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Bank of Japan

## The Bank's Thinking on Price Stability

(An Excerpt from "The Introduction of a New Framework for the Conduct of Monetary Policy")

Price stability is a state where various economic agents including households and firms may make decisions regarding such economic activities as consumption and investments without being concerned about the fluctuations in the general price level.

Price stability is an indispensable prerequisite for realizing sustainable growth, and the Bank of Japan is responsible for realizing price stability through an appropriate conduct of monetary policy. In this regard, given that the effects of monetary policy take time to work through the economy and that volatility of output may actually be amplified when attempts are made to absorb every short-term change in prices resulting from various shocks, the Bank strives to forecast developments in economic activity and prices from a sufficiently long-term viewpoint and to realize price stability over the medium to long term.

The basic indicator for the evaluation of price developments is a price index that covers goods and services consumed by households and which the public at large is accustomed to. In particular, the consumer price index is important in the light of its favorable attributes including timeliness.

Price stability is, conceptually, a state where the change in the price index without measurement bias is zero percent. Currently, there seems to be no significant bias in the Japanese consumer price index. If there is a risk of falling into a vicious cycle of declining prices and deteriorating economic activity, depending on the weight attached to the risk, the accommodation of slight inflation may be deemed consistent with an understanding of price stability in the conduct of monetary policy.

In the case of Japan, the average rate of inflation over the last few decades is lower than major overseas economies. Japan has also experienced a

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Note: This document is the background notes for "The Bank's Thinking on Price Stability" expressed in "The Introduction of a New Framework for the Conduct of Monetary Policy," decided at the Monetary Policy Meeting on March 8 and 9, 2006.

prolonged period of low rates of inflation since the 1990s. Consequently, the rate of inflation at which households and firms perceive price stability seems to be low, and economic decisions may be guided by such a low inflation environment. The conduct of monetary policy must take account of such possibilities.

In today's Monetary Policy Meeting, there was a discussion of the level of inflation rate that each Policy Board member currently understands as price stability from a medium- to long-term viewpoint, in the conduct of monetary policy ("an understanding of medium- to long-term price stability"). While there was a range of views, reflecting the differences in the relative weight attached to factors affecting the understanding of price stability, it was recognized that the level was somewhat lower than that in major overseas economies. It was agreed that, by making use of the rate of year-on-year change in the consumer price index to describe the understanding, an approximate range between zero and two percent was generally consistent with the distribution of each Board member's understanding of medium- to long-term price stability. Most Board members' median figures fell on both sides of one percent. Given that the understanding of medium- to long-term price stability may change gradually reflecting developments such as structural changes in the economy, as a rule, Board members will review it annually.

### **[Background Notes]**

Price stability is a state where various economic agents including households and firms may make decisions regarding such economic activities as consumption and investments without being concerned about the fluctuations in the general price level.

Price stability is an indispensable prerequisite for realizing sustainable growth, and the Bank of Japan is responsible for realizing price stability through an appropriate conduct of monetary policy.

"Price stability" is defined conceptually as "a state where various economic agents including households and firms may make decisions regarding such economic activities as consumption and investments without being concerned about the fluctuations in the general price level." It is useful to refer to this definition when evaluating whether price stability has been achieved in terms of a price index.

"General prices" is the term used to refer to the aggregation of the prices of individual goods and services. Since general prices cannot be observed directly, a price index compiled by following specific procedures is used to grasp changes in general prices. Even when general prices remain stable, the prices of individual goods and services fluctuate reflecting their supply

and demand conditions. As a result, the prices of individual goods and services change relative to one another, with such changes being referred to as “changes in relative prices.”

When the price level changes considerably, it becomes difficult for households and firms to accurately identify the factors behind the changes in the prices of individual goods and services: whether such changes reflect shifts in the general price level or movements in the relative prices of goods and services. As a result, the smooth functioning of markets, where price changes provide signals to achieve the efficient allocation of resources, will be inhibited. In general, the prices of individual goods and services tend to fluctuate more as the rate of inflation is higher (Chart 1). Moreover, uncertainty about the outlook for economic activity and prices is amplified when the price level fluctuates considerably, and this makes it difficult for firms to map out their business plans for the long-term. In addition, in financial markets, increased uncertainty about price fluctuations in the future results in the emergence of premiums, with long-term interest rates rising by the corresponding amounts. As a result, when the rate of inflation rises, economic activities with a long-term time frame, including business fixed investment, are likely to be restrained. For those reasons, price stability is an indispensable prerequisite for achieving sustainable growth. Moreover, large price fluctuations may also result in distortions in income distribution.

