The Biggest Gamble of the Bank of Japan

Macroeconomics Case Study: Japan

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EXECUTIVE SUMMARY
Economists can see the practice of a “liquidity trap” in Japan which is known only theoretically before the late 1990’s. Japan has been suffering from very low interest rates, continuing deflation, and a slowdown in economic performance for the last several years with other problems such as troubling financial structures, accumulating government debt, and aging population. This paper analyzes the “liquidity trap” and deflation, and recommends an inflation target policy as a solution for prolonged Japanese recession.

1. Recent macroeconomic performance of Japan
Japan’s economic performance since the early 1990’s has been disappointing, both in relation to its own history and relative to the record of other major industrial countries. Real GDP growth has averaged 1% a year over the past 10 years, well below that of other OECD countries, and only one-fourth of the 4% annual average growth rate recorded in Japan in the 1980’s. Japan, moreover, experienced three recessions in the past decade and its nominal GDP has fared even worse than the real GDP, as moderate deflation has become entrenched.

GDP
The real GDP growth of Japan was 5.6% in 1990. After 1990, due to heavy recession and the collapse of the bubble economy, stock prices and real estate prices started to plummet and the real GDP growth remained under 3.3%. In 2001, it was – 1.2%. Although it recovered in 1995, 1996 and 2001, it has been stuck in deflation in recent years, and GDP growth has shrunk.

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP Growth Rate</th>
</tr>
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<tbody>
<tr>
<td>1990</td>
<td>5.6%</td>
</tr>
<tr>
<td>1991</td>
<td>4.5%</td>
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<tr>
<td>1992</td>
<td>3.3%</td>
</tr>
<tr>
<td>1993</td>
<td>2.1%</td>
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<tr>
<td>1994</td>
<td>1.4%</td>
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<td>1995</td>
<td>1.0%</td>
</tr>
<tr>
<td>1996</td>
<td>0.7%</td>
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<tr>
<td>1997</td>
<td>0.5%</td>
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<tr>
<td>1998</td>
<td>0.3%</td>
</tr>
<tr>
<td>1999</td>
<td>0.1%</td>
</tr>
<tr>
<td>2000</td>
<td>-0.1%</td>
</tr>
<tr>
<td>2001</td>
<td>-1.2%</td>
</tr>
<tr>
<td>2002</td>
<td>-0.9%</td>
</tr>
</tbody>
</table>

Data source: Cabinet office, Japan

Inflation Rate
One of the characteristics of the recent economy is the progress of deflation (The inflation rate has remained low since 1992, and it became deflation after 1998). The following three factors are the major reasons for deflation: The first is the structural factor of the supply side. Imports of some goods have been increasing rapidly since 1999 and pushing down the prices of finished products. Furthermore, technological innovation and rationalization of distribution systems have reduced price levels. Second, the demand side of the economy is weak due to bad business conditions. Under these circumstances, people's expectations for lower prices are rising. Third is the financial factor. With the above two forces working strongly, and with the background of excessive debt obligation of Japan’s companies, businesses are not ambitious enough to try to raise capital funds, and the intermediary functions of the financial institutions are not working soundly. Persistent deflation has become a slippery slide that reinforces itself by limiting monetary policy flexibility, increasing real debt burden and providing an incentive to delay spending.
Interest Rates
Both official discount rates and money market interest rates have remained very low during the late 1990’s because of the increase in money supply and the zero interest rate policy of BOJ. In 2002, the money market interest rate was 0.1%. But the real interest rate has increased since 1999, as there has been deflation in the economy. (See Appendix figure A)

Exchange Rate and Foreign Trade
Since 2000, there has been depreciation in the Japanese Yen due to a policy to keep nominal exchange rates high in order to maintain the economy by increasing exports. Even though the gap between exports and imports has been decreasing since 1997, net exports have been positive since 1981. (See Appendix figure B and C)

