

The Role and Effect of Monetary Policy in Japan

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A central bank is asked with managing public liquidity to keep inflation low and stable and to stimulate an economy's business cycle. In Japan, monetary policy has been implemented by the Bank of Japan (BoJ) with the aim of maintaining price stability. However, there have been disruptive effects due to the past implementation of monetary policy in response to shocks related to financial crises and bursting economic bubbles.

In this paper, we introduce some economic thoughts and philosophies regarding monetary policy such as monetarist concepts to evaluate the effects of political implementations by the BoJ. We also summarize historical approaches and the BoJ's monetary policy philosophy. Based on a report by the BoJ (2002), the effects of policy implementations from 1994 to 2019 are analyzed empirically to determine the relationship between the monetary base and real economic indicators.

Keywords: BoJ, QE, Monetary Base, GDP

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I. Introduction

In this paper, historical approaches and the Bank of Japan (BoJ) philosophy are summarized and the effects of policy implementations between 1994 and 2019 are analyzed. We employ some economic thoughts and philosophies regarding monetary policy such as monetarist's concepts, to evaluate the effects of political implementations by the BoJ.

In general, a central bank influences interest rates for the purpose of currency and monetary control. The main role of a central bank is to manage public liquidity to keep inflation low and stable, and stimulate an economy's business cycles. In this sense, there are controversial assignments for a central bank which may provide less money to the market to maintain a low inflation rate. At the same time, the central bank may provide more money to the market to stimulate business cycles. Therefore, a central bank must make tradeoffs based on its various goals.

In Japan monetary policy has been implemented by the BoJ with the aim of maintaining price stability. However, political implications have been affected through fluctuations in the Japanese economy, and the role of monetary policy may have changed for different occasions. In Japan, there were disruptive effects of monetary policy implementations under shocks related to the financial crisis and bursting economic bubbles.

This paper contains six sections. In the next section, economic thoughts regarding monetary policy like basic Keynesian and monetarist perceptions are introduced, in addition to recent trends in monetary policy discussions. In the third section, the historical approaches of the BoJ after bubble economy during the second half of the 1980s are discussed. In the fourth section, we will examine the 2002 report from the BoJ. In the fifth section, it is analyzed empirically the effects of monetary policy implementations by the BoJ from 1994 to 2019. In the last section we conclude our research findings.

II. Economic thoughts on monetary policy

One relevant topic in macroeconomic policy discussions has been the role of monetary policy in the economy. In this section, some economic thoughts and philosophies on monetary policy are introduced.

We start with the Keynesian perspective, which tries to stimulate economy with monetary policy in the short run, but has no ability to control inflation. With the Keynesian mechanism, there is an indirect link between the money supply and the real GDP. An expansionary monetary policy increases the supply of loanable funds available through the banking system, which may lead to falling interest rates. With lower interest rates, market mechanisms will increase aggregate expenditures on investment and interest-sensitive consumption goods. This may cause the real GDP to rise. Therefore, monetary policy can indirectly affect the real GDP, which is based on a short-run perspective.

Next, we discuss monetarist theory, which takes a controversial position against the Keynesian argument for monetary policy. According to Friedman (1968), monetary policy can and does have important effects on these real magnitudes. The first and most important lesson that history teaches about what monetary policy can do is that monetary policy can prevent money itself from being a major source of economic disturbance. This sounds like a negative proposition to avoid major mistakes. There are two limitations of monetary policy as follows: it cannot peg interest rates or unemployment rates for more than very limited periods. One of Friedman's key concepts is that monetary policy can stop inflation but cannot push an economy out of a recession. In other words, a central bank can control the inflation rate, when a good economy strongly influences inflation. However, when it is under recession, inflation cannot be controlled by monetary policy. This implication is a significant discussion point for recent economic policy; namely, to examine monetary policy approaches with zero or even

negative interest rates.

Quantitative Easing (QE) is one of the monetary policy tools recently employed in many countries. With QE, a central bank will purchase items from the financial market, and QE has the simple aim of boosting spending and investment in a recessionary economy. QE may risk causing a high inflation rate, despite the task of the central bank to keep inflation low and stable. Since 2000, the BoJ has implemented such a monetary tool because of the hardship caused by the bubble economy in the 1980s and following the so-called “Lost 20 Years.” However, the positive effects of QE in Japan have not been clearly recognized. After the global financial crisis in 2007, QE became popular and has been undertaken by many central banks worldwide.

Theoretically, there is a new discussion regarding monetary policy tools with a Modern Monetary Theory (MMT) perspective. With MMT, a central bank can provide liquidity for the use of the government implementing fiscal policy. This may be similar to QE, because the role of the central bank is to provide liquidity. The difference between MMT and QE is the mechanism, because with MMT, the central bank can provide liquidity directly to the government, not through a market mechanism.

According to Bernanke (2020), the critical turning point was the global financial crisis of 2007-2009. The shock of the panic and the subsequent sovereign debt crisis in Europe, drove the US and global economies into deep recessions, well beyond what could be managed by traditional monetary policies.

