The Inflation Target for 2000

Ⅰ. Introduction

There is no doubt that price stability is a necessary prior condition for sustainable economic growth. The inflation consequent on price instability has a number of harmful influences. Firstly, it distorts income distribution and resource allocation, lowering economic efficiency; it causes rises in the cost of production factors such as wages, interest rates and land prices; and it results in a loss of international competitiveness by domestic industries. Secondly, it leads to myopic decision-making by economic agents due to rising uncertainties about the future economic situation and thus undermines the foundation for sustainable growth. This understanding of the consequences of inflation has induced central banks to conduct monetary policy with the objective of securing price stability.

Central banks generally carried out monetary policy in the 1970s making use of an intermediate targeting system whereby they set up an intermediate target such as a broad monetary aggregate and worked in accordance with it so as to achieve price stability. The rapid financial innovation and liberalization in the 1980s, however, blurred the distinctions between the monetary aggregates and destabilized the relationship between the real sector and monetary aggregates, greatly reducing the effectiveness of this method of conducting monetary policy. Thus, central banks started to grope for an alternative and turned their attentions to the potential of inflation targeting in the early 1990s as a new framework for the operation of monetary policy. Under it, the central bank specifies an inflation target and the focus of its monetary policy is placed on achieving it. An inflation target framework was first introduced in 1990 by New Zealand, and has spread to other countries such as Canada and the United Kingdom.

The inflation targeting system was introduced in Korea under the provisions of the fully-revised Bank of Korea Act[1] of 1997. The new Act is concerned to establish the neutrality and autonomy of monetary policy, with price stability declared as the sole objective of the Bank of Korea. Under its provisions, the Bank of Korea is required to set an inflation target every year and do its best to achieve it.

The Bank of Korea has set an annual target since 1998 in accordance with the related provisions of the Act. In this paper we discuss the operation of monetary policy under an inflation targeting system, survey its performance, and then consider the inflation target established for 2000 upon the decision of the Monetary Policy Committee following consultation with the Ministry of Finance and Economy.

Ⅱ. A Synopsis of the Inflation Targeting System

An inflation targeting system is a system of operating monetary policy in which the central bank sets up an inflation target within a pre-designated time horizon and makes use of the available policy instruments preemptively to attain that target. A central bank operates monetary policy under an inflation targeting system as follows. Firstly, it sets an inflation target in advance as an anchor for the operation of monetary policy over the medium term. Secondly, it forecasts the future inflation rate using information variables such as monetary aggregates, interest rates, the exchange rate, the expected inflation rate, asset prices, and key raw-material prices. It then formulates and implements monetary policy so as to converge the actual inflation rate on its established inflation target. Lastly, it reviews the performance of monetary policy and then feeds back the results into the monetary policy for the next term. Such a feedback process will lead to the convergence of the actual inflation rate on the inflation target over the long run and lead to the construction of a basis for price stability.

Only about ten years have passed since the inflation targeting system was first introduced as a new method of operating

1) Related codes of the Act:
Article 1(Purpose) The purpose of this Act shall be to establish the Bank of Korea and to contribute to the sound development of the national economy by pursuing price stability through the formulation and implementation of efficient monetary and credit policies.
Article 6(Formulation of an Operational Plan for Monetary and Credit Policies)
(1) The Bank of Korea shall set a price stability target every year in consultation with the Government and formulate and promulgate an operational plan for monetary and credit policies including this price stability target.
(2) The Bank of Korea shall do its best to achieve the price stability target as provided for in Paragraph (1).

operation under an improved framework. The major details are discussed in this chapter.

1. Improving the System for Setting the Inflation Target

A. Qualification of the Target by a Proviso

The Bank of Korea adopted the Consumer Price Index(CPI) in 1998 as the benchmark indicator when the inflation targeting system was first implemented. This is because the CPI was thought most appropriate as the key anchor for the operation of monetary policy as it represents the most familar indicator of inflation to the general public[2]. Additionally, the CPI was considered one of the most important macroeconomic indicators in the annual consultations that have been conducted since the currency crisis of 1997 between the International Monetary Fund and the Government of the Republic of Korea and the Bank of Korea in order to decide on policy options.

