On Price Stability

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Bank of Japan

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Preface

Price stability is an indispensable prerequisite for a market economy to function smoothly. Indeed, as witnessed by experience in various countries during the past several decades, if price stability is impaired, sustainable economic growth is hampered by ensuing inflation or deflation. Against such a background, the view that monetary policy should contribute to sustainable economic growth through price stability has come to be generally accepted worldwide. In the context of Japan, the new Bank of Japan Law, effected in April 1998, states that "currency and monetary control shall be aimed at, through the pursuit of price stability, contributing to the sound development of the national economy."

As the importance of price stability in the conduct of monetary policy has become widely recognized, central banks are urged more than ever to explicitly define what price stability means and to clarify how monetary policy achieves it. In response, central banks in various countries have been making strenuous efforts to answer these questions with the view to enhancing transparency of the conduct of monetary policy. Measures that central banks have taken to enhance transparency vary from country to country, depending on the economic situation, historical setting, and institutional framework. For example, some make public the minutes of policy-making meetings and the assessment of the economic and financial outlook, while others adopt inflation targeting.

Since the enactment of the new Bank of Japan Law, the Bank of Japan has actively effected measures to enhance transparency of the conduct of monetary policy by, for example, releasing the minutes of Monetary Policy Meetings and the "Bank's View" of economic and financial developments. At the Monetary Policy Meeting of March 8, 2000, Policy Board members agreed to initiate an in-depth study of issues related to price stability from the viewpoint of enhancing transparency of the conduct of monetary policy. Based on various studies including ones newly undertaken by the Bank's staff, they examined the following issues:

- Being a prerequisite for "the sound development of the national economy", what is price stability in concrete terms? Is it possible to express price stability in terms of a specific numerical value of a price index? If so, what would it be?
- What criteria can we use to judge whether or not price stability is maintained?
- How can monetary policy achieve price stability? In the process of achieving price stability, what should be done to enhance transparency in the conduct of monetary policy?

This report summarizes the results of the discussions of Policy Board members on the above issues, and was approved at the Monetary Policy Meeting of October 13, 2000. Needless to say, issues related to price stability are wide-ranging and complex. There are still many unresolved issues from the viewpoint of economic theory as well as problems in the compilation of price indexes. Furthermore, since Japan's economy is currently experiencing dramatic structural change, it may well be the case that the answers will gradually change in line with the development of the economic environment. Therefore, with this report as one important step, the Bank of Japan will continue examining issues related to price stability.

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Summary

1. Price stability is important for the stability of national life and is an indispensable prerequisite to ensure sustainable development of the economy. As stated in the new Bank of Japan Law, the aim of the Bank of Japan's monetary policy is to contribute to the sound development of the national economy through the pursuit of price stability.

2. Price stability, a situation neither inflationary nor deflationary, can be conceptually defined as an environment where economic agents including households and firms can make decisions regarding such economic activity as consumption and investment without being concerned about the fluctuation of the general price level.

3. Based on the above conceptual definition, members of the Policy Board of the Bank of Japan have discussed whether it is possible to express price stability by specific numerical values. In the discussions, the following points were noted:

- Price indexes entail bias, but it is not easy to obtain a reliable estimate of the magnitude of bias. Furthermore, the magnitude can vary.
- Considering that nominal interest rates cannot be reduced below zero, monetary policy should be conducted carefully with due attention given to preventing the economy from falling into a deflationary spiral. From such a viewpoint, it is worthwhile examining a policy whereby the central bank conducts monetary policy aiming at a small but positive measured inflation rate.
- The conduct of monetary policy may change depending on whether price fluctuation is due to demand-side or supply-side factors.
- In light of experience during the bubble period, fluctuation in asset prices may have a big impact on the economy even though measured price indexes are stable.

4. Bearing in mind the above points, Policy Board members have examined the past development of prices in Japan. They have observed that (1) low inflation in the 1990s largely reflected weak demand amid the economic slowdown, and (2) such supply-side factors as technological innovation, deregulation, intensification of global competition, and the distribution revolution have more recently put additional downward pressure on prices.

5. Following intensive discussions, Policy Board members have reached the following conclusions with regard to a quantitative definition of price stability:

(1) In view of the current movement of prices in Japan, an inflation rate which is consistent with the sound development of the economy is likely to be lower in the short

term than in the long term.

(2) If some numerical values are adopted as the definition of price stability, they are expected to be valid for a very long period of time. In view of the current development of prices in Japan, it is difficult to set specific numerical values to the definition of price stability that are consistent with the sound development of the economy. Furthermore, even if some numerical values were announced, they would not serve as a reliable guidepost in the conduct of monetary policy, and the exercise would not likely contribute to enhancing transparency of the conduct of monetary policy. Therefore, it is not deemed appropriate to define price stability by numerical values.

(3) While paying due attention to changes in the economy, the Bank of Japan will nevertheless continue to explore whether price stability can be expressed by some numerical values.

6. Policy Board members have concluded that while it is not appropriate to express price stability in terms of numerical values, it would be feasible and useful to disclose the viewpoints from which they judge price stability, which are:

- Characteristics of price fluctuations in light of various indexes related to prices
- The sustainability of price stability
- Consistency with the sound development of the economy

7. To enhance transparency of the conduct of monetary policy, the Policy Board plans to regularly issue *Outlook and Risk Assessment of the Economy and Prices*, which will give an assessment of price movements from the above three viewpoints. It includes “Forecasts of Policy Board Members” with respect to the outlook for inflation and economic growth.

1. Significance of Price Stability

Prices are defined as the general price level that is the average of all prices of individual goods and services traded within a specified area. Thus, price stability means a situation where the overall average of prices is stable even though prices of individual goods and services may rise or fall. (The definition of price stability will be discussed in detail in Section 3.)

(1) Inflation and Deflation

Why is price stability necessary? The fundamental reason is that it is important for the stability of national life and is an indispensable prerequisite for sustainable economic development.

Today, the importance of price stability has become commonly accepted around the world, though the economic theory of price stability has undergone dramatic changes during the past five decades.

Following the experience of hyperinflation in some countries after World War I and II, it became almost universally recognized that serious inflation has an immediate destructive impact on national life. On the other hand, the global depression from the late 1920s through the 1930s heightened concern about deflation and promoted the development of new economic theory from the viewpoint of how to overcome it.

Until the early 1970s, the prevailing view had been that there was a trade-off between inflation and economic growth and that mild inflation could be accepted to achieve higher economic growth, though hyperinflation should be avoided. Many countries conducted discretionary monetary and fiscal policy based on such a view.

