

# *Inflation Targeting—The Swedish Experience*

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We in Sweden owe a great debt of thanks to the Bank of Canada for all the help we have received in recent years. We have greatly benefited from Canada's experiences with a floating exchange rate. Not only is our policy framework influenced by Canada's, but so is much of our more detailed work, for instance on the modelling side.

In my remarks I take the basic inflation-targeting framework as given. On the whole it has, in my opinion, served us well. I deal here with three topics or questions that have been raised by current developments in Sweden. First, how should one look at the *speed of adjustment* to a set target? A trade-off with the growth of output is involved here. Perhaps more important in practice is how to treat problems of uncertainty and credibility. These are factors that have influenced our policy. Second, for small open economies a particularly important factor for inflation is the *exchange rate*. How to treat the effects of changes in this variable, given the uncertainty surrounding it, has been one of our main concerns. Finally, there is the problem of how to *specify the target* itself. There might be some useful experiences to draw from our recent history.

Before dealing with these questions, however, let me present a brief background on what has happened in Sweden during the last few years.

## **1 History**

In November 1992, after a heroic defence, the fixed exchange rate regime collapsed. A few months later, in January 1993, the Governing Board

of the Riksbank adopted a new monetary policy regime based on a floating exchange rate and an inflation target.

In 1991-93, Sweden experienced the most severe recession since the 1930s. Since then the economy has recovered substantially, growing at more than 2.5 per cent a year, which is above the average for recent decades. In 1996 growth slowed significantly, but now the economy is set to expand at a steady, strong rate in the years ahead (Figure 1).

Public finances deteriorated rapidly during the recession but a marked improvement has now been achieved thanks to the stronger economy as well as substantial budget consolidation measures totalling around 8 per cent of gross domestic product (GDP) between 1994 and 1998 (Figure 2).

The recession in the early 1990s brought inflation down to around 2 per cent (Figure 3). The path of inflation has continued to be good during the subsequent years of strong growth. This has been accompanied by a substantial downward revision of inflation expectations (Figure 4).

A blot on our record is unemployment, which is stubbornly high and far above historical standards. The problems here have to do with the structure of wage-setting and the labour market.

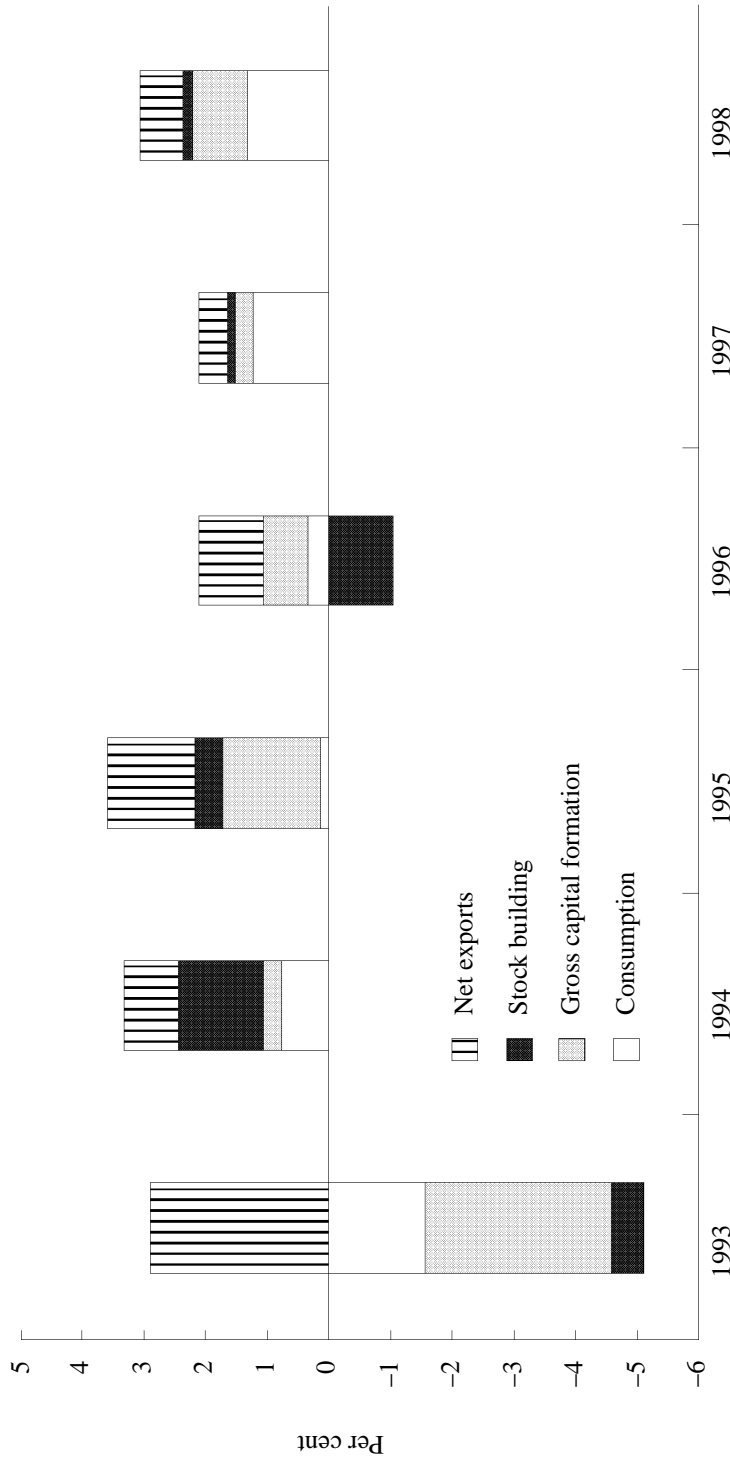
## **2 The Speed of Adjustment to the Target**