There are, however, some problems that arise in making decisions on monetary policy options based on the CPI and in reviewing the subsequent performance of the operations of monetary policy. The CPI is seriously affected by temporary or transitory shocks such as natural disasters or sharp fluctuations of international oil prices. In the case of supply-side-shock inflation attributable to those factors, there would be difficulties in absorbing the consumer price inflation by monetary policy and it would not in fact be desirable to counter these supply-side shocks through the conduct of monetary policy. For example, when external shocks such as an oil crisis cause consumer price inflation to soar beyond the range of the inflation target and bring about an economic recession, if the central bank tightened money supply in order to contain the inflation rate within its target range, the economic recession would deepen more rapidly but inflation would not be effectively suppressed. Solving such problems requires a supplementary scheme whereby the sharp fluctuations in price inflation attributable to external shocks do not have a serious impact on monetary policy when the central bank sets up the inflation target.

Taking this into consideration, the Bank of Korea when adopting the CPI as the benchmark inflation indicator in setting its inflation target for 1999 added a provisory clause that the benchmark indicator should exclude changes in the inflation rate caused by *force majeure* such

2) Those countries which introduced inflation targeting before Korea without exception adopted the Consumer Price Index(Retail Price Index in the case of the United Kingdom) as the benchmark indicator in order to set the inflation target. This is because the CPI satisfies the characteristic criteria, such as recognition, promptness, etc., required of a benchmark indicator for the operation of monetary policy better than other inflation indicators such as the GDP deflator or the Producer Price Index.

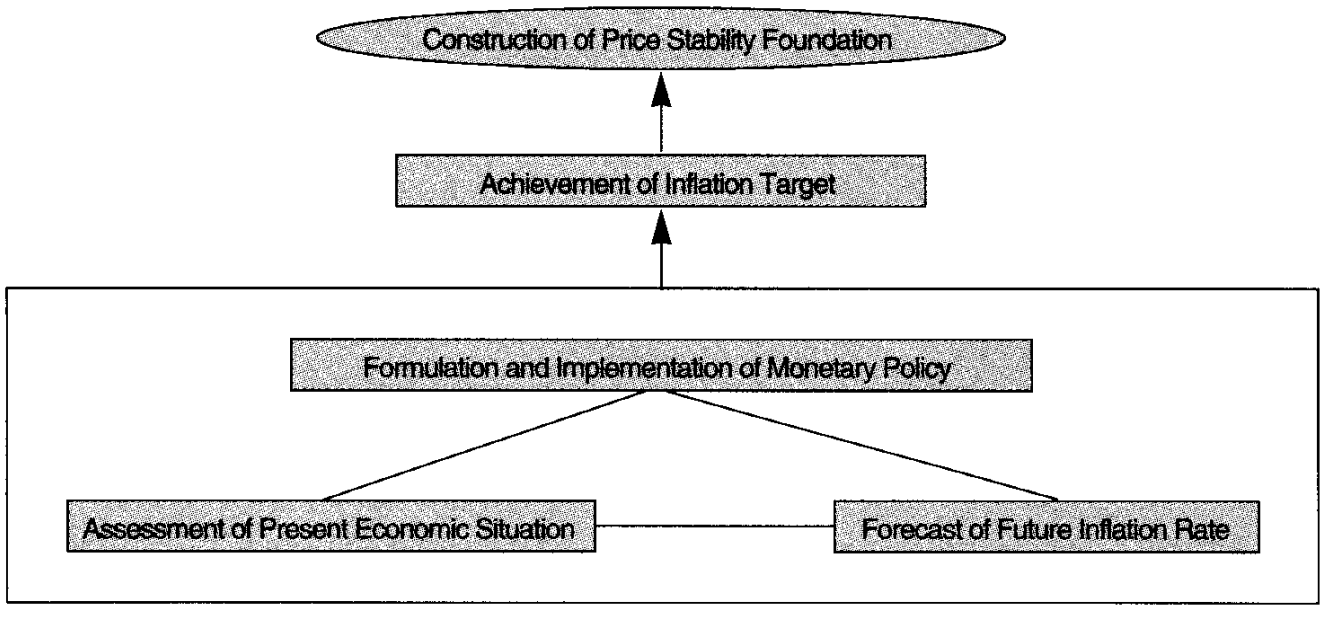
monetary policy and only about ten countries have introduced the system. So its performance cannot yet be reviewed thoroughly at the present stage. The experience of these countries, though, generally shows that the effectiveness of monetary policy has improved since the introduction of the system.