III. Historical approaches by the Bank of Japan

To understand the status of recent monetary policy in Japan, it would be better to refresh ourselves on the history of Japanese monetary policy from the 1980s. Over the last 40 years, the Japanese economy has repeatedly experienced dramatic turbulence, beginning with bubble economy of the 1980s.

During the bubble economy, asset prices increased drastically, and the Nikkei stock average grew from 11,558 yen in 1985 to 37,188 yen in 1990, more than tripling over 5 years. Simultaneously, the total amount of loans from private banks doubled between 1985 and 1993. However, the inflation rate had been relatively stable in the second half of the 1980s. According to Okina et al. (2000), in the second half of the 1980s, the expectation of the inflation rate had been increasing and such an expectation of a high inflation rate could disturb the effects of monetary policy.

Then, in the first half of the 1990s, the bubble burst and the Japanese economy went into recession for a long time. Along with such turbulence, the BoJ faced unique adversities. In the meantime, the tools of monetary policy changed.

Since 1994 the BoJ added a method to control financial markets through open market operations. Then, it began targeting the interest rate more directly. Because of this, the BoJ implemented a “zero interest policy” from 1999 to 2000.

In 2001, the BoJ started implementing QE for the first time against economic stagnation, especially targeting the so-called “deflation spiral” in Japan until 2006. According to Honda et al. (2010), there was no evidence for a positive impact to core price indicators through this QE.

In 2013, quantitative and qualitative easing was implemented with an inflation target of a 2 % increase compared with the previous year. Kazumasa Iwata, a vice president of the BoJ at the time, gave a speech in 2013 that this policy stimulated not only the price level but also the expected inflation rate, which might push the price of assets up as well. In 2016, a monetary policy with quantitative and qualitative easing with negative interest rates was implemented, and it was strengthened with additional announcements in 2018.

The main target of these QE approaches was a 2 % inflation rate. In 2020, Professor Takeda, a former Professor of Hitotsubashi University, made the criticism that the series of QEs affected

Table 1. History of monetary policy by BoJ after 1990

	Policy	Effects, Evaluation
Since 1994	Open market operations	A more direct approach to controlling market liquidity
1999-2000	Zero interest policy	No impact on liquidity
2001-2006	Quantitative easing	Quantity = Monetary Base No evidence for a positive impact on prices
2013-	Quantitative and qualitative easing	Inflation Target of 2% (Breakout from deflation) Criticized that affected expected prices but not well affected on real economy, because such monetary policies had not well organized to impact on a mechanism of economy by Professor Takeda
2016-	Quantitative and qualitative easing with a negative interest rate	
2018-	Strengthen quantitative and qualitative easing with long-term interest rate control	

expected prices but not the real economy, because such monetary policies were not well organized to impact mechanism of the economy.

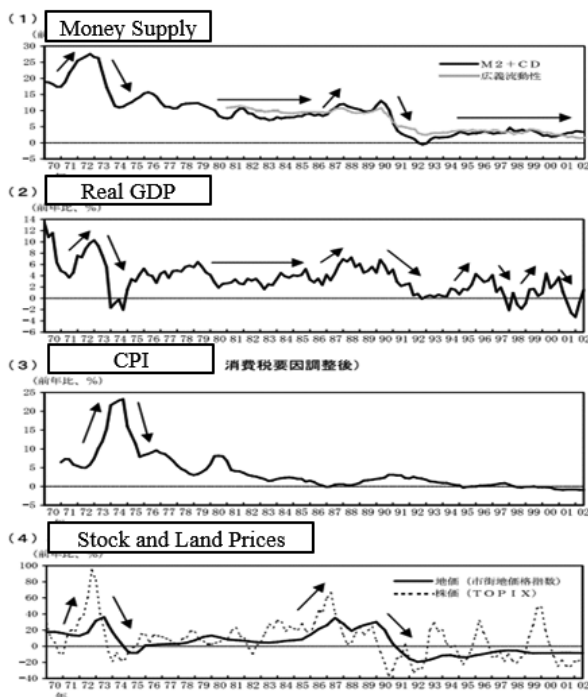
IV. Summary of a report from the Bank of Japan (2002)

According to a report from BoJ (2002), the role of monetary policy, especially the role of the money supply, has been changing over time in the real economy.

In 2002, BoJ summarized the implications of their monetary policy implementations from the bubble economy in the middle of the 1980s through the following recession period until the end of the 1990s. The role of money supply, which is equivalent to money stock, has changed in terms of effects on the real economy.

In Figure 1, which is cited from the report of the BoJ (2002), you can see the following. 1) The money supply and real GDP were simultaneously fluctuating until the beginning of 1990. 2) After the

Figure 1. Money Supply and Economic Indicators



Source: The Bank of Japan (2002)

middle of 1990, the real GDP kept fluctuating, but the money supply reminded constant. 3) The Consumer Price Index (CPI) has been fluctuating with the money supply. 4) The relationship between stock and land prices it is not clear.

