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Monetary Policy Under Zero Inflation
--A Response to Criticisms and
Questions Regarding Monetary Policy--
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Monetary Policy Under Zero Inflation

-- A Response to Criticisms and Questions Regarding Monetary Policy --

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Abstract

The Japanese economy has recently been faced with massive non-performing assets and a large supply-demand gap. Thanks to the historically unprecedented accommodative monetary policy of the Bank of Japan (BOJ), prices have generally been stable and severe deflation has been avoided. Despite this, BOJ has been questioned and criticized regarding its conduct of monetary policy. For example, why doesn't it adopt inflation targeting? Why has BOJ stubbornly refused to increase the outright purchase of long-term government bonds? Why does BOJ implement fund absorption operations in the middle of monetary easing? This paper tries to evaluate questions and criticisms regarding the conduct of BOJ's monetary policy under zero inflation by using the following two criteria: (i) BOJ will take measures necessary to achieve the sound development of the national economy through the pursuit of price stability in the long run; however, (ii) BOJ will not take such measures if the side effects are deemed greater than the effects, which makes it difficult to achieve the objective in (i).

Key terms: Monetary Policy, Zero Interest Rates, Long-term Interest Rates, Inflation Targeting, Outright Purchase of Government Bonds, Quantitative Easing, Excess Reserves, Base Money, Balance Sheet Problem, Liquidity Trap

JEL classification: E52, E58

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1. Introduction

(1) Questions regarding the conduct of monetary policy

The Japanese economy has recently been faced with massive non-performing assets and a large supply-demand gap. The experience of the US during the Great Depression has made not a few suggest that the Bank of Japan (BOJ) should have done more in terms of monetary policy given the extremely difficult situation.

However, in Japan, both CPI and the GDP deflator have so far been stable, and we have managed to avoid a rapid price decline (deflation) as was experienced in the US during the Great Depression (Figure 1).

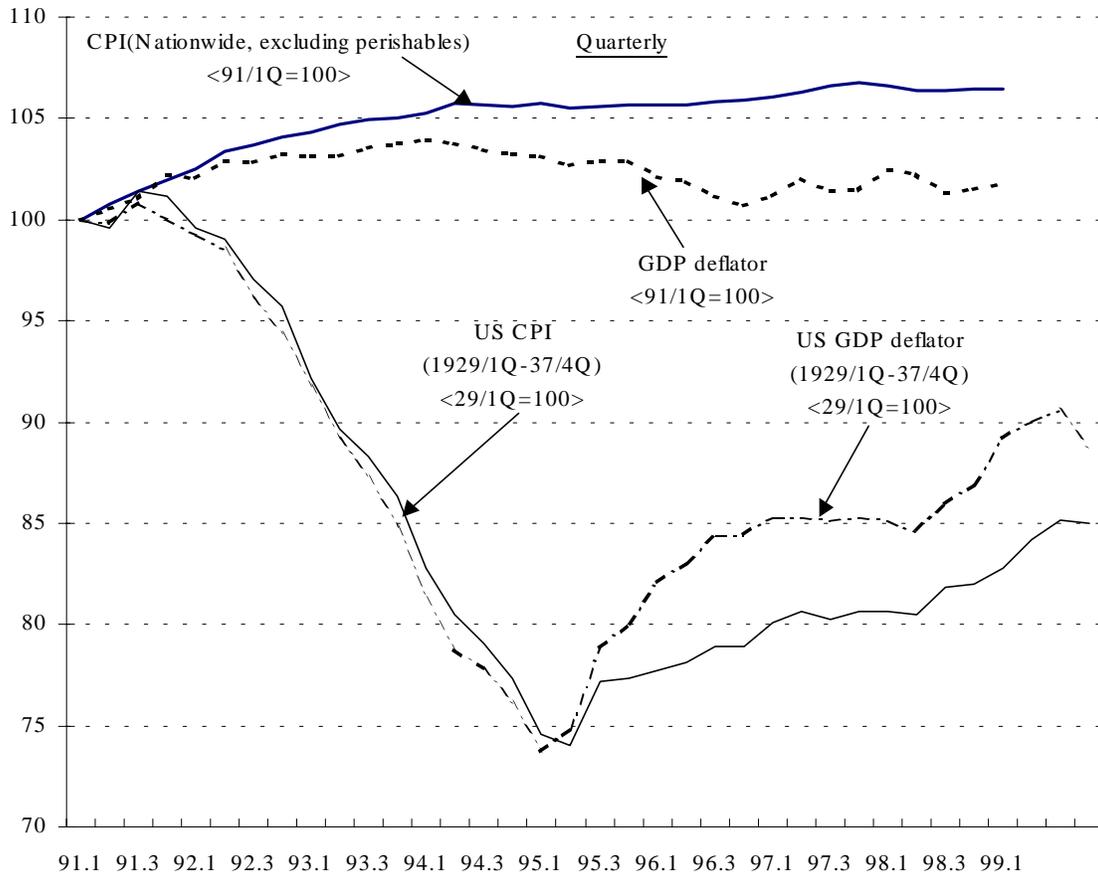
Specifically comparing interest rates and money supply between the two countries, under BOJ's historically unprecedented accommodative monetary policy, interest rates in Japan have recently declined more rapidly and to a lower level than in the US during the Great Depression (Figure 2). Hence, it cannot be denied that such a policy has prevented monetary contraction and deflation (Figure 3).

Despite this, BOJ has been questioned and criticized regarding its conduct of monetary policy. While some of the questions and criticisms are not necessarily based on a full understanding of the extent of monetary easing as described above, others may contain several points worthwhile examining such as the following:

- (a) **Given that BOJ aims at achieving a situation which is neither inflationary nor deflationary, why does it not adopt inflation targeting as a policy framework?**
- (b) **Is it not the case that BOJ is concerned more about inflation in the remote future than deflationary risk at present?**
- (c) **To reduce deflationary risk and achieve price stability, is it not necessary to effect quantitative monetary expansion? If so, why has BOJ stubbornly refused to increase the outright purchase of long-term government bonds?**
- (d) **Since BOJ is implementing a zero interest rate policy, why does it not effect quantitative monetary expansion by suspending fund absorption operations?**

BOJ has responded to such questions and criticisms. However, since they intertwine with each other and involve technical points, it is not easy to deduce BOJ's basic thinking from summing up the respective responses. As a result, dissatisfaction seems to prevail among the public that **BOJ's thinking is not necessarily understandable in a consistent manner**. Some may go even further to **attribute the prolonged stagnation of the economy to BOJ's unwillingness to take what they consider to be necessary measures**. Despite the fact that to date BOJ has been successful in avoiding severe deflation by implementing an unprecedented accommodative policy, it appears not yet to have been given the confidence it deserves.

Figure 1 Comparison of Price Level
between the 1990s in Japan and the period of the Great Depression in the US



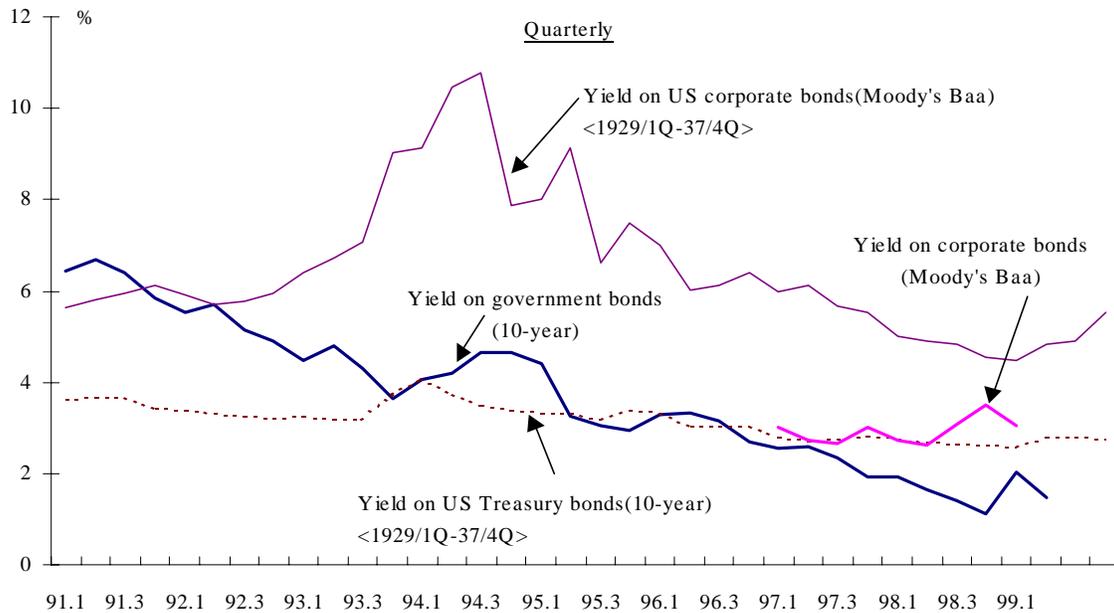
- Notes: 1. Japanese price level data: 1991/1Q--199/1Q.
US price level data: 1929/1Q--1937/4Q.
2. The horizontal scale is graduated for the Japanese case, while in the case of the US 1991/1Q corresponds to 1929/1Q.
 3. Japanese CPI data adjusted by excluding the effects of the consumption tax hike in April 1997 on the assumption that prices of all taxable goods fully reflect the rise in the tax rate.

