

## Accelerating Deflation and Monetary Policy

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### Summary

Deflation is proceeding at an accelerated pace due to the widening deflationary GDP gap. Eliminating deflation through economic stimulus by increasing the issuance of government bonds, or an increased amount of buying operations by the Bank of Japan (BOJ) is very difficult in this economic environment. We need to look at new and creative measures such as the buying operations of stocks or real estate by BOJ. Further, if this also fails to eliminate deflation, then we will need to consider some more powerful measures such as levying a tax on cash and deposits (in effect a negative interest rate policy).

According to Japan's GDP (gross domestic product) deflator -- an indicator of the price changes in the economy as a whole -- price levels began to decline from about 1994. It has been close to ten years since then. If we take away the effects of the hikes in the consumption tax, then the GDP deflator has fallen by a total of about 10% in this time.

In this financial report, we estimate how deflation may accelerate in the future by finding the function between the GDP gap (difference between actual GDP and potential GDP, if the former is lower than the other, than the gap is deflationary) that is the cause of deflation, and price changes. Then, we examine the monetary policies that were implemented after the burst of the economic bubble to find why the easing of monetary policy by the Bank of Japan (BOJ) has been unable to stem deflation.

### **Deflationary Gap, Now about 25 trillion yen**

We examined the relationship between price changes and the GDP Gap in the 1990s, and we found that even under the same environment of a deflationary gap, prices were rising in the first half of the 1990s and falling in the second half, and there was a difference in the acceleration of price changes.

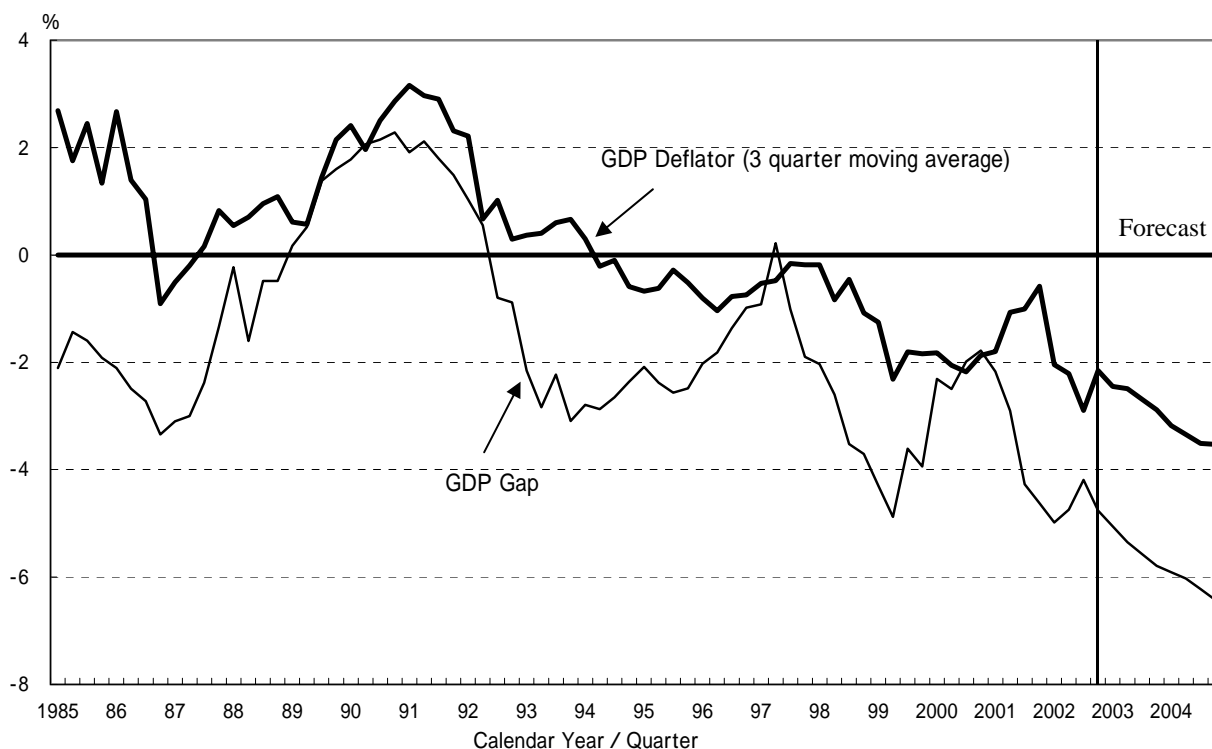
We separated the data into periods when price changes were positive and when they were negative to conduct our estimates. We found that although in both periods the deflationary gap was of the same scale, the price changes in the latter period accelerated at a rate of about one-fourth that of the first period. This can be explained by the fact that for companies with excess labor, it is easier to lower the rate of wage increase rather than expand the rate of wage decrease.