Viewing the macroeconomic indicators, most countries experienced more stable prices and higher economic growth, and reduced public expectations of inflation after the introduction of an inflation targeting framework, although it is difficult to set an exact figure on the contribution to this made by inflation targeting. Central banks in these countries previously had multiple objectives in monetary policy including economic growth, price stability, the balance of payments, and full employment. Those objectives were simplified to the single objective of price stability with the introduction of the system and the independence and neutrality of the central bank was strengthened. Moreover, the general assessment is that the credibility of the central bank's monetary policy was heightened in the view of economic agents and that effectiveness of its monetary policy was raised correspondingly.

Ⅲ. The Inflation Target for 2000

In setting the inflation target for 2000, the Bank of Korea's principal consideration was to construct a firm basis for price stability as a necessary prior condition for sustainable economic growth. In this context, it refined the system for setting the inflation target and established the inflation target for 2000 with a view to raising the effectiveness of monetary policy and maintaining consistency in its

[Chart 1] Operation of Monetary Policy under an Inflation Targeting System



as price fluctuations of agricultural products attributable to natural disasters and price adjustments due to the revision of tax legislation. However, it was found problematic to apply such a conditional clause in practice even if the actual economic situation warranted it, because there were no specific descriptions and objective criteria attached as to which situations could be acknowledged as cases of *force majeure* and no procedures that could be applied in dealing with cases of *force majeure.*

Reviewing this situation, the Bank again decided to adopt the CPI as the benchmark inflation indicator in setting its inflation target for 2000 as in 1998 and 1999, but to clarify the provisory clause so that monetary policy should be formulated and implemented on the basis of the underlying trend of prices.

There are various methods of adjusting the CPI to find the underlying trend of prices. Among them, the most popular method is that of identifying and then excluding items of the CPI which are most highly volatile in response to external shocks[3]. The Bank of Korea judged this method best suited for the adjustment of the CPI in Korea, and selected the excluded items as follows.

On the basis of historical data and experience, it was thought most reasonable that they should be selected from among those agricultural, livestock, and marine products whose prices fluctuate substantially depending on the harvest and from those manufacturing industrial products most sensitive to changes in the international prices of the raw materials due to an input structure in which key parts are imported from overseas. First, we identify one hundred and twenty-four items among the five hundred and nine items making up the Consumer Price Index basket. Of these, seventy-six are agricultural, livestock, and marine products and forty-eight are manufactured industrial products(including piped natural gas) in whose input structure the import dependency is higher than the