However, in the late 1970s many industrialized countries faced a situation where economic growth decelerated and unemployment rose as inflation gradually accelerated. This reflects the fact that once inflationary expectations come to be factored into the activity of economic agents, inflation ceases to have a stimulative effect over the medium term and only the harmful effects remain. In the 1990s, the risk of deflation exerting downward pressure on various economies came to be once again strongly recognized against the background of the deceleration in inflation worldwide and the bursting of bubbles. The experience of these price fluctuations has made people realize that there is no trade-off between inflation and economic growth in the medium term, and that price stability, which is

neither inflationary nor deflationary, is a prerequisite for sustainable economic growth.

(2) Advantages of Price Stability

Price stability is considered important for the stability of national life and is an indispensable prerequisite to ensure sustainable development of the economy. The following three points are cited as the advantages of price stability.

Signaling function of relative prices

When the general price level is stable, changes in the prices of individual goods and services are directly reflected in changes in relative prices. Under such circumstances, it is easy for households and firms to accurately recognize changes in relative prices, indispensable information for decision-making. As a result, resources will be most efficiently allocated through rational decision-making. To the contrary, if the general price level becomes unstable, and inflation or deflation ensues, it will be difficult for these economic agents to judge whether observed changes in individual prices reflect changes unique to particular goods and services such as changing consumer preferences or if they are just a mere reflection of the change in the general price level. As a result, the efficient allocation of resources in the entire economy would be impaired and growth potential not realized to the maximum extent.

Less uncertainty in planning future economic activity

Based on their forecasts of the future, firms have to make plans for production and investment as well as decide selling prices and wages, and similarly households with respect to consumption and savings. Since inflation and deflation increase uncertainty regarding future prices, economic agents would find it difficult to make rational judgment based on reliable economic forecasts. In addition, a higher premium due to increased uncertainty would raise long-term interest rates, which, in turn, would dampen investment. If the premium resulting from increased uncertainty became widely observed throughout an economy, growth potential would naturally decline.

Avoiding an unintended effect on income distribution

If unanticipated inflation occurs, financial assets such as deposits, whose principal and interest are fixed in nominal terms, will lose their value in real terms, and creditors incur losses. Conversely, financial liabilities that are fixed in nominal terms will lose value in real

terms, and debtors benefit. A similar situation would be seen in the case of contracts such as for wages that are fixed in nominal terms. With unanticipated deflation, there is an opposite effect on creditors and debtors.

If all contracts are indexed to price fluctuation, they could be immune to the impact of fluctuations in the general price level. However, it is difficult to index all contracts to price fluctuation. As a result, price fluctuation could have an unanticipated impact on income distribution. If such a situation lasts long, public confidence in the market economy and social fairness will be eroded, which might exert an adverse influence on economic growth over the medium to long term.

2. Relationship between Monetary Policy and Prices

(1) Control of Prices through Monetary Policy

The general price level will change if the balance between supply and demand changes in an economy. A variety of factors cause changes in the balance between supply and demand, and subsequently changes in prices. They include, for example, the output gap, which is the difference between potential supply capacity and real output, inflationary expectations, international commodity prices, and foreign exchange rates.

Although monetary policy affects the general price level, the extent of its impact will vary depending on the time horizon. This point can be illustrated as follows. If one takes a particular point in time, many of the above factors are given and there is little possibility that monetary policy can have a large impact. But, if one extends the time horizon a little longer, monetary policy will affect such variables as monetary and credit aggregates in addition to interest rates, leading to a change in demand. Thus, it can be expected that monetary policy will have a larger impact on the general price level. With a very long time horizon, monetary policy will have an even larger impact on inflation over the medium to long term reflecting the degree of public confidence in such policy. If one takes a sufficiently long time horizon, inflation would correspond to the excess supply of money, and deflation to the shortage, since prices are the rate of exchange between goods and services on the one hand and money on the other. Such a relationship between money and prices is most typically witnessed in hyperinflation. In this sense, it is understood that inflation is essentially a monetary phenomenon over the long run.

It should be noted, however, that the above illustration regarding the time horizon is only schematic, and it does not literally correspond to the length of time in reality. For example,

if a central bank quickly changes its monetary policy stance in a short period of time, the expectations of economic agents might abruptly change and the general price level be influenced significantly. To the contrary, if a change in monetary policy stance cannot obtain sufficient public support and there are strong expectations that it might be reversed, monetary policy may not have much impact on prices.

(2) Influence of Monetary Policy: Comparison between Inflationary and Deflationary Phases

Central banks can affect prices through monetary policy, but it is understood that the relationship between monetary policy and prices is complex and that there exist long and varying time lags between monetary policy and changes in the general price level. It has been pointed out that the impact of monetary policy on prices may differ between the inflationary and deflationary phases: while a central bank can, in principle, contain inflation by monetary tightening, though economic growth might slow down for a short period, in a deflationary phase, it might only have a limited impact on the economy if nominal interest rates are zero or balance sheet adjustment exerts downward pressure.

Case of zero constraint on nominal interest rates

In a deflationary phase, a central bank will not be able to make a policy move by lowering interest rates once nominal interest rates reach zero. In this situation, monetary policy cannot raise the general price level through lower interest rates. If a decline in prices further lowers inflationary expectations, real interest rates, which are the difference between nominal interest rates and inflationary expectations, would rise, leading to further downward pressure on prices.

Case of balance sheet adjustment

As typically evidenced by the situation after the bursting of the bubble in Japan, economic agents will generally become risk averse if they are burdened with excessive liabilities or if they face a reduction in the value of their assets or shortage of own capital. Under such circumstances, firms and households reduce spending and financial institutions restrain themselves from extending loans (balance sheet adjustment). When adjustment pressure affects the entire economy as we observed in the United States in the early 1990s and Japan after the bursting of the bubble, the effect of monetary easing in raising the general price level through economic expansion will be greatly reduced.

3. Is a Quantitative Definition of Price Stability Possible?

So far, price stability has been defined as a situation where the general price level is stable. This section examines whether it is feasible to express price stability by a numerical value in order to formulate a practical guidepost for the conduct of monetary policy.

Central banks worldwide can be classified into three groups from the viewpoint of whether the target or definition of price stability is expressed by a numerical value. Those in the first group have adopted inflation targeting and conduct monetary policy to achieve the target. Central banks in such countries as the United Kingdom, Canada, Sweden, and New Zealand belong to this group. Those in the second group have defined price stability in terms of a numerical value. For example, the European Central Bank has not adopted inflation targeting, but it has made public a quantitative definition of price stability, stated as "a year-on-year increase in the Harmonized Index of Consumer Prices of below 2 percent to be maintained over the medium term." Those in the third group have made public a conceptual definition of price stability, having neither a numerical target nor quantitative definition of price stability. An example here is the U.S. Federal Reserve System.