Sources: Management and Coordination Agency, "Consumer Price Index";
Economic Planning Agency, "National Income Statistics";
U.S. Department of Labor, Bureau of Labor Statistics, "Consumer Price Index";
Balke, N.S. and R.J. Gordon, "Historical Data," in R.J. Gordon ed., *The American Business Cycle*(The University of Chicago Press, 1986).

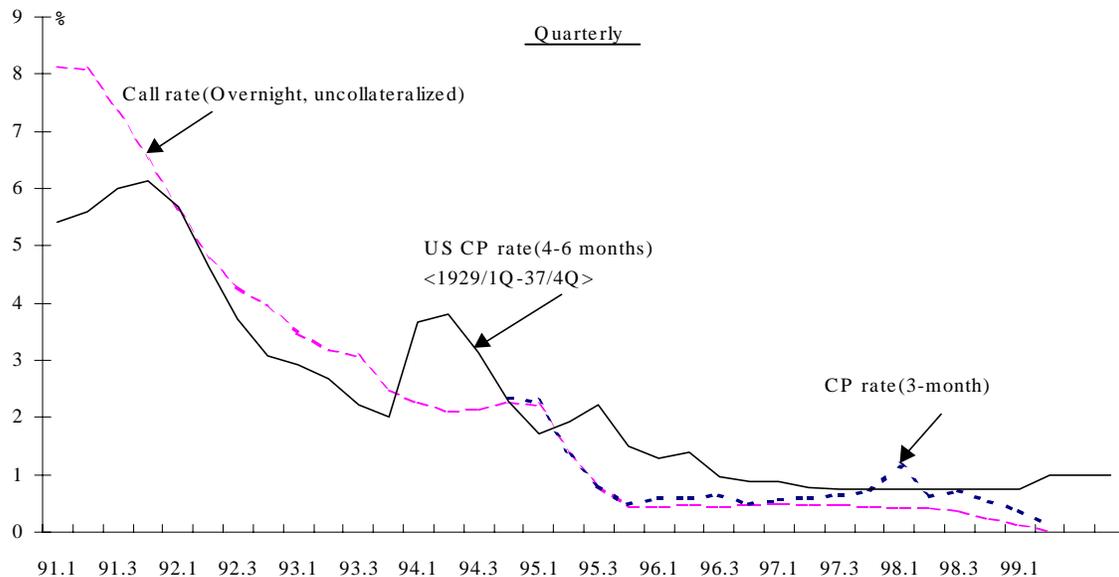
Figure 2 Comparison of Interest Rates

between the 1990s in Japan and the period of the Great Depression in the US

A. Long-term rates



B. Short-term rates



Notes: 1. Japanese interest rates: 1991/1Q--1999/2Q.

US interest rates: 1929/1Q--1937/4Q.

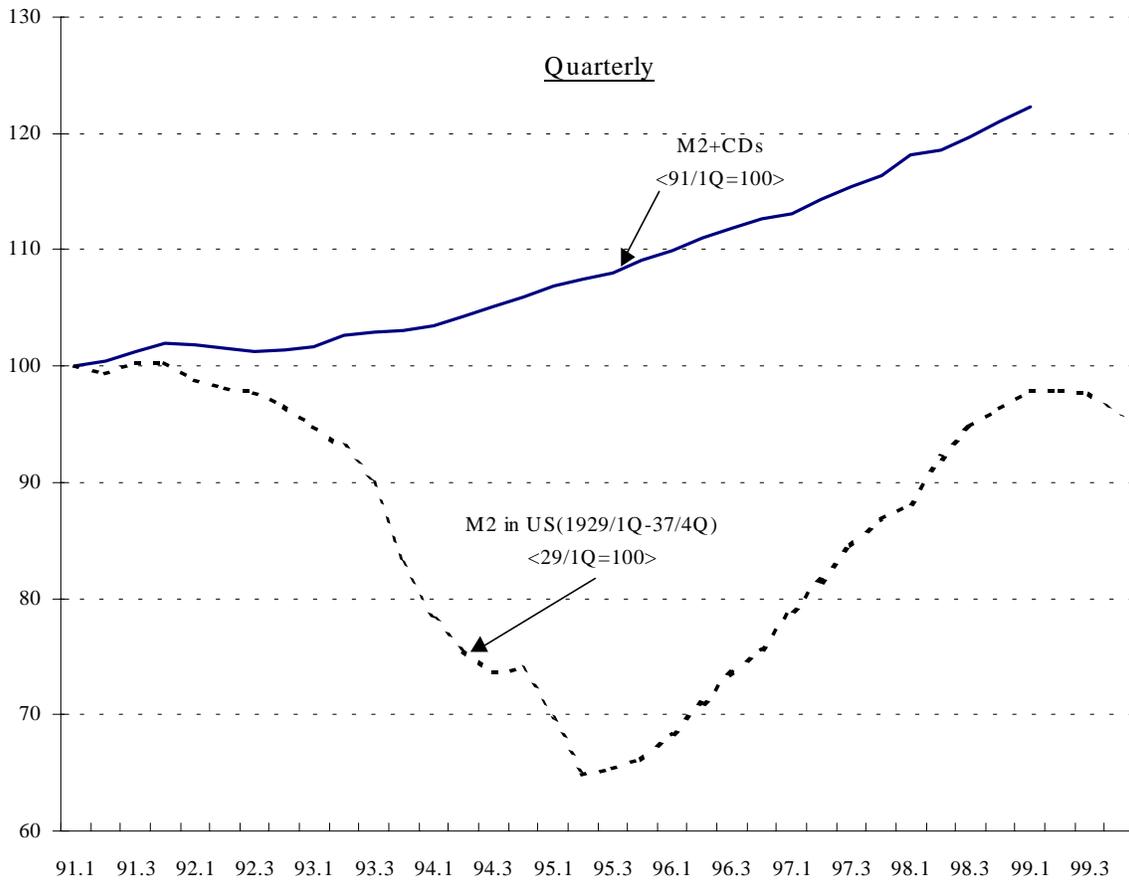
2. The horizontal scale is graduated for the Japanese case, while in the case of the US 1991/1Q corresponds to 1929/1Q.

Sources: Bank of Japan, "Financial and Economic Statistics Monthly";

Balke, N.S. and R.J. Gordon, "Historical Data," in R.J. Gordon ed., *The American Business Cycle* (The University of Chicago Press, 1986);

Federal Reserve Board, "Financial and Business Statistics."

Figure 3 Comparison of Money Stock
between the 1990s in Japan and the period of the Great Depression in the US



Notes: 1. Japanese money stock data: 1991/1Q--1999/1Q.

US money stock data: 1929/1Q--1937/4Q.

2. The horizontal scale is graduated for the Japanese case, while in the case of the US 1991/1Q corresponds to 1929/1Q.

Sources: Bank of Japan, "Financial and Economic Statistics Monthly";

Balke, N.S. and R.J. Gordon, "Historical Data," in R.J. Gordon ed., *The American Business Cycle*(The University of Chicago Press, 1986).

Based on such an observation, it is deemed necessary that BOJ explain in detail the pros and cons of various policy measures in an easy-to-follow framework. Since Monetary Policy Meeting decisions are by majority vote, it is not necessarily automatically guaranteed that they exhibit the same kind of consistency as is observed in the decision making of an individual.¹ In this paper, I will discuss BOJ's conduct of monetary policy from my own viewpoint, not that of the 'collective will of BOJ.'

(2) Framework for discussion

A monetarist's prescription

What would be a natural framework for examining the conduct of monetary policy in an economy experiencing deflationary pressures? Generally speaking, the natural choice would be that of a monetarist who would immediately come up with the following policy prescription: **Under deflationary pressures, money supply needs to be increased in the interest of price stability, and for that purpose ample reserves should be provided.** When there are serious worries over deflation, this simple prescription would most likely win the support of most macroeconomists.

