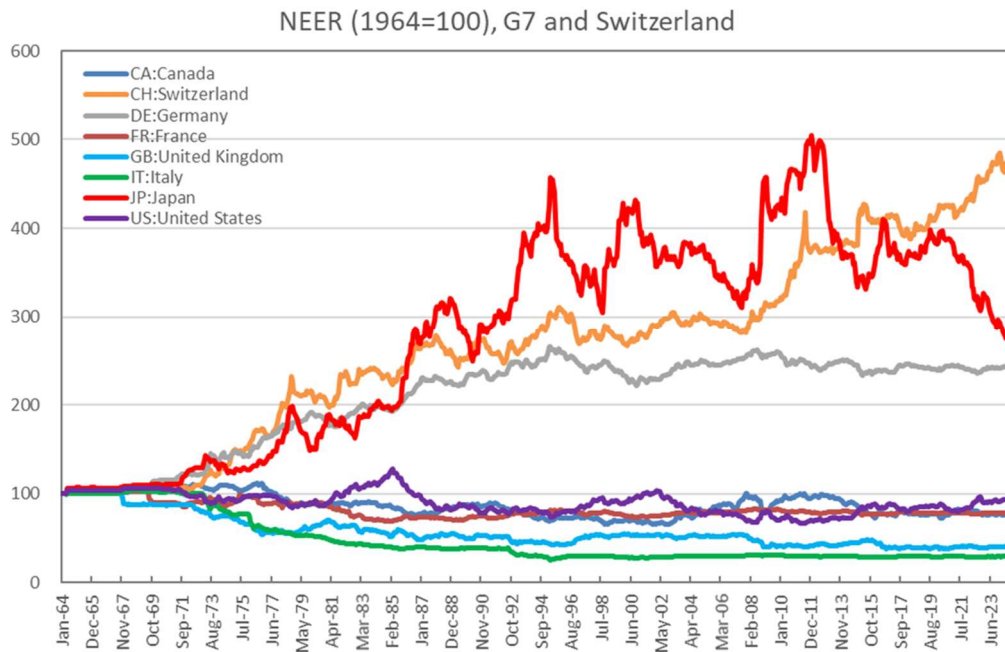


Figure 4



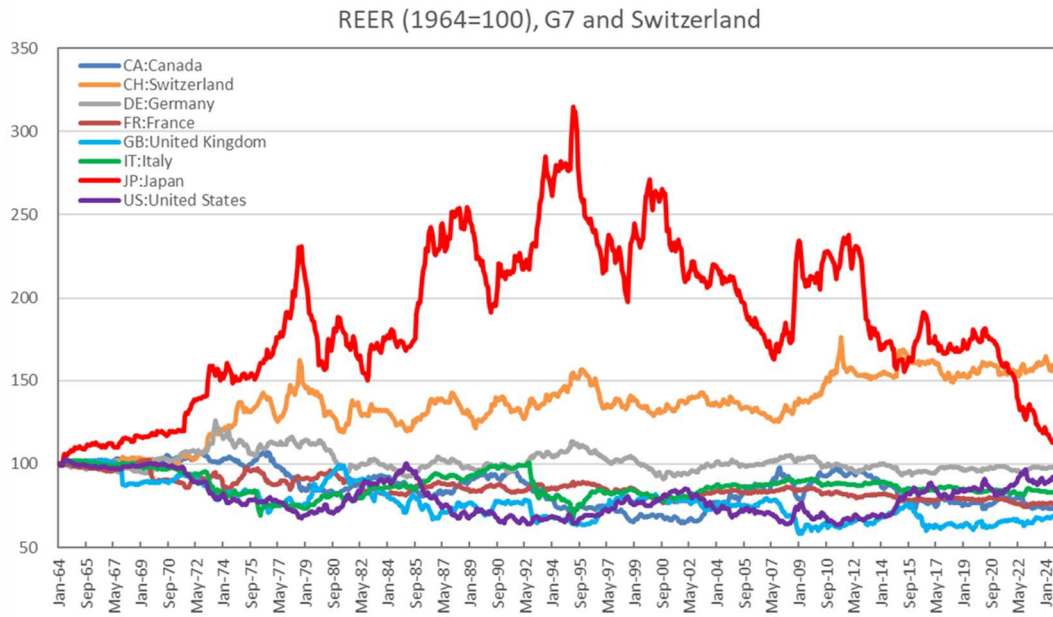
Source: Author's creation based on data at Ministry of Finance