As we see in Figure 1, after the GDP gap marked the largest level we have

measured here during the bubble period at an inflationary gap of 2.3%, it has been on a steady declining trend, and it is now at a 7.0 percentage points lower level than the peak. The size of the deflationary gap is now 4.8% and amounts to 25 trillion yen. In theory, if we were to fill this gap funded by a tax cut, then we would need a permanent tax cut of at least the scale of the gap itself, which is 25 trillion yen. In the current situation where national tax revenue is only about 42 trillion yen, this would be impossible.

According to the results of our forecast of price changes, the GDP deflator will continue to fall with the growing GDP gap. In the October-December quarter of 2004, prices will fall over the previous quarter at an annualized rate of 3.5%. This current deflation is quite severe, and the rate of deflation will continue to accelerate under current circumstances. Even if the government were able to fill the gap completely with fiscal spending, this would only result in stopping the rate of acceleration of deflation, and actually eliminating deflation is extremely difficult.

**Figure 1. GDP Gap**



### **Money supply measures ineffective due to the Liquidity Trap**

Since July of 1991, the BOJ has lowered interest rates multiple times, implemented the zero interest rate policy in 1999, and in 2001 went as far as to adopt quantitative easing. Due to this quantitative easing measure, private financial institutions have increased the outstanding balances in current accounts they keep with the BOJ. This has risen from the 4 trillion yen it had been previously to 20 trillion yen. However, although the monetary base (the total of cash and BOJ current account) has greatly increased through quantitative easing, lending has not expanded, and nominal GDP continues to decline.

In Figure 2, we see the relationship between the monetary base and short-term interest rates. We observe that the monetary base as a share of nominal GDP was about 7-9% before the zero interest rate policy, but this has grown under the zero interest rate policy and while nominal interest rates have fallen to zero, the ratio has continued to increase and is now about 18%. Japan's economy is in a liquidity trap whereby even when money supply is increased, it does not lead to declining interest rates, and there is little effect on the economy. Even if the nominal interest rates are at zero, if nominal GDP continues to decline due to deflation, the bad loan situation will become worse as the debt burden of companies increase relative to the sales revenue they earn.

Moreover, if short-term interest rates fall to zero, the effects of conventional buying operations of short-term assets will deteriorate. Even if through market operations, short-term government bonds with zero interest rates are exchanged for bank notes with zero interest rates, this will not result in any stimulus for the economy. Quantitative easing from increasing the buying operations of long-term government bonds may have lowered long-term interest rates slightly, but the effect of this is almost at its limit.

In order to come up with a countermeasure against deflation, we need to correctly assess the current environment of the Japanese economy. The authors believe that currently the Japanese economy is in a cash, deposit and government bond bubble. People are selling their real assets in real estate and stocks, and moving their funds into cash, deposits and government bonds whose values are guaranteed by the government. However, the creditworthiness of the government in question is declining as the fiscal deficit balloons. Although the government may be heading towards bankruptcy if the situation is not corrected, people and companies continue to depend on the creditworthiness of the government. This indeed is a bubble.

