Macroeconomic Policy Assessment in an Era of Low Interest Rates -- The Case of Japan

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Abstract. How the macroeconomic policies adjust to stimulating economic development after the failure of conventional monetary policy with zero lower bound (ZLB) in the low interest rate era is one of the key topics of research today. Studies have been conducted to summarize or model single policies of macroeconomic policies in some countries since the beginning of the low-interest rate era, however, there is a lack of systematic assessment and generalization of the combination of macroeconomic policies. Therefore, this paper takes Japan as an example and starts from the IS-LM model, combining data on indicators of Japan's macroeconomic performance over the past decade to conduct a systematic assessment of the effectiveness and limitations of both monetary and fiscal policies. The study finds that Quantitative and Qualitative Monetary Easing (QQE), negative interest rate policy (NIRP) and flexible fiscal policy, which are innovative macroeconomic policies with ZLB, are effective in stimulating economic policies, but their long-term performance is poor due to a variety of domestic and international factors. Based on the results of the assessment, the paper also offers some insights into the implementation of macroeconomic policies in an era of low-interest rates.

Keywords: ZBL; IS-LM model; QQE; NIRP; Flexible fiscal policy.

1. Introduction

The world is moving towards an era of low-interest rates, with some countries even moving towards zero or even negative interest rates. The real interest rates have fallen sharply in recent years, particularly in developed economies, and that in addition there has been a gradual convergence in real interest rates across countries and a slowdown in global economic growth. This is even more evident from the real interest rate, which is 0.18 in China, -2.38 in Korea, -2.8 in Japan, -5.4 in the US and -7.63 in the UK. When the policy rate is close to zero, the interest rate instruments in the monetary policy basket fail due to ZLB, and countries that have entered the low-interest rate era are actively exploring new ways out of macroeconomic policies. Japan, as an early entrant into the low-interest rate era and with more remarkable achievements in macroeconomic policy innovation, has a rich research value in its policy exploration path.

Macroeconomic policy is divided into two types: monetary policy and fiscal policy. Under the Keynesian framework, when output is smaller than equilibrium output in a recession and there is downward pressure on prices, expansionary monetary policy is needed to influence the assets market, the transmission pathway is expanding the Monetary base, lowering interest rates, stimulating investment and increasing aggregate demand, thus stimulating the economy; or expansionary fiscal policy, directly influencing the government spending directly stimulates aggregate demand and further accelerates economic growth through the multiplier effect. However, what kind of new monetary policy should be adopted after with ZLB existing and traditional monetary policy has failed? What is the effect? How should the fiscal policy be adjusted accordingly? What is the effect? What are the lessons from Japan's path of macroeconomic policy exploration in the era of low-interest rates? The study of these questions can provide guidance and insights for the adjustment of macro policies in countries that have entered or will soon enter the low-interest rate era.

Based on the IS-LM model, this paper first assesses monetary policy, including QQE and NIRP, which had some effect on Japan's escape from the liquidity trap, but the positive effect on economic growth was not sustainable due to international factors and Japan's historical economic problems. Fiscal policy is then assessed from both government expenditure and taxation perspectives. Fiscal

policy performs relatively well in the face of the poor effects of monetary policy, but the sustainability of fiscal policy is also challenged by the Japanese government's long-term debt problem, which makes it difficult to simultaneously expand government expenditure and achieve the fiscal balance. Finally, based on the Japanese experience, the paper makes several suggestions for macroeconomic policy interventions in an era of low-interest rates.

2. Policy Assessment

2.1 Background

Japan has been in a prolonged economic depression since the bursting of the asset bubble in the early 1990s and the Bank of Japan cut interest rates to zero in the late 1990s, since when Japan has entered a prolonged era of zero interest rates. However, due to the prolonged economic downturn and persistent deflation, and constrained by the zero-lower bound (ZLB), the interest rate tool has become ineffective. The Bank of Japan began to actively explore new policies to revive the Japanese economy and introduced quantitative easing, also known as "unconventional monetary policy". Quantitative easing is a policy of increasing the supply of base money and injecting large amounts of liquidity funds into the market by purchasing medium- and long-term bonds such as treasury bonds, after abandoning the interest rate tool, which means indirectly printing money. The first arrow of Abe's economics also continued the monetary policy of quantitative easing. Subsequently, for almost a decade, Japan continued to try to stimulate economic growth in a zero-interest rate situation. The Bank of Japan launched Quantitative and Qualitative Monetary Easing (QQE) in April 2013 and pledged to restore the year-on-year rate of change in the Consumer Price Index (CPI) to a stable 2% as soon as possible, expanding QQE in October 2014 and introducing supplementary measures in December 2015. In January 2016, the ZLB was broken by the introduction of QQE with negative interest rates, another monetary policy innovation, entering the era of negative interest rates and strengthening monetary easing in July 2016.