3) There are several methods that adjust temporary or transitory factors having influences on the CPI in order to find the underlying trend of prices. Firstly, after identifying items whose price transitory shocks cause to fluctuate sharply in historical data, these items are excluded from the CPI. Secondly, after identifying the items whose prices fluctuate greatly ex post, their price fluctuations are excluded from the CPI. For example, after arranging in order the price changes of all items which are included in the basket of the CPI, their price changes at two margins are excluded from the CPI. Thirdly, after ranking the price changes of all items in the basket of the CPI in order, their weighted median is regarded as core inflation which best reflects the underlying trend of prices. Lastly, in cases where the CPI is thought to be changed not by permanent and regular shocks but by temporary and transitory shocks, the price changes by the latter are estimated and then excluded from the CPI.
There are some advantages and disadvantages to each method. However, the first method, that of excluding without exception the price changes of items selected in advance, is esteemed as the most practical because this method can not only be understood more easily and be calculated more conveniently than other methods but objectivity and credibility are obtained once it is acknowledged that the excluded items are selected on a rational basis.

average for manufacturing[4]. The standard deviations of the year-on-year change of the prices of the selected items are then reviewed. The analysis shows that the

[Table 1] Items with High Price Volatility

Classification of Subdivision[1]		Items Whose Standard Deviation of Price Changes Is Larger than Fifteen Per Cent[2]
<Agricultural, Livestock and Marine Products>	(67.6/144.8)	—
Cereals	(1.7/29.7)	Glutinous Rice<34>, Soybeans<15>, Redbeans<24>
Vegetables	(19.6/23.4)	Radishes<28>, Young Radishes<26>, Chinese Cabbages<31>, Cabbages<49>, Welsh Onions<145>, Onions<80>, Spinach<29>, Lettuce<52>, Carrots<37>, Cucumbers<22>, Pumpkins<21>, Eggplants<19>, Tomatoes<27>, Potatoes<44>, Sweet Potatoes<17>, Unripe Hot Peppers<23>, Perilla Leaves<16>, Scallions<18>
Fruits	(23.3/23.3)	Apples<27>, Pears<25>, Peaches<17>, Grapes<27>, Persimmons<33>, Chestnuts<54>, Mandarin Oranges<49>, Oranges<19>, Melons<20>, Watermelons<31>, Strawberries<16>, Bananas<31>, Dried Persimmons<15>
Other Agricultural Products	(9.8/11.0)	Red Peppers<29>, Red Pepper Powder<23>, Garlic<32>, Ginger<47>, Ginseng<25>, Fresh Flowers<19>
Livestock Products	(2.3/33.0)	Chickens<17>
Marine Products	(10.9/24.4)	Hairtail<27>, Walleye Pollack<31>, Mackerel<39>, Frozen Squid<17> Oysters<15>, Dried Anchovies<29>, Dried Pollack<19>, Salted Roe of Pollack<17>
<Manufacturing Industrial Products>	(40.4/375.4)	—
Processed Food	(3.4/69.3)	Wheat Flour<20>, Cooking Oils<21>, Sugar<21>, Instant Coffee<18> Whisky(imported)<15>
Textile Products	(—/76.7)	—
Durable Products	(—/82.0)	—
Publications	(—/18.9)	—
Petroleum Fractions[3]	(35.1/43.5)	Kerosene<18>, Light Oil<20>, Gasoline<15>
Medicine and Cosmetic Products	(—/31.3)	—
Other Industrial Products	(1.9/53.7)	Paint<15>, Plywood<18>, Films<20>, Cigarettes(imported)<16>

Notes : 1) In (A/B), A refers to the sum of the weights in the Consumer Price Index of those items the standard deviation of whose year-on-year price changes using monthly data is larger than the average(fifteen per cent level) of the total of one hundred and twenty-four items. B refers to the weight of the relevant subdivision of the Consumer Price Index.(Total sum of the weights in the Consumer Price Index is one thousand.)

2) Figures in angle brackets < > refer to the standard deviation of the year-on-year price changes.

3) Gasoline, kerosene, light oil, liquified petroleum gas, and piped natural gas.