I turn now to my first topic—the speed of adjustment to the target and the output-inflation trade-off. Our Governing Board's original decision contains just a brief reference to output and employment. As a general argument for adopting the new strategy, the decision states that “price stability is a prerequisite for sustained economic growth as well as full employment.” It refers, in other words, only to the view that in the long run the relationship, if there is one, between the rate of inflation and the rate of unemployment has a positive slope. The more relevant question concerns the role of output and employment stabilization in the actual conduct of monetary policy in the short to medium term.

The issue might be considered simple as long as the central bank has only one objective, price stabilization. Given the lags in the effects of monetary policy, the strongest impact on inflation does not occur until perhaps one to two years after policy has been changed. If the inflation forecast for the coming two years indicates that the inflation target will be missed, monetary policy should be adjusted to bring the inflation forecast back into line with the target.

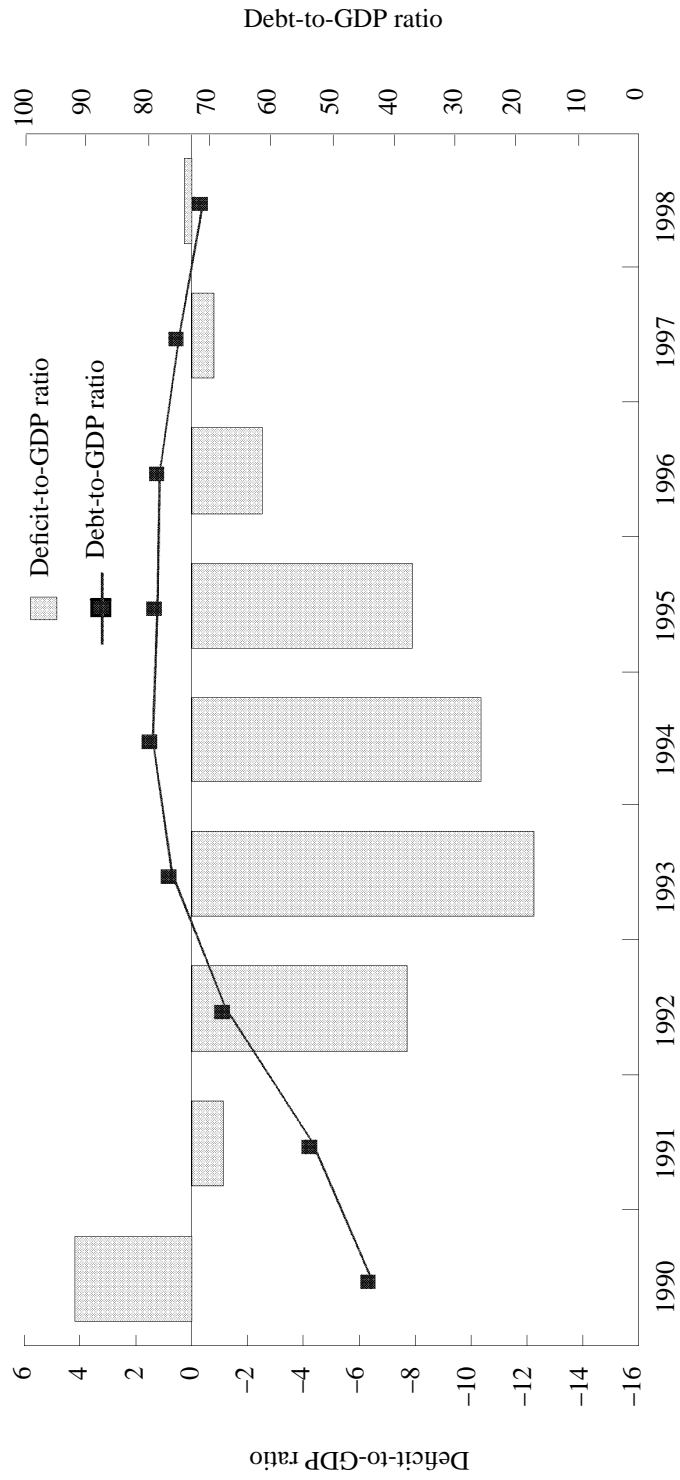
However, the world is not quite that simple.