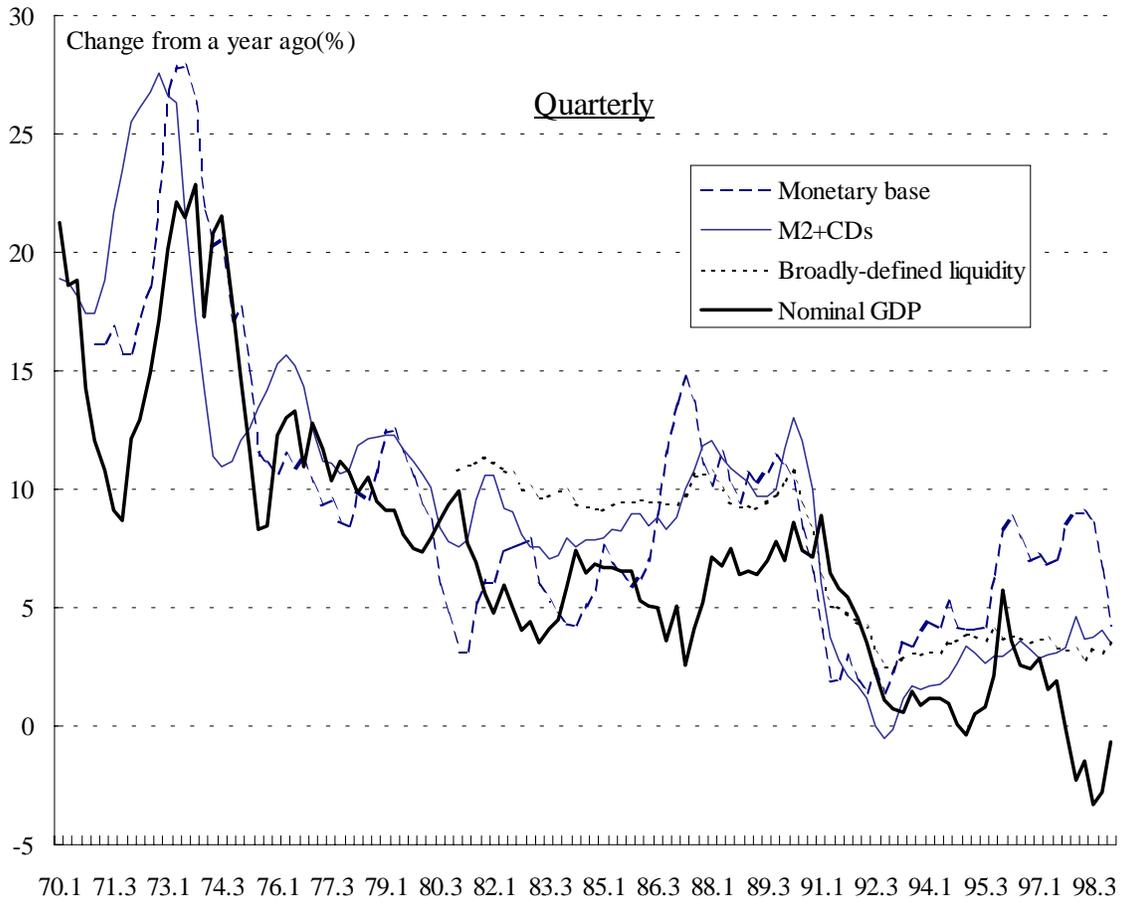
If I were a researcher studying outside a central bank, I would have also subscribed to the monetarist's prescription. However, as a central banker and one who monitors policy operations from the inside, I am not fully convinced that such a prescription would automatically solve the problem.

As a result of BOJ's accommodative monetary easing, money supply growth exceeds nominal GDP growth (Figure 4). The ratio of money supply growth to nominal GDP growth, Marshallian k (an inverse of the velocity of money), has been increasing rapidly, thus preventing the general price level and stock prices from falling (Figure 5).

However, despite the unprecedented accommodative monetary policy, it is true that various indicators regarding the growth of monetary aggregates have been considerably lower than past averages (Figure 6). Such a contrast seems to imply that factors other than short-term interest rates and reserves, both of which are controllable by a central bank, have contained the growth of monetary aggregates.

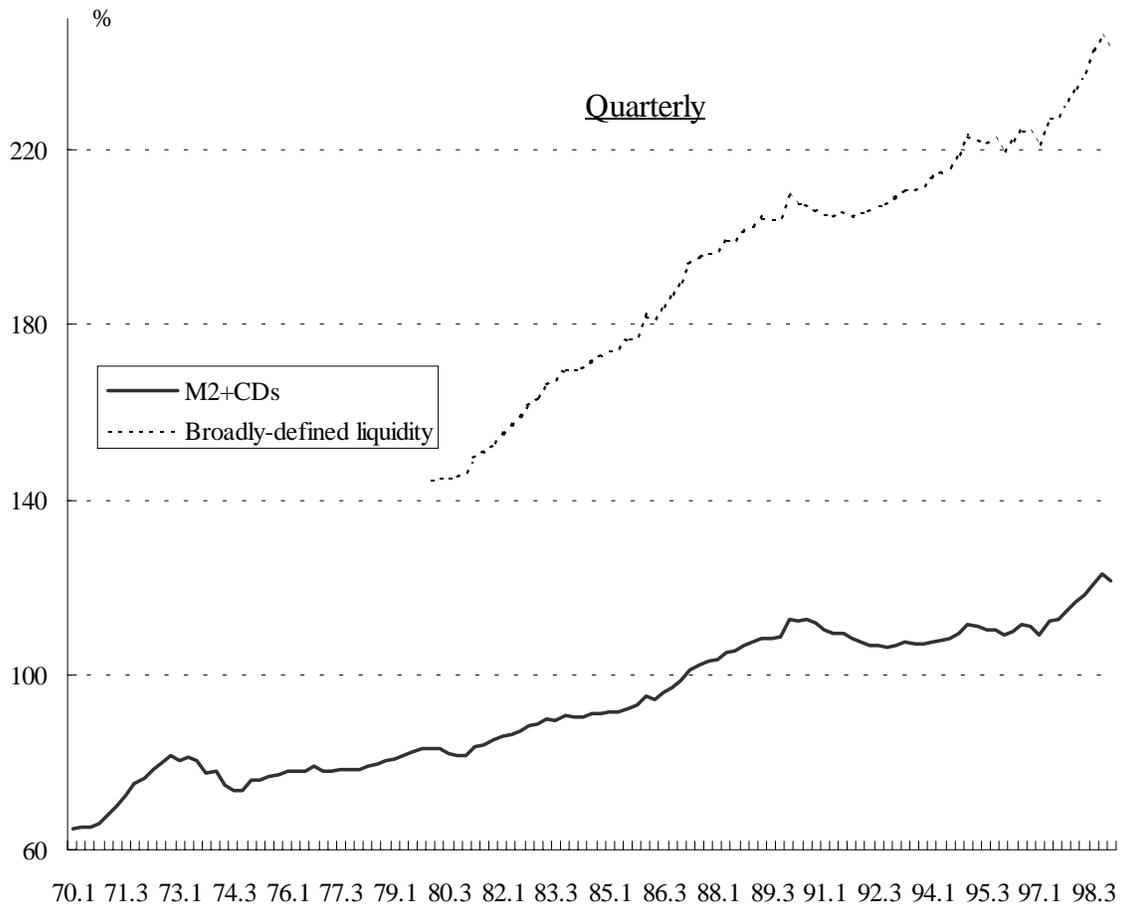
¹ In retrospect, as a result of thorough discussions at each Monetary Policy Meeting to reach a decision, it is true that one can trace a certain continuity with respect to fundamental decisions, which can be termed the 'collective will of BOJ.'

Figure 4 Monetary Aggregates and Nominal GDP



Sources: Bank of Japan, "Financial and Economic Statistics Monthly";
Economic Planning Agency, "National Income Statistics."

Figure 5 Ratio of Money Stock to Nominal GDP



Sources: Bank of Japan, “Financial and Economic Statistics Monthly”;
Economic Planning Agency, “National Income Statistics.”

Figure 6 Average Annual Growth Rate of Monetary Aggregates

	Monetary base	M2+CDs	Broadly- defined liquidity
1970s	15.2%	16.4%	N.A.
1980s	7.9%	9.1%	9.9%
1990s	5.5%	3.6%	4.3%
1970 – 98 (CY)	9.5%	9.8%	7.1%

Source: Bank of Japan, “Financial and Economic Statistics Monthly.”

Framework of a central bank

In evaluating the validity of policy options under such circumstances, this paper uses the following two criteria:

- (a) BOJ will take measures necessary to achieve the sound development of the national economy through the pursuit of price stability in the long run.
- (b) However, BOJ will not take such measures if the side effects are deemed greater than the effects, which makes it difficult to achieve the objective in (a) above.

The first criterion is exactly BOJ's mandate as stipulated in Article 2 of the Bank of Japan Law. The second criterion requires comparing effects with side effects in accomplishing the mandate. In weighing the effects and side effects, proper evaluation of the economy is essential for making an appropriate policy decision.

2. A Response to Criticisms and Questions Regarding Monetary Policy

(1) Price stability as a mandate

Inflation targeting

Inflation targeting is one effective approach in the conduct of monetary policy, and an increasing number of countries have adopted it recently. At the moment, BOJ has not adopted this approach because of (i) the difficulty in setting a target, and (ii) the difficulty in achieving it.

Let me elaborate on the first difficulty. When we examine inflation targeting in light of the first criterion which says that “BOJ will take measures necessary to achieve the sound development of the national economy through the pursuit of price stability in the long run,” it boils down to the following difficult question: Do we have a good reason to believe that the sound development of the national economy will be attained if we maintain the rate of increase in specific price indicators at a certain level? Price indicators such as the GDP deflator, CPI, and WPI often move differently. Even when these indicators exhibit the same movement, the extent to which the sound development of the national economy will be achieved may depend on such factors as whether property prices are stable or rising sharply.

Furthermore, even if we commit ourselves to a specific price indicator, the changes in it may reflect not only factors related to monetary policy but also those not directly related to monetary policy like a sudden rise in prices due to drought or the dramatic decline witnessed in the prices of computers due to technological innovation. In other words, we need to solve such issues as to how to grasp an inflation trend which could be addressed by monetary policy, and to what extent we should incorporate biases and measurement errors of the price index when analyzing the changes in it.²

With regard to the first difficulty in setting a target, there is the following counterargument: **Since many countries have already adopted inflation targeting, there cannot be any excuse for not adopting it in Japan.** In principle, this argument is correct, but in the case of Japan there are some special difficulties which will be made apparent in the following paragraphs.