Bearing in mind these three groups, Policy Board members discussed how price stability, which monetary policy should aim at, can be defined conceptually, and whether it is feasible to express such a concept of price stability by a specific numerical value.

(1) Conceptual Definition of Price Stability

Price stability is described as a situation which is neither inflationary nor deflationary. In other words, it is a situation where all economic agents, including households and firms, can make decisions regarding such economic activity as consumption and investment without being concerned about the fluctuation of prices.

(2) Issues Related to Expressing Price Stability by a Specific Numerical Value

Policy Board members, while bearing in mind the above conceptual definition, discussed issues related to expressing price stability by a specific numerical value of price indexes.

Bias of price indexes

Price stability is the stability of the general price level that is the average of all prices of individual goods and services, but it is not directly observable. In reality, price indexes are

compiled from prices of various goods and services selected according to certain assumptions and methodology. Hence, like other economic statistics, price indexes are not immune from various constraints and limitations, and the actual fluctuation does not accurately correspond to fluctuations in the general price level.

Following are some of the limitations that price indexes face:

- It is not easy to accurately identify the prevailing market prices of individual goods that are sold.
- In a situation where new goods are continuously marketed, it is difficult to keep monitoring the prices of goods of the same quality. There are inherent difficulties to adjusting price indexes for such qualitative changes by employing adjustment techniques.[1]
- There are some goods and services, such as software development, that do not lend themselves to monitoring.
- As we move further away from the base year, we tend to observe a larger bias in estimating the inflation rate.

There have been a number of researches at home and abroad focusing on the bias of price indexes, the difference between the measured inflation rate and the true rate of change in the general price level caused by these limitations and other constraints. It is still too early to conclude if sufficient empirical studies have been conducted. Some studies report that the inflation rate tends to be biased upward, above the correctly measured inflation rate.[2] Based on the results of these studies, it is likely that an inflation rate corresponding to the conceptual definition of price stability would be translated into a slightly positive rate of measured inflation in the long run.

Since a bias in price indexes will inevitably materialize as an economy experiences various changes such as technological innovation and deregulation, it is difficult to conceive that the magnitude of bias will remain constant. In the process where the authorities which compile

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[1] For example, when new and old model personal computers are sold at the same price, and if the new one is judged better than the old one in terms of such functions as calculation capability, price indexes will take the increased capability of the new model as a reduction in the price of new computers. This example assumes that the increased capability can be correctly recognized. But, in reality, it is not necessarily easy to accurately measure the change in quality of various new goods and services.

[2] Observed inflation rates tend to have an upward bias partly because it is difficult to immediately incorporate into price indexes such developments as households and firms tending to restrain the purchase of higher priced goods and services and prices declining in real terms due to qualitative improvements.

price indexes continue efforts to review and reduce such bias, the magnitude of the bias itself may fluctuate. Thus, we find it difficult to incorporate a specific fixed magnitude of bias into price indexes.

Preventing a deflationary spiral

There is a view that as a practical guideline monetary policy should be conducted aiming at not zero inflation, but a small but positive rate of inflation. This view has been promoted partly because a measured inflation rate tends to have an upward bias as described above, and also partly because there is the risk of falling into a deflationary spiral which is difficult to get out of. Why is it difficult for an economy to extricate itself from deflation? One reason is that nominal interest rates cannot be lowered below zero. Another reason is the downward rigidity of nominal wages. It is pointed out that during a period of deflation, the downward rigidity of nominal wages could further accelerate deflation by squeezing corporate profits. Such reasoning would justify the argument that the central bank conduct monetary policy aiming at a small but positive measured inflation rate (which could be regarded as a buffer), and minimize the risk of falling into deflation to the extent possible.

In relation to this view, the following points are noted:

- To what extent can we actually reduce the risk of falling into deflation by aiming at a small but positive inflation rate, rather than zero inflation? What are the costs and risks involved in aiming at a positive inflation rate? Can we really say that sufficient empirical studies have been conducted regarding the magnitude of costs and risks?
- It seems that nominal wages are adjusted more flexibly in Japan than in other countries, and that the degree of their downward rigidity is not so strong.

Following these discussions, a number of Policy Board members expressed the view that in the conduct of monetary policy at least over the long run, it might be worthwhile examining a policy that the central bank aims at not zero inflation, but a small but positive inflation rate. Needless to say, a small but positive inflation rate is well within the scope of price stability. In this context, it should be emphasized that such monetary policy is different from that aiming at a rather high inflation rate which is beyond the scope of price stability.

At the core of the view that the central bank should aim at a small but positive measured inflation rate is the premise that monetary policy should be conducted cautiously lest the economy fall into a deflationary spiral. This point is widely accepted among Policy Board members.

Influence of supply-side factors

The Bank of Japan pursues price stability through monetary policy, ultimately aiming at "contributing to the sound development of the national economy" as stated in the new Bank of Japan Law (Chart 1). Thus, whenever the Bank of Japan makes a judgment regarding price stability, it always needs to check whether such judgment is consistent with the sound development of the national economy. In this regard, some believe that an inflation rate consistent with the sound development of the national economy might significantly change in the short to medium term. Hence, Policy Board members decided to discuss the influence of various supply-side factors in the context of consistency with the sound development of the national economy.

Damage to production facilities through natural disasters and the price hikes of international commodities such as crude oil are examples of supply-side factors that exert upward pressure on prices, and higher productivity due to technological innovation and deregulation are supply-side factors that put downward pressure on prices. Some supply-side factors are temporary and others long-lasting. There is perhaps no accepted economic theory that tells us how to conduct monetary policy when supply-side factors are exerting a strong influence on the economy. Nevertheless, many central banks share the belief that if a central bank conducts monetary policy aiming at price stability over the short run there is a risk of damaging the sound development of the national economy through a large swing in economic activity. This is evidenced, for example, by the fact that many countries that have adopted inflation targeting have made allowance for an exceptional case where actual inflation exceeds the targeted inflation rate due to such factors as natural disasters. This is because, if the central bank pursues monetary tightening in response to price increases caused by a temporary reduction in supply capacity due to such factors as natural disasters, economic activity will further stagnate. On the other hand, if the central bank perceives price declines caused by higher productivity as a sign of recession and mistakenly pursues monetary easing, economic activity will become overheated.