**Figure 1**  
**Composition of Growth, Sweden, 1993-98, Percentage Contributions**



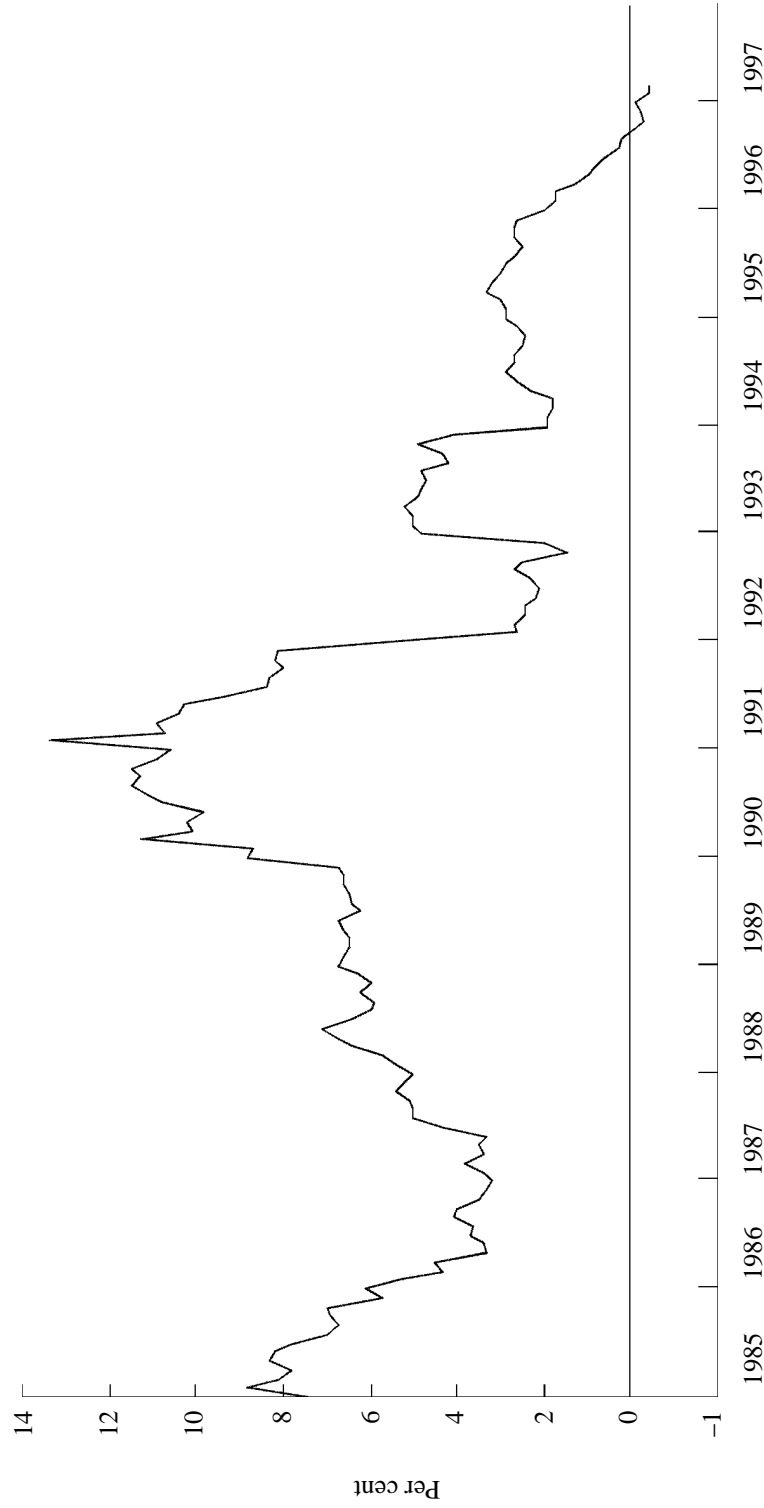
Source: Statistics Sweden; 1997-98 forecast by National Institute of Economic Research.

