

## **Barbro Wickman-Parak: The Riksbank's inflation target**

Speech by Ms Barbro Wickman-Parak, Deputy Governor of the Sveriges Riksbank, at Swedbank, Stockholm, 9 June 2008.

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### **The CPI, other measures of inflation and phasing out the CPIX**

The Riksbank's target is that inflation measured by the consumer price index will be held around 2 per cent, with a tolerance interval of +/- 1 percentage point. This is how the Riksbank formulated its inflation target when it was introduced in 1993. There were good reasons for the Riksbank choosing a quantified target for CPI inflation. There still are, and we stand by our target. The CPI is a broad measure which captures households' typical purchases and is familiar to the general public.

But how we communicate our policy and the different measures of inflation we use in our analysis has changed considerably over time. This is not so surprising. Our analysis methods have been honed and confidence in monetary policy has become stronger. This has given us a greater degree of freedom. We must also be aware of which components are causing price movements at different points in time. This means that the need to analyse and highlight different measures of inflation varies. For example, it has recently been particularly important to monitor how certain commodity prices develop, as they have increased quickly.

It is often a measure known as CPIX that has been in focus. The CPIX excludes mortgage expenditure and effects of indirect taxes and subsidies from the CPI. This has functioned as an important tool, particularly in analysing and illustrating the effects on inflation of our own interest rate changes. The CPIX has also held a special status in comparison with other measures of inflation. For various reasons this will not be the case in future; the CPIX will be phased out. We will instead introduce another measure that can better capture the effects of our policy. But the intention is not for this measure to hold a special position in the way that the CPIX has done. I will return to this soon.

The change we are now making means that the forecasts, analyses and comments in our reports will focus more directly on CPI inflation. This probably gives rise to a number of questions; not least among you here today. The most obvious one is probably whether this will have consequences for future monetary policy. To answer this question I would first like to say a few words about the need for alternative measures of inflation in general. I shall also describe how the role played by the CPIX in our analysis has changed over time. Then we will come to what the phasing out of the CPIX means for monetary policy.

### **Different measures of inflation are needed**

The Riksbank has a target defined in terms of the change in the CPI. However, the development in the CPI cannot always guide monetary policy on its own – there is no such universal measure. It is therefore necessary to supplement the analysis by using different measures of underlying inflation. Most central banks do this, including the Riksbank.

The arguments in favour of using various alternative measures of inflation mainly concern understanding and illustrating which components have a lasting effect on prices. Inflation is often affected by temporary shocks which we do not try to counteract with monetary policy. In such a situation it is appropriate to highlight different measures of inflation to analyse and illustrate both what has already happened and what is expected to happen in the future. To describe price trends and justify monetary policy decisions we therefore make use of various measures of underlying inflation when necessary. Different measures are more suitable than others on different occasions. For example, it has recently been important to demonstrate how important energy and food prices have been for developments in the CPI. We also wish

to be able to analyse and describe inflation adjusted for the direct effects of our own policy. Our most important tool for doing this has so far been the measure known as the CPIX.

Thus, it is often valuable to use different measures of underlying inflation, not least because it makes it easier to see what factors are driving the CPI. It is quite natural for us to work in this way internally in our analyses. But it can create some problems in our external communication, particularly if a certain measure is given a long-term prominent role. It can create uncertainty as to how the inflation target is defined in practice.

Until one year ago I myself sat “on the outside” and monitored the Riksbank’s policy making. And I must confess that I thought it was a little unclear which measure of inflation the Riksbank actually used in formulating its policy. This was connected with the prominent role the CPIX had played in the Riksbank’s analysis and rhetoric.

### **The CPIX – how it began**

The CPIX is a measure of inflation that has been around a long time. It was included in the predecessor to the Monetary Policy Reports, “Inflation and Inflation Expectations in Sweden”, which was first published in October 1993. At that time the measure was known as UND1 and as now it was adjusted for the direct effects of indirect taxes and subsidies and mortgage interest expenditure. At that time the krona had recently depreciated heavily and this had an impact in the form of a one-off increase in import prices. The measure therefore initially made adjustments for changes in import prices as well.

The reason given then for adjusting for interest costs was that the financial turbulence in autumn 1992 had led to temporary effects on inflation. Some years later other reasons made it important to adjust for interest costs. During the second half of the 1990s the Riksbank cut the repo rate substantially, from almost 9 to below 3 per cent. At the same time, the interest rate on a 5-year mortgage fell from just over 11 to around 5 per cent. This led to interest expenditure for home-owners declining substantially and pushing down CPI inflation. With the aid of the CPIX measure the Riksbank could show that the low inflation was largely the result of its own earlier interest rate cuts. Demanding that the interest rate should be cut further because inflation was so low, as some people did, was thus unreasonable. It would mean that monetary policy was “chasing its own tail”, as it was expressed then.

