

# Deflation: Some Considerations

By Kobayashi Keiichiro

## Erroneous Assumptions in Research on Deflation

Deflation has persisted in Japan for almost a decade. The consumer price index has fallen for five consecutive years since 1998, and GDP deflator figures indicate a decline in constant prices over a nine-year period since 1994. Among all the countries since World War II, Japan has the longest experience of deflation. The downward trend in inflation rates has been evident worldwide since the 1980s, arousing deflationary worries among economists in many countries. In Germany, fears have spread that the financial system could become unstable, along with deflation. In the United States, after the Federal Reserve System lowered the Federal Funds Rate (FF Rate) to around 1 %, concern grew that monetary policy might not be able to deal effectively with the possibility of deflation.

Because of these fears, macroeconomists are now studying the phenomenon of deflation in earnest. Many assume that deflation is caused by some exogenous (i.e. externally derived) shock, and their research focuses on determining whether central banks can use monetary policy to mitigate deflation if it occurs.

However, assumptions regarding the causes of deflation as well as policy tools developed to fight deflation may be erroneous.

First of all, let's look at the assumptions regarding the causes of deflation. It is often argued that Japan's deflation is the result of one or more of these factors: (1) the Japanese population is aging; (2) cheap goods from China and other Asian countries have flooded the consumer market; and (3) Japanese people base their decisions on the belief that deflation will persist, so deflation does persist, as in a self-fulfilling prophecy. All of these arguments have something in common – they all regard deflation in Japan as being caused by some exoge-

nous factor, which would mean that economic policy cannot directly solve the cause of deflation.

But is it true that Japan's deflation is the result of some exogenous factor? Many economists point to Japan's aging population and the other two points as exogenous factors driving deflation. If they are right, economic policy cannot solve these points – policy makers would have to accept deflation as part of the environment under which the economy operates. And again, if those economists are right, we have to ask this question: Given the deflationary environment, what is the most effective goal for monetary policy? On the other hand, if economic policy can be used as an effective tool to eliminate the cause of deflation, we do not have to accept deflation as part of Japan's economic fate. We can use economic policy to defeat deflation. Therefore, identifying the true cause of deflation is an extremely important step toward finding ways to eliminate it.

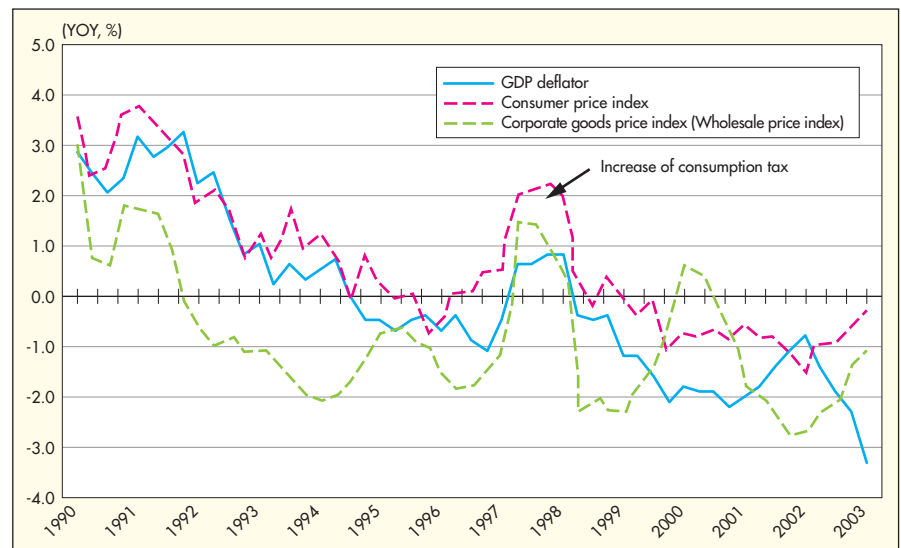
Secondly, let's look at the assumptions regarding the policy tools that have been developed to fight deflation. Many

economists today believe that, if a country falls into deflation or a liquidity trap (where the nominal interest rate is zero), the only policy framework suitable for analysis is monetary policy implemented by a central bank. Other economists say that the framework should also include a fiscal policy promoting public works and tax cuts. This is in the domain of macroeconomic policy.