Countries which have experienced high inflation have adopted inflation targeting as a measure geared toward disinflation. For example, both New Zealand and the UK suffered from almost double-digit inflation for a long time and introduced targeting as a way to combat it. In such a case, biases and measurement errors of the price index in the order of a few percent do not matter much. Initially, one can introduce inflation targeting by setting a tentative target with some range, for example 1 to 4%, and then once the inflation rate becomes low enough, one can reset a more specific target level and its range.³ However, since inflation is about zero percent in Japan, we cannot take such a two-stage approach. Moreover, the

² For example, see Shigenori Shiratsuka, “Measurement Errors in Japanese Consumer Price Index,” Federal Reserve Bank of Chicago Working Paper, No. 99-2, 1999.

³ For an explanation regarding the economies of countries which introduced inflation targeting, see “Inflation Targeting in Selected Countries,” Bank of Japan Quarterly Bulletin, Vol. 3, No. 2, May 1995.

possibility that the effectiveness of inflation targeting in achieving sustainable growth may depend on such factors as property prices seems to present particular difficulties in setting a target since most of today's problems in the Japanese economy were triggered by asset inflation including the rise in property prices.

It appears that in Japan many of those who believe in inflation targeting suggest its adoption from the viewpoint that it could substantially raise inflationary expectations. A criticism typically made from this standpoint is as follows: **Since deflationary expectations are an issue at the moment, BOJ should adopt inflation targeting to directly work on expectations.**

Against this criticism, BOJ argues, as is recorded in the minutes of Monetary Policy Meetings, that "since we cannot explicitly show the way to achieve the desired inflation rate, such action would most likely result in BOJ losing credibility."

Such a view is deemed not a rejection of inflation targeting per se, but rather reflects the current extraordinary state of the Japanese economy. The issue here is also the difference in the state of the economy between the countries that adopted inflation targeting and Japan. Since the countries suffering from high inflation adopted inflation targeting as a disinflationary measure, there seemed to exist a clear policy path for achieving the goal, i.e. raise interest rates and pursue a tight monetary policy. In contrast, both the inflation rate and short-term interest rates are virtually zero percent in Japan; there is no room left for further interest rate reduction in the current situation to raise inflationary expectations. Thus, BOJ's Policy Board members face the problem of whether they should consider the possibility of exploring innovative measures beyond the current policy framework, such as so-called 'quantitative easing,' to effect additional monetary easing.

Let me turn to the effectiveness of working directly on expectations by adopting inflation targeting, but not necessarily specifying a concrete path to achieve it. This intends to work through an announcement effect, but such effect may or may not work to raise inflationary expectations.

Whether to take a particular course of action, the result of which is uncertain, seems to be a balancing act between a position emphasizing that we should take whatever action if there is a slight possibility of achieving the desired effects and one emphasizing that we, as a responsible body, should not just make an announcement unless there is clear and concrete policy action to follow. Taking into account the current state of the Japanese economy, introduction of inflation targeting would most likely result in impairing BOJ's credibility.

Of course, comparison of the effects and side effects does not always lead to the same conclusion. If a pessimistic view such that the Japanese economy is about to enter a deflationary spiral as was experienced in the US during the Great Depression prevails among Policy Board members, it may well be the case that the position emphasizing the effects becomes dominant. Nevertheless, so far, such thinking has not dominated at Monetary Policy Meetings.

BOJ's stance of not adopting explicit inflation targeting so far may lead to the following criticisms: **BOJ has an anti-inflation bias in conducting monetary policy. When prices were rising, BOJ stated its strong commitment to**

preventing inflation but never referred to the future concern of deflation. On the other hand, when prices were falling, BOJ often stated that there should be neither inflation nor deflation and mentioned the future concern of inflation. Thus, BOJ's stance is biased. Once BOJ announces its objective of price stability with specific figures, it will have to deal with inflation and deflation in a symmetrical manner. This criticism can be interpreted as a request for BOJ to devise ways to explicitly show under what conditions it would depart from its current zero interest rate policy. Unless such a request is met to a sufficient degree, BOJ will not be able to dispel the concern of market participants regarding the continuity of its policy stance.

Ways to reduce uncertainty regarding monetary policy operations

It appears that there has been a subtle change in how BOJ announces its policy operations. The statement of the Policy Board on February 12, 1999 noted that “the Bank of Japan has judged it appropriate to provide, through monetary policy operations, the utmost support for economic activity in order to avoid possible intensification of deflationary pressure and to ensure that the economic downturn will come to a halt.” In this statement, there is no mention of continuity regarding BOJ's current policy. It is unclear from the discussion revealed in the minutes of that Monetary Policy Meeting as to how long the virtual zero interest rate policy will last. This may be the reason why the market began looking for subsequent operational targets once it saw that the unsecured overnight call rate had become virtually zero percent.

About two months later, on April 13, Governor Hayami explicitly referred to the continuity of current policy by saying that “until we reach a situation in which deflationary worries subside, we will continue the current policy of providing necessary liquidity to guide the unsecured overnight call rate down to virtually zero percent while paying due consideration to maintaining the proper functioning of the market. This is the consensus of the Monetary Policy Meeting on April 9.”

Can we go a step further?

If BOJ were to go further, it could announce something like “we will not tighten our policy, that is, maintain the overnight call rate at zero percent, until the trend growth rate of CPI reaches X%.”

Such a statement does not specify a targeted inflation rate like in inflation targeting. In this case, for example, BOJ specifies a trend inflation rate of CPI as a reference point for policy changes. Then, we need to check whether or not the chosen reference point is effective in light of the following lesson that we learned from the bubble period: In the bubble period, monetary tightening came too late because the rise in general prices considerably lagged the steep rise in asset prices, thus leading to a large swing in the subsequent business cycle.

All considered, there is no definite answer to the question as to whether or not an explicit commitment to a specific inflation rate as a quantitative reference point would be an effective measure in conducting monetary policy given the current state

of the Japanese economy.

(2) Needs and effects of the outright purchase of government bonds

Can we increase money supply by increasing reserves?

Since inflation is a monetary phenomenon, it is necessary to maintain money supply growth at a level high enough to fight deflationary pressures. To this end, interest rates should be lowered and ample reserves provided. But, if it is judged desirable to increase money supply, the question remains whether we will be able to automatically increase it by injecting reserves. If the main constraint on the expansion of money supply is not related to reserves, it is natural that money supply will not grow significantly by providing ample reserves and reducing banks' funding costs to around zero percent. At present, banks are contributing to money supply growth by purchasing government bonds and other assets instead of providing loans, thereby helping to avoid deflation (Figure 7).⁴

Constraints on the expansion of bank loans include such problems as (i) the decline in the risk taking ability of banks resulting from the erosion of their capital due to non-performing assets, (ii) the lack of profitable projects, and (iii) the inability of many firms to borrow money because of the debt incurred on previous projects. Even if firms can borrow money for a profitable project, they have to first repay the debt on other projects. Unless such problems are solved through appropriate measures corresponding to the respective constraints, the provision of funds will not result in the expansion of bank lending. For example, if the constraint is a decline in banks' risk taking ability due to capital shortage, public funds need to be injected to strengthen banks' capital positions.

In a situation where the constraints remain, whether or not we continue to provide excess reserves needs to be determined by comparing the effects and side effects of such an operation.

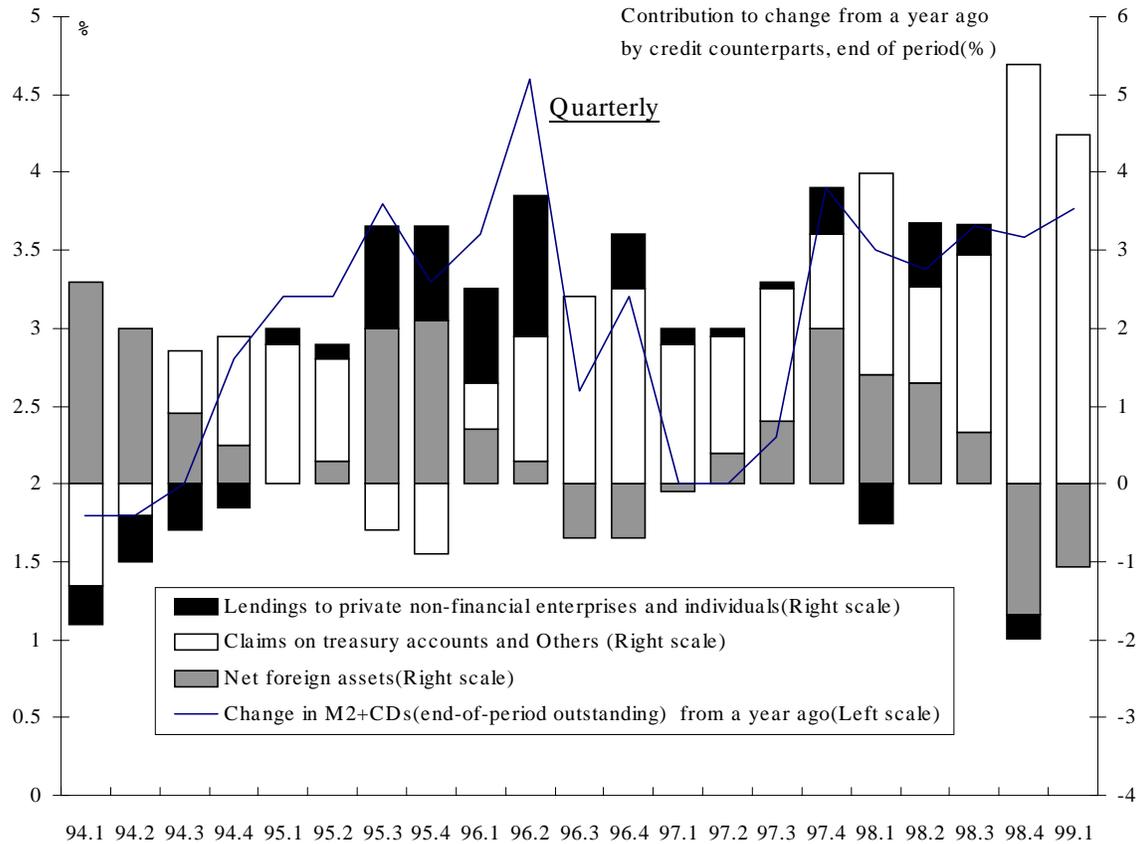
A controversy regarding BOJ's outright purchase of government bonds

In relation to so-called quantitative easing, many economists both at home and abroad⁵ criticize BOJ saying that: **An increase in the outright purchase of long-term government bonds is deemed effective for quantitative easing. The reason BOJ is reluctant to increase outright purchase, which is not legally forbidden like underwriting, is because it is overly conscious of its independence and prestige, thereby tying its hands from taking effective policy measures.**

⁴ Given the market condition, it is unlikely that the provision of reserves will trigger a rapid increase in money supply. This is because, for example, long-term government bonds entail a large price volatility risk and the yield on short-term government bills with small price volatility risk is declining (Figure 8).