It is recognized by the BoJ that, in general, the fluctuation of the money supply has been correlated on a long-term basis with key economic indicators after WWII through the 1970s. Since then, the relationships between the money supply and economic indicators such as the GDP has been weakened. One of the reasons for such a relationship is the bubble economy, which was generated the middle of the 1980s. During the bubble economy, the growth rate of the money supply was greater than the growth rate of the economy in Japan. It looked like the relationship between the money supply and real GDP was once broken. However, the BoJ concluded that the money supply maintained a causal correlation with real economy to some extent for a longer term.

V. Empirical Analyses

In this section, the effects of monetary policy implementations from 1994 to 2019 are analyzed empirically. We employ simple regression analyses

to recognize the relationship between the monetary base and economic indicators, such as real GDP and CPI. We use data for the real GDP from the Cabinet Office of Japan, monetary base from the BoJ, and for the CPI from the Statistic Bureau of Japan to estimate regressions.

The main purpose of this regression is to compare the relationship between the monetary base and economic indicators before and after the financial crisis in 2007. There are a few reasons to set such a comparative analysis. One is the comment from Bernanke (2020) which he mentioned that traditional monetary policy was no longer effective after the financial crisis. Another reason is that the report from BoJ (2002), which announced that the relationship between monetary policy and economic indicators was no longer tightly connected after the bubble economy.

The results of the first regression are presented on Table 2. Seeing the results for three terms 1994-2019, 1994-2006, and 2007-2019, we can recognize the relationships between the monetary base and real GDP are all statistically significant. We can see that the coefficient of 1994-2006 is smaller than that of 2007-2019, which means that the impact of monetary policy was weaker in the first period than in the second. However, the trends

Table 2: Regression Analysis: Monetary Base and Nominal GDP

Monetary Base = c + Real GDP + e			
	1994-2019	1994-2006	2007-2019
Constant term	-18828343*** (P: 0.00)	-4066258*** (P: 0.00)	-30954379 (P: 0.00 ***)
Real GDP	40.53*** (P: 0.00)	10.02*** (P:0.00)	79.78*** (P: 0.00)
Adjusted R2	0.663	0.684	0.793
Observations	26	13	14

P: P-Value, statistically significant levels are represented with 0.01=***, 0.05=**, and 0.1=*
 Data source: Real GDP from Cabinet Office of Japan, Monetary Base from the BoJ

Table 3: Regression Analysis: Monetary Base and the CPI

Monetary Base = c + CPI + e			
	1994-2019	1994-2006	2007-2019
Constant Term	-59628528*** (P: 0.00)	12510969** (P: 0.03)	-70781069*** (P: 0.00)
CPI	623088*** (P: 0.00)	-119682** (P: 0.04)	743547*** (P: 0.00)
Adjusted R2	0.456	0.253	0.814
Observation	26	13	13

P: P-Value, statistically significant levels are represented with 0.01=***, 0.05=**, and 0.1=*
 CPI = Consumer Price Index
 Data source: CPI from Statistic Bureau of Japan, Monetary Base from the BoJ

are identical in all three terms, so we can confirm the relationship between monetary base and real GDP.

Table 3 demonstrates the second estimation results between monetary base and the CPI. The coefficient is only negative for 1994-2006 among the three terms. This result implies that in the term of the first half, the monetary policy with increasing liquidity in the market was not successfully correlated with consumer prices. This argument corresponds to the report of the BoJ (2002) that introduced the fact that the monetary policy was weakened after the burst of the bubble economy. However, the result for 2007-2019 shows that the coefficient between the monetary base and the CPI is positive and statistically significant as well as the total length of research from 1994 to 2019. This means that the relationship between the monetary base and the CPI was once weakened but then reconnected tightly.

VI. Conclusion

In this paper we introduced some economic thoughts and philosophies regarding monetary policy to identify the targets and effects of political implementations by a central bank, namely the BoJ. We also summarized historical approaches and targets of monetary policy by the BoJ. The effects of those monetary policy implementations from 1994 to 2019 were analyzed empirically, with the recognition of the relationship between the monetary base and real economic indicators. We employed simple regression analyses. We used data for real GDP, the monetary base, and the CPI to estimate regressions.

From the results we could recognize the relationships between the monetary base and the real GDP were all statistically significant and that trends of the main coefficients were identical in all three terms. The second estimations between the monetary base and the CPI had different results for the first and second terms. The coefficient for 1994-2006 was the only negative among the three terms. The result for 2007-2019 showed that the coefficient

between the monetary base and the CPI was positive and statistically significant as well as for the total research term from 1994 to 2019. This means that the relationship between the monetary base and the CPI was once weakened but then reconnected tightly.

The report from BoJ (2002) mentioned that monetary policy tools were weakened after the bursting of the bubble economy. The argument was correct until beginning of 2000, but the relationship between the monetary base and economic indicators such as the real GDP and the CPI became controlled by monetary policy once again. This means that the traditional monetary policy tools can be still useful for controlling the markets.

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