The first way of resolving this bubble situation is for the BOJ to supply large quantities of cash (the subject of speculation), and buy large amounts of stocks and real estate that are currently being sold off. In this serious deflationary environment, we believe that the BOJ should be conducting buying operations of about 5 trillion

yen per month in Exchange Traded Funds (ETFs), and Real Estate Investment Trusts (REITs). In one year, they would be buying the equivalent of one quarter of the market value of the stock market including REITs.

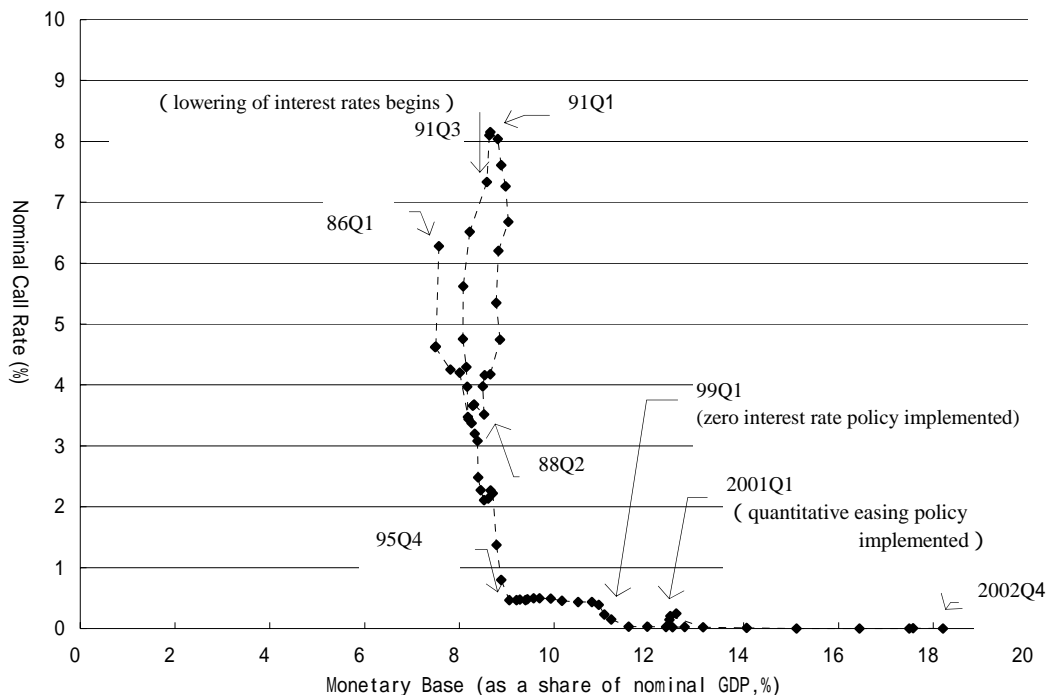
Buying operations of the BOJ to buy stocks and real estate will, naturally, push up the stock and land prices in the short term. An increase in stock and land prices will improve the balance sheets of corporations and households, and will enhance their collateral for loans. Moreover, it will make the cleaning up the bad loans much easier. If the people can realize the meaninglessness of continuing to depend on the credit of the government that continues to have massive budget deficits, the deflation will end.

However, so long as people keep their money in cash, deposits and government bonds, a deflationary bubble will begin again. If despite large-scale buying operations of stocks and real estate after one year do not bring about any results in eliminating deflation, then the more powerful “negative interest rate policy” is necessary. Balances of financial assets whose principals are guaranteed by the government such as cash, yen deposits, government bonds, government-backed bonds, local government bonds, postal savings, and postal life insurance should be taxed at a rate of the deflation rate plus a margin.