In addition, macroeconomic policy includes both monetary and fiscal policy, especially after the failure of interest rate tools during the zero-interest rate period, it is necessary to reconsider fiscal policy and the Japanese government is actively exploring changes in fiscal spending and taxation. In addition to the traditional fiscal expansionary policy, Abe economics proposes a flexible fiscal policy, adopting a conventional expansionary policy of increasing fiscal spending when necessary and a counter-cyclical policy of contractionary fiscal policy when possible, thus achieving the goal of expanding government spending to stimulate the demand side while keeping the government deficit from growing too fast. Since 2012, the Japanese government has been promoting fiscal reconstruction, controlling the level of fiscal deficit, reducing the issuance of government bonds to reduce excessive reliance on future consumption, and investing a large amount of money in fiscal expenditure expansion to stimulate the economy, which has been mainly used to increase social security coverage; supporting small, medium and micro enterprises to enhance economic development and improve their market competitiveness; raising consumption tax twice; and increasing income tax The government has also increased the basic deduction and raised taxes on higher income groups, and reduced taxes on businesses. The expansion of government spending was complemented by tighter tax increases.

As an early entrant to the zero-interest rate era, Japan has matured its experience on how to change its macroeconomic policies in the zero-interest rate era, and the series of macroeconomic policies it has adopted are invaluable references for other countries, so it is significant to assess the effectiveness and limitations of Japan's macroeconomic policies in the zero and negative interest rate era.

2.2 Monetary policy

Conventional monetary policy has three main policy tools: the central bank adjusts the discount rate for commercial paper or the discount policy for commercial banks, changes the legal reserve ratio for commercial banks and adjusts the benchmark interest rate (usually the 1-year benchmark deposit

and loan rate). Expansionary monetary policy means increasing the money base and the Keynesian monetary transmission mechanism is as follows:

$$M/P\uparrow \dashrightarrow r\downarrow \dashrightarrow I\uparrow \dashrightarrow Y\uparrow \quad (1)$$

However, when there is a Zero Lower Bound situation, the central bank can no longer make people adjust their portfolio decision through interest rates and there is no incentive to invest, which prompts the emergence of unconventional monetary instruments.

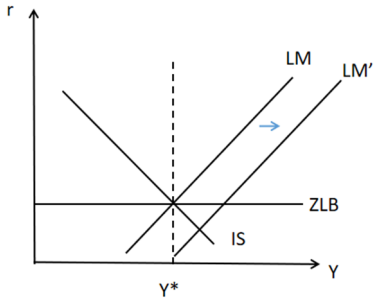


Fig.1 IS-LM Model with ZLB

2.2.1 Quantitative and Qualitative Monetary Easing (QQE)

Quantitative and Qualitative Monetary Easing (QQE) is the Bank of Japan's way of injecting life into a chronically sluggish economy by setting a 2% inflation target for 2 years and doubling the purchase of government bonds and extending the maturity of the Bank's holdings of government bonds to increase the money base and raise inflation expectations.

Effectiveness: Break the liquidity trap in the short term

Low interest rates have led people to hold large amounts of cash, and the interest rate that can't go down has led people to expect interest rates to rise in the future, so they are reluctant to invest in risk assets such as bonds in the current period, as the expected price of bonds will fall when interest rates are expected to rise; Low inflation in turn leads to expectations of lower inflation and a reluctance to increase consumption activity. As a result, a large amount of liquid money is stored away instead of being used for consumption and investment, making it impossible to stimulate the economy even with more money injected into the market. The QQE, on the other hand, starts with another factor influencing the real interest rate - prices - and sets an inflation target to raise people's inflation expectations. that forces real interest rates to fall further, breaking the liquidity trap of consumer investment activity in the short term where liquid funds cannot flow into the market. In addition, Japan's expansionary monetary policy and low real interest rates have had a deterrent effect on the appreciation of the yen, easing export pressures and helping to ease the liquidity trap in terms of import and export trade.