Unemployment Rate
Because of the recession in Japan, the unemployment rate has been rising, even though the labor force has been declining since 1998, as retirees outnumber new entries. In 2001, the unemployment rate was 5.0%. (See Appendix figure D)

2. IS-LM analysis and the liquidity trap
Many economists think Japan is in a “liquidity trap”
Japan has suffered from a prolonged economic slump; its nominal interest rate reached nearly zero by 1999, the Bank of Japan (BOJ) has increased money supply, the nominal interest rate has declined to the low level with struggling with the prolonged depression. (Figure 3) With such low nominal interest rates, monetary policy has no power to steer the economy out of the recession. This situation is known as a “liquidity trap”. Many economists, led by Paul Krugman of MIT, think Japan is in such a “liquidity trap”. 
Mechanism of a “liquidity trap”
The mechanism of the liquidity trap can be explained with a money demand function and IS-LM model. When the interest rate gets too low, the interest rate cannot fall any further, since the nominal interest rate cannot go below zero. At a very low interest rate, cash and bonds become almost equivalent assets and the cost of holding cash becomes extremely cheap. As a result, money demand becomes very large. (Nobody wants to buy bonds.) In other words, money demand becomes very sensitive to interest rates and the money demand function intersects with the money supply line somewhere in the flat portion. (Figure 4) The LM curve is derived from the money demand function in Figure B. The LM curve intersects with the IS curve somewhere in the flat portion. (Figure 5) Because the LM and IS curves intersects in the flat portion, the monetary policy in a liquidity trap cannot affect interest rates, and so the monetary policy is ineffective.

Japan’s current IS-LM curves and two macro policy changes in the last five years
By plotting real GDP and interest rates from 1997 to 2001, we see Japan’s current IS-LM curves described in Figure 6. In the last five years, there were two major macroeconomic policy changes. One is a rise in the consumption tax from 3% to 5% in 1997. This tax increase discouraged consumer spending and led to a contraction of the overall economy. As a result, the IS curve shifted to the left and the real GDP declined (IS97 □ IS98 Figure 6).

The other change was an introduction of a “zero interest rate policy” by BOJ. BOJ adopted the policy in February 1999, aiming to push the unsecured overnight call rate toward zero to induce extremely low lending interest rates and help to ensure that the liquidity needs of the financial market were accommodated. However, BOJ decided to lift the “zero interest rate policy” in August 2000 when the Japanese economy showed a positive sign of recovery from prolonged recession. BOJ feared a delay in terminating the zero interest rate policy would lead to inflation. The Bank’s Governor, Masaru Hayami, said “the Bank feels confident that Japan’s economy had reached the stage where deflationary concern has been dispelled.” The termination of the
zero interest rate policy gave a strong message to the market that BOJ will never permit inflation to occur. Because of the termination of the zero interest rate policy, the LM curve does not change in 1999 and 2000.

**Japan's liquidity trap and macro economic policy**

In the current Japanese economic situation, there seems to be no macro economic policy that will pull the country out of the protracted economic slump. First, the monetary policy is ineffective, since it cannot drive interest rates down to negative regions. Monetary expansion shifts the LM curve to the right, but output Y and nominal interest rate i remain virtually unchanged. In fact, the LM curve shifted down from 1997 to 2001 and the LM curve is becoming flatter and flatter each year. This implies that the Japanese economy is falling into a "liquidity trap".

Second, fiscal expansion seems to be effective since the rightward shift of the IS curve leads to an increase in the output Y. In fact, fiscal expansion policies, including a temporarily tax cut in 1998 and fiscal stimulus packages in 1998, 1999 and 2000, have seemed to sustain Japan's sluggish economy. However, fiscal policy is not a feasible option because Japan faces serious government debt problems. The room for fiscal policy is near its limits after years of running a deficit. Japan's debts held by central and local governments reached 666 trillion yen in 2001. The amount of debt comprises 129% of Japan's GDP. The debt-to-GDP ratio is the worst among industrialized nations. (See Appendix Figure E, F)
3. Recommendation: Inflation targeting

In the two last sections, we found Japan suffered from deflation and fell into a “liquidity trap”. We also confirmed that conventional macroeconomic policies, monetary and fiscal expansion, are limited. Although the nominal interest rate has been very low since 1999, the real interest rate is higher than the nominal interest rate. (See Appendix G) The only feasible option is to lead inflation and reduce real interest rate by changing the expectation of inflation. This option will stimulate Japan’s economy.

