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Macroeconomic Analysis  
of the Monetary Policy in Japan

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## **Executive Summary**

In retrospect, both monetary and fiscal policies have taken considerably strong actions during the past decade in Japan. Whereas fiscal policy has repeatedly implemented expansionary measures, the Bank of Japan has adopted a policy of maintaining interest rates at levels unprecedentedly low during the history of central banking at home and abroad, thereby providing ample liquidity. Nevertheless, Japan's economy has failed to return to a sustainable growth path, and is now faced again with a threat of deterioration. According to the IS-LM analysis of the Japan's economy, it is attributed to the fact that LM-curve is extremely flat at the lower interest level. On March 19<sup>th</sup>, 2001, the Bank of Japan introduced the new monetary policy in which it eases monetary quantity instead of the interest rate targeting. By this method, the BOJ intends to raise the expected inflation and stimulate consumption and investment, resulting in the increase of the aggregate demand and economic output.

## **I. Introduction**

Japan's economy experienced two prolonged recessions since the burst of "bubble" economy in 1990. The real GDP growth showed a "L" shaped curve except 1995 and 1996, and the unemployment rate recorded highest since the World War II and is still increasing. Although the Japanese government as well as the Bank of Japan (BOJ) continued expansionary policy to stimulate the economy since the 1997-98 crisis, it shows no sign of recovery, rather shows more severe conditions such as deflationary economy and zero-interest rate. In this paper, we will analyze the recent monetary policy change of the Bank of Japan (announced on March 19<sup>th</sup>, 2001), which is characterized as shifting to a modest form of "Quantitative Easing" (the BOJ officially does not use this term). The "Quantitative Easing" in this context means that the central bank will raise the amount of reserves that the banks are required to keep in its custody by about 25%, to 5trillion yen (about \$41B), and at the same time lend the banks money they need to do so. With the greater reserves, the banks can lend much more money without overstretching their capital. This policy change will have the effect of returning short-term interest rate to zero from 0.15% now, and also will have the effect of depreciating yen. The main purpose of this monetary policy is to reverse the current deflation going on in Japan, a situation that was historically quite rare in the industrialized economy. We will analyze the mechanism and the effect of this policy with the IS-LM diagram and expected inflation.

This paper is formed by three parts: First, we will mention macroeconomic environment in Japan in the 90's, especially since the "bubble" economy, because the roots that led to the "Quantitative Easing" came from the experiences of "bubble" economy. Then, we will describe the decision of the BOJ in detail. To emphasize the analysis of expected inflation in the following section, we will describe the macroeconomic environment in detail. Second, we will analyze this extraordinary monetary policy with the traditional IS-LM diagram, Aggregated Supply and Demand analysis, and the Fishers effect. Finally, we will summarize our recommendations to both monetary and fiscal policy in Japan such as a structural reform of the financial sector and outright inflation targeting.

## **II. Macroeconomic Environemnt in Japan in the 90's**

Macroeconomic situation in Japan in the 90's can be characterized as prolonged sluggish growth after the burst of bubble economy in 1990. First, we must mention about the causes of creating the "bubble economy" from 1987 to 1990 and bursting the "bubble", since the "bubble" was essentially prepared and destroyed by the monetary policy of the BOJ, and this bitter experience has adversely affected the monetary policy of the BOJ.

In October 1987, New York Stock Exchange experienced a crash of stock price remembered as “Black Monday”. Following this, the government of Japan, with US government encouragement, became more committed to monetary expansion (the growth of money supply was consecutively over 10% in the late 80’s), or to keep lower interest rate, to prevent the abrupt fall of US dollar. **The growth of Japan’s money supply fueled massive increases in land and equity prices, and the years from 1987 to 1990 are referred to in Japan as the period of the “bubble” economy.** For example, the Nikkei Stock Index rose from 22,621 in November 1987 to 38,130 in December 1989, and slipped rapidly to 23,740 in December 1990, losing 38% of market value in one year. Land and real estate prices followed a roughly similar course to equity prices, with a lag of one year. The immediate reason for the 1990-91 drop in asset prices was that the BOJ had abruptly halted the expansionary monetary policy; the BOJ drove up the official discount rate and, after March 1990, effected a very sharp contraction in monetary growth, leading to recession. In 1991-92, the money supply rapidly declined and became negative in later 1992, and the growth of monetary base became negative even before this, that is, money multiplier increased during the same period. This abrupt change of monetary policy as well as the restriction of real estate transaction by Ministry of Finance (MOF) at the same time terminated the “bubble” economy. **Since the BOJ was severely criticized its monetary policy during the “bubble” economy, it became extremely cautious to expansionary monetary policy.**