In turn, the central bank's holding of more and longer-term Treasuries has further stabilized bond market yields and increased investor confidence in investing. QQE has contributed to real economic growth by attempting to raise positive expectations of the economy and increase consumer and investment confidence.

We can also see from the data that QQE has had some effect in the short term.

From 2013, inflation rose significantly, surpassing 2% in 2014; nominal interest rates remained at zero; while real interest rates fell further, even into negative territory, from 1.7% to -0.9%; GDP growth also rose in this initial period, to 2%.

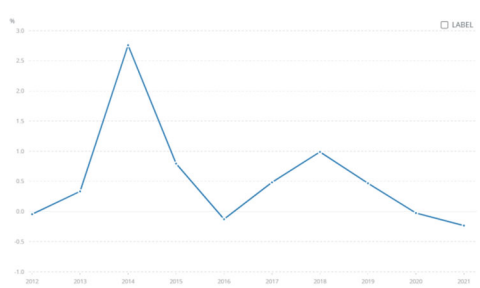


Fig. 2 Inflation, Consumer prices (annual, %)



Fig. 3 Real interest rate

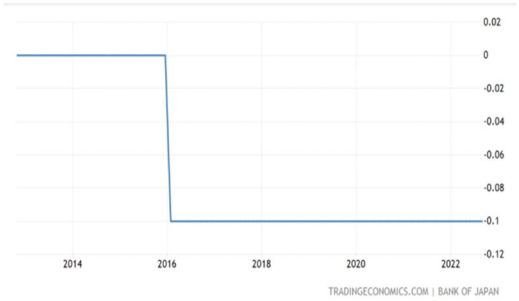


Fig. 4 Interest rate

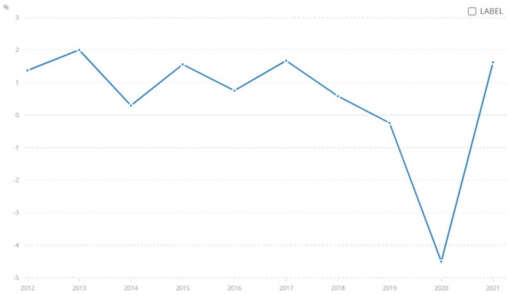


Fig. 5 GDP growth

Limitations

Unconventional monetary policies do prevent economic collapse, but are not designed to have limited effect in promoting stronger long-term economic growth.

In 2015, affected by the international economic environment, commodity prices such as oil plummeted. As a country with a large share of imports and exports, Japan's economy is very sensitive to changes in international commodity prices, lower oil prices for imported oil, lower industrial costs and downward pressure on prices, the central bank's 2% inflation target commitment was challenged and the effectiveness of QQE began to decline. It is also clear from the data that inflation fell again between 2015 and 2016, GDP growth slowed, the central bank's credibility was not sufficient to support the downward pressure on prices caused by the plunge in oil prices and the Japanese economy was once again faced with a liquidity trap. The reason why quantitative easing in Japan has been less effective than expected is that expected inflation has not been well controlled, and that the disturbances affecting expected inflation in Japan may have offset some of the central bank's credibility, delaying the achievement of the inflation target set by the central bank.

2.2.2 Negative interest rate policy (NIRP)

In 2016, the Bank of Japan, in order to strengthen its credibility to achieve its target of 2% inflation as soon as possible, once again introduced a negative interest rate policy, which continued to accompany the quantitative easing policy and further extended the limits of monetary policy easing. The difference between negative interest rate policy and quantitative easing policy is that negative interest rate policy is not a direct attempt to inject funds into the market, but a negative interest rate imposed on commercial banks through the central bank. If commercial banks have too much reserve on deposit, their profits are eroded, which forces commercial banks to adjust their balance sheets, allowing the overflowing reserve on deposit to flow into the market in the form of credit to promote investment.