We recommend that BOJ announce an inflation target policy aiming towards a credible commitment. The basic mechanism of the inflation target policy can be explained with the Fisher equation:

\[ \text{Fisher equation : } r = i - \pi_e \]

where \( r \) is the real interest rate, \( i \) nominal interest rate, and \( \pi_e \) expected inflation.

When BOJ announces the inflation target policy, the expectation of the inflation (\( \pi_e \)) will increase. The increase of the expectation reduces the real interest rate (\( r \)) with the nominal interest rate (\( i \)) unchanged. The lower real interest rate (\( r \)) stimulates investment. Moreover, since the increase in expected inflation raises the cost of holding cash, consumer spending goes up. (Consumers are encouraged to use their holding cash in the inflationary economy, because the value of the cash will go down in the following year.) Furthermore, the decrease of the real interest rate leads to the depreciation of the Japanese Yen. Consequently, net exports will go up. These three increases of investment, consumption, and net exports shift the IS curve to the right. (figure 7) As a result, the output (\( Y \)) will increase while the nominal interest goes higher. More importantly, Japan will be able to escape from a liquidity trap.

There are two important actions that BOJ should take in implementing an inflation targeting:

**Announcement**

BOJ should clearly announce its adoption of an inflation target policy, since the announcement plays a vital role in increasing the expected inflation. BOJ’s commitment to implementing inflation targeting will be a strong message to the markets and the specific and concrete target of monetary policy will persuade consumers and the market. The announcement will encourage people to purchase more goods in order to avoid any losses caused by increased prices. Therefore, we can expect an increase in consumption.

**Increase Money Supply Until Inflation Starts**

In order to increase the expected inflation, a credible commitment to the inflation targeting is essential. The credible commitment is possible only when BOJ makes an announcement accompanied with specific actions,
in this case money expansion. The premise of this policy is increasing the monetary supply. BOJ should buy Japan’s securities or bonds from private banks in order to provoke inflation. It is highly important that BOJ keep a policy which allows an increase in prices during economic recovery. In August 2000, the economy showed a small recovery with increase in CPI. However, the suspension of its zero interest rating policy gave a strong message that price increases were not acceptable. Consequently, the economy experienced deflation in the following year. Like this case shows, BOJ’s stance of fighting price rises must be reversed.

**Expected Outcome of Implementation of Inflation Targeting:**

1) **Escape from a “liquidity trap”**
The inflation target will lead to a rightward IS shift. The rightward shift of the IS curve raises the nominal interest rate and as a result the Japanese economy can get out of a “liquidity trap”.

2) **Stop the Deflation and Increase of Investment, Consumption and Net exports.**
The introduction of an inflation target policy will halt deflation. This will encourage consumer spending. More importantly, as explained at the beginning of this section, the rise in expected inflation will lead to an increase of investment, consumption and net exports. These increases will stimulate aggregate demand of goods and boost the economy.

3) **Contribute to Disposal of Non-Performing Loans**
Inflation in asset values will help to dispose of non-performing loans. An increase in asset values will have a positive effect on the financing of small and medium sized enterprises that borrow money back on the security of their assets. Therefore, the enterprises will more easily borrow money, and commercial banks that hold a mortgage on the asset will be able to decrease non-performing loans. The banks’ capital adequacy ratios will start to increase and cause the banks to make loans.