**Figure 2**  
**General Government Debt and Deficit, Sweden, 1990-98,**  
**Per Cent of GDP**



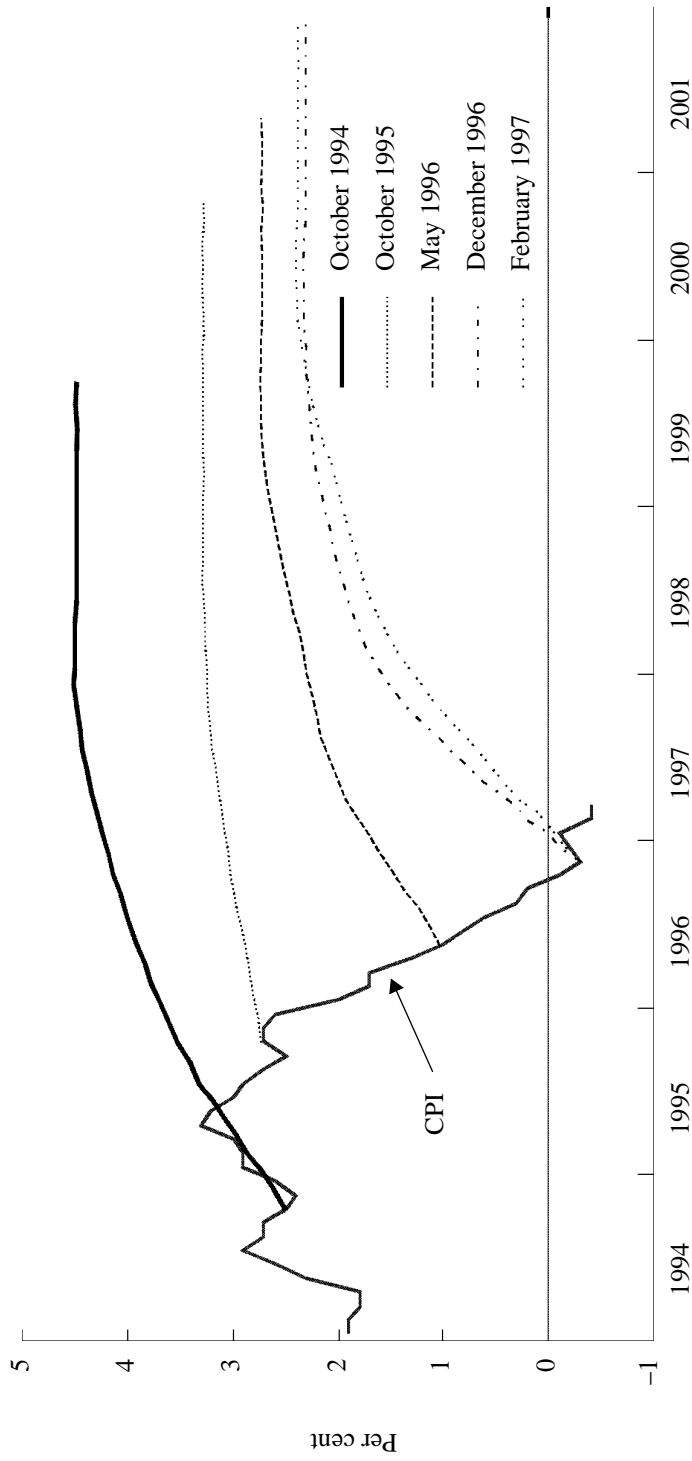
Source: Statistics Sweden; 1997-98 forecast by National Institute of Economic Research.

**Figure 3**  
**CPI, Sweden, 1985-97, 12-Month Percentage Change**



Source: Statistics Sweden.

**Figure 4**  
**Money Market Agents' Inflation Expectations, Sweden, 1994-2001**



Sources: Statistics Sweden and Prospera Research.

First, no central bank is an “inflation nutter”—that is, concerned only with inflation. For all practical purposes it is concerned about *output and employment variability*. In other words, it assigns a positive weight to output stabilization. In the example above, instead of trying to adjust the two-year inflation forecast all the way to the inflation target, the central bank could let it return gradually to the long-run inflation target. The greater the weight given to output stabilization, the more gradual the adjustment of the inflation forecast towards the target (“flexible inflation targeting”).

The target bands that are a typical component of an inflation target regime can be interpreted as an implicit way of assigning weight to output stabilization.