In examining the response to price fluctuations due to supply-side factors, we need to pay attention to aspects other than those described above. For example, if an increase in oil prices triggers the inflationary expectations of economic agents, the central bank needs to be aware of the risk of inflationary expectations created domestically in the conduct of monetary policy. If deregulation raises productivity of the entire economy, leading to a decline in prices, we should not be surprised to see, in the short term, corporate profits being squeezed and some regional economies being subject to a considerable adverse impact.

Effects of fluctuations in asset prices

Asset prices such as property prices and stock prices are theoretically the present discounted value of future income streams, and are different from the prices of goods and services in that they are strongly influenced by expectations about the future. If we attempt to control asset prices through monetary policy, we might occasion a large fluctuation in economic activity. Thus, it is not appropriate to make asset prices the direct objective of monetary policy.

Having said that, we should not forget that asset prices contain such valuable information as the expectations of economic agents about the future. Moreover, if asset prices rise accompanied by credit expansion and then fall substantially, a huge amount of non-performing assets would be created, and, through the adverse impact on the financial system, a large swing in economic activity would ensue. In this regard, past experience reminds us of a difficult problem in the conduct of monetary policy, namely that when a bubble emerges it is often the case that measured price indexes are relatively stable. Price stability is certainly an important prerequisite for the sound development of the national economy, but at the same time we should be aware that it is not sufficient for prices to be stable for a limited period of time. Based on these discussions, a number of Policy Board members commented that a central bank needs to conduct a wide-ranging examination of such things as the movement of asset prices, and also the activities of firms and financial institutions, from the viewpoint of whether price stability can be continuously maintained for a long period of time and whether it is consistent with the sound development of a national economy.

Fluctuations in foreign exchange rates, which are a kind of asset prices, have a big impact on the development of prices. This point will be discussed later.

(3) Recent Experience in Japan

Policy Board members have examined the past development of prices in Japan from the viewpoint of whether it is possible to deduce an inflation rate which is consistent with the sound development of Japan's economy (Chart 2). They have also examined whether it is appropriate to attach a specific numerical value to such an inflation rate in view of the fact that not a small number of foreign countries have adopted an annual inflation rate of around 2 percent as the upper limit of the target, whereas others have adopted it as the upper limit of the numerical definition of price stability.

Following are the findings and reservations:

First, during the past 30 years, inflation in G7 countries has been trending downward with the peak in most countries recorded in the late 1970s, and thereafter a trend toward disinflation worldwide has been observed, which was particularly conspicuous in the late 1990s (Chart 3). The following facts are the background to such worldwide disinflation: many countries adopted anti-inflationary monetary policy as they became aware of the adverse effects caused by inflation; as a result, inflationary expectations have gradually become subdued; and the market opening of former communist countries as well as the progress of industrialization in emerging economies have globally exerted downward pressure on prices, particularly those of labor-intensive goods and services.

Second, during the past 30 years, the early 1970s saw higher inflation in Japan than the average of G7 countries in terms of CPI, but from the late 1970s through 1980s the lowest along with Germany in terms of both CPI and WPI. In the 1990s, inflation in Japan was the lowest among G7 countries, mainly reflecting the prolonged recession.

Third, looking back at the bubble period in the late 1980s which had a large impact on Japan's economy in the 1990s, while economic growth increased to around 5 percent in 1987 and 1988, the rate of increase in CPI remained between zero to 1 percent and that in WPI recorded a decline on a year-on-year basis (Chart 4). It was in 1990 and 1991 when the year-on-year rate of increase in CPI exceeded 3 percent. In the meantime, enormous fluctuation in asset prices was seen, leading to instability of the financial system which impaired the sound development of the economy.

Fourth, low inflation in Japan in the 1990s largely reflected weak demand amid the economic slowdown. In addition, such supply-side factors as technological innovation, deregulation, intensification of global competition, and the distribution revolution have recently put downward pressure on prices. In particular, it appears that the prices of goods and services, which used to be more or less shielded from international competition by regulation, have been converging on international levels. The effect of supply-side factors on various price indexes will depend on the weight of goods and services affected by these factors, with the effect being particularly evident in CPI.

Fifth, if prices fall due to weak demand, economic activity will stagnate. If, on the other hand, they fall due to supply-side factors, intense competition will squeeze the profitability of traditional industries and firms, and at the same time new demand will be created and

investment increase, as witnessed by the development of the distribution revolution. Thus, a case can be made that economic activity will be revitalized. In this regard, it is interesting to note that in 1996 when the GDP deflator recorded its largest decline of the 1990s, the economy, driven by IT-related investment, achieved its highest growth in the 1990s of 5 percent.

Sixth, we need to accurately recognize whether a decline in prices is due to weak demand or excess supply, and, if due to supply-side factors, which one is responsible. As described above, when supply-side factors such as technological innovation and deregulation lower prices, it is possible that economic activity will be revitalized. Therefore, in determining an inflation rate consistent with the sound development of the economy, we need to examine not only the movement of price indexes but also such non-price factors as the overall level of economic activity and corporate profitability.

(4) Conclusions about Expressing Price Stability by a Numerical Value

Policy Board members have reached the following conclusions about expressing price stability by a numerical value.

First, in a situation where both demand-side and supply-side factors have been exerting downward pressure on prices, an inflation rate which is consistent with the sound development of the economy is likely to be lower in the short term than in the long term.

Second, if some numerical values are adopted as the definition of price stability, they are expected to be valid for a very long period of time. In view of the current situation in Japan as described above, it is difficult to set a specific numerical value to the definition of price stability that is consistent with the sound development of the economy. Furthermore, even if we announced some numerical values, we would not be able to use them as a reliable guidepost in the actual conduct of monetary policy, and, as a result, the exercise would not likely contribute to enhancing transparency of the conduct of monetary policy. Therefore, it is not appropriate at present to express by a numerical value the definition of price stability as a guidepost in the conduct of monetary policy in Japan.

Third, supply-side factors will inevitably continue to have an impact on economies. In addition, it will be difficult to accurately foresee the form and degree of their impact. Bearing this in mind, the Bank of Japan will nevertheless continue to study whether or not price stability can be expressed in terms of some numerical values.

Fourth, since it is difficult to attach a numerical value to the definition of price stability that can be used as a guidepost in the conduct of monetary policy, it is neither realistic nor appropriate for the Bank of Japan to adopt inflation targeting.

Fifth, when examining price stability, it is important to improve the quality of price indexes. Also, the authorities compiling statistics and academic circles should jointly engage in further studies on the compilation of price statistics under the progress of technological innovation. To this end, the Bank of Japan will continue to make further efforts.