### **Strict two-year rule and the CPIX**

The CPIX measure was particularly important during the period when the Riksbank communicated its policy with the aid of a simple policy rule. This rule meant that if the forecast for inflation deviated from the target one to two years ahead, given an unchanged repo rate, the interest rate would be changed. From the point of view of communication the rule worked well for a long time. But the focus on the inflation forecast exactly two years ahead which this in practice led to was not without problems. The CPI forecast often deviated from the inflation target two years ahead, not least because of the direct effects on household interest expenditure of our own policy. But as the effects were expected to subside just beyond the two-year horizon, there was no reason to change the interest rate.

It therefore seemed natural to begin basing monetary policy on forecasts of CPIX inflation, which disregards interest expenditure. If the CPIX was close to the target two years ahead, this was an indication that the interest rate did not need to be changed, even if the CPI deviated from 2 per cent. To put it simply, one could say that this was a means of creating flexibility in our policy without abandoning the policy rule. We still had CPI inflation as a target variable, but began to use another measure of inflation as a tool to attain the target.

## **Increased credibility and flexibility**

As confidence in our inflation-targeting policy has increased, it has become possible to allow this flexibility to take other and perhaps more natural expressions than to emphasise another measure of inflation than the CPI to base our interest rate decisions on. Today we make forecasts three years ahead, based on an assessment of what is considered to be a suitable path for the repo rate. Given this way of working, the base for our decisions is not that a particular measure of inflation should always be at a certain level at an exact time horizon. The important thing is that CPI inflation develops in a way we consider to be reasonable during the forecast period. We can so to speak aim to stabilise the CPI directly. This normally means that the CPI should reach the target level within two years.

Even after we have extended our forecast period and moved over to forecasting the repo rate path the CPIX has played an important role in our communication. This is because we have wanted a measure that adjusts for the direct effects of our own policy – something we will always need. We have also assumed that the rate of increase in the CPI and the CPIX would be the same in the slightly longer term. In other words, it has not made much difference whether we have communicated our policy in terms of the CPI or in terms of the CPIX. But this could nevertheless have contributed to creating uncertainty over the position of the CPI as target variable.

## **The CPI and the CPIX will differ**

One condition for the CPIX to be useful in steering the CPI towards the target is that the measure has the same average rate of increase in the long term. As I said, we have earlier assumed that this was the case. This has largely been the case so far. The CPI has increased at a slightly slower rate than the CPIX since 1995, but this has primarily been due to the Riksbank's interest rate cuts at the end of the 1990s. Since 2000 the rate of increase in the CPI and the CPIX has been largely the same.

But when we look ahead, it is very probable that this will no longer apply; the rate of increase in the CPIX is expected to be lower than the rate of increase in the CPI for a fairly long period to come. Let me go into more detail as to why this is the case.

When the CPIX is calculated, mortgage interest expenditure for home-owners is excluded. Mortgage interest expenditure for home-owners in the CPI is calculated as a product of two indices: an interest rate index and a capital stock index. The interest rate index consists of an average of interest rates on mortgages, from variable interest rates to interest rates with a fixed duration of eight years.

The capital stock index, on the other hand, measures the acquisition value of the housing stock financed by the mortgages. But with the calculation method used by Statistics Sweden the rising house prices will only affect the capital stock index when the houses change owners. Even if house prices are increasing substantially, this will only have a limited impact on the capital stock index in the short term. After all, it is only a small percentage of houses that are bought and sold every year. On the other hand, an increase in house prices affects the index for a long period to come. If house prices increased, say, twenty years ago, this will still have some effect even on today's index. This is because at least some of the houses bought prior to the price rise today are sold at a higher price.

The calculated mortgage interest expenditure for home-owners can thus change even if the interest rates remain unchanged, if the acquisition value of the housing stock changes. This is an effect that will have significance in the future. House prices have risen over a long period of time, and this will gradually have an impact on the capital stock index. Without going into any technical details regarding calculation methods, one can observe that this is the main reason why mortgage interest expenditure for home-owners will increase in the coming years – or, in other words, why CPIX inflation will be below CPI inflation. The Riksbank is assuming that the difference in the rate of increase between the CPI and the

CPIX as a result of the housing stock increasing in value will be approximately 0.2 percentage points several years ahead.

The fact that mortgage interest expenditure for home-owners is affected not only by changes in interest rates but also by the way house prices develop comes as no surprise. But one can say that the trend rate of increase in the capital stock has meant that the problem has gradually become more tangible.

### **Other problems with the CPIX**

There are also other problems with the CPIX, related to calculation methods, which have perhaps not received so much attention. The CPIX measure adjusts for indirect taxes. When an indirect tax is raised, it is assumed that the price of the product concerned increases by the entire amount of the tax. But in practice the company or shop selling the product can rarely increase the price by the full amount; usually only by a part of it. Demand would otherwise decline too much. But when the CPIX is calculated, the entire tax increase is deducted. An increase in indirect taxes can thus have the paradoxical effect that the CPIX falls.