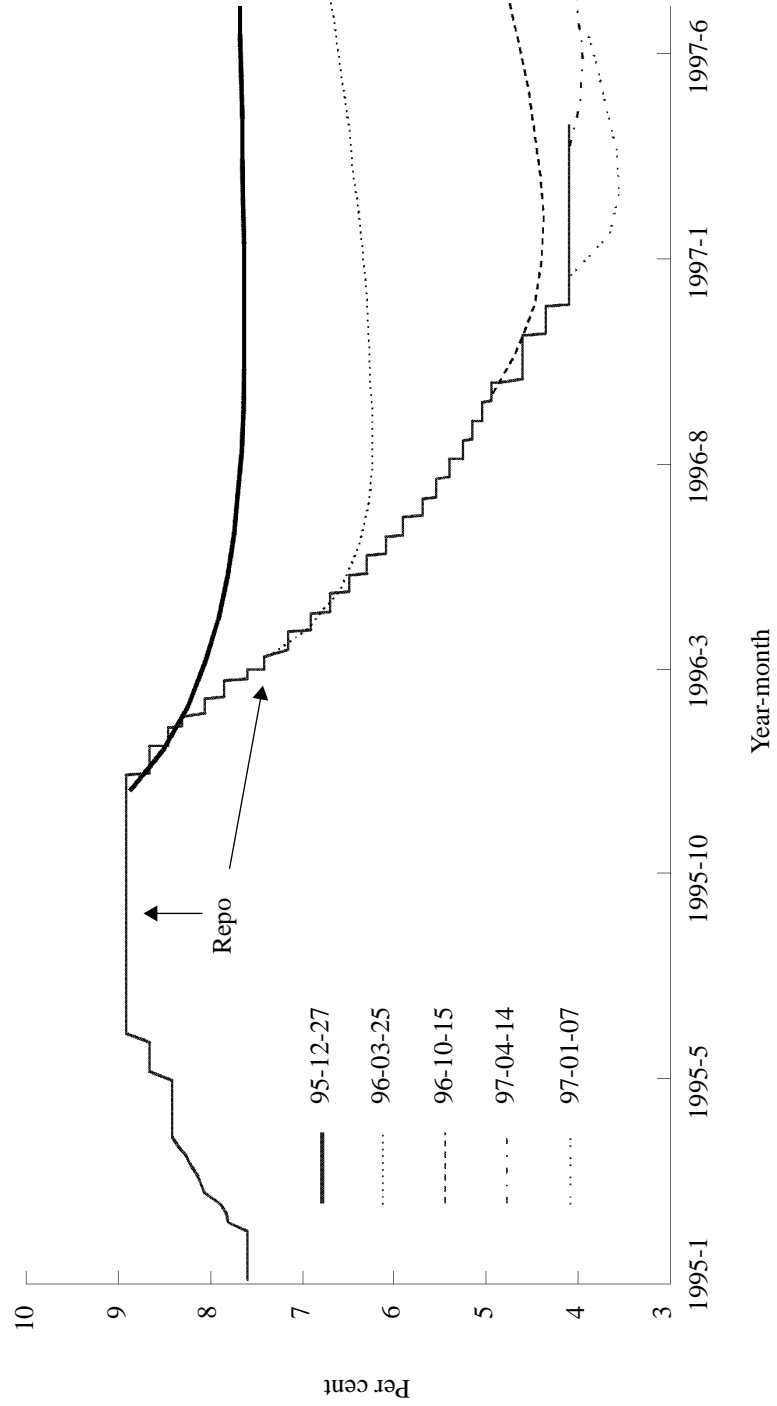
Second, the question of how in this framework to deal with *uncertainty* has been very important in practice. Uncertainty can stem from many factors. Not knowing the exact model of the economy is obviously one. Another is how to evaluate shocks to the economy or new information in general. If, for example, the central bank were to overestimate the inflation forecast’s deviation from the target, or underestimate the effect of a change in its policy interest rate, it would risk raising the rate too much. Then the policy would eventually appear excessively restrictive and the central bank would have to reverse its stance. This could create instability and magnify cyclical movements. Thus, there are reasons to proceed with caution in changing the policy stance. Hence, central banks would tend to move the policy interest rate in rather small steps.

A third issue of practical importance has to do with *credibility and tactics*. If a central bank is worried that its policy suffers from low credibility, this ought to affect the speed with which the rate is cut. Drastic cuts can lead to an increase in inflation expectations, affecting the room for further cuts. In this case the central bank may have to keep its policy interest rate higher than the forecast would seem to require.

Developments in 1996 illustrate policy effects resulting from uncertainty and worries about lack of credibility. At the beginning of the year the Riksbank concluded that activity was weakening and inflationary pressures were abating. Both the demand situation and indicators of inflation expectations pointed in the same direction (Figure 4). However, forecasts from private sector actors were still not in line with the Riksbank’s target, and neither were expectations, although they were coming down rapidly. Nevertheless, at the Riksbank we began to ease monetary policy.

Initially we chose to cut the repo rate at fairly regular intervals, in steps of 25 basis points (Figure 5). We were not sure of our forecasts. Our concern was also that the easing would be interpreted by the markets as evidence that the Riksbank was giving in to pressures for an easier monetary

**Figure 5**  
**Actual and Expected Repo Rate, Sweden, 1995-97**



Source: The Riksbank.



stance, with possible negative effects on the krona in particular. The series of small cuts in the repo rate continued until the end of the year. By then we had lowered the repo rate by altogether 4.8 percentage points. With the benefit of hindsight, it might be argued that we had more credibility than we thought and could have made larger cuts during the spring. However, not even this argument is self-evident since credibility was strengthened during the spring by new information on the budget and inflation.

### 3 The Exchange Rate

In small open economies the exchange rate is clearly one of the factors most strongly correlated with inflation. At the same time, in recent years this variable has fluctuated a great deal for reasons that are not always easy to understand. How to handle exchange rate movements in current policy depends above all on what caused the movement and how it is expected to affect the future rate of inflation. Different causes can be distinguished.

First, a nominal depreciation could be initiated by a need for a *real exchange rate depreciation* due to a real disturbance. This situation is easy to deal with, since it does not normally require any policy action. In practice, however, real developments have not been important for the exchange rate fluctuations of recent years.

Second, a nominal depreciation could also result from a revision by the market of its views on the *credibility of the Riksbank's inflation policy*. Such a revision could stem from a loss of operational credibility—that is, the ability of the Riksbank to fulfil the declared monetary policy target, primarily affected by the conduct of monetary policy. This case is also relatively easy to deal with, at least in principle. Probably interest rates will have to be raised.