Given the points mentioned above, Article 2 of the Bank of Japan Law stipulates the principle underlying the Bank’s monetary policy conduct as follows: “Currency and monetary control shall be aimed at, through the pursuit of price stability, contributing to the sound development of the national economy.” The Bank’s pursuit of an appropriate course for monetary policy is based on this principle.

In this regard, given that the effects of monetary policy take time to work through the economy and that volatility of output may actually be amplified when attempts are made to absorb every short-term change in prices resulting from various shocks, the Bank strives to forecast developments in economic activity and prices from a sufficiently long-term viewpoint and to realize price stability over the medium to long term.

Monetary policy influences economic activity, and thereby influences prices after a significantly long and variable time lag (Chart 2). In conducting monetary policy, a central bank is required to forecast developments in economic activity and prices for a sufficiently long period ahead. The Bank presents forecasts for the next one year and a half to two years in the semiannual release of the *Outlook for Economic Activity and Prices*. This is because the Bank thinks it useful to release its forecasts of the future course of economic activity and prices.

The price stability aimed at by a central bank is not short-term or temporary stability, but sustainable stability over the medium to long term. In this regard, it is crucial to assess the factors behind price changes by analyzing whether the current increases or decreases in prices are likely to continue over the medium to long term, and by examining whether a period of stability in the price index is sustainable over the medium to long term.

For example, in the second half of the 1980s, prices in Japan were extremely stable and the year-on-year increase in the consumer price index (CPI; excluding fresh food, on a nationwide basis) remained at 0.6 percent on average in fiscal 1988 even as the bubble was growing (Chart 3). The economy expanded from 1987 and became extremely overheated from 1988 onwards. Looking at the reasons why prices were stable in spite of the economic expansion, in addition to the lag with which monetary easing takes effect, there were also supply-side factors at work: for example, the decline in the cost of imports due to the fall in crude oil prices and the appreciation of the yen. The year-on-year increase in the CPI then gradually rose, but it was not until 1990-91, the last phase of the four-year-long economic expansion, that the CPI reached a level of around 3 percent. In the meantime, asset prices, including land prices, first surged and then fell into a slump, which led to a long period of economic stagnation. It was around 1998 that prices started to follow a moderate declining trend, after an even more substantial time lag.

Central banks around the world forecast developments in economic activity and prices over a sufficiently long period, and strive to achieve price stability in the medium to long term. Looking at the central banks that have adopted inflation targeting, they do not conduct monetary policy mechanically but flexibly. For example, even if the rate of inflation is currently below (above) the target, there are cases when the policy interest rate is raised (lowered) (Chart 4). The target rates of inflation under the inflation targeting regimes and the rates given in the numerical definition of price stability are regarded as something that should mainly be achieved in the medium to long term (Chart 5).

<p>The basic indicator for the evaluation of price developments is a price index that covers goods and services consumed by households and which the public at large is accustomed to. In particular, the consumer price index is important in the light of its favorable attributes including timeliness.</p>
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Various price indexes are available, such as the consumer price index (CPI), the corporate goods price index (CGPI), the corporate service price index (CSPI), and the GDP deflator, which differ in terms of their coverage of goods and services and their index formula.

The Bank makes use of a variety of price indexes when checking price developments, taking due account of their specific attributes given differing compilation methods. In explaining monetary policy to the public, the Bank employs price indexes which cover the goods and services consumed by households, since the public is accustomed to these indexes. In particular, the CPI is important in the light of its favorable attributes, including timeliness. Central banks in major overseas economies employ price indexes that cover goods and services consumed by households, and especially the CPI, as their principal indicators (Chart 6).

Looking at recent price developments using the CPI and other price indexes (Chart 7), the CPI is in the process of consolidating a positive trend, reflecting improvements in supply and demand conditions, increases in wages, and a more favorable outlook for inflation. The year-on-year increase in the CGPI is fluctuating at the 2 percent level due to the hike in international commodity prices. This rate of increase in the CGPI is the highest since 1981, excluding the period from 1989-90 when the CGPI increased reflecting the introduction of the consumption tax. In contrast, the GDP deflator continues to exhibit a year-on-year decrease, reflecting the increase in crude oil prices, since imports are deducted when calculating GDP (Chart 8). The GDP deflator tends to move in the same direction as the CPI in the long term, but sometimes moves differently in the short term. In addition, it should be noted that the GDP deflator is retroactively revised frequently and considerably (Chart 9).