⁵ See, for example, Koichi Hamada, "Jijou Jibaku no Nippon Ginko" (The Bank of Japan being bounded by its own words), Shukan Toyo Keizai, March 20, 1999 (in Japanese).

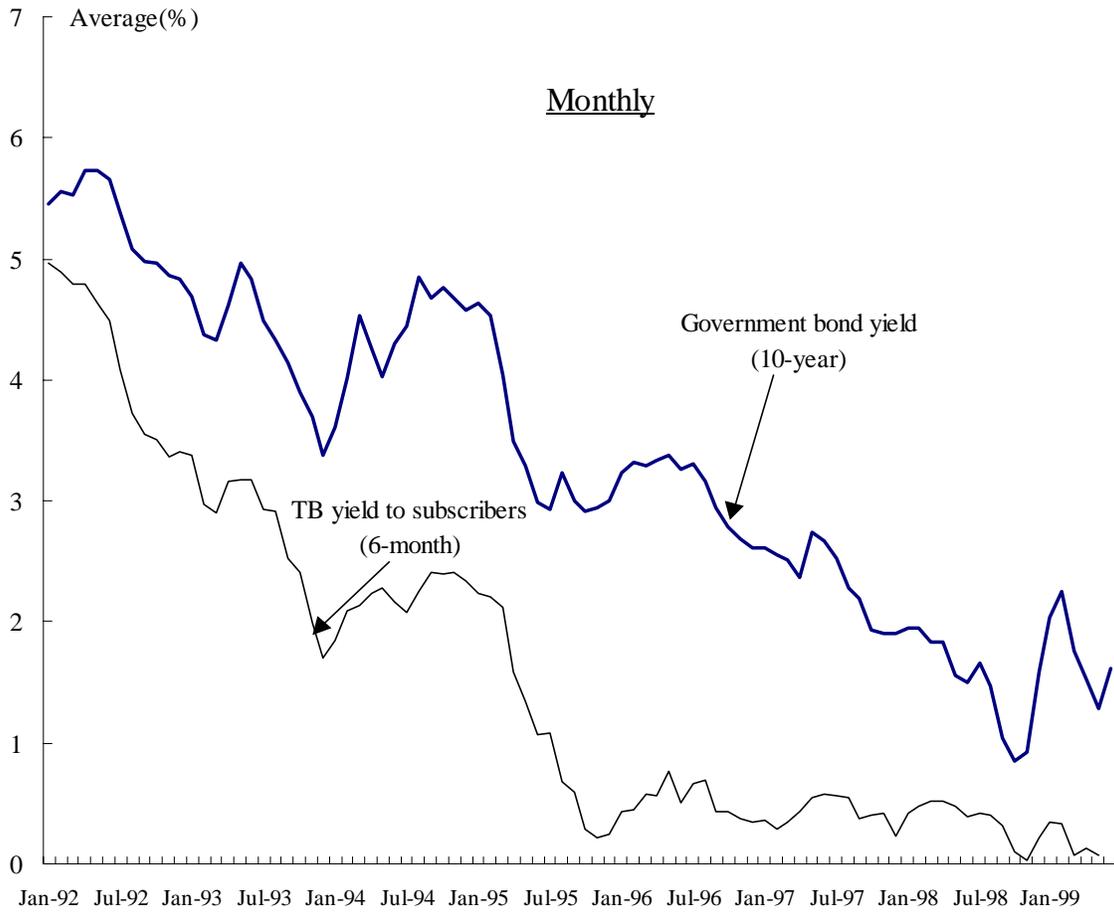
Figure 7 Changes in Money Stock (M2+CDs) and Credit



- Notes: 1. The data contrast the increase or decrease in M2+CDs with the changes in the claims on the private non-bank sector, which are indicated respectively as liabilities and their counterpart assets on the balance sheets of the financial institutions surveyed.
2. Contribution to change from a year ago by component
 = increase or decrease from a year ago of each component / M2+CDs outstanding at the end of the period (year earlier)
3. The sum of the contributions does not necessarily equal changes in M2+CDs, because the contributions of “claims on local governments” and “holdings of corporate bonds and stocks”, which are quantitatively negligible, are not described in the above graph.

Source: Bank of Japan, “Financial and Economic Statistics Monthly.”

Figure 8 Interest Rates



Source: Bank of Japan, "Financial and Economic Statistics Monthly."

To such a criticism, BOJ has pointed out that (i) in the end it would essentially be the same as underwriting which is prohibited by the Fiscal Law, (ii) most central banks in industrialized countries mainly conduct the outright purchase of short-term government bills for monetary operation purposes (iii) it would impair fiscal discipline, and (iv) it might increase long-term interest rates.

For example, BOJ contends that based on its historical experience, once outright purchase by a central bank is built-in as an automatic funding source for the government, it would become extremely difficult for both the government and the central bank to exit from it. Against this, there is the following counterargument regarding the loss of fiscal discipline: **As long as BOJ is an independent central bank, it can suspend outright purchase or conduct open market selling operations at its own discretion. Hence, BOJ's outright purchase at the present juncture may not necessarily put future fiscal discipline at risk.** To date, this point is still an inconclusive controversy.

There appears to be some confusion in the argument regarding the outright purchase of long-term government bonds because the implicit assumptions in the conduct of monetary operations are not necessarily clear. I will try to put to rest such confusion in the following section.

Relation with long-term interest rates: comparing with exchange rates

There are those who suggest that BOJ should effect the outright purchase or underwriting of long-term government bonds because they believe such an operation would have a strong effect in containing long-term interest rates. With regard to this contention, two underlying questions have to be examined: One is whether or not BOJ should consider long-term interest rates as its policy objective, and the other is whether or not BOJ can control long-term interest rates by purchasing long-term government bonds.

Regarding these questions, BOJ has stated that long-term interest rates are important indicators, though they are neither its policy objective nor controllable. I personally believe that it may be possible in theory to control long-term interest rates but not feasible in practice, and that they should be regarded in the same way as the foreign exchange rate under a floating exchange rate system.

Under a floating exchange rate system, the foreign exchange rate can be temporarily influenced if the authorities intervene in the market unexpectedly or in concert, though the effect of such 'shock therapy' diminishes over time. After all, the foreign exchange rate cannot be controlled at will simply by affecting the supply and demand of foreign exchange through intervention. If the authorities should seriously wish to control the foreign exchange rate, they will need to switch to a policy framework which fundamentally alters the expectations of market participants, such as assigning monetary policy to foreign exchange rate stability and returning to a fixed exchange rate system.

The same applies to long-term interest rates. They cannot be controlled simply by the outright purchase of government bonds. If BOJ dares to control long-term interest rates, it will have to completely alter the expectations of market participants by a fundamental shift in its policy framework similar to returning to a fixed

exchange rate system.

Under a fixed exchange rate system, freedom to assign monetary policy to the domestic policy objective is completely lost. Similarly, in a policy framework in which monetary policy is assigned to controlling long-term interest rates, freedom to achieve the mandate stipulated in the Bank of Japan Law would be completely lost. Like the case of a fixed exchange rate system where the authorities tend to maintain the exchange rate until it diverges from the level warranted by economic fundamentals to an intolerable extent, a policy framework which commits to long-term interest rate would most likely cause considerable and intense reaction and have dire consequences for the economy when it finally breaks down. In other words, while there might be some immediate effects temporarily, large side effects would materialize before long.

In the 1940s, US monetary policy was geared to containing long-term interest rates, but resulted in the collapse of the government bond market due to inevitable pressure for a rise in interest rates.⁶ Because of this, in the 1950s, the Federal Reserve Board (FRB) concluded an Accord with the Treasury which stated that the FRB was not responsible for the movement of long-term interest rates. Though this is an experience in the US, I believe it is a valid historical lesson for Japan and constitutes part of the background to BOJ's argument that it cannot control long-term interest rates.