Is it true that monetary and fiscal policies are the only tools we can use to fight deflation? Under monetary policy, the central bank buys and sells government bonds and sets interest rates (e.g. the FF Rate). Under fiscal policy, the government cuts taxes, purchases goods and services, and invests funds. If we argue that the only tools available are monetary and fiscal policies, we are implying that only the actions of the public sector (i.e. the government and the central bank) are important in combating deflation.

But commercial activities in the private sector also have a considerable impact on the processes creating deflation. Deflation is related to the total

Figure 1 Falling prices



amount of money in the whole economy, but the central bank and government do not determine, on their own, what that total amount will be – the amount fluctuates, depending partly on the amount of credit (loans) created by the private banking sector. Therefore, policies affecting the private banking system can be considered as another anti-deflation tool. When considering how to tackle deflation, a problem that macroeconomic textbooks previously did not speculate about, it would be a mistake to think only from the standpoint of standard macroeconomic policy.

### Deflation and Japan's Banking Crisis

Now that we have examined some of the problems in the assumptions made regarding deflation, let's look once more at deflation in Japan. One important fact we cannot ignore is this: deflation in Japan began around the same time that the banks began to seriously suffer from a shortage of capital.

Japan's GDP deflator began falling in 1994, indicating that deflation began in the mid-1990s. It was around this time that the Japanese people became aware of the growing non-performing loan crisis. The consumer price index began falling in 1998, and it so happens that Japan suffered a serious financial crisis between November 1997 and the fall of 1998. To prevent a financial panic, the government used public funds to recapitalize banks on two occasions, in March 1998 and March 1999. But the problem of insufficient bank capital, or intrinsic bank insolvency, has continued since then. In June 2003, the government injected ¥2 trillion (approximately U.S.\$20 billion) of public money into the Resona Group, the fifth largest financial institution in the country. This indicates that Japan's major banking groups are still suffering from a severe lack of capital.

Against this backdrop of continuing instability in the banking system, there has been a continual drop in prices since

1998 (as measured by both the consumer price index and the GDP deflator).

Therefore, it is difficult to argue that deflation in Japan has an exogenous cause, such as an aging population. My hypothesis is that the banks' problems have spawned a mechanism that is driving deflation.

### Debt Deflation

The next question is: Why are the banks' problems driving deflation, and what type of mechanism is involved?

One famous example of a banking crisis and deflation occurring at the same time is the Great Depression in the United States, from 1929 to 1933. At the time, economists argued that a crisis in the banking system was causing deflation. This argument is best typified by Irving Fisher's theory of debt deflation. Debt deflation occurs when attempts by banks or corporations to repay their debts push commodity prices down and these lower prices push their debt-burden up, in a vicious circle. When a stock bubble collapses there may be a sharp decline in the value of assets held by banks and corporations. This can force some banks and companies into insolvency (in other words, into a situation where their liabilities exceed their assets). To find the cash they need to repay depositors and creditors, insolvent banks and corporations may have to sell some of their assets and products at a loss. This dumping causes the prices for these assets and products to drop, beginning a period of deflation. The deflation then exerts an even greater downward pressure on the value of assets held by banks and corporations, with the result that even if they pay off more of their debt, the debt they still hold ends up, paradoxically, being greater than before.

For example, let us take the case of a company that has \$1 billion in debt, and is selling products valued at \$1,000 each. The value of 1 million of these products is equivalent to the amount of the company's debt. If the company

dumps products because it has to obtain enough cash to repay \$300 million of debt, it still has an outstanding debt of \$700 million. But because of the dumping, the remaining products are now worth only \$500 each. This means that the company's remaining debt of \$700 million is now equivalent to the value of 1.4 million products. Thus, when repaying some of its debts, the company ended up deflating the value of its products and increasing the relative burden of paying off the remaining debt. Thus, debt deflation is a phenomenon where debt repayment and deflation continue to spiral in an undesirable direction.

When explaining the relationship between debt and deflation, the mechanisms involved in debt deflation are easy to understand. But has the debt-deflation mechanism been impacting the Japanese economy since the mid-1990s? Banking systems today are quite different from what they were in the 1930s, so it would be difficult to argue that this mechanism has a direct impact on Japan's economy now. Today, deposits are insured, whereas until 1933 there was no deposit insurance system. Before then, if news spread that a bank was insolvent, there would be a bank run, with depositors demanding their money. The high demand for withdrawals would inevitably force debtor banks and corporations to sell their assets at a loss. In short, the run on the banks would result in a fire sale of assets, creating rapid deflation. This is what caused the Great Depression in the United States.