Effectiveness

The first thing that can be learned from the transmission mechanism of negative interest rate policy on monetary easing is that the central bank puts out a signal to increase the outflow of deposit reserves, which will flow the extra deposit reserves into the market through credit from the side of commercial banks, thus achieving both an increase in the amount of money in the market and stimulating commercial banks to adopt an aggressive lending strategy to stimulate people's investment activities.

Secondly negative interest rates put downward pressure on interest rates in the government bond market, as quantitative easing led to the central bank holding a large amount of treasury bonds, and falling interest rates in the bond market eased the pressure on the government to service its debts, moderating the government deficit to a certain extent.

In terms of data, after the implementation of the negative interest rate policy in 2016, it did have a stimulating effect on the economy, with inflation stopping its decline and picking up, and GDP growth picking up.

The negative interest rate policy has so far had some positive effects in promoting macroeconomic growth, and that NIRP is a legitimate policy tool to ease the lower bound of zero interest rates in Japan. The quantitative easing has worked well in the transmission of monetary policy through the channel of bank lending from the 15 years' evidence.

Limitations

However, in the long run, negative interest rate policy is detrimental to the stability of the financial system, especially for local banks with low creditworthiness that are difficult to lend to, and the increase in deposit reserves due to negative interest rates may force such banks to lend more non-performing loans, thus disrupting the financial system.

In addition, due to the painful lessons learned from the collapse of the previous bubble economy, the Japanese nation's demand for risky assets has not increased much even with negative interest rates, which has exacerbated the operational difficulties of commercial banks and has had little stimulating effect on the economy. Japan's quantitative easing policy might be less effective from a credit perspective than directly stimulating banks that are more sensitive to reserve increases, perhaps making the injection of funds more effective.

2.3 Fiscal policy

When monetary policy is not working well, fiscal policy becomes a top priority. When the economy is in a recessionary downturn, the fiscal policy generally adopted should be expansionary, i.e. increasing government spending or reducing taxes to stimulate growth on the aggregate demand side. Expanding fiscal spending remains effective even in the presence of the ZLB. As shown in the chart,

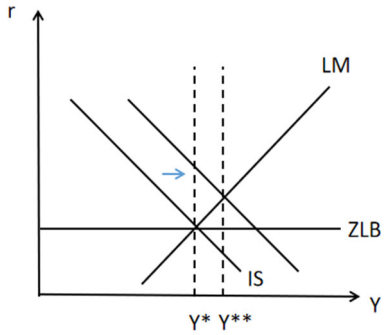


Fig. 6 Expanding fiscal policy IS-LM Model with ZLB

However, as Japanese private demand is chronically weak, with a stronger appetite for savings and weaker investment demand after a long period of low interest rates, the decline in investment demand may offset the positive effects of increased government spending, allowing the economy to remain at depressed levels.

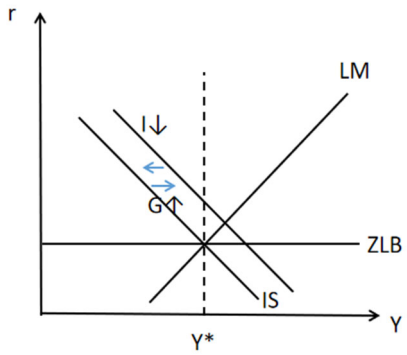


Fig. 7 Decline in investment demand offsets the effects of increased government spending

Fiscal policy therefore also needs to be revisited in an era of low interest rates.

2.3.1 Fiscal spending continues to expand

Since the era of low interest rates, the interest rate tool has failed and in order to raise output and stimulate aggregate demand, the Japanese government has pursued an expansionary fiscal policy with a continuous increase in government spending. Besides, there is a unidirectional causal relationship between government spending and economic growth in Japan, and therefore it is reasonable to stimulate economic growth through expansion of government spending during periods of economic depression .