After the burst of “bubble economy” and the following recession, Japan’s economy experienced slight recovery in 1995 and 96: the real GDP grew 1.5% in 1995 and 3.9% in 1996. However, from March 1997, the economy was again in recession. This time, situation was extremely exacerbated by several critical factors. First, bad debt problems in the financial sector were getting critical because of a drop of land and equity prices (most of the bank debt was collateralized by real estate and equity). Second, the government increased consumption tax rate from 3% to 5% and constrained fiscal expenditures to recover the government balance sheet even in a weak economic condition. Third, the Asian crisis happened because of excess liquidity in the global financial market, yen depreciated, and the Japanese banks were required Japan premium for LIBOR. As a result, the Japan’s economy faced a severe condition in the middle of 1998 referred to as a “recessionary vicious cycle”. From April 1997 to March 1998, Japan’s real GDP edged downward at the rate -0.7%, and continued downward over April 1998 to March 1999 at the annual rate of -2.4%. Japan’s unemployment rate in March 1999 was at the postwar high of 4.6% (compared to 2.9% in 1994). **Prices in Japan are exhibiting mild deflation, less than 1%, based on the GDP deflator. Japan’s economy is actually on the verge of the “deflation spiral”, which has not happened in the world since the World War II.**

To address the economic turmoil in 1997 and 98, the government resorted to extremely expansionary fiscal policy and a structural reform in the financial sector. First, the government continuously issued economic packages for public sectors (deficit spending from supplemental budgets) to stimulate the aggregated demand. Second, the government injected capital to the banks that accumulated bad debt. Because of continuous increase of the government spending, the government debt increased to 120% of the real GDP. In 1998, to recover the government balance sheet in, the government increased the consumption tax by 2% to 5%, and constrained the fiscal expenditure, resulting in negative real GDP growth. The growth rate of real GDP was 1.6% in 1997, -2.5% in 1998, 0.2% in 1999, and 1.4% in 2000 (estimate by IMF). **The fundamental reason of low growth even by astronomical government spending would suggest that the Japan’s economy lack of effective aggregated demand.**

In accordance with fiscal policy, the BOJ also took expansionary monetary policy to cope with deflationary pressures and the severe conditions for corporate financing. To ease money conditions and stabilize financial market, the BOJ cut the uncollateralized overnight call rate, its operating target from slightly below 0.5% to 0.25% in September 1998. Furthermore, the BOJ decided to decrease the target call rate by 0.1% to 0.15%, and finally allowed to become zero percent. In March 1999, the call rate was near zero at 0.04%. From 1995, the money supply (M1) has monotonically increased from 150

trillion yen in September 1995 to over 220 trillion yen in August 1999. During this period, the call rate has been flat around 0.5% or less. In September 1998, the yield rates on the benchmark 10-year Japanese government bond reached 0.76%, said to be the lowest interest rate ever, not only in Japan but any nation in history. The rapid decrease of the yield rate of Japanese government bond led the BOJ to worry about the crash of the bond market, a reason that the BOJ opposed to zero interest rate policy. The BOJ terminated the zero interest policy and set the target call rate at 0.25% in August 2000. However, because of rapid decline of the domestic stock price in the last half of 2000, the BOJ again cut the target call rate. Finally, on March 19 2001, the BOJ decided to change its monetary policy to a moderate form of "Quantity Easing" at the request of the government. At this point, the BOJ has the stance to increase money supply if really necessary.

### **III. Quantitative Easing**

#### 1) Details of the monetary policy change

On March 19<sup>th</sup>, 2001, the BOJ decided at its Monetary Policy Meeting to take the following policy actions.

#### a) Change in the operating target for money market operations

The main operating target for money market operations is to be changed from the current interest rate (uncollateralized overnight call rate) to the outstanding balance of the current accounts at the BOJ.

? The BOJ provides ample liquidity, and the uncollateralized overnight call rate will be determined in the market at a certain level below the ceiling set by the Lombard-type lending facility.

Under the "Zero Interest Rate Policy," the BOJ adjusted the amount of fund provision to guide a call rate close to zero. In the new procedures, the BOJ sets the amount of fund provision as a main target and let market forces decide a call rate. Although interest rates are expected to stay around zero, they could somewhat rise when the market tightens and could reflect a certain difference in a credit risk. As such, the new procedures intend to achieve the same monetary easing effect of the "Zero Interest Rate Policy" while preserving a market mechanism as much as possible.