Against this argument, there will be the following criticism: **Recognizing that long-term interest rates are not controllable over time as is the case with the foreign exchange rate, BOJ intervenes in the foreign exchange market based on the judgment that short-term volatility is not desirable. Why can't BOJ intervene in the market with respect to long-term interest rates? When adverse effects on the economy are anticipated, why doesn't BOJ allow a small increase in the outright purchase of long-term government bonds as a smoothing operation, similar to its intervention in the foreign exchange market?**

Regarding this criticism, one reason why BOJ cannot make such a response becomes obvious if we presume the following situation where an increase in the purchase of government bonds is not as effective as expected in controlling long-term interest rates: Suppose the market demands an increase in the purchase of government bonds. If BOJ did not respond, long-term interest rates would rise from disappointment. Even if BOJ did respond, there is no guarantee that long-term interest rates could be controlled. And, if they could not be controlled, which is most likely the case, continuing outright purchases in the hope they would be effective would eventually be the same as a change in policy framework. Among industrialized countries, a fixed exchange rate system is a viable option for a small country, but no country, large or small, has a fixed long-term interest rate system. It seems much more difficult for a central bank to fix long-term interest rates than to fix the foreign exchange rate. Thus, a central bank cannot easily take up such an option unless it stands ready to fundamentally alter its policy framework.

⁶ See Eichengreen, B. and Garber, P.M., "Before the Accord: US Monetary-Financial Policy 1945-51," *Deutsche Bank Global Markets*, pp. 59-83, April 1999.

(3) Holding of government bonds and balance sheet problem

With respect to the purchase of long-term government bonds, there is an opinion that: **Even if effects on long-term interest rates and inflation are small, the outright purchase of government bonds helps to improve the fiscal balance. Thus, BOJ should increase outright purchase operations.** The well-known macroeconomist Professor Fumio Hayashi of Tokyo University supports this opinion.⁷ Whether BOJ should pursue such a policy depends on how the market views the impact of a huge increase in government bond holdings on BOJ's balance sheet.

Is an 'amalgamation approach' reasonable?

Many macroeconomists employ an approach which implicitly integrates the government with the central bank (amalgamation approach) saying: **It could be profitable for the 'integrated government' to exchange interest-bearing government bonds with interest free reserves through the central bank's purchase of government bonds.**

In this regard, we need to examine the actual financial relationship between the Japanese government and BOJ. A clause in the old Bank of Japan Law whereby the government was obliged to compensate for any losses incurred by BOJ was deleted in compiling the current Bank of Japan Law. Under the current Bank of Japan Law, any profits are transferred to the government coffers, while any losses incurred are borne by BOJ.

The reason why central bank independence is respected under the current Bank of Japan Law may be to avoid large mistakes resulting from the ambiguity of responsibilities between the government and the central bank under the name of 'integrated government.' In this context, costs incurred by the action of a central bank should naturally be borne by the central bank itself, thus evidencing its responsibility.

Are government bonds risk-free?

Those who consider government bonds the safest asset claim that: **Even if the amalgamation approach, which integrates the government with the central bank, is not applicable, government bonds are the most creditworthy asset available, certainly much safer than CP. Therefore, they would not impair the central bank's balance sheet regardless of the amount purchased.**

It is true that from the viewpoint of issuer credibility, government bonds are the safest. However, it is not only credit risk that accompanies the holding of assets. Price volatility risk must also be taken into account. Suppose we purchase 10-year government bonds yielding 1% at 100 yen. If the long-term interest rate rises to 5%, the theoretical price of the bonds purchased will decline to 70 yen. With regard to this point, there will be the following counterargument: **BOJ should change its**

⁷ See Fumio Hayashi, "Nichigin, Base Money no Mokuhyou wo" (BOJ should set a base money target), Nihon Keizai Shimbun Keizai Kyoshitsu, December 29, 1998 (in Japanese).

accounting standard to the cost method which assumes that government bonds purchased are held to maturity. It should make use of bills drawn for sale and short-term government bills when absorbing reserves.

BOJ has so far been conducting the outright purchase of long-term government bonds in amounts roughly consistent with the trend growth of banknotes issued, but has never sold government bonds. If BOJ were to hold government bonds in excess of the amount warranted by the trend growth of banknotes issued, it would be desirable if it could sell them to absorb reserves when necessary. If there is a possibility of selling bonds, the accounting standard must be marked to market.⁸ The cost method, if adopted, would conceal losses which leads to lack of transparency. On the other hand, if bonds could not be sold, they would become quite illiquid, and hence not necessarily a prime asset from the viewpoint of the central bank.

Is BOJ's balance sheet special?

Of course, BOJ can conduct monetary operations even though it is unable to sell government bonds. For example, it can absorb reserves by selling bills drawn for sale while holding government bonds. This operation will inevitably expand both assets and liabilities on BOJ's balance sheet. Recently, BOJ has often found that the expansion of its balance sheet tends to bring its financial soundness into question in markets both at home and abroad.⁹

With respect to BOJ's balance sheet, we encounter the following criticism: **Since price volatility risk is large for government bonds, holding them on a marked to market basis would incur a loss when interest rates are rising. However, as most central bank liabilities consist of banknotes which bear no interest, we should not treat a central bank's balance sheet in the same way as the balance sheet of a corporation in terms of price volatility risk.**

Another almost opposite argument can be made if we apply the soundness criterion of a financial institution in general to a central bank's balance sheet: **To protect the national economy, BOJ should tolerate the erosion of its balance sheet to the extent the economic situation warrants.**

Both arguments have some validity. What is important is how market participants at home and abroad would view the erosion of BOJ's balance sheet and how it would affect confidence in the Japanese economy.¹⁰ Since the soundness of BOJ's balance sheet has attracted considerable attention from both domestic and foreign market participants, BOJ must examine its operations involving government

⁸ From the standpoint of securing financial soundness so as to maintain currency credibility, BOJ has adopted the lower of cost or market method since the latter half of 1968.

⁹ The expansion of BOJ's balance sheet has led to suspicion regarding not only its financial soundness but also other aspects. For example, "Addressing the US bubble" in the Financial Times of April 22, 1998, was one of the first articles to focus on the 'expansion' of BOJ's balance sheet and said that not only did such expansion fail to buoy up the Japanese market but it also created bubbles elsewhere in the world.

¹⁰ For recent literature which deals with the central bank balance sheet problem, see P. Stella, "Do Central Banks Need Capital?," *IMF Working Paper*, July 1997.

bonds, keeping in mind that the erosion of credibility due to the impairment of its balance sheet runs the risk of having an adverse impact on confidence in the Japanese economy.

At the close of this section, I would like to emphasize again that the following simplistic view is wrong: “BOJ is reluctant to increase the outright purchase of government bonds, even though it is not legally forbidden, because it is overly conscious of its independence and prestige, which ties its hands from taking effective policy measures.”

Since BOJ is not legally constrained from increasing the purchase of government bonds, it is not impossible that the Policy Board could decide to do so. Nevertheless, if it should ever arise that such a decision had to be considered, Policy Board members would certainly have to clear a significantly higher hurdle than just BOJ’s prestige.

(4) Quantitative indicators as a guideline for monetary operations

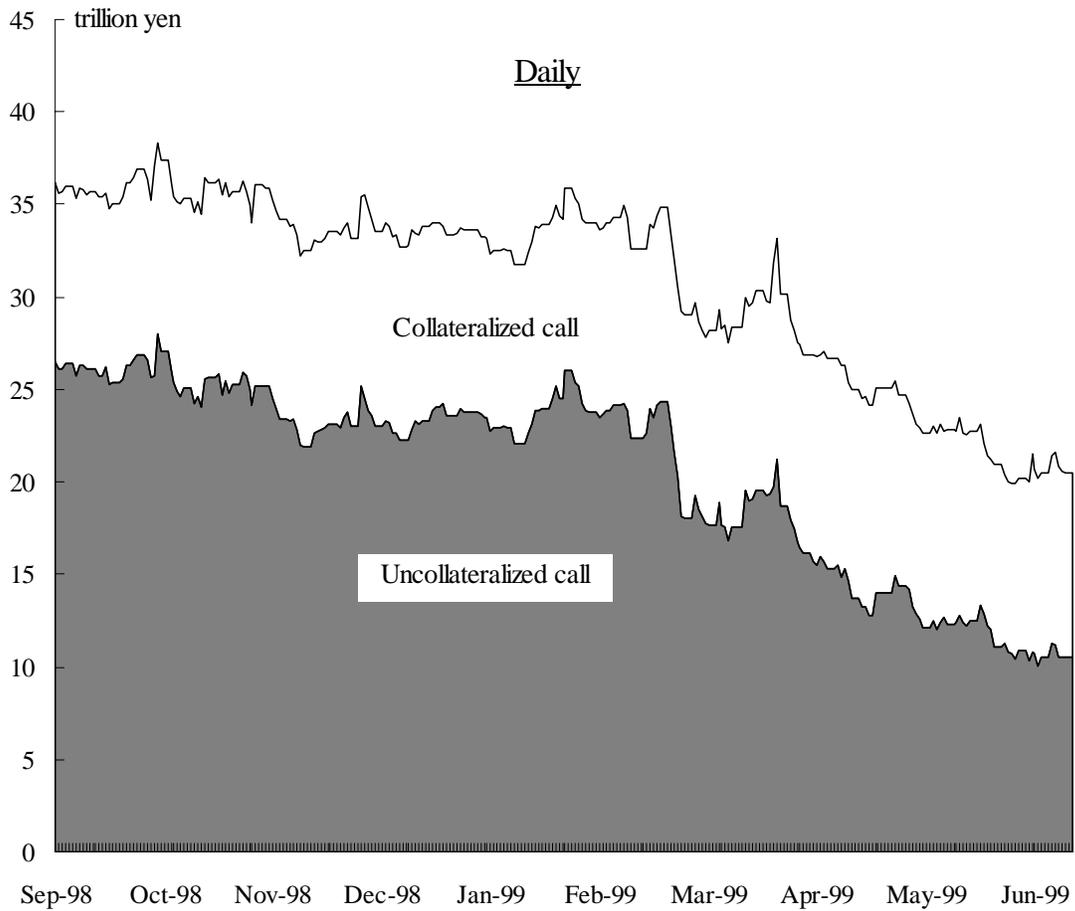
Why does BOJ absorb funds?