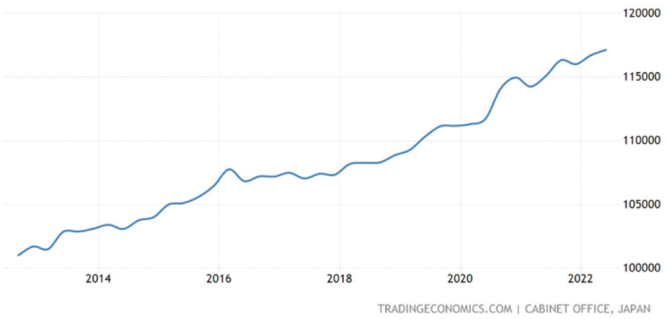


Fig. 8 Government spending

Effectiveness

The change in the share of government spending in GDP shows that the share has declined despite the continued expansion of government spending, whereby expansionary fiscal policy has had a positive stimulus effect on aggregate output. Through an analysis of a dataset of Japanese government spending forecasts, shows that the government spending multiplier is more sensitive when nominal interest rates are close to the ZLB than in the normal interest rate case , the increase in government spending has a spillover effect on private consumption and investment during the ZLB period, and the effect of fiscal spending expansion is more pronounced when interest rates are close to the zero lower bound, in addition to the expected inflation rate increasing more than in the normal interest rate case, which also favours the inflation rate target of QQE. Fiscal policy targeting deficit spending stimulus has regained an important role in the context of the zero-interest rate floor constraint and the liquidity trap, and shows that primary deficit spending is necessary in the Japanese context.

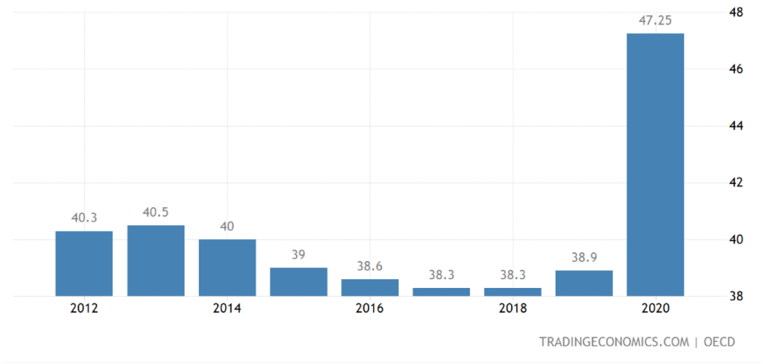


Fig. 9 Expenditure as a share of GDP

Looking at the flow of fiscal expenditure, we can observe that social security coverage in Japan is increasing year by year. The increase in social security coverage is based on the psychology of people's expectations; if social security benefits such as health care and pensions are poor, it will prompt people to save more and invest less, thus avoiding risks, especially in times of low interest rates. In contrast, fiscal spending to improve social welfare protection, in addition to being a direct stimulus to aggregate demand, also indirectly stimulates people to invest and consume. A good social security system reduces people's propensity to save in the current period and increases their propensity to invest and consume in the current period. It helps to transfer future consumption to current consumption.

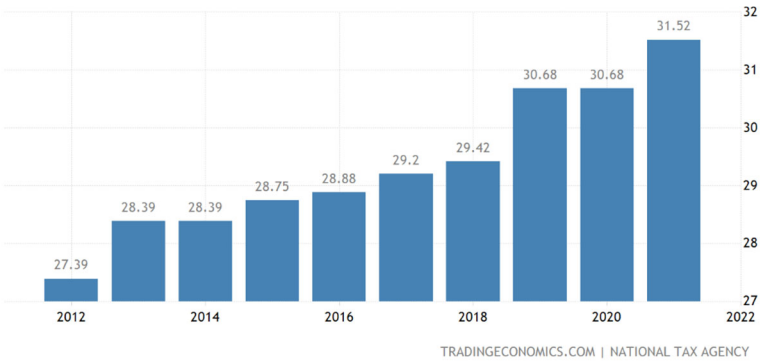


Fig. 10 Social security coverage

Limitation

As Japan has been in an era of zero or even negative interest rates for a long time, the interest rate tool has already failed and maintaining the fiscal deficit is the most powerful tool to stimulate economic growth, except for unconventional monetary instruments. However, if the fiscal deficit continues to expand, more and more overspending is advanced into the future, making the leverage ratio higher and higher, which will eventually lead to the collapse of the fiscal tool and bring more serious debt problems to the future economic development.