Figure 5



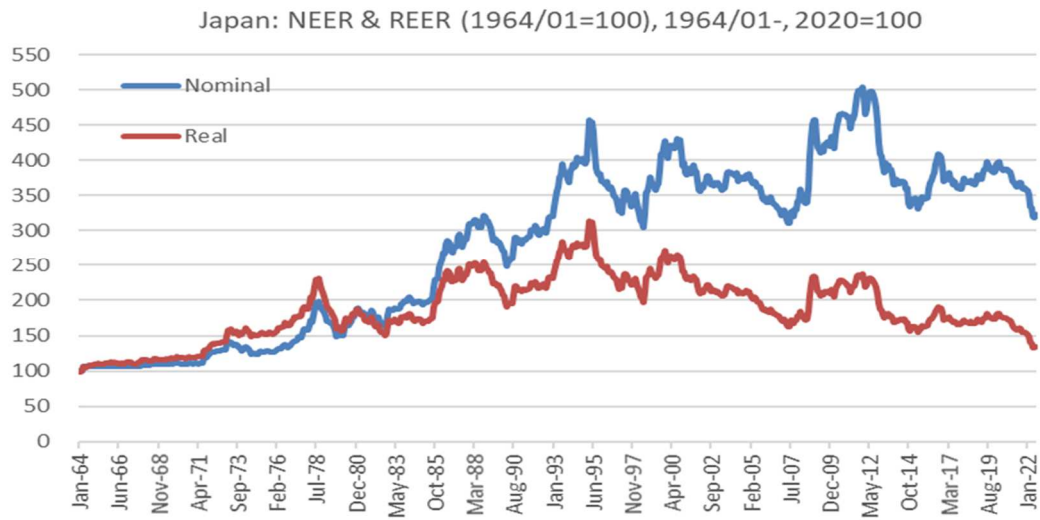
Source: Author's creation using the BIS data

Figure 6



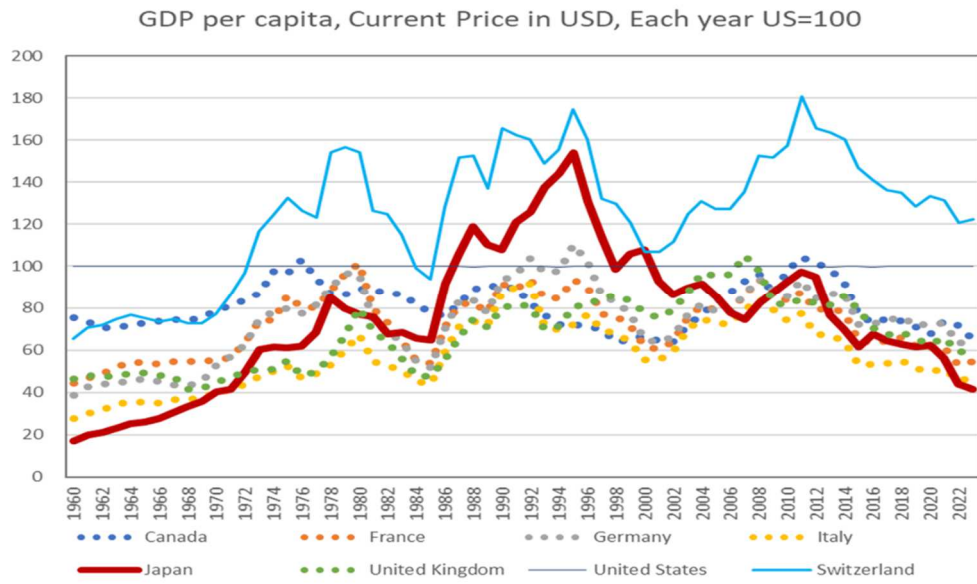
Source: Author's creation using the BIS data

Figure 7



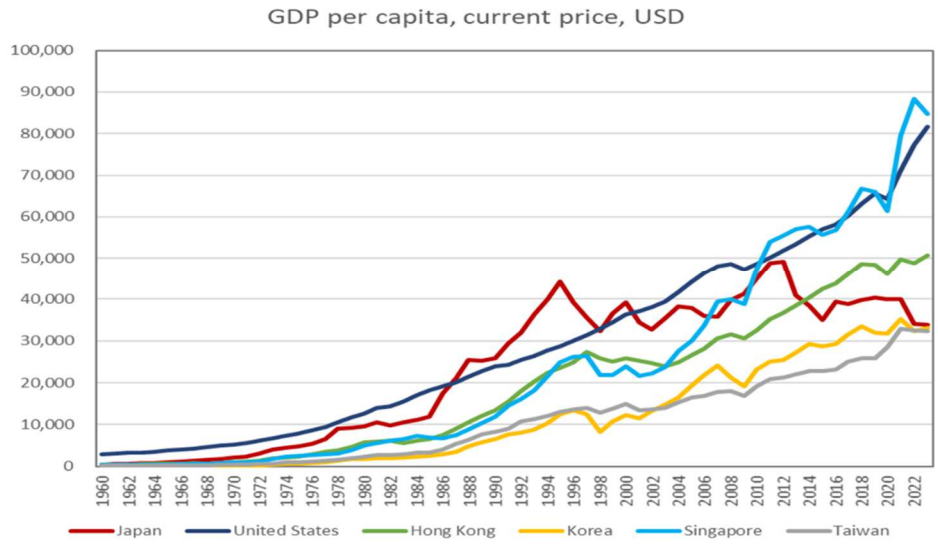
Source: Author's creation using the BIS data