#### b) Increase in the current-account balance at the BOJ and decrease in interest rates

For the time being, the balance outstanding at the BOJ's current accounts be increased to around 5 trillion yen, or 1 trillion yen increase from the average outstanding of 4 trillion yen in February 2001. As a consequence, it is anticipated that the uncollateralized overnight call rate will significantly decline from the current target level of 0.15 percent and stay close to zero percent under normal circumstances.

? The same benefit of the "Zero Interest Rate Policy" can be expected while leaving room for a market mechanism. Volatile interest rate fluctuation can be avoided by the "Lombard-Type" lending facility

#### c) CPI guideline for the duration of the new procedures

The new procedures for money market operations continue to be in place until the consumer price index registers stably a zero percent or an increase year on year.

? Strong commitment in terms of policy duration would affect people's expectation to remove a deflationary bias, and we can also expect a decline in interest rates across the yield curve (commitment effect).

#### d) Increase in outright purchase of long-term government bonds

The BOJ will increase the amount of its outright purchase of long-term government bonds from the current 400 billion yen per month, in case it considers that increase to be necessary for providing liquidity smoothly. The outright purchase is, on the other hand, subject to the limitation that the outstanding amount of long-term government bonds effectively held by the Bank, i.e., after taking account of the government bond sales under gensaki repurchase agreements, be kept below the outstanding balance of banknotes issued.

#### ? More Effective Market Operations with a Clear Ceiling to Secure Discipline

In order to provide funds smoothly, increase the amount of outright purchase of the long-term government bonds if necessary.

Secure the credibility of the monetary policy by establishing a ceiling for the purchase set at the outstanding amount of bank note issuance.

But there is a risk to cause more unhealthy fiscal policy relying on the government debt.

#### (The differences between the Quantitative Easing and Zero Interest Rate Policy)

The BOJ has more alternatives to operate monetary policies than the Zero Interest Rate Policy because policy target is not the interest rate, but the quantity of money supply, that is, the BOJ can set the inflation target on the above zero, or it can increase more money supply in accordance with the economic situation.

#### 2) Intention

The BOJ has decided to implement these policy measures with firm determination with a view to preventing prices from declining continuously as well as preparing a basis for sustainable economic growth.

In order to make this monetary easing fully effective in restoring Japan's economy on a sustainable growth path, progress in structural reforms with respect to the financial system, e.g., resolution of the bad debt (non-performing asset) problem, as well as in the area of economy and industry is essential. Structural reform may be accompanied by painful adjustments. Without such adjustments, however, neither improvement in productivity nor sustainable economic growth can be obtained. The BOJ strongly hopes that decisive actions be taken to address fundamental problems both with a clear support of the nation for structural reform and under a strong leadership of the government of Japan.

#### 3) Conflicts

In spite of the enactment of "The law of the Bank of Japan" in 1998, which aimed to strengthen the independence of the BOJ as the central bank, its independence is sometimes threatened by the government.

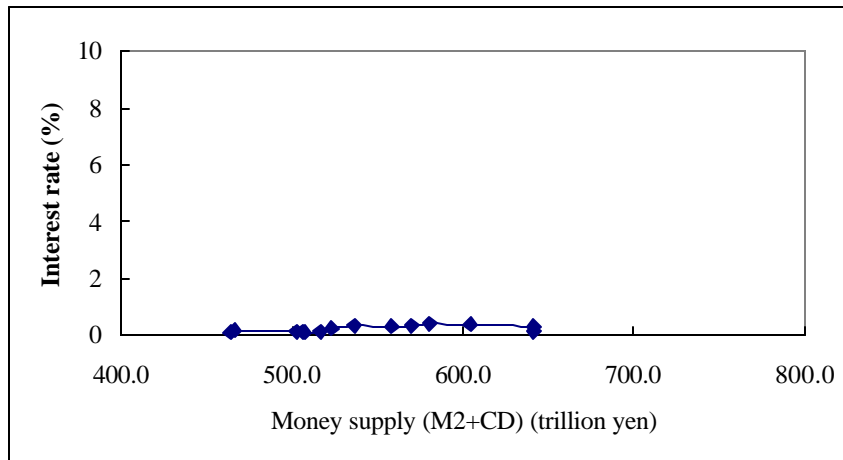
The ruling Liberal Democratic Party (LDP) must prepare for upper- house elections in July, but people are more skeptical about Japan's politics after the announcement of the resignation by Yoshiro Mori, Japan's prime minister, who is also the President of the LDP. In addition, Japan's economy starts downward in accordance with the U.S. economy trends. Under the pressure of economic recession, the LDP wants to the BOJ to print lots of money, force the yen lower, and get people to start believing that prices must soon start to rise, in order to stimulate the economy. While so far the BOJ continued to refuse, it yielded the political pressure to introduce the new monetary procedure at last.