In addition, in addition to the challenges posed to the economy by low interest rates, Japan is also facing an ageing population, which will undoubtedly be challenged by greater pressure on government spending and larger fiscal deficits. In particular, suffering from the new crown epidemic after 2019, the government has given varying degrees of financial support to the medical, catering and tourism sectors in order to ensure the stability of people's lives. Increasingly high fiscal funding requirements are not a sustainable fiscal policy in an era of low interest rates, and therefore corresponding tax policies come into play when fiscal spending cannot be reduced.



Fig. 11 Government debt as a percentage of GDP

2.3.2 Tax Policy

To ease the pressure on government debt and balance the budget, expanding government spending has been matched by an upward tax policy. The most notable tightening fiscal policy adopted by the Japanese government has been the increase in consumption tax, which was raised from 5% to 8% in April 2014 and again from 8% to 10% in October 2019. This was used to balance government spending and ease the pressure on government deficits.

Effectiveness

The rationale for the existence of contractionary fiscal policy in times of economic downturn and low interest rates. His research suggests that the second arrow of Abe's economics, a flexible fiscal policy, is a counter-cyclical policy that is not continuously expansionary and requires tighter fiscal policy when possible, and that this flexible fiscal policy together with quantitative easing has led to a stronger macroeconomic performance in Japan .

However, the increase in consumption tax did not happen overnight, and the process of raising consumption tax also produced a spending boom in stages. This was due to the Japanese government's plan to increase taxes again in 2015 after the 2014 tax increase, but the 2015 tax increase was postponed, which stimulated early spending by residents to avoid having to pay higher taxes on their consumption after the tax increase.2 In 2017, the tax increase was postponed again, again stimulating inflation and GDP growth. As can be seen from the data, inflation rose from 2016 to 2018 and gdp growth also showed an upward trend from 2016 to 2017.



Fig. 12 Consumption tax

Personal income tax has also continued to remain high, from a slight adjustment from 50% to 50.84% in 2013 and a significant increase to 56% in 2016.



Fig. 13 Personal income tax

In contrast, corporate income tax has decreased since 2013, from 38.01% to 35.64% until 2016 when it was reduced to 30.86%. The continued reduction in corporate income tax amidst the continuous increase in consumption tax and the maintenance of a high level of personal income tax also reflects the Japanese government's desire to stimulate companies to invest more by reducing corporate income tax, thereby stimulating aggregate demand and mitigating the the corporate income tax has been reduced to stimulate more investment by companies, thereby stimulating aggregate demand and mitigating the negative impact of consumption tax increases.

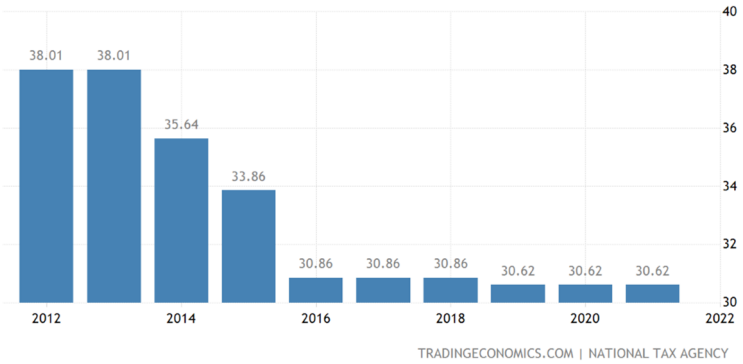


Fig. 14 Corporate income tax

Limitation

A tight fiscal policy will undoubtedly further reduce people's consumption levels, according to the consumption function,

$$C = c0 + c1(Y - T) \quad (2)$$

The increase in taxes will reduce people's disposable income, which will reduce consumption and thus aggregate demand, creating a negative feedback. the GDP growth rate for 2014 and 2019 has also indeed decreased.

In addition, an increase in consumption tax will also lead to an increase in land and house prices, which will further undermine residents' confidence in investing and thus indirectly affect investment demand, leading to a reluctance to invest liquid assets and exacerbating the liquidity trap.

3. Suggestion

The Bank of Japan and the Japanese government's exploration of macroeconomic policy in the era of zero interest rates and the performance of the economy over more than a decade have also provided inspiration for countries around the world, and we should take stock of their experiences and lessons.