**Possible Counterargument Against Inflation Targeting**
The following counterarguments are anticipated:

1) **Loss of credibility of BOJ**
If BOJ fails in its inflation target policy, its investors and creditors would doubt its monetary policy management. As BOJ would lose credibility on its policy, the value of national bonds would fall and be sold to BOJ.

2) **Hyperinflation**
Some economists worry that inflation targeting may cause hyperinflation. They insist that timing for monetary tightening is difficult. If they mistake the timing for tightening the money supply, they might cause deflation again.

3) **Damaged balance sheet of BOJ**
BOJ has to keep increasing the money supply until the inflation rate goes to its target point. Then, BOJ has to buy the national bonds from the market to supply money. As a result, this monetary expansion would damage the balance sheet of BOJ.

4) **Back and forth of money between BOJ and commercial banks.**
Even though BOJ would increase the money supply, this policy might not provide increased money to private companies. Commercial banks would buy the national bonds from BOJ with the increased money because they doubt the private companies’ ability to pay back and will not want to take high risk to lend money to private companies. As a result, BOJ would not increase the money supply.

**Negative effect can be negligible**
Although there are some negative reasons to implement inflation target, we have no choice for stimulating the
Japanese economy except raising price level. As the inflation targeting sets an upper limit of the inflation rate, BOJ can control the money supply according to the inflation rate at that time. Though the inflation target may damage BOJ’s balance sheet temporarily, its balance sheet will return to normal when the Japanese economy recovers. In addition, cooperation with the Japanese government and BOJ is necessary to the success of the inflation targeting. The Japanese government is required to strengthen Japanese commercial banks’ management structure to ensure the flow of money into the market. Its commercial banks have so many non-performing loans that they hesitate to lend money to firms. Through the process, BOJ can reduce the risk of inflation targeting and keep its credibility in the market.

Targeted inflation rate: Although Paul Krugman insists that 4% of the targeting inflation rate is appropriate, this rate may trigger severe inflation and a sudden increase of real interest rates. Koichi Hamada, President of Economic and Social Institute, Cabinet office, Japanese government, claims that the rate should be adjusted at 1-3% in order to recover price increases at the level of starting a moderate inflation, and it is better to consider the implementation of inflation targeting as a shot for redressing deflation (a.k.a. reflation policy). We propose to set 1-3% of inflation targeting rate and take reflation policy to avoid hyperinflation.

4. Conclusion
We recommend that BOJ inflation targeting to stimulate Japan’s gloomy economy. If Japan adopts this plan, it will be the first case of inflation targeting aimed at overcoming deflation. However, inflation targeting is the only an appropriate policy to escape from a liquidity trap. Although we acknowledge that adoption of inflation targeting policy has risk of inflation, it should consider the larger benefits of this policy. Also, the Japanese government should try to ensure the flow of money into its market by supporting commercial banks’ management system as soon as possible. We believe that this cooperation between BOJ and the Japanese government can enhance the inflation targeting effect.

Notes & References
2: In BOJ, the following is discussed. “Another member commented on risks that could arise from a delay in terminating the zero interest rate policy. As always in conducting monetary policy, attention should be paid to the risk of inflation.” (From: http://www.boj.or.jp/en/seisaku/00/pb/g000427.htm)
Appendix

Figure A. Discount Interest rates and nominal interest rates

Figure B. Trend of Import, Export and Net Export (Trillion Yen)

Figure C. Exchange Rate

Data source: IMF
Figure D. Unemployment Rate

%  


3.4 3.4 4.1 4.7 4.7 5

Data source: IMF

Figure E. International Comparison of Government’s Debt (Govt’s Debt to GDP ratio)

Debt to GDP ratio

Japan USA UK Germany Italy

Data source: IMF

Figure F. Japan’s Accumulating Government’s Debt

Debt Debt to GDP ratio


0% 20% 40% 60% 80% 100% 120%

Data source: Ministry of Finance
Figure G. nominal and real interest rate

Data source: IMF