Figure 8



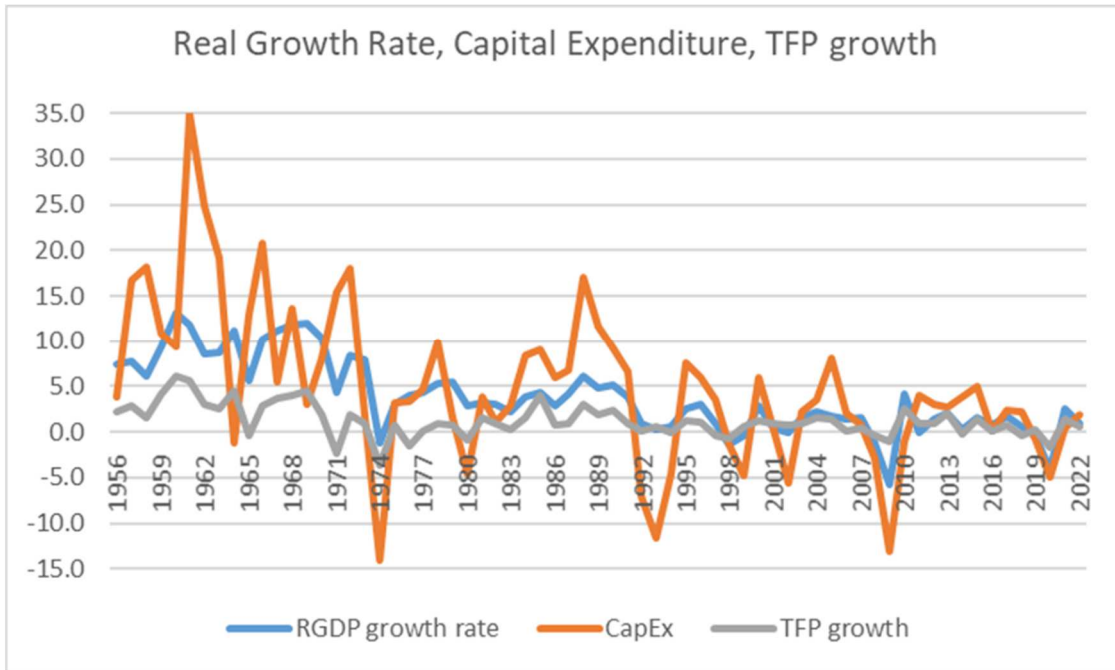
Data source: The World Bank

Figure 9



Data Source: World Bank

Figure 10



Source: Data are from the Cabinet Office and the Japan Productivity Center

Table 1: Simulation of QT and interest hike on BOJ's profit/loss

Table 1	Interest rate assumption					
	Policy Rate (%)	0.5	0.75	1.00	1.5	2.0
(unit, 100 million yen)	Bond Rate (%)	1.5	1.75	2.00	2.5	3.0
Excess reserves end FY 2023	5,097,295					
7% QT(multiply 93%), ExRes will be FY2025	4,740,484					
Interest Payment to ExRes FY2025		23,702	35,554	47,405	71,107	94,810
interest payment to ExRes FY 2023	1,887	1,887	1,887	1,887	1,887	1,887
(A) Net change in interest payments to ExRes by normalization		21,815	33,667	45,518	69,220	92,923
Amount of Bonds mature by March 2026	1,413,464					
7% QT Rollover maturing bonds x 0.93	1,314,522					
Lost interest revenue from maturing bonds.*	5,262	5,262	5,262	5,262	5,262	5,262
Gains from rollover bonds		19,718	23,004	26,290	32,863	39,436
(B) Net gains from rollover of 93%		14,456	17,742	21,028	27,601	34,174
(C) Bond interest income change - ExRes interest payment change		-7,360	-15,925	-24,489	-41,619	-58,749
FY2023 Profit (from P/L)		46,399	46,399	46,399	46,399	46,399
FY2025 profit = FY2023 Profit - net Change (C)		39,039	30,474	21,910	4,780	-12,350

Source: Author's calculation with data from the Bank of Japan's balance sheet, profit/loss statements, and a list of bond holding.

Notes: * Calculate individual bonds interest revenue and aggregate them