4. Viewpoints on the Assessment of Price Stability

As stated in Section 3, it is difficult to express a definition or target of price stability in terms of some numerical values which can be valid for a long period. Needless to say, it does not mean that the Bank of Japan does not evaluate price developments for it conducts monetary policy by always examining whether there is a risk of price stability being impaired. Policy Board members have concluded that while it is not appropriate at present to express a definition of price stability by some numerical values which can be used as a guidepost in the conduct of monetary policy, it is possible and useful for the central bank to disclose viewpoints when judging price stability. Following are the three viewpoints the Bank of Japan considers important.

Examining the characteristics of price fluctuations in light of various indexes related to prices

Price indicators include CPI, WPI[3], CSPI (Corporate Service Price Index), and the GDP deflator. Such price-related indicators as commodity prices and the price diffusion indexes published in the *TANKAN* are also available. However, goods and services making up these indicators and compilation methods are different. If the change in price indexes shows either a large positive or a large negative, or if the change is rapid, we naturally judge that price stability is not being maintained. However, in reality it often happens that respective price indexes show different movement.

Factors responsible for different movement include the difference in the rate of increase in productivity, foreign exchange rates, international commodity prices, and technological innovation in the distribution sector. For example, until the 1980s, CPI inflation had been

[3] WPI will be renamed the Corporate Goods Price Index when the base year is changed to 2000, which is scheduled in 2002.

largely higher than domestic WPI inflation, partly because almost half of CPI is composed of services, whose rate of increase in productivity is relatively low, and also partly because CPI is affected rather strongly by an increase in wages reflecting that most of the service sector is labor intensive. In contrast, in the recent period, CPI inflation has been somewhat lower than WPI inflation. It appears that the following comprise part of the background to such a contrasting development: it takes time for the higher price of imported crude oil to permeate from producers to consumers; the distribution revolution has a stronger impact on CPI; and the recovery of the household sector is lagging that of the corporate sector.

Bearing the above points in mind, it is important to understand the factors behind the fluctuation in various price-related indicators and study the characteristics of such fluctuation when judging whether or not the general price level is stable. The points that we must study may be wide-ranging. In particular, we should focus on which factors, demand-side or supply-side ones, have a stronger impact on fluctuation, and whether fluctuation is of a temporary nature. The difference among various price indexes lies not only in the goods and services that they incorporate but also in the promptness of release and the reliability of preliminary figures, which is very important in the conduct of monetary policy. For example, while CPI and WPI are released relatively promptly, the GDP deflator has a lag of more than two months before release. Also, we have observed rather large discrepancies between preliminary and final figures in the case of the GDP deflator.

Sustainability of price stability

From the viewpoint of reducing uncertainty regarding decision-making by economic agents and contributing to the sustainable development of the economy, we should not simply aim at price stability at a particular point in time. For economic agents to rationally make decisions about savings and investment, it is an indispensable prerequisite to ensure that price stability will be continuously maintained in the future. In other words, it is important that there exist neither inflationary expectations nor deflationary expectations and that confidence in future price stability is being maintained. Since it takes a fairly long time before monetary policy has a visible impact on economic activity and prices, we need to carefully examine the risk surrounding future price movements from the viewpoint of the sustainability of price stability.

The risk surrounding future price movements cannot be judged only from the movement of price indexes. Thus, we need to meticulously examine the development of the macroeconomy and financial markets, which may affect future price movements. In this regard, the following three points are particularly important.

First is the utilization rate of resources. Considering that a higher resource utilization rate would eventually affect prices, we need to monitor such indicators as those related to supply-demand conditions in the labor market (e.g. the ratio of job offers to job applications, the unemployment rate, and the rate of change in wages), various diffusion indexes in the *TANKAN*, and the output gap. When the economy is undergoing drastic structural change as witnessed in the recent period, it is difficult to accurately estimate a reliable output gap, and it is not necessarily appropriate to excessively rely on this indicator.

Second is the effect caused by the fluctuation in foreign exchange rates. While it is true that the movement of foreign exchange rates tends to reflect the inflation differential between at home and abroad over the long run, in the short term it may be affected by such factors as capital flows and expectations about future foreign exchange rates. The fluctuation in foreign exchange rates has a large impact on prices, directly through the fluctuation in import costs and indirectly through the change in the balance between supply and demand. The effect on prices caused by the fluctuation in foreign exchange rates will vary depending on whether it is temporary or related to fundamentals. Furthermore, it also depends on whether inflationary expectations might be generated domestically. Thus, we need to examine these points in evaluating the effect of the fluctuation in foreign exchange rates.

Third is the information obtained from prices in financial markets. We can obtain information about expectations related to the outlook for inflation and the strength of economic activity which affects those expectations, from such market variables as long-term interest rates, the spread between short- and long-term yields, and stock prices. Some major foreign countries have issued government bonds with the yield indexed to inflation, and research has been undertaken to gauge inflationary expectations from the market price of these inflation-indexed government bonds. When we judge the sustainability of price stability, it is useful to take advantage of the information obtained from prices in various financial markets. At the same time, attention should be paid to the fact that market prices sometimes show volatile movement due to short-term speculation and that the reliability of market prices as a signal depends very much on the depth and liquidity of markets.

Consistency with the sound development of the economy

Monetary policy should be conducted primarily aiming at price stability because it is important for the stability of national life and also contributes to the sustainable development of the economy. In this context, the ultimate objective of monetary policy is the sound and sustainable development of the national economy.

But, the sustainable development of the economy cannot be achieved solely through price stability. It needs, in addition, the continuing improvement of productivity underpinned by technological innovation. Monetary policy cannot directly contribute to the improvement of productivity, but it can contribute most effectively to economic development by fostering a favorable economic environment, i.e. price stability.

Though very rare, we sometimes face rather complicated cases. For example, there is the case where sound economic development is not warranted even though measured price indexes are stable. There is another case where sound economic development is warranted even though measured price indexes rise or fall. Typically, the former is the case when a bubble emerges, and the latter where supply-side factors have a strong impact on price indexes. In either case, we need to make a multi-faceted evaluation of the development of the macroeconomy and financial markets, the activity of firms and financial institutions, and their interaction, in addition to the movement of price indexes in order to judge whether the movement of prices is consistent with the sound development of the economy.