More difficult to deal with is a third situation in which the exchange rate depreciates as a consequence of a reduction in *political credibility* in a more general sense. Investors' expectations of the probability of a regime shift, whereby the present price-stability target would be abandoned, may have risen, at least temporarily. In Sweden during the 1990s this has probably been the most common reason behind the frequent periods of currency turbulence. Public finances have been the focus of attention. In these situations monetary policy cannot do the job by itself. In fact, raising rates can even be counterproductive in the short run, making budget consolidation even more difficult. Nevertheless, the only alternative might be to react and raise rates to demonstrate that the central bank will do what it can. At the same time, we must do everything possible to influence fiscal policy in the right direction.

A fourth, often complementary, reason for a change in the nominal exchange rate could be a *financial disturbance in the foreign exchange or capital markets*. If such a disturbance is believed to be purely a market phenomenon, it need not affect the central bank's credibility. But this is not usually the case. What we have seen—as after the bond market crash of 1994 or during the turbulence caused by the Mexican and the Barings situations in 1995—is an interaction of market developments in a more limited sense and poor public finances or other credibility problems. Higher international rates or currency weakness made the public finance problems more severe, moving an economy such as Sweden's from virtuous to vicious circles.

And finally, since the exchange rate is a relative price, a fifth possible reason is of course that *something may happen in another country* that affects the bilateral exchange rate with the krona.

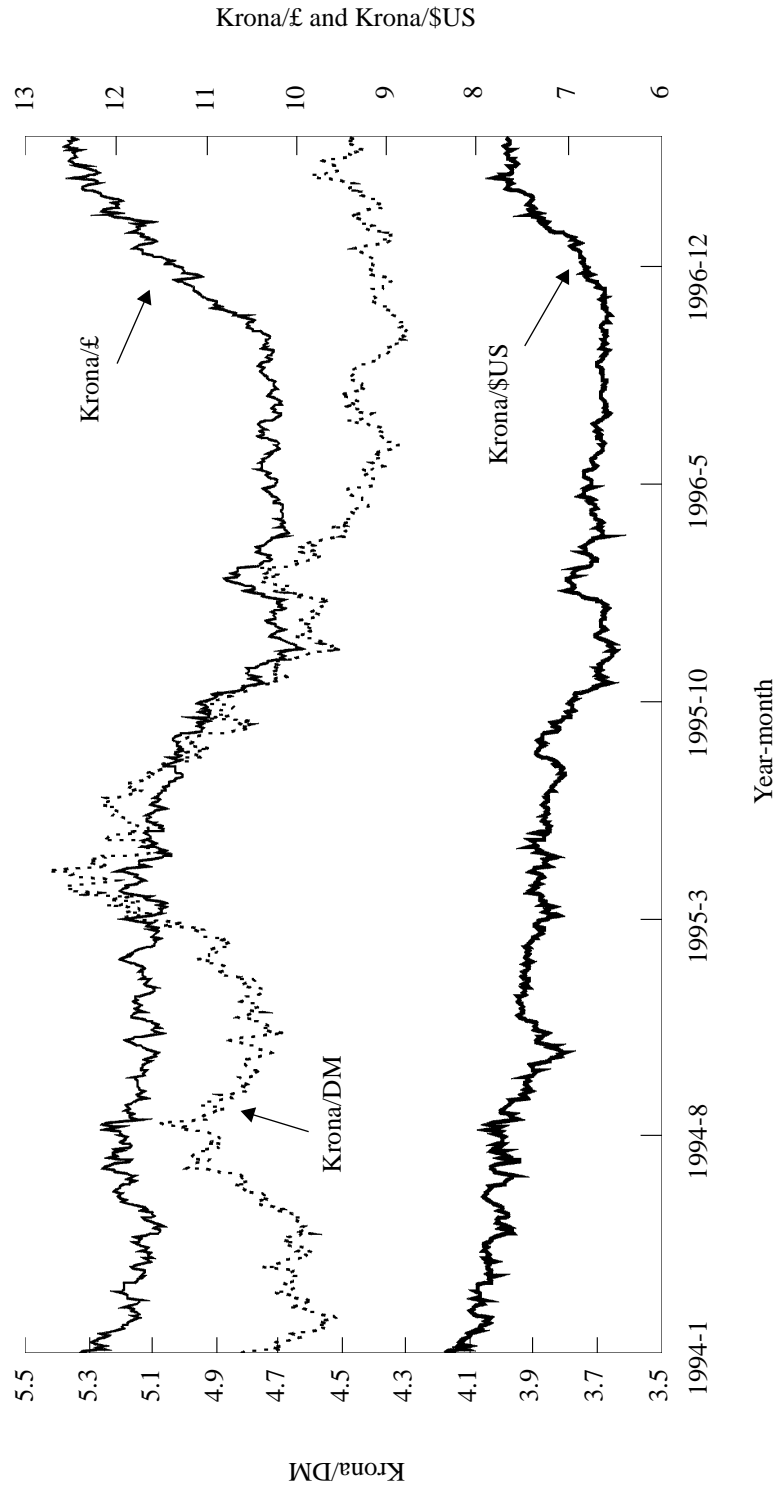
Our experience during the last half year is a good illustration of the problem of identifying the reasons for movements in the exchange rate.