First, due to monetary neutrality, both conventional monetary policy and negative interest rate policy as well as unconventional monetary policy have had limited effect on stimulating long-term economic growth. Unconventional monetary policies have been useful in preventing economic collapse, but have not performed well in promoting long run economic growth . Increasing the money base only eases liquidity pressures in the short term and provides a more moderate operating

environment for domestic economic activity, but long-term economic development depends on technological advances. Excessive reliance on monetary instruments is not desirable.

Second, excessive quantitative easing poses potential risks to the future. The increased purchases of treasury bonds and the lengthening of the maturity of the purchases did inject some liquidity into the financial markets, but if the economy fails to recover in the long term, excessive money printing and the pressure of huge amounts of debt will make the central bank less credible and continue to weaken the efficacy of monetary instruments, and the accumulation of debt exacerbates the fiscal sector deficit, excessive borrowing and consumption for the future makes the policy instruments available for the future increasingly narrow. Early prepayment of future consumption traps the economy in a vicious circle that remains difficult to recover from and is not conducive to sustainable development.

Thirdly, restoring credit markets should not start with financial institutions alone, directly stimulating real businesses is key. The Bank of Japan's negative interest rate policy could prompt risk-taking by banks . As a result of the previous property bubble, companies are no longer willing to take on the risk of debt and investment expectations remain low, so measures to restore the credit market boom should not only rely on negative interest rates to force banks to lend, but also require targeted liquidity injections to real enterprises or a series of supportive and preferential policies for credit to real enterprises.

Fourthly, credibility and expectation management are important. Quantitative and Qualitative monetary Easing has increased inflation expectations compared to Quantitative Easing (QE), and credible credibility of the authorities is the key to the success of guiding public expectations and the catalyst to make the relevant policies effective in a shorter period of time, and thus economic growth, so the maintenance of credibility and the management of expectations deserve more attention. The effectiveness of inflation targeting depends on how much the central bank can invest in policy .

Fifth, the diminishing effect of public investment. The expansion of public investment is an effective means of stimulating the economy by expanding government spending in the short term, but the diminishing marginal effect of public investment on industrial production as industrialization saturates the economy is not a sustainable approach, and there is still a need to reduce reliance on public investment by promoting structural reforms within enterprises.

Sixth, increase the government spending allocated to social security. Improving protection related to people's livelihoods, such as pensions, healthcare and education, is the key to boosting consumption. When social welfare is sufficiently well protected, people's desire to save will diminish, prompting more savings to flow to consumption, thus driving domestic demand in the economy and boosting economic growth. Therefore, increasing government spending on social security has both direct and indirect positive effects on economic growth.

Seventh, the trade-off between fiscal balance and decreasing taxation. In an economic downturn, a loose fiscal policy should be implemented, i.e. tax relief to stimulate consumption and investment. However, tax cuts will widen the fiscal deficit and exacerbate the pressure of government indebtedness. Fiscal deficits are effective in reviving the economy, but fiscal tightening also slows consumer spending, business investment and economic activity. The Japanese government has been carrying a huge debt for a long time and has had to alleviate the fiscal deficit by raising taxes appropriately, but at the same time a series of cushioning measures, such as an appropriate reduction in corporate taxes and a policy of deferring tax increases, have been adopted to cushion the negative effects of tax increases in times of economic downturn.

Eighth, encourage structural reform of enterprises and promote private investment to make the market work. As for stimulating private consumption and investment, promoting corporate reform, reducing public expenditure, controlling the size of the national debt, and reducing the fiscal burden, a sustainable virtuous circle can only be formed by making the market play a greater role.

4. Conclusion

Through the assessment, this paper concludes that QQE broke the ZLB from the real interest rate level, injected more liquidity into the market and led the public to increase inflationary expectations stimulating consumption, but the effect was weakened by the international oil price shock and the lack of credibility of the central bank; NIRP started from the financial system, stimulated commercial banks to lend and worked to get out of the liquidity trap, but the increase in non-performing credit risk is not conducive to the stability of the financial system. Increased government purchases are more effective in stimulating the economy, especially increased spending on social security, but excessive government purchases can lead to higher government debt; higher tax revenues can balance the fiscal deficit, but should be used with caution in a recession.