5. Release of Forecasts Regarding the Economy and Prices

Thus far, the Bank of Japan has been making efforts to enhance the transparency of the conduct of monetary policy and to facilitate the public understanding of the Bank's assessment of price developments. For example, every month it makes public the assessment of the Policy Board regarding economic and financial developments in *Monthly Report of Recent Economic and Financial Developments*, and also the minutes of Monetary Policy Meetings. Policy Board members have discussed whether there is any room for further improvement to enhance the transparency of the conduct of monetary policy. In this regard, it was noted that the release of the forecasts of Policy Board members regarding the economy and prices in terms of some numerical values could be a potentially useful direction to enhance transparency of the conduct of monetary policy, considering that Policy Board members have their own respective judgments about the outlook and discuss the conduct of monetary policy based on such judgments. Policy Board members have discussed the feasibility of various options in this direction.

As a result, Policy Board members have agreed that release of the forecasts regarding the economy and prices would be effective in enhancing transparency of the conduct of monetary policy. In the course of discussions, the following reservations were noted.

First, by its very nature the outlook would depend on a number of hypotheses and assumptions regarding such elements as the development of overseas economies, foreign exchange rates, fiscal policy, and monetary policy. Forecasts in terms of numerical values would easily change depending on these assumptions. Thus, the question remains as to whether the release of forecasts in terms of numerical values would truly lead to enhancing transparency.

Second, it might well be the case that individual Policy Board members make their forecast based on economic theory and assumptions that might be different from each other. Is it feasible to consolidate these various views and judgments of Policy Board members that are created via different processes into a single forecast of the Policy Board?

Third, while it takes from one to two years or more for monetary policy to have a visible impact on the economy, the term of forecasts which could be sufficiently reliable is much shorter. Therefore, the central bank must conduct monetary policy with a view to minimizing risk related to prices to the extent possible, while bearing in mind the time horizon for policy which is longer than the time horizon for forecasts. What is important in the conduct of monetary policy is not any numerical values in the forecasts, but the judgment about factors related to the economy and prices which are behind them.

Fourth, if the limitations and implications of numerical values in the forecasts were not duly appreciated by market participants, the release of such forecasts might confuse views about monetary policy or a revision of the forecasts might immediately invite unfounded speculation of a policy change. For example, the divergence of the actual inflation rate from the forecast might immediately trigger speculation of a change in monetary policy. Or, spurious price stability as witnessed during the bubble period might lead to a view that there would be no change in monetary policy.

With these reservations in mind, the Policy Board of the Bank of Japan decided it appropriate, from the viewpoint of enhancing the transparency of the conduct of monetary policy, to start releasing *Outlook and Risk Assessment of the Economy and Prices*, which includes as a reference “Forecast of Policy Board Members” regarding inflation and the economic growth rate. The Policy Board has already been publishing the “Bank’s View” in *Monthly Report of Recent Economic and Financial Developments*, in which the outlook is mentioned. However, the newly introduced *Outlook and Risk Assessment of the Economy and Prices* is different from the “Bank’s View” in the following two ways. First is the time horizon. While the projection in the “Bank’s View” covers a relatively short period like a few months ahead, that in *Outlook and Risk Assessment* incorporates risks over a longer period of time.

Second, reflecting the difference in time horizon, while the “Bank’s View” puts more emphasis on the likely outcome, *Outlook and Risk Assessment* considers risks that are plausible, albeit with low probability, but which could have a large potential impact on the economy as well.

In order for forecasts made public by the Bank of Japan to serve the intended objective of enhancing the transparency of the conduct of monetary policy, it is an indispensable prerequisite that the limitations of such forecasts and their relationship with the conduct of monetary policy be duly understood. In releasing forecasts, the Bank of Japan will put emphasis not on numerical values, but on enhancing the transparency of the conduct of monetary policy by evaluating the risks that could endanger the economy and financial system from the viewpoint of price stability and the sustainable development of the economy and making public such evaluation.

Appendix: List of Articles Published by the Bank in the Course of the Study on "Price Stability" (In Order of Date of Release)

A. Bank of Japan Research Papers

Policy Planning Office, "*Sho-gaikoku ni okeru Infure-taagettingu* (Inflation Targeting in Countries Overseas)," June 2000.

Research and Statistics Department, "*Bukka shisuu wo meguru sho-mondai* (Some Issues in Price Indices)," August 2000.

----------,"Price-Setting Behavior of Japanese Companies – The Results of 'Survey of Price-Setting Behavior of Japanese Companies' and Its Analysis –," September 2000.

Policy Planning Office, "*Beikoku renpou junbi seido oyobi oushuu chuuou ginkou no 'Bukka no antei' ni tsuiteno kangaekata* (Concepts of 'Price Stability' adopted by the U.S. Federal Reserve System and the European Central Bank)," September 2000.

Research and Statistics Department, "Price Developments in Japan – A Review Focusing on the 1990s –," October 2000.

B. Staff Papers

(1) Working Paper Series Released by the Research and Statistics Department

00-10 Kimura, Takeshi and Tomoki Tanemura, "*Infure no fukakujitsusei to infure-ritsu suijun no kankei* (Inflation Rate and Inflation Uncertainty)," June 2000.

00-11 Kasuya, Munehisa and Kazuo Oshima, "*Infure kitai no henka to infure no kansei* (Expected Inflation Rate and Inflation Inertia)," July 2000.

00-12 Ueda, Kozo and Naoto Osawa, "*Infure-ritsu suijun to soutai kakaku hendou no kankei ni tsuite* (Rate of Inflation and Relative Price Changes)," July 2000.

(2) IMES (Institute for Monetary and Economic Studies) Discussion Paper Series

2000-J-22 Shiratsuka, Shigenori, "*Shisan kakaku to bukka: Baburu seisei kara houkai ni kaketeno keiken wo fumaete* (Asset Prices and General Prices: Some Implications from our Experiences in the Bubble Period)," September 2000.

2000-E-32 ----------, "Is There a Desirable Rate of Inflation?: A Theoretical and Empirical Survey," forthcoming.

(Other Related Publications)

Shiratsuka, Shigenori, "*Bukka no keizai bunseki* (Economic Analysis of Inflation Measures)," University of Tokyo Press, 1998.

Kimura, Takeshi, "*Meimoku chingin no kahou kouchoku-sei ni kansuru sai-kenshou – aru teido no infure wa roudou shijou no junkatsuyu toshite hitsuyou ka* – (Downward Nominal Wage Rigidity Revisited - Is a Certain Degree of Inflation Necessary to Mitigate Frictions in the Labor Market?)," Research and Statistics Department Working Paper Series, 99-4, Bank of Japan, November 1999.