In other words, because now the monetary policy is prepared, drastic political measures should be prepared to deal with bad debts in the financial sector and excessive debts in corporations.

#### IV. IS-LM analysis

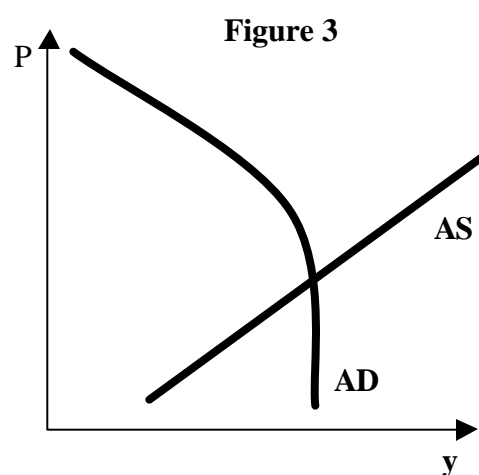
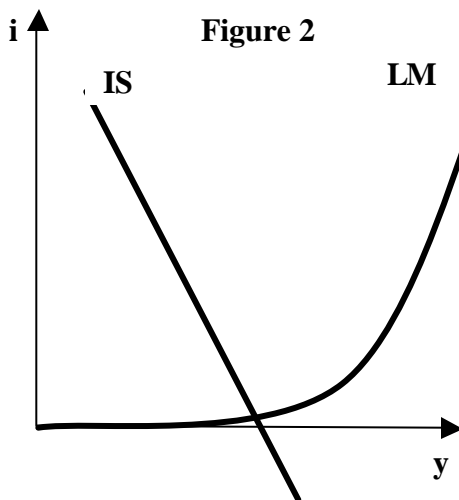
As Figure 1 shows, recently the interest rate of Japanese economy has been kept in a range between 0.5 and near zero, even though money supply has been increasing. This means that elasticity of the demand for money with respect to interest rates has become very large, and expansion of the money supply has been absorbed without decreasing the interest rate. This phenomenon happens because the quite low interest rate makes a value of bond lower against a value of currency.

Figure 1



Thus, the current IS-LM curve of the Japanese economy can be described as Figure 2. The LM curve has a horizontal part, where a monetary policy has no effects to both interest rate and GDP, because any shift of the LM curve by monetary policy cannot change the intersection with the IS curve. If the interest rate is zero, bonds and money become equivalent assets substantively, so monetary policy, in which money is swapped for bonds via an open-market operation, change nothing. We found that shape of the LM curve is different from a usual one because Japanese economy has faced special environment of quite low interest rate.

As for the IS-LM diagram, the aggregate demand curve and the aggregate supply curve of the Japanese economy can be described as Figure 3. The aggregate demand curve shaped downward sloping over some range but vertical thereafter because decrease of price which is equivalent to increase of real money balance (M/P) has no effect on GDP when the intersection of IS and LM curve is in the part where LM curve is horizontal.



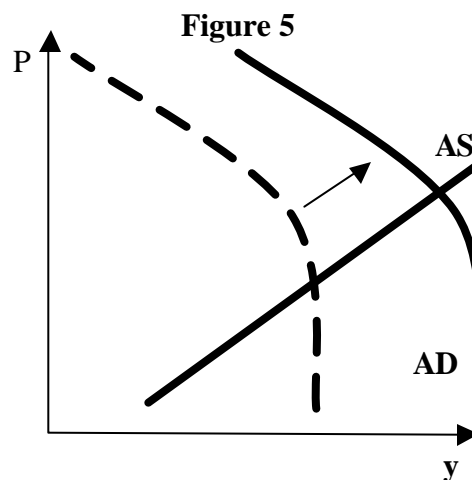
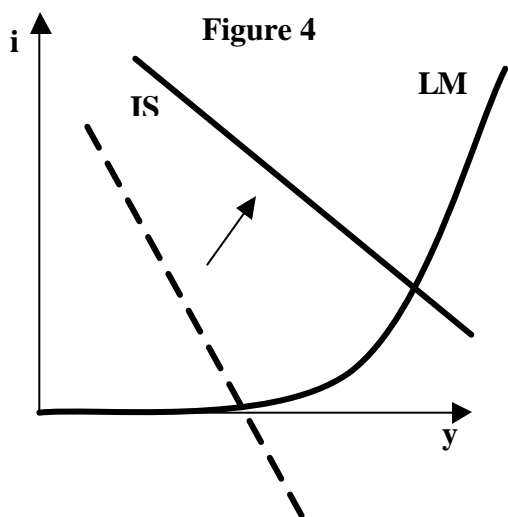
Therefore, what is expected to be effective on the Japanese economy is the policy that stimulates the goods market. Although there are some options that shift IS curve rightward, currently government spending expansion or tax cut are not feasible because Japanese government debt condition is in dangerous level and past expansion policies showed inefficient results. In the “Quantity Easing” policy by the BOJ, a different impact on the aggregate demand was aimed at. The policy is supplying enough money that makes the (nominal) interest rate zero until the current deflation condition ends. The flooding money in the market will decrease the real interest rate to the negative though the nominal interest rate cannot be negative. According to the Fisher effect;