4) The forty-eight items of manufacturing industrial products are selected on the basis that the input coefficients of imported goods in input-output statistics 1995 are larger than the average coefficient of total manufacturing industrial products and piped natural gas. Piped natural gas is included in manufacturing industrial products as its input structure is similar to manufacturing industrial products even though it is classified as a public service in the Consumer Price Index due to price-setting by local governments.

standard deviations of a set of items which includes all CPI components in fruits, about eighty per cent of vegetables, about ninety per cent of other agricultural products and eighty per cent of petroleum fractions[5] are larger than the average standard deviation(fifteen per cent level) of the total of one hundred and twenty-four items identified. It means that the price volatility of this set of items is greater than that of other items.

This analysis implies that the possibility that the CPI cannot reflect the underlying trend of price movements exactly becomes greater when the prices of vegetables, fruits, other agricultural products, that is, agricultural products except cereals, and petroleum fractions fluctuate temporarily and transitorily within a wide range and in isolation from price changes in other items. It follows that a measure of core inflation which strips out price changes of these items needs to be utilized as a benchmark so that the effectiveness of monetary policy can be secured.

In consideration of the above analysis, the Bank decided to clarify that the CPI would continue to be adopted as the benchmark from 2000 onwards, but that it would be defined in terms of core inflation which strips out from the index the price changes of petroleum fractions and agricultural products except cereals.

B. The Introduction of a Mid-term Inflation Target

The Bank of Korea used short-term inflation target with a one-year time horizon when it established the inflation targets for 1998 and 1999. However, there is a time lag before monetary policy's effects are felt in the various economic sectors. And once they begin to be felt, they continue for a long time. An analysis of the relationship between CPI inflation and other key monetary variables in a sample period from 1987 to 1999 shows the following results. The CPI inflation rate maintains a high positive correlation with M3(average) for a considerable period. While the call money rate initially has a positive correlation, this turns negative after the fourth quarter and becomes more deeply negative the farther out from the original event.(See [Table 2].)[6]

These analytical results imply that the Bank would suffer a great deal of difficulty if it formulated and implemented monetary policy focusing only on the goal of achieving the short-term inflation target for that one year. Additionally, such a myopic monetary policy does not utilize one of the main merits of the

5) Including gasoline, kerosene, light oil, liquified petroleum gas, and piped natural gas.
6) Considering the possibility of changing relationships among economic variables after the currency crisis, separate analysis is made for two periods: the period 1987 to 1997 excluding the currency crisis, and another from 1987 to 1999 which includes the currency crisis.

[Table 2] **Correlation Coefficients between the CPI Inflation Rate and Key Monetary Variables[1)]**

Time(quarter)	1	2	3	4	5	6	7	8	9	10
<CPI Inflation and M3(average)>[2)]										
1987~97	0.48	0.51	0.52	0.51	0.46	0.43	0.38	0.33	0.33	0.33
1987~99	0.46	0.48	0.50	0.48	0.44	0.42	0.39	0.35	0.33	0.30
<CPI Inflation and Call Money Rate>[3)]										
1987~97	0.38	0.20	0.06	-0.01	-0.05	-0.09	-0.13	-0.17	-0.24	-0.29
1987~99	0.57	0.35	0.07	-0.20	-0.29	-0.21	-0.10	-0.09	-0.14	-0.19

Notes : 1) All figures are computed with quarterly data, and the CPI inflation rate and M3(average) increase rate are compared with the same period of the preceding year.
2) Figures refer to the correlation coefficients between the M3 growth rate in time t and the CPI inflation rate in time (t+1).
3) Figures refer to the correlation coefficients between the call money rate in time t and the CPI inflation rate in time (t+1).

inflation targeting system, which is to give the public the confidence that the central bank will formulate and implement monetary policy consistently to keep the inflation rate stable over the mid-term horizon, thus eliminating concerns over an inflationary spiral.

The Bank of Korea therefore resolved to set, in addition to an annual inflation target for the coming year, a mid-term inflation target from 2001 onwards, so as to maintain the consistency of monetary policy over the medium term. The mid-term inflation target was set at the same level as or lower than the short-term inflation target for the year in order to inspire confidence that the Bank would keep inflation low and stable in the long run.