Okina, Kunio, Masaaki Shirakawa, and Shigenori Shiratsuka, "The Asset Price Bubble and Monetary Policy: Japan's Experience in the Late 1980s and the Lessons," IMES Discussion Paper Series, 2000-E-12, Bank of Japan, May 2000.

Saison Research Institute, "*O-te Ryouhanten no POS de-ta wo riyou shita bukka shisuu ni kakawaru kenkyuu* (A Study on Price Indices Using POS Data of a Large Retailer)," October 2000.

Chart 1

The Bank of Japan Law
(Law No.89 1997)

(Objectives)

Article 1 The objective of the Bank of Japan, as the central bank of Japan, is to issue banknotes and to carry out currency and monetary control.

2. In addition to what is prescribed by the preceding Paragraph, the Bank's objective is to ensure smooth settlement of funds among banks and other financial institutions, thereby contributing to the maintenance of an orderly financial system.

(The principle of currency and monetary control)

Article 2 Currency and monetary control shall be aimed at, through the pursuit of price stability, contributing to the sound development of the national economy.

(Respecting the autonomy of the Bank of Japan and ensuring transparency)

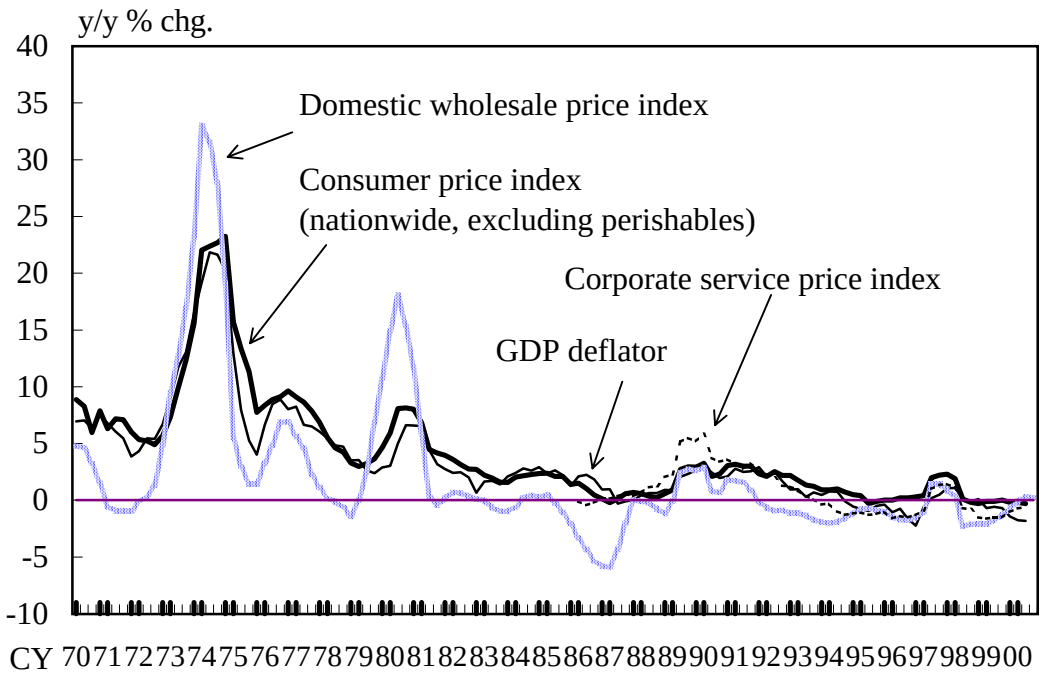
Article 3 The Bank of Japan's autonomy regarding currency and monetary control shall be respected.

2. The Bank shall endeavor to clarify to the public the content of its decisions, as well as its decision making process, regarding currency and monetary control.

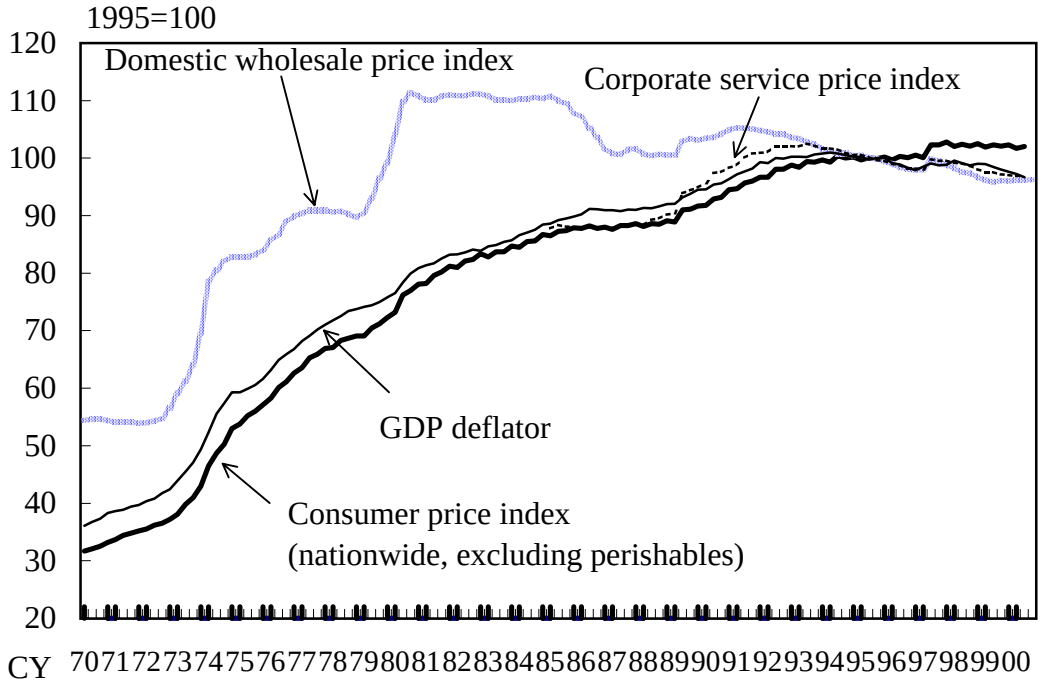
Chart 2

Price Indexes

(1) Changes from a year earlier



(2) Level



Note: The GDP deflator is calculated from nominal and real GDP (seasonally adjusted series).

Chart 3

Prices in Major Economies

(1) Consumer price index (CPI)

ann. % chg.