$$i = r + p^e$$

(where  $i$  is nominal interest rate,  $r$  is real interest rate and  $p^e$  is expected inflation rate.)

if real interest rate is negative when nominal interest rate is zero, expected inflation rate must be positive.

The Fisher effect implies that under the “Quantity Easing” policy people will be urged to consume and invest because people will expect inflation in the near future caused by the excess money supply by the BOJ. It means that consumption propensity and investment will increase. Then, as Figure 4 shows, these increases in consumption and investment will shift the IS curve upward with making the slope more flat and increasing GDP. This shift of the IS curve will stimulate demand side and also shift the aggregate demand curve rightward. When the IS curve will shift enough to intersect with the LM curve at the point where the slope of the LM is positive, the aggregate demand curve and the aggregate supply curve will also equilibrate at the point where the slope of the aggregate demand curve is negative (Figure 5). Consequently, the Japanese economy will get out of the deflation.



<sup>1</sup> The Phillips curve is

$$p = p^e - b(u - u^n) + v$$

(where  $p^e$  is expected inflation rate,  $(u - u^n)$  is cyclical unemployment and  $v$  is supply shock.)

Inflation rate has a positive correlation with the expected inflation rate. Then expected inflation rate can be substituted for inflation rate. Therefore expected inflation rate is used in the Fisher effect.

## V. Recommendation

Under the current vicious economic in Japan, people have pessimism about their lives and the future of Japan, resulting in the low level of consumption and the high level of savings. In addition, corporations with excessive debts are reluctant about new investment in spite of low interest rate, because they prioritize repayment of debts. As a result, aggregate demands stay weak and ample money supply from the BOJ fails to stimulate the economy. The weak aggregate demand causes the excessive inventories on supply side, which in turn reduces employment and cuts salary levels to adjust the balance between demand and supply. The increase of unemployment and decrease of the dispensable income contract aggregate demand further. In order to stimulate the aggregate demand, the effective fiscal policy and further monetary policy should be taken in addition to the new monetary policy.

[Fiscal Policy]

### To stimulate the consumption

Under the current situation, expected recession prevents consumption from expanding because consumers are concerned about the future of Japan, resulting in the increase of savings. In order to stimulate the consumption and aggregate demand, the government should stimulate the consumption by decreasing tax rates such as the consumption tax, instead of the cut of income tax, which is considered to be ineffective because people prefer saving the disposable income increased by the tax cut to spending on consumption. On the other hand, expansionary government expenditure should not be taken because Japanese government debt is already in the dangerous level and past expansion policy failed to increase the consumption.

### To implement the structural reform and deregulation

Downward trend of the Japanese economy shown in the stock market would be partly caused by bad debt in financial sector and excessive debt in corporations. In order to increase investment and secure the real economic growth, drastic structural reform and deregulation should be implemented at the cost of tentative increase of bankruptcy.

[Monetary Policy]

### Increase of the liquidity

In addition, the BOJ should set the more quantitative targeting in order to announce that the policy objectives are to increase the liquidity so that domestic demand increases. As we explained above, by “Quantity Easing” policy, people will be urged to consume and invest because they will expect inflation in the near future caused by the excess money supply by the BOJ. But at the same time, the BOJ should be cautious about the easy purchase of government bonds circulating in the market, which is not illegal, but easily subject to political pressure.

### Inflation targeting

The current monetary policy is aimed to remove a deflationary bias, but the BOJ should step into the further inflation targeting to eliminate deflation trend. As a matter of fact, it is difficult to set the appropriate inflation targeting rate, but by setting the inflation target on the above zero, for example, 2 to 3 %, the BOJ should show the further strong commitment to remove deflation and to make people to expect inflation, resulting in the increase of consumption and investment.