2. Establishment of Inflation Target for 2000

Over the course of 1999, the Consumer Price Index rose by 0.8 of a percentage point compared to the previous year and remained well below the inflation target of three per cent initially set by the Bank at the beginning of the year, within a range having a tolerance of one percentage point either way. The much lower level of inflation than expected in 1999 is considered to have been brought about by the following factors. Firstly, the Korean economy in 1999 expanded more rapidly than anticipated in 1999 thanks to the increase of exports and consumption and the recovery of facilities investment. But supply capacity being adequate to absorb the increase of aggregate demand, excess demand pressures did not arise on the supply side. Secondly, although there were inflationary pressures such as the continuing rise of international oil prices present on the production cost side, they were offset by the following strongly deflationary fac-

tors: the reduced costs of imports due to the continuing appreciation of the Korean won, the reduced burdens of financial costs borne by business firms owing to improved financial structures, and the easing of interest rates and decline in manpower costs reflecting the improved labor productivity and labor market flexibility. Thirdly, price competition between retailers became intense in the fight to secure customers in the severe economic depression after the currency crisis and there was an additional effect from the heightened price sensitivity on the part of consumers after the crisis.

However, consumer price inflation is forecast to accelerate in 2000 for a combination of reasons. Viewing the supply side, international oil prices are predicted to remain substantially higher in 2000 than in 1999 on the basis of annual average prices, even though they may shift downward following the easing of its quota reduction policy by the Organization of Petroleum Exporting Countries(OPEC). Additionally, the prices of resources other than oil are expected to see a rising phase due to the increasing demand caused by worldwide economic expansion. The recent higher level of wage settlements is also projected to cause the production costs of business firms to increase. On the demand side, the economy is anticipated to grow at seven per cent in 2000, being fueled by the strong increase of consumption and facilities investment, the continuing rise of exports, and the shift of construction investment to a positive trend. Such continuing economic expansion is strongly predicted to raise inflationary pressures substantially on the demand side. Putting it all together, consumer price inflation is expected to rise by three per cent on an annual average basis, while core inflation, which strips out the prices of petroleum fractions and agricultural products except cereals from consumer prices, is predicted to rise less than three per cent.

Taking into account the economic forecasts, the inflation targets in advanced countries, and the inflation rates that should be aimed for in the future in Korea, the inflation target for 2000 was established as described below.

The Bank set the mid-point of the inflation target for 2000 as 2.5 per cent based on the annual average increase in consumer prices. That the mid-point chosen was lower than both the inflation forecast for 2000 and the mid-point of the inflation target for 1999 reflected the judgement that the strengthening of the foundation for price stability was required above all for the prevention of the spread of inflationary expectations. Of course, as mentioned above, the Bank added a caveat, clarifying that the target was defined in terms of benchmark inflation stripping out the prices of petroleum fractions and agricultural products except cereals from consumer prices, because

monetary policy had to be shielded from the impact of temporary and transitory shocks and should be formulated and implemented to reflect underlying price trends. Additionally, considering an economic environment in which it is problematic to predict the underlying inflation trend accurately due to uncertainties in global economic movements, such as the exchange rates of the Korean won and the Japanese yen against the US dollar and international raw material prices, a range of one percentage point above or below the mid-point was tolerated.

Consequently, an inflation target of 2.5 per cent with a one percentage point range above or below the mid-pont was set in terms of benchmark core inflation that strips out the prices of petroleum fractions and agricultural products except cereals from consumer prices. The Bank also resolved to strive to keep core inflation at the 2.5 per cent level on an annual average basis each year after 2001. The mid-term target was quoted as a point target without a toleration band, because it was judged more important to demonstrate the strong commitment of the central bank to prevent the spread of inflationary expectations among the public than to take economic uncertainties into account.