The assessment has implications for macroeconomic policy adjustments in other countries around the world facing low interest rates. Ultra-loose monetary policy is unsustainable, and the recovery of credit markets focuses on stimulating corporate credit enthusiasm, maintaining the credibility of the authorities, better expectation management policies, improving livelihood protection, being wary of excessive debt ratios, promoting structural reforms in enterprises, and activating the market through a combination of moderate monetary and fiscal policies. The market can only achieve sustainable economic development by generating more consumption and investment from within the market.

This paper only assesses the economic analysis up to the outbreak of the COVID-19. Many economic variables have changed as a result of the COVID-19, which has also had a significant impact on the effects of macroeconomic policies, and the world's economies will face two major challenges in the future: low interest rates and epidemic shocks, so further in-depth analysis and research on the adjustment of economic policies after the New Crown epidemic is still needed.

References

[1] Del Negro M, Giannone D, Giannoni MP, Tambalotti A. Global trends in interest rates. Journal of international economics, 2019, 118: 248-62.

[2] Akram T. The Japanese Economy: Stagnation, Recovery, and Challenges. Journal of economic issues, 2019, 53(2): 403-10.

[3] The World Bank, https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2021&locations=JP&start=2012&view=chart

[4] Trading Economics, https://tradingeconomics.com/japan/interest-rate

[5] The World Bank, https://data.worldbank.org/indicator/FR.INR.RINR?end=2017&locations=JP&start=2012

[6] The World Bank, https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2021&locations=JP&start=2012

[7] Lombardi D, Siklos P, St. Amand S. A SURVEY OF THE INTERNATIONAL EVIDENCE AND LESSONS LEARNED ABOUT UNCONVENTIONAL MONETARY POLICIES: IS A 'NEW NORMAL' IN OUR FUTURE? Journal of economic surveys, 2018, 32(5): 1229-56.

[8] Borağan Aruoba S, Cuba-Borda P, Schorfheide F. Macroeconomic Dynamics Near the ZLB: A Tale of Two Countries. The Review of economic studies, 2018, 85(1 (302)): 87-118.

[9] Honda Y, Inoue H. The effectiveness of the negative interest rate policy in Japan: An early assessment. Journal of the Japanese and international economies, 2019, 52: 142-53.

[10] Montgomery H, Volz U. The Effectiveness of Unconventional Monetary Policy in Japan. Journal of economic issues, 2019, 53(2): 411-6.

[11] Shioji E. Quantitative `flooding' and bank lending: Evidence from 18 years of near-zero interest rate. Journal of the Japanese and international economies, 2019, 52: 107-20.

[12] Gurdal T, Aydin M, Inal V. The relationship between tax revenue, government expenditure, and economic growth in G7 countries: new evidence from time and frequency domain approaches. Economic change and restructuring, 2020, 2021, 54(2): 305-37.

[13] Trading Economics, https://tradingeconomics.com/japan/government-spending

[14] Miyamoto W, Nguyen TL, Sergeyev D. Government Spending Multipliers under the Zero Lower Bound: Evidence from Japan. American economic journal. Macroeconomics, 2018, 10(3): 247-77.

[15] Di Bucchianico S. A Note on Krugman's Liquidity Trap and Monetary Policy at the Zero Lower Bound. Review of political economy, 2020, 32(1): 99-120.

[16] Trading Economics, https://tradingeconomics.com/japan/government-spending-to-gdp.

[17] Trading Economics, https://tradingeconomics.com/japan/social-security-rate.

[18] Trading Economics, https://tradingeconomics.com/japan/government-debt-to-gdp.

[19] Ito T. An Assessment of Abenomics: Evolution and Achievements. Asian economic policy review, 2021, 16(2): 190-219.

[20] Trading Economics, https://tradingeconomics.com/japan/sales-tax-rate.

[21] Trading Economics, https://tradingeconomics.com/japan/personal-income-tax-rate.

[22] Trading Economics, https://tradingeconomics.com/japan/corporate-tax-rate.

[23] HONG GH, KANDRAC J. Pushed Past the Limit? How Japanese Banks Reacted to Negative Rates. Journal of money, credit and banking, 2022, 54(4): 1027-63.

[24] Koeda J. Macroeconomic effects of quantitative and qualitative monetary easing measures. Journal of the Japanese and international economies, 2019, 52: 121-41.