At present, economic developments in Sweden suggest that there is room for an appreciation of the krona. We have a large current-account surplus, favourable information about future inflation, and considerably better government finances than before. We are, in fact, one of the relatively few European Union countries likely to satisfy the Maastricht budget criterion this year with some margin. Despite this, between October 1996 and May 1997 the krona has depreciated in effective terms by some 6 per cent.

Probably there are effects related to the business cycle and the stance of monetary policy. In recent months the dollar and sterling have appreciated relative to other currencies, including the krona (Figure 6). In the United States and the United Kingdom, monetary policies have been relatively tight. The krona has also been affected, however, by unrest connected with the process of European economic and monetary union (EMU), particularly as the Swedish position vis-à-vis the EMU is not clear. At the same time, the future long-term direction of fiscal policy has been questioned despite the drastic turnaround during the last two years.

How should monetary policy handle a situation such as this? We can use open-mouth operations, giving an assessment of what has happened, and try to convince the market that we are serious in the pursuit of price stability. However, even if the market believes the Riksbank, the krona could continue to weaken, which could affect inflation expectations. If a depreciation tendency cannot be reversed, the Riksbank will ultimately have to consider a tightening of monetary policy.

**Figure 6**  
**The Swedish Exchange Rate Versus U.S. Dollar, German Mark, and U.K. Sterling, 1994-96**



Source: The Riksbank.

## 4 The Choice of Index

Our inflation target is expressed as the change in the official consumer price index. The advantages of the CPI are well understood: it is familiar, published monthly with a short time lag, and rarely subject to revision. Using the CPI eases communication with the general public and promotes transparency.

A problem with the use of the CPI is that it includes the effects of indirect taxes and subsidies as well as imputed interest costs for owner-occupied homes. Inflation could thus be strongly influenced in a perverse direction by our own policy actions in the short run. More generally, transitory movements in the market prices of particular goods may mask a different tendency in the general price level.

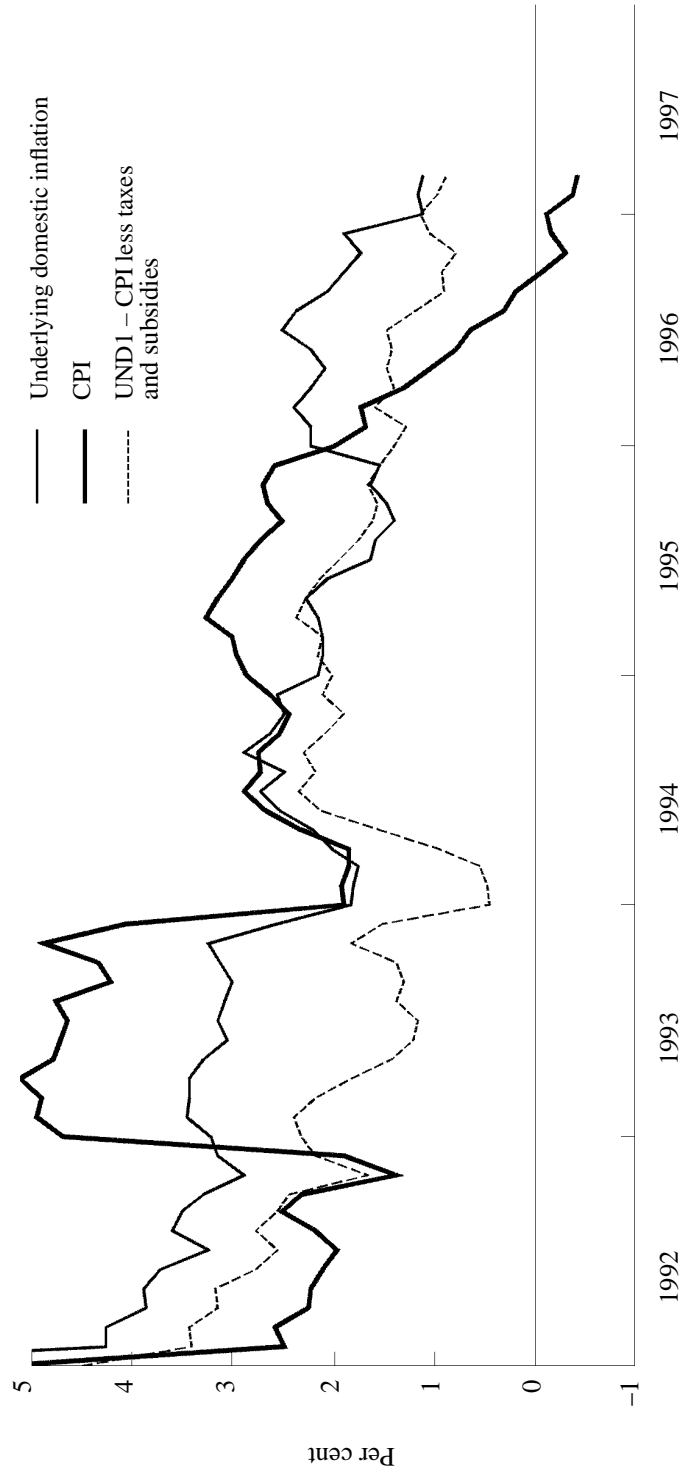
The CPI has been much more variable than any of the measures of underlying inflation (Figure 7). It is notable, for example, that the CPI rose in late 1994 and early 1995, while all the underlying measures were essentially flat or declining. This was a period of monetary policy tightening and generally high interest rates, and the imputed interest component in the CPI contributed to inflation's higher measured rate. For a brief period the rate of inflation was in excess of the upper limit (3 per cent) of the tolerance interval. In situations such as this there is a risk—at least in the short run—that interest rate tightening, contrary to intentions, raises inflation expectations.