Price stability is, conceptually, a state where the change in the price index without measurement bias is zero percent. Currently, there seems to be no significant bias in the Japanese consumer price index.

Price stability, expressed in a numerical value of an actual price index, is conceptually a state where a change in a price index without measurement bias is zero percent.

The CPI aims to trace price fluctuations by assuming that all households continue to purchase a given consumption basket which is fixed in the base year. The CPI is unable to thoroughly reflect changes in consumer behavior in response to, for example, the introduction of new goods, including IT-related goods whose prices tend to decline rapidly, and the increased market share of discount outlets in retail markets. The rate of inflation measured by the CPI has thus been considered to be overestimated (Chart 10). In recent years, Japan's Statistics Bureau has made constant efforts to improve the CPI, by for example enhancing its quality-adjustment methods and increasing the frequency with which goods and services included in the CPI are reviewed (Chart 11). As a result, the upward bias in the Japanese CPI has substantially narrowed and is now insignificant.

If there is a risk of falling into a vicious cycle of declining prices and deteriorating economic activity, depending on the weight attached to the risk, the accommodation of slight inflation may be deemed consistent with an understanding of price stability in the conduct of monetary policy.

Japan's CPI (excluding fresh food, on a nationwide basis) was on a mild declining trend from 1998 and temporarily marked a year-on-year decline of 1.0 percent in 2001. The rate of decline in the CPI then gradually narrowed after 2003 and the CPI marked an increase of 0.5 percent in January 2006. The cumulative rate of decline (adjusted for the effects of the increase in the consumption tax rate) for the eight year period from 1997 through 2005 was 2.7 percent (Chart 12).

If prices are moving persistently upward or downward, resource allocation and income distribution are adversely affected, regardless of the direction of changes. In addition to these adverse effects, costs intrinsic to declining prices are often mentioned. The first reason for such costs is the downward rigidity of nominal wages. If nominal wages are downwardly rigid, price declines will cause real wages to rise, thereby reducing demand for labor and raising unemployment. The increase in unemployment is likely to result in deteriorating economic activity caused by declines in income and the subsequent reduction in spending, thereby triggering a further decline in prices. The second reason is the zero lower bound on nominal interest rates encountered by monetary policy. Nominal short-term interest rates, which are a policy instrument, cannot be lowered below zero percent. When nominal short-term interests decline to virtually zero, monetary policy is unable to lower nominal short-term interest rates in response to declining prices or deteriorating economic activity. Thus, monetary policy is unable to reduce real short-term interest rates to stimulate economic activity. As a result, declining prices and deteriorating economic activity may become more serious. The third reason is the fact that financial transactions are generally contracted on a nominal basis. This means that a decline in prices increases the real value of debts. There is the possibility that a vicious cycle of declining prices and deteriorating economic activity may be triggered, since debtors generally have higher propensity to expend than creditors, thus resulting in reduced aggregate expenditure.

Given the possibilities described above, it may be deemed necessary to decide in advance to accommodate slight inflation in preference to the risk of declining prices. This is "the safety margin" that acts as a buffer against the risk of declining prices. The size of the safety margin largely depends on how the above mechanisms work in Japan's economy in its current state. Specifically, it relies on the assessment of the points below.

- (1) The degree of downward rigidity of nominal wages: If labor markets function flexibly and nominal wages are set flexibly, real wages are adjusted smoothly, regardless of the level of inflation rate. This makes the safety margin less important.
- (2) The level of the potential growth rate: If the potential growth rate is projected to be relatively high, the equilibrium level of real interest rates will also be higher. So even when real market interest rates rise due to a decline in prices, equilibrium real interest rates are still likely to exceed real market interest rates. This also tends to diminish the importance of the safety margin.
- (3) The robustness of the financial system: If stability in the financial system is maintained even with temporarily declining prices, the vicious cycle of declining prices and deteriorating economic activity is unlikely to be aggravated. This also makes the safety margin less important.
- (4) The availability of fiscal policy: If fiscal policy has some leeway to take stimulative measures in response to the risk of a vicious cycle of declining prices and deteriorating economic activity, the safety margin becomes less important.
- (5) The effectiveness of monetary policy: Even facing the zero lower bound on short-term nominal interest rates, if the effectiveness of monetary policy is maintained by influencing expectations about the future course of short-term interest rates via a policy commitment regarding policy duration, the safety margin again becomes less important.