However, Japan in the 1990s faced a quite different situation, in fact because the government insured deposits. When Japan's deposit insurance system was established in 1971, bank deposits were insured to a maximum of ¥10 million. In 1995, because of growing fears of financial instability, the government removed this cap and began insuring bank deposits to their full amount. As a result, even if a bank were to become insolvent, depositors would not lose any part of their deposits. This meant that it was no longer inevitable that a bank crisis would prompt a mass withdrawal of

deposits.

Does this mean that the vicious circle of debt deflation did not occur in Japan? I believe a mild form of debt deflation *did* occur in Japan, although it was not caused by a sudden rush to withdraw funds.

As we have seen, debt deflation occurs when debt-ridden banks or corporations must suddenly access large sums of cash, and to obtain that cash they have to sell assets and products at a loss. During the Great Depression of the 1930s, banks and corporations needed cash because depositors were withdrawing their money from the banks. One factor that is relevant to this discussion is that there has been a great demand for cash in Japan since the 1990s. However, this demand for cash springs from the fact that the interest on deposits is basically zero. Since 1995, the Bank of Japan (BOJ) has held short-term nominal interest rates at almost 0%. Demand and time deposits have earned almost no interest at all since the mid-1990s.

This explains why, since the mid-1990s, depositors see almost no difference between money deposited in a bank and cash. This mindset has increased the possibility of a bank fail-

ure. Depositors know that their bank deposits are protected by the government insurance system, but they also realize that if their bank were to fail they would still be greatly inconvenienced (especially since account payment services would be disrupted). It is therefore not surprising that people want to reduce their bank deposits and increase their cash holdings. Statistics show that this is happening. Statistical data indicates that, since the 1990s, the amount of cash held by the non-financial sector has grown. (Fig. 2)

From the above it is clear that Japan's zero interest policy has boosted demand for cash. We can assume that this has resulted in a mild form of debt deflation.

The next question we need to ask is: Why are deposits still earning zero interest in Japan?

### How the Japanese Government's Policy is Causing Deflation

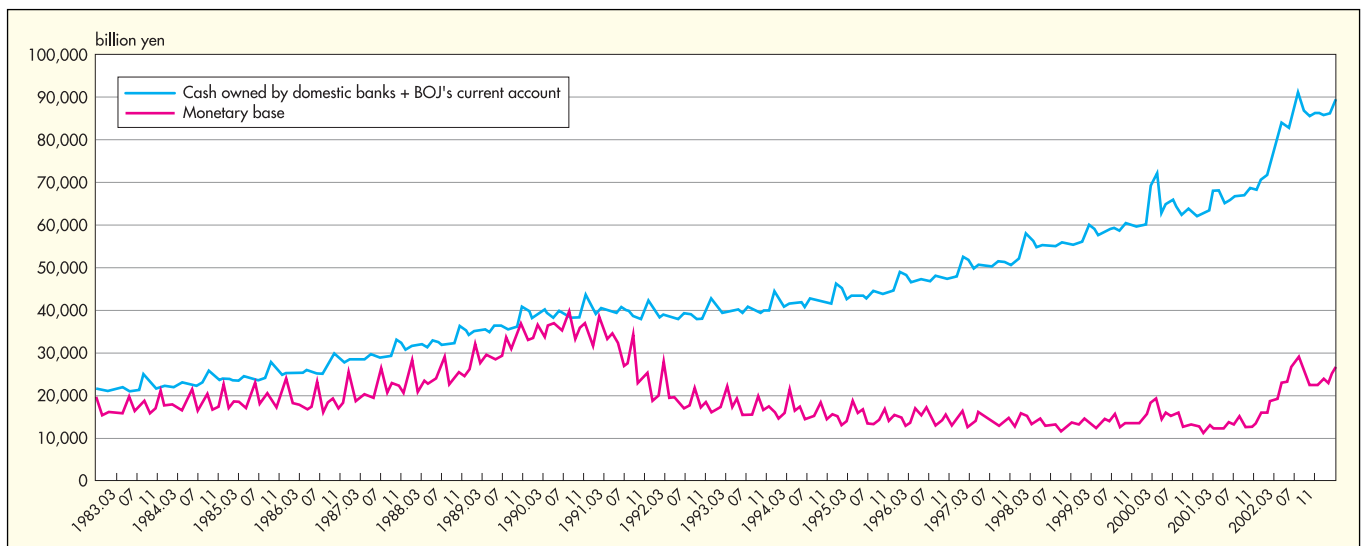
It is said that the BOJ's zero interest rate is simply a normal case of monetary relaxation needed to stimulate corporate investment. In a normal business cycle, only a small reduction in interest rates is

needed to boost business investment and make the economy grow again. Normally, rates are not pushed down to zero. So why does Japan continue to have a zero interest rate? The standard answer given by economists is that some exogenous shock, which economic policy cannot change, has driven Japan into a serious recession, and the low rates are needed to promote recovery.