Similarly, during the period of monetary easing in 1996, the CPI inflation rate fell much more sharply than underlying inflation; again this reflected, in part, movements in the imputed interest rate cost. This time the annual average rate of inflation was for some months substantially below the tolerance interval's lower limit. In contrast, all the indicators of underlying inflation appear to have settled around the lower limit of the tolerance band—that is, at 1 per cent. Obviously, this has led to communication problems. Time and again at the Riksbank, we have had to explain why we have missed our target in the short run by moving interest rates as required to achieve our target in the long run.

In practice, as when the target was first decided, we now have a choice of four different strategies:

1. We could *continue to use the CPI* as a target variable. From an overall credibility point of view, there is a case for sticking to this strategy for the time being. The currently fashionable issue of a possible bias in the CPI appears not to be a great problem in Sweden. No estimate of the total bias is available, but we believe it is smaller than in, for example, the United States.

**Figure 7**  
**CPI and Underlying Inflation, Sweden, 1992-97,**  
**12-Month Percentage Change**



Sources: Statistics Sweden and the Riksbank.

2. We could *specify clearly in advance which causes of deviations* from the CPI target are acceptable. This could contribute to greater transparency. However, the precise definition of the target variable would become less clear. Moreover, it would be difficult to foresee all the possibilities that might arise, and difficult to quantify the exact price effects of the disturbances. Finally, the fact that the analysis of the situation was made by the Riksbank itself could have an adverse effect on credibility.
3. We could *use a measure of underlying inflation* as a target. On the one hand, this would have the advantage over option 2 of providing an unambiguous definition of the target variable. On the other hand, it would present similar difficulties to option 2 with regard to the definition and quantification of the effects of disturbances.
4. Finally, we could *combine the CPI with one or several measures of underlying inflation*. The CPI could continue to be the target variable, but it would be made clear that policy actually aims at influencing the underlying inflation because these measures give a better picture of the inflation process. In the long run, hitting the rates of the underlying inflation would lead to hitting a CPI target.

In fact, we have been moving gradually towards the last option. The Riksbank has noted that there are price effects that cannot be accommodated within the band and cannot be fully contained with monetary policy measures. Attempts to do so would have destabilizing effects on the economy. Thus, in case of major unforeseen disturbances, as well as when indirect taxes and subsidies are altered in connection with a major reform of tax and transfer systems, we must provide scope for price effects. Temporary deviations from the targeted rate of inflation may accordingly occur, particularly in view of the fact that price stability does not refer to isolated monthly figures. However, any secondary effects should be contained so that inflation would be quickly returned to a rate consistent with the target.

In practice the Riksbank has been dealing with the problem of price shocks through what has been referred to as “caveats.” But these caveats have not been specified in advance in any systematic fashion. Consequently, the price shocks and the resulting CPI variability continue to present us with a communication problem.

## 5 Summary

During the last four to five years, the financial markets have been extremely turbulent, with both the exchange rate and interest rates showing substantial volatility due largely to fiscal problems. How to handle uncertainties in general and the exchange rate in particular has been the

main practical problem for monetary policy. This problem has been accentuated by the change to a new policy framework and also by the lack of monetary policy credibility and indeed of confidence in the Riksbank itself after the currency crisis in 1992.

Nevertheless, growth in recent years has been relatively high, 2.5 to 3 per cent, while inflation has been low. These, by Swedish standards, are good figures.

Gradually, the acceptance of a policy oriented towards price stability has increased. In May 1997, a five-party agreement was made in Parliament concerning future legislation to regulate the role and work of the Riksbank. According to the agreement, the Riksbank is to be one of the most independent central banks in Europe. A greater understanding of what the Riksbank is doing has also developed within the markets and among the general public. The transparency of the policy framework has been useful in this context.