Another complication is that excise duty is normally written up by some measure of price movements. This in turn is because the tax on, for instance, alcohol is not expressed as a percentage of the price but as SEK per litre. Correspondingly, the taxes on energy and tobacco are stated in terms of SEK per kilowatt-hour and SEK per gramme. If all prices rise by 2 per cent a year, then the excise duty's share of the consumer price would fall over time. To prevent this from happening, excise duties are indexed. The excise duty on, for instance, petrol is written up by the annual rate of increase in the CPI in June of the previous year.

But when the CPIX is calculated, each increase in excise duties is deducted from the CPI, even if it is only due to indexing. This means that the indexing of excise duties also contributes to a difference in CPI inflation and CPIX inflation in the long term. The effect is not assessed as very large; 1 percentage point. But together with the 0.2 percentage points that are due to price changes in the housing stock, this means that the rate of increase in the CPIX will be lower than the rate of increase in the CPI by 0.3 percentage points. There will thus be a long-term difference between the CPI and the CPIX which is due to other things than the Riksbank adjusting the interest rate.

### **The CPIX is not up to standard and will be phased out**

Let me pause a minute and summarise before I move on. In addition to our target variable, the CPI, the CPIX is the measure that is emphasised the most. But as I have described here, there are several reasons why the CPIX should no longer hold this position. The most important reason is that the average rate of increase in the CPI and the CPIX will differ substantially in the future. In addition, there are some problems in the method used when calculating the CPIX.

Hence, one of the measures of inflation we have used the most will be discarded from our box of tools. But this does not mean that we will stop illustrating how temporary shocks affect inflation or that we will give less consideration to different alternative measures. As our analysis methods become more honed we will probably use more alternative measures of inflation in our regular work. We must always have knowledge about what is driving prices in order to make good interest rate decisions. The recent developments in the commodities markets are one example of this. And it is then important to analyse measures that illustrate these effects.

## **A better way of showing the effects of interest rate changes**

There will also be a need to look at measures that adjust for the direct effects of our interest rate changes in the future. One can argue that this is particularly important these days, now that we make forecasts based on the fact that the interest rate can change. As opposed to the period when we assumed that the interest rate would remain unchanged during the forecast period, the forecasts for the CPI are nowadays directly affected by our policy.

However, the CPIX is not the most appropriate measure of adjusting for our own interest rate changes. As I have pointed out, the CPIX excludes many more items than just interest rate changes – including changes in indirect taxes and the effects on mortgage interest costs for home-owners arising from the rising house prices. A better method is to see how the CPI would develop if we merely exclude the part of the change in the interest rate cost arising from the interest rate index. The Riksbank will use this type of measure of “CPI with a fixed interest rate” more actively in the future. This will be published in the next Monetary Policy Report.

The aim is not that this measure will hold a special position in the same way as the CPIX has done. The idea is that the monetary policy discussion will focus more directly on the CPI. But there will certainly be reason to give a little extra emphasis to a measure like this from time to time. During periods when the repo rate is changed substantially it is important to have some grasp of how large the direct impact is on CPI inflation. This is how things have worked during the period since 2006, for example, when the Riksbank raised the repo rate in several stages. The measure can then differ substantially in the short term. If one looks at the inflation figures for April, the CPI and the CPIX increased by 3.4 per cent and 2.4 per cent respectively. 0.8 per cent of the one percentage point difference between the measures was due to interest rate changes and 0.2 per cent was due to changes in the value of the housing stock and in taxes.

But nor can a measure that keeps interest rates constant provide an entirely perfect picture of inflation adjusted for the direct effects of monetary policy. Interest rates are not only affected by the Riksbank changing the repo rate. This applies above all to the long-term interest rates, but also the short-term ones. However, long-term interest rates carry relatively little weight in the interest rate index and the repo rate normally covaries fairly well with short-term interest rates. So the measure should nevertheless provide a fairly good picture of inflation adjusted for the direct effects of the Riksbank’s interest rate changes. One advantage is that it is reasonable to assume that the nominal interest rates will rise as much in the long term as they will fall – they have no trend. This means that this measure, unlike the CPIX, will have the same long-term mean value as CPI inflation.

## **Consequences for monetary policy?**

One can say that until fairly recently we have assumed that the CPI and the CPIX have the same long-term mean value – that the measures converge a few years ahead. Ensuring that the CPIX is reasonably close to 2 per cent has meant ensuring that the CPI, our target variable, also does so. But this will not be the case over the coming years. The measures will also differ in the long term. Although this is only a question of a few tenths, the measures cannot be expected to converge even during the years immediately beyond the forecast horizon.

So what does this mean