If the government announces that it will tax financial assets and keep their promise as many times as it takes to end deflation, then assets will be transferred to stocks, real estate, corporate bonds, loans, foreign currencies and durable goods that are not taxed. Banks as well will begin to actively lend more as funds that are kept in current accounts, at the Bank of Japan will be taxed. If funds are taken out of cash and government bonds and into real assets and goods and services, then the economy will expand. In order to tax bank notes, they would have to be reprinted and a fee must be levied to be exchanged. The total taxable amount would exceed 1,500 trillion yen, comprised of 600 trillion yen in deposits, 240 trillion yen in postal savings, and 120 trillion yen in postal life insurance. For the current situation, where the deflation rate is over 2%, we would need a tax rate of slightly over this in the 2-3% range. Tax revenue would exceed 30 trillion yen. Since cash would also be taxable, there would be no need to freeze deposits.

However, a tax on all financial assets including cash would invite very strong resistance from the public. This will not be successfully implemented unless politicians clearly understand the huge risks associated with letting deflation continue, and they have the strong leadership to convince the public that this measure is necessary.

**Figure 2. Monetary Base and Short-term Interest Rates**



**Interest rates rise significantly during period of deflation elimination.**

If we can eliminate deflation and the inflation rate rises to 2%, then long-term interest rates will rise by over 4%. As a result of this, the price of the ten-year government bond will fall by about 40%. Also, the government's interest expenses will also increase rapidly. Once the government realizes the elimination of deflation, then at that stage, they must implement a large-scale tax increase. The Bank of Japan as well, must get back its base money that has been flooding the market in its selling operations to prevent inflation from accelerating. The reason for this is, as we saw in Figure 2, when interest rates are in the 3-5% range, the demand for base money is about 8% of GDP (about 40 trillion yen).

There is a grave risk that if the Bank of Japan conducts massive buying operations of government bonds in the 100 trillions of yen, the credit of the BOJ may be seriously compromised. For example, let us take the case where the Bank of Japan is to increase its holding of long-term government bonds in the amount of 50% of the amount outstanding in the market, say about 150 trillion yen. If the long-term interest rates rise by 5%, then the holdings of the BOJ's government bonds will mark a loss of about 60 trillion yen. Thus, even if the BOJ were to sell all of the government bonds that it bought, it will be unable to collect on the excess current

deposits at the BOJ, and they will be forced to collect them through the issuance of bills sold (interest bearing documents of obligation) (Table 1).

**Table 1. Bank of Japan's Balance Sheet on a Rising Interest Rate**

*Before interest rates rise:* (Using as at end of January 2003 figures, if the BOJ buys 150 trillion yen of long-term government bonds from the market)

Assets		Liabilities	
Long-term government bonds	57 + 150	Bank Notes	70
Short-term government bonds	26	Current Accounts	20 + 150
Other assets	42	Other liabilities	33
		Capital	2
Total	275	Total	275

*Interest rates rise 5%.* (After government bond prices decline, BOJ absorbs excess current account through selling operations)

Assets		Liabilities	
Long-term government bonds	0	Bank Notes	35
Short-term government bonds	0	Current Accounts	5
Other assets	0	Other liabilities	14
		Capital	-54
Total	0	Total	0

Units: Trillions of yen

Source: "Bank of Japan Accounts", Bank of Japan

If this is the case then the assets of the BOJ will be zero, the liabilities will be bank bills sold that are interest bearing and bank notes and a deficit will occur on the interest payments and expenses incurred. The BOJ will then have to depend on the government to provide them with subsidies every year. Compared to this, if the BOJ conducts buying operations in stocks and real estate, then when the economy is finally out of deflation, the Bank of Japan will have a huge profit, and the credit of the BOJ will be enhanced.

So long as elimination deflation results in a higher interest rate, then for both the BOJ and the government, depending on a further issuance of government bonds and further buying operations of the BOJ to eliminate deflation is a mistaken policy to take that will lead to serious problems in the future.