BOJ is currently committed to providing ample liquidity to the short-term money market and hence it may be natural to raise the following question: **BOJ takes the stance of providing ample liquidity to the short-term money market and has reduced the unsecured overnight call rate down to virtually zero percent. Given that the outright purchase of government bonds can be conducted in a limited amount, why doesn’t BOJ pursue quantitative easing by not conducting fund absorption operations?**

In fact, according to the minutes of the Monetary Policy Meeting on February 12, 1999, a couple of Policy Board members had raised a similar question.¹¹ BOJ’s current directive for monetary operations is to provide reserves just sufficient for the overnight call rate to be reduced to virtually zero percent. If BOJ adopts a new directive to flood the market with excess reserves, such provision of reserves should be conducted not in a disorderly manner, but rather in an orderly manner using some additional indicators as criteria. Specifically, this will lead to such suggestions as (i) making quantitative indicators operational targets, and (ii) controlling the amount of reserves with some reference to short-term interest rates with maturity longer than overnight.

¹¹ “A third member mentioned that, faced with unstable economic conditions, firms had to do their best to continue business by somehow acquiring necessary funds. The member stated that, therefore, the Bank’s [BOJ’s] injection of ample funds into the market was essential. The member expressed the view that one option might be to hold back as much as possible from absorbing funds in its daily operations. On the Bank’s [BOJ’s] operations for absorbing funds, another member questioned what might happen in the money market if the Bank [BOJ] ceased its bill-selling operation.” In this context, we first of all need to examine whether or not any problems arise if the overnight call market contracts as a result of the zero interest rate policy. In fact, since February 1999, the overnight call market has contracted rapidly (Figure 9). If there were a shortage of funds in the market, BOJ would likely be asked to substitute for the market function to provide the necessary funds. However, while official institutions can complement the market function, they cannot substitute for it to a sufficient degree, thus the side effects of call market contraction must be carefully examined.

Figure 9 Amount Outstanding in the Call Money Market



Note: Total of three markets (Tokyo, Osaka, and Nagoya).

Source: Bank of Japan, "Financial and Economic Statistics Monthly."

Attractiveness and weakness of base money targeting

The most popular candidate for quantitative indicators seems to be base money, which is the sum of currency in circulation and reserves. Since base money is mostly composed of currency in circulation (recent figures show currency in circulation totals about 50 trillion yen and reserves about 5 trillion yen), it has the advantage of being easy for the public to understand. A commitment such as increasing cash in circulation at a certain rate literally gives a picture of quantitative easing, and thus is quite attractive as a message to the public.

Since a central bank cannot control the amount of cash in the purse of the public, all operations of the central bank have to be geared towards reserves to implement base money targeting. Accordingly, the balance of reserves would become very volatile in a framework of base money targeting.

For example, when demand for banknotes increases due to financial system instability, reserves must be reduced to contain the growth rate of base money within a targeted range. This would result in making the money market quite tight. Furthermore, since the balance of reserves is at most one-tenth of banknotes and it cannot be negative, there may be a situation where keeping the target becomes impossible. In this context, a historical example which made a strong impression on me is the financial depression in Japan in 1927 when at the peak of financial uncertainty banknotes increased by an amazing 38% compared with the previous day and BOJ was forced to issue 200 yen banknotes with only one-side being printed.¹²

Even as recently as 1997 when financial system uncertainty increased following the collapse of the Hokkaido-Takushoku Bank and Yamaichi Securities, the growth rate of the balance of banknotes (end month, year-on-year basis) increased rapidly from 6.5% in September, 8.3% in October, to 13.6% in November. In contrast, when financial system stability has been restored and depositor trust in financial institutions is increasing, the growth rate of base money would decline under monetary easing. In this case, a central bank must inject reserves to already eased markets in order to meet the target for base money. Subsequent periods after the financial depression of 1927 as well as after the Hokkaido Takushoku-Yamaichi shock of 1997 witnessed a decline in demand for base money under monetary easing.

These examples imply that the constant growth rate of base money does not necessarily mean that the central bank is maintaining a constant monetary easing stance. While base money has a great advantage of being easy for the public to understand monetary easing, it has a big weakness in that it does not necessarily reflect the true extent of monetary easing.

¹² The balance of banknotes was 1,679 million yen on April 20, 1927, but increased to 2,318 million yen on April 21 when the Jugo Bank suspended business, and further to 2,660 million yen on April 25. See Bank of Japan, "Nihon Ginko Hyakunenshi" (Centennial History of Bank of Japan), Vol. 3, 1983 (in Japanese).

Effects of excess reserve targeting

The next possible candidate as a quantitative indicator is reserves. Reserve targeting aimed at total reserves or non-borrowed reserves (i.e. central bank borrowing is deducted) has been tried in the US, but, as far as I know, in recent discussions in Japan, there has been no suggestion that this kind of targeting should be introduced.

Professor Mitsuhiro Fukao of Keio University rejects base money targeting because of its large seasonal fluctuations and suggests BOJ adopt excess reserves, which is obtained by subtracting required reserves from total reserves, as an operational target and increase it by 500 billion yen a month (6 trillion yen a year).¹³

Excess reserves is a technical concept and it is not easy for the public to understand as an indicator compared with interest rates or banknotes. On the other hand, the possibility of meeting the target appears, in principle, to be higher in the case of excess reserves than that of base money.¹⁴ However, the idea contains a few problems.

The first is what kind of function can be expected of excess reserves since they earn no interest as long as they remain in the accounts held at the central bank. Whether or not excess reserves will produce profits depends on investment opportunities. In this regard, the simplest money multiplier theory in finance textbooks assumes a world where banks cannot lend enough due to reserve requirements though they have infinite lending opportunities. In this world, a central bank's provision of reserves immediately results in the expansion of bank lending, which, in turn, increases required reserves and then reduces excess reserves to zero. However, in a situation where there are permanently excess reserves, and reserve requirements and funding costs no longer bind the behavior of banks, or in a situation where it is not the reserves of banks but their own capital positions or borrowers' creditworthiness which constrain their lending, the accumulation of excess reserves does not warrant an increase in bank lending.¹⁵

Of course, the assets in which banks would invest are not confined to loans. Therefore, if excess reserves accumulate beyond the needs of banks, there will arise pressure for banks to invest the excess reserves in risky but profitable assets such as stocks and bonds. So far, with interest rates staying at around virtually zero percent and opportunity cost being quite low, banks have tried to avoid holding excess reserves as much as possible, and a phenomenon has been observed whereby the funds which banks find unnecessary at 5 p.m. (market closing time) accumulate in

¹³ See Mitsuhiro Fukao, "Nichigin ha Motto Ryouteki Kannwa wo Subekida" (BOJ should conduct further quantitative easing), *Shukan Toyo Keizai*, March 6, 1999 (in Japanese).

¹⁴ One of the reasons I said 'in principle' is because during the recent monetary easing period, the current accounts at BOJ held by institutions which were not subject to reserve requirements increased substantially compared with those held by financial institutions, thus 'excess reserves' did not increase that much.

¹⁵ When banks hold excess reserves, it will be natural to modify the money multiplier formula, taking into account that such excess reserves will leak from the multiplier process, and redefine base money as $M=kH^*$, where H^* is base money after deducting excess reserves, M is money supply, and 'k' is the money multiplier as a function of the reserve ratio and cash-deposits ratio.

the accounts of dealers (*tanshi* companies) held at BOJ. Thus, it has been difficult to evaluate the effect BOJ's operations have had on the investments of banks in stocks and bonds.

The second problem with excess reserves is reliability as an indicator for monetary easing. Since the opportunity cost of holding excess reserves under zero interest rates is quite low, demand for excess reserves, that is, to what extent banks want to hold excess reserves, varies considerably depending on such factors as financial system stability. Thus, it is very uncertain, as was the case with base money, as to what extent monetary conditions would be further eased by keeping the level and/or growth rate of excess reserves constant. To evaluate the extent of monetary easing, it is, after all, not sufficient to fix the level and/or growth rate of excess reserves, and we most likely need additional criteria to judge the impact. As an additional criterion, for example, we could examine the shape of the yield curve. This is similar to shifting the operational target from the overnight call rate which has reached zero percent to term interest rates.

The third problem relates to an operational hurdle. If we receive a directive to accumulate a considerable amount of excess reserves when term interest rates are at quite a low level, there would be a possibility that existing tools for providing liquidity with short maturity such as repos, bills, and CP might not be sufficient to fulfill the directive. For example, the auction bid rate sometimes becomes zero percent in the current situation, whereupon BOJ has to expand its short-term operations to include those with a longer maturity which carry positive interest. If BOJ continues such expansion, it will finally lead to increased purchases of long-term government bonds. And, if BOJ sets a target to increase excess reserves regardless of the movement of term interest rates, we cannot deny the possibility that down the line it will be forced to simultaneously solve two issues, one regarding increasing the purchase of government bonds, and the other regarding its balance sheet.