	Japan	United States	Germany	United Kingdom	France	Italy	Canada	G7
1971-1975	11.6	6.8	6.2	13.2	8.9	11.5	7.3	8.4
1976-1980	6.7	8.9	4.0	14.4	10.5	16.4	8.8	9.3
1981-1985	2.8	5.5	3.9	7.2	9.6	13.8	7.5	6.1
1986-1990	1.4	4.0	1.4	5.9	3.1	5.7	4.5	3.6
1991-1995	1.4	3.1	3.5	3.4	2.2	5.1	2.3	3.0
1996-1999	0.5	2.3	1.2	2.6	1.1	2.4	1.5	1.8
1971-1999	4.2	5.2	3.4	8.0	6.1	9.4	5.4	5.5

Notes: 1. Figures are the “CPI ALL ITEMS” in the OECD’s “Main Economic Indicators.”
2. Figures are simple averages of annual percentage changes for years in the period.
3. Figures for “G7” are weighted averages calculated by the OECD.

(2) Wholesale price index (WPI) / producer price index (PPI)

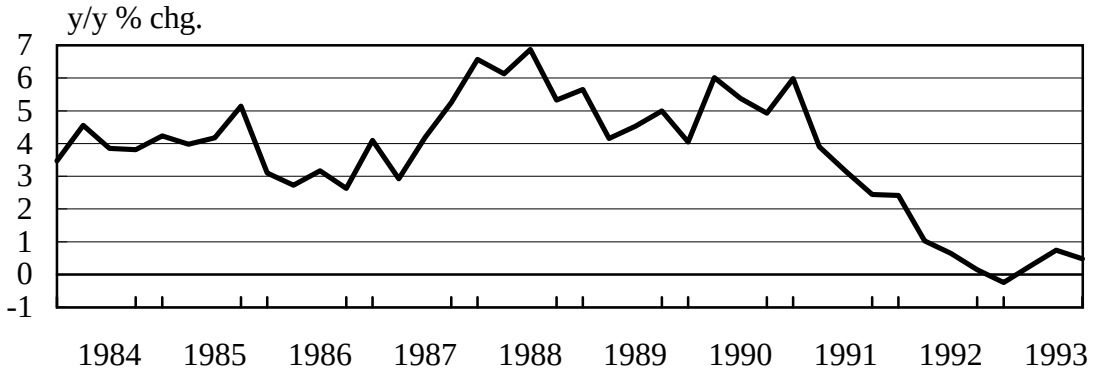
ann. % chg.

	Japan	United States	Germany	United Kingdom	France	Italy	Canada	G7
1971-1975	9.3	8.3	6.4	13.4	9.0	14.9	9.6	10.1
1976-1980	5.7	8.7	4.0	14.5	9.1	16.9	10.0	9.8
1981-1985	0.1	3.6	4.1	7.6	9.1	11.7	5.5	5.9
1986-1990	-1.0	2.7	0.2	3.9	1.5	3.1	2.1	1.8
1991-1995	-0.8	1.4	1.2	3.8	0.4	4.1	3.3	1.9
1996-1999	-1.0	1.0	-0.4	1.3	-1.4	0.8	0.7	0.2
1971-1999	2.2	4.4	2.7	7.6	4.8	8.8	5.4	5.1

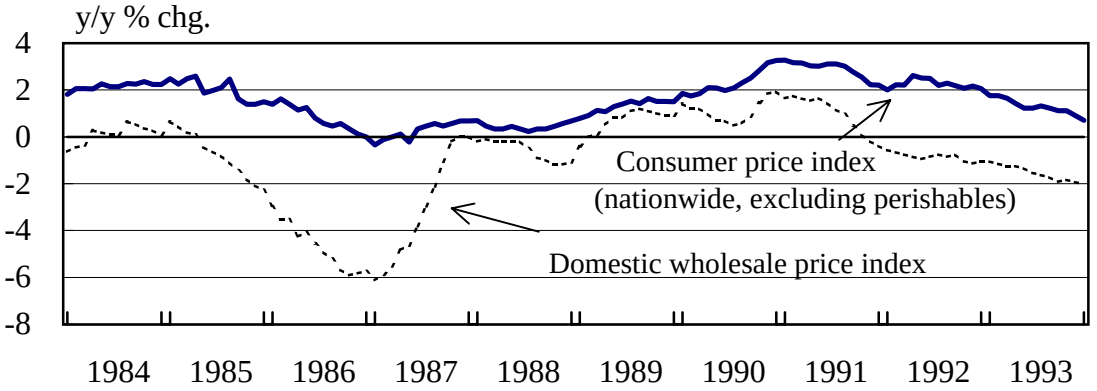
Notes: 1. Figures for the United States, the United Kingdom, Germany, France, and Canada are the PPI. Figures for Italy are the PPI from 1982 and the WPI before 1982. Figures for Japan are the WPI.
2. Figures are simple averages of annual percentage changes for years in the period.
3. Figures for “G7” are simple averages of the above countries’ data.

Economic Indicators in the Bubble Period

(1) Real GDP

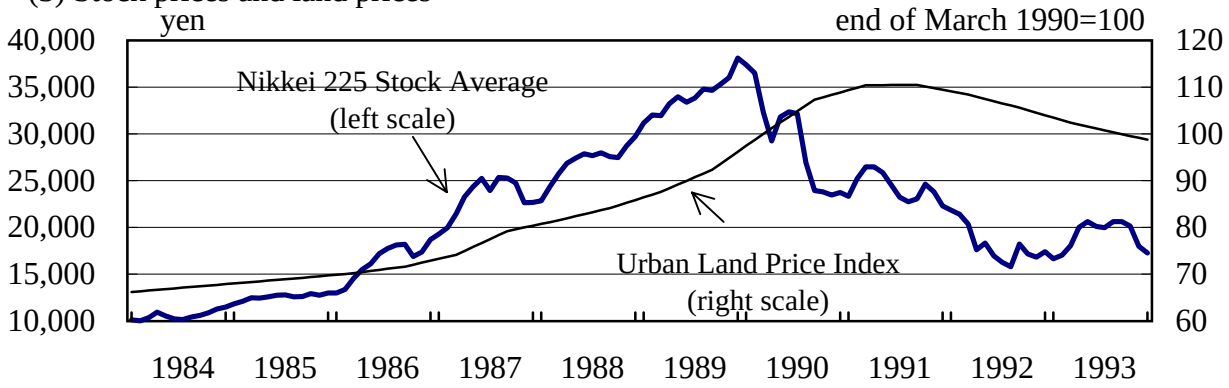


(2) Prices



Note: The effects of the introduction of the consumption tax in April 1989 are adjusted.

(3) Stock prices and land prices



Note: Average of residential, commercial, and industrial land (nationwide).

(4) Exchange rate