But I believe that the zero interest rate has been necessary because of bank insolvency.

In the mid-1990s, it became clear that some Japanese banks were sorely lacking in capital, and some were even insolvent. In 1995, the government announced that it would remove the deposit insurance cap and insure all deposits to the full amount. But the government was unable to develop a policy to restore the solvency of banks. If it had decided to both insure deposits completely and address bank insolvency, it would have had to inject large sums of taxpayers' money into the banking system, and the general public in the mid-1990s was totally opposed to giving taxpayers' money to the banks. It was politically impossible to give the banks the capital they needed to escape their insolvency.

Figure 2 Bank of Japan notes issuance and cash held by banking sector



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

Therefore, the only option open to the government was to continue insuring deposits and to adopt a forbearance policy, postponing any bank bailout. This meant that insolvent banks had to continue bearing a deposit liability without sufficient assets to guarantee that liability. As a result, their balance sheets indicate a hole (excess deposit liability). During the course of the banks' operations, if the nominal interest rate rises above zero, the hole will grow at the same rate. And if the hole grows without any upper limit and the forbearance policy stays in effect, the insolvent banks will have to go bankrupt eventually. Stated conversely, the government will not be able to postpone bank recapitalization year after year unless, year after year, the holes in the banks' balance sheets show no growth – but they will only show no growth if the nominal interest rate remains at zero.

Thus, if the government continues insuring deposits to the full amount while postponing bank recapitalization, the nominal interest rate must remain at zero. (For a more detailed, analytical discussion, see Kobayashi, 2003.) To sum up, the Japanese government (which includes the BOJ) has decided to postpone bank recapitalization, so it must keep the nominal interest rate at zero, with debt deflation being the result.

If we look at the obverse side of this conclusion, we can see that, at least in theory, if the government quickly injects capital into the banking system and returns the banks to solvency, the nominal interest rate will rise above zero, and Japan will be able to escape deflation.

### What We Can Learn from Japan's Deflation

We have seen that Japan's deflation is caused as follows: because of political constraints, the government is insuring deposits but not providing insolvent banks with the public capital they need to recover; meanwhile, to prevent those insolvent banks from failing, the government is keeping the nominal interest



Photo: Kyodo News

*The Great Depression of the 1930s is a good example of a banking crisis and deflation occurring at the same time*

rate at zero. But the zero nominal interest rate has led to deflation through the Fisher equation,<sup>\*</sup> setting in motion a mechanism that has created debt deflation.

Deflation in Japan could have been induced by economic factors (bank insolvency and the government's forbearance policy). If this is the case, the policies we need to eliminate deflation are not monetary policies wielded by the central bank. Rather, the most direct way to eliminate deflation is to inject public capital into the insolvent banks, so that their liabilities no longer exceed their assets.

There are lessons to be learned from these considerations. If deflation strikes another country, the first question that should be asked is: How unhealthy is the banking system in that country? If some banks have liabilities exceeding their assets, and if the government postpones efforts to resolve this problem, there is a strong possibility that interest rates will drop and deflation will set in. Furthermore, the fight against deflation requires more than just having the central bank tinker with monetary policy. It can be shown theoretically (as in

Kobayashi, 2003), that any attempt to escape from deflation only by monetary easing, without bringing the banks back into solvency, will end up making government debt violate the transversality condition. In short, fiscal and monetary policies alone are not enough – the proper way to guide a country out of deflation is to return the banking system to health. **JS**

#### Reference

- KOBAYASHI, K. (2003) "Deflation Caused by Bank Insolvency," *RIETI Discussion Paper 03-E-022*, Research Institute of Economy, Trade and Industry

#### Note

\* The definition of the Fisher equation is: nominal rate of interest = real rate of interest + inflation

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