(5) Effective monetary policy under a liquidity trap

If it is possible to conduct monetary policy using quantitative indicators such as excess reserve targeting through regular bill-selling operations or short-term government bills operations, what will be the effects and side effects? To examine this question, it is useful to discuss the effectiveness of monetary policy under a liquidity trap, a situation in which monetary policy is deemed least effective.

Liquidity trap and the depreciation of the yen

A central banker would typically comment that, under a liquidity trap, regular monetary policy operations to provide liquidity are not effective at all. However, a prominent monetarist, Professor Allan Meltzer of Carnegie-Mellon University argues that: **Suppose that with overnight interest rates virtually at zero percent, BOJ announces a target for the yen exchange rate to fall by 50% and that it is prepared to print yen to buy dollars until it achieves the target. Is there any doubt that the yen would depreciate or that the depreciation of the yen would**

affect spending, output, and prices in Japan? In this way, he rejects the ineffectiveness of monetary policy under a liquidity trap.¹⁶

So far, the fixing of long-term interest rates through the unlimited purchase of long-term government bonds seems to follow a similar argument. However, the big difference between the unlimited purchase of US dollars and the unlimited purchase of long-term government bonds lies in their consequences over the long term. If the central bank provided liquidity through the unlimited purchase of US dollars, it would be consistent with the depreciation of the yen even if inflation later ensued. But, if the central bank provided liquidity through the unlimited purchase of long-term government bonds, it would not be consistent with rising pressure on long-term interest rates if inflation later ensued.

Looking at this problem from the viewpoint of a central bank's balance sheet, since the unlimited purchase of US dollars would lead to a rise in its value, the central bank's balance sheet would carry unrealized profits if such operations were successful. To the contrary, the unlimited purchase of long-term government bonds would run the risk of impairing a central bank's balance sheet even upon successful achievement of the objective.

In an economy with near zero interest rates, unlimited intervention in the foreign exchange market (i.e. a return to a fixed exchange rate system, although Professor Meltzer did not go so far as to suggest it) will be an attractive option if a central bank seriously hopes that monetary policy will have permanent effects while avoiding the erosion of its balance sheet which leads to loss of market credibility.

In a situation with short-term interest rates at around zero percent and long-term interest rates at the 1 percent level, if additional effects are expected from monetary policy there are no policy options other than the one which induces a substantial depreciation of the yen, putting aside the question of whether or not to directly intervene in the foreign exchange market. In this regard, it is consistent for Professor Meltzer to claim that BOJ should aim at higher growth of money supply, and at the same time emphasize "BOJ can use whatever measures to increase money supply, and foreign exchange intervention is the best measure," and "the only way to stop deflation is for the yen to depreciate."¹⁷

Is it really possible for a large economy like Japan to virtually return to a fixed exchange rate system? Such an idea would not only provoke strong opposition from the US government and industry but also be criticized as a beggar-thy-neighbor policy by other Asian countries which compete with Japan in trade. Professor Meltzer himself shrugs off these criticisms by saying that "it is natural for the currency of a weak economy to depreciate" or "there will be no significant recovery in Asian economies until Japan recovers." However, it is our pragmatic judgment that even if such a policy is deemed effective, the central bank could not easily adopt it in view of the strong side effects it entails.

Quantitative easing and the depreciation of the yen

¹⁶ Allan Meltzer, "The Transmission Process," Prepared for *The Monetary Transmission Process: Recent Development and Lessons for Europe*, Deutsche Bundesbank, Frankfurt, March 25-27, 1999.

¹⁷ In an interview with Nihon Keizai Shimbun, August 2, 1998 (in Japanese).

By comparing the suggestion of putting pressure on the yen to depreciate and virtually returning to a fixed exchange rate system with that of quantitative easing through excess reserve targeting using regular market operations, what can we say in terms of their effectiveness and side effects under a liquidity trap?

First, there is a relatively big question mark with respect to the effectiveness of quantitative easing. Liquidity provision by the central bank has hardly any effect and only results in accumulating excess reserves. However, even if there is no effect in the short run, it will be possible, in principle, for the central bank to continue quantitative easing. Such behavior of the central bank might have a slight chance of inducing positive effects through raising the expectations of market participants regarding continuity of BOJ's monetary easing.

What about the side effects? Since quantitative easing does not appear to have significant short-term effects, it does not cause immediate side effects, unlike the intentional depreciation policy in the foreign exchange market which brings such side effects as immediate opposition from trading partners. The worst scenario might be that the effects of previous monetary easing through the massive provision of excess reserves may finally materialize just when the economic environment changes, i.e. real economic growth and inflationary expectations are beginning to trend upward, and monetary tightening becomes necessary. In this case, the side effects will appear later in the form of accelerated inflation caused by a delayed shift to monetary tightening.

Interest rates as additional criteria

If we emphasize the side effects described above, discussions will likely focus on whether there is room for using interest rates as additional criteria even when overnight interest rates are virtually at zero percent.

What we can think of first is that, after guiding overnight interest rates down to zero percent, BOJ may be able to use longer term interest rates as its target. However, for the period during which zero overnight interest rates are expected to continue, term interest rates would also decline to around zero percent except for risk premium. Hence, it is difficult, in theory, to guide term interest rates to a desirable level different from virtually zero percent.

Looked at from a different viewpoint, it may not be utterly meaningless to have term interest rates as a target. Allowing term interest rates to decline to around zero percent could imply that BOJ is committed to the average level of overnight interest rates until the end of the periods covered by term interest rates. This tying its hands policy deprives monetary policy of its flexibility. In the current economic situation, the loss of flexibility may have a signaling effect with respect to BOJ's policy and could be an effective communication tool vis-à-vis market participants. For example, if BOJ holds a strong view that inflation will not be an issue for at least one year and it is necessary to continue guiding overnight interest rates virtually at zero percent, it could adopt a policy of guiding term interest rates of up to one year down to zero percent.

It should be noted, however, that there is a subtle difference in the content of monetary policy commitment between the case where term interest rates up to one

year become virtually zero percent and the case where the same development is realized as a result of announcing that the current policy will be continued until deflationary worries subside. In the former case, BOJ is committed to such monetary policy for a period of up to one year. In the latter case, what is realized is a reflection of the expectations of market participants who translated the announcement into the prospect for interest rates.

3. Conclusion: Principles and New Questions

Principles

The basic principles regarding the conduct of monetary policy are as follows:

(1) Price stability as a mission

BOJ has a mission to contribute to the sound development of the national economy through the pursuit of price stability. Therefore, it should take the utmost efforts to avoid deflation. In this context, it will not alter its policy stance toward tightening until deflationary worries subside (i.e. the unsecured overnight call rate will stay at virtually zero percent).

(2) Provision of liquidity

Since inflation is a monetary phenomenon, it is necessary to maintain the stable growth of money supply to avoid deflation. To this end, BOJ will provide any necessary reserves.

(3) Additional directives for monetary policy operations

When it becomes necessary to adopt a new criterion (inflation targeting, excess reserves targeting, term interest rate targeting, etc.) to reduce uncertainty regarding monetary policy, BOJ will make a decision by comparing the effects and side effects. It is extremely important to make a comparison in the context of the state of the Japanese economy.

New Questions

This paper has examined a framework for monetary policy and the principles derived from it. Reaching this point, readers may be left with two interrelated questions.

The first question is: **If BOJ conducts monetary policy based on the principles described above, can the Japanese economy achieve sustainable growth?** Unfortunately, this remains, in my view, an open question. What monetary policy alone can do is limited. As the Japanese economy is exposed to strong structural adjustment pressure including the disposal of non-performing assets, BOJ has taken the utmost efforts to promote monetary easing. As a result, Japan has so far been successful in avoiding deflation, but monetary policy alone cannot guarantee a return of the economy to a sustainable growth path. To this end, it is essential to solve structural problems.¹⁸ Monetary policy can only prepare an environment conducive to structural adjustment, it is not a remedy.

The second question is: **As a criterion in formulating principles regarding monetary policy, this paper claims that BOJ should not adopt a policy where the side effects are greater than the effects. Couldn't the current low interest rate policy cause some harm?** The answer is yes. It could cause some harm.

¹⁸ See Shosaku Murayama, "Chochiku Toshi no Fukinkou Daha wo" (Correcting the imbalance of savings and investment), Nihon Keizai Shimbun Keizai Kyoshitsu, May 20, 1999 (in Japanese).

Strong medicine has strong side effects. As recorded in the minutes of Monetary Policy Meetings, there have been minority opinions regarding the side effects of extremely low interest rates. In relation to the first question, low interest rates as a pain-reliever may induce a further delay in the progress of structural adjustment. For example, if interest rates are high, it will be costly to hold excess equipment, excess inventory, and non-performing assets. However, if interest rates are close to zero percent, financing costs of the above excesses will become quite small. When the economy recovers, non-performing loans could become collectable, excess inventories could be sold, and excess equipment could become operational. In anticipation of such developments, the current situation of extremely low interest rates gives an incentive for corporate management to postpone the resolution of these excesses.

It is desirable to maintain current monetary easing despite the side effects. This is the decision made by BOJ's Policy Board which believes that under current conditions it is the most supportive policy for economic recovery.