Major overseas economies have occasionally experienced temporary declines in prices since the 1980s. In Japan, the CPI marked a year-on-year decline shortly before the bubble period (Chart 12). Germany, Switzerland, Canada, the Netherlands, and Sweden also experienced temporary declines in consumer prices (Chart 13). The issue here is whether a continued decline in prices triggers a vicious cycle of declining prices and deteriorating economic activity. Japan's economy, following its recovery on the back of the worldwide IT boom, experienced deterioration in economic activity after 2001 due to the bursting of the worldwide IT bubble, and also experienced mild declines in prices that lasted until recently. Japan's economy, however, did not fall into a vicious cycle of declining prices and deteriorating economic activity (Chart 14).

Some hypotheses concern why Japan's economy did not fall into a vicious cycle of declining prices and deteriorating economic activity. First, stability was maintained in the financial system due to ample provision of liquidity by the Bank. Second, nominal wages in Japan were adjusted fairly flexibly

from the second half of the 1990s and real wages did not remain at high levels (Chart 15). When comparing the rate of changes in nominal wages in Japan with that of major overseas economies, Japan's nominal wages are highly flexible, even in a downward direction (Chart 16). Third, the policy commitment of the quantitative easing policy in terms of the CPI created expectations that zero interest rates would continue, thereby producing a degree of monetary easing effects. In any case, the size of the safety margin depends on the assessment of the importance of the above points.

In the case of Japan, the average rate of inflation over the last few decades is lower than major overseas economies. Japan has also experienced a prolonged period of low rates of inflation since the 1990s. Consequently, the rate of inflation at which households and firms perceive price stability seems to be low, and economic decisions may be guided by such a low inflation environment. The conduct of monetary policy must take account of such possibilities.

In examining “price stability,” it is deemed necessary to take account of the rate of inflation assumed by households and firms when making decisions on economic activities. In that regard, Japan has registered lower rates of inflation than major overseas economies for the last few decades. For example, the average rate of inflation in Japan from 1985 through 2005 was 0.6 percent, which was lower than that of the United States (3.2 percent) and the United Kingdom (2.9 percent) as well as that of countries with relatively low inflation such as Germany (1.8 percent) and Switzerland (1.9 percent) (Chart 17). The same price developments were seen in the average inflation from 1985 through 1997, a period which excludes the years after 1998 when prices in Japan started to trend mildly downward. Given this state of affairs, the rate of inflation at which households and firms perceive prices to be stable may have fallen to a low level. They may therefore be making decisions on economic activities based on such low rates of inflation. This possibility is also suggested by the fact that long-term interest rates have stayed at a relatively low level compared with major overseas economies (Chart 18).

In today's Monetary Policy Meeting, there was a discussion of the level of inflation rate that each Policy Board member currently understands as price stability from a medium- to long-term viewpoint, in the conduct of monetary policy (“an understanding of medium- to long-term price stability”). While there was a range of views, reflecting the differences in the relative weight attached to factors affecting the understanding of price stability, it was recognized that the level was somewhat lower than that in major overseas economies. It was agreed that, by making use of the rate of year-on-year



change in the consumer price index to describe the understanding, an approximate range between zero and two percent was generally consistent with the distribution of each Board member's understanding of medium- to long-term price stability. Most Board members' median figures fell on both sides of one percent. Given that the understanding of medium- to long-term price stability may change gradually reflecting developments such as structural changes in the economy, as a rule, Board members will review it annually.

Adverse effects of price fluctuations on the economy vary from country to country, depending on, for example, their economic structure and their track records for inflation. Measurement biases in price indexes also vary from country to country, depending on differences in compilation methods. The level of the inflation rate that each Policy Board member currently understands as price stability from a medium- to long-term viewpoint in the conduct of monetary policy ("an understanding of medium- to long-term price stability") was recognized as being somewhat lower than major overseas economies.

The response of the inflation rate to the economic growth rate is quite weak in the current recovery phase in Japan, compared with past recovery phases (Chart 19). This phenomenon of a weak response of inflation is also seen in overseas economies. In the background lie factors that include the effects of progress in economic globalization and in information and telecommunication technology. In addition, Japan's economy, which is now in the process of attaining a sustainable growth path after a long period of economic stagnation, may be experiencing changes in the price formation mechanism. Although it is difficult to judge at the moment whether such changes are only temporary phenomena or not, there is a possibility that the price formation mechanism will gradually evolve in response to structural changes in the economy. It is thus deemed appropriate to regularly review "the understanding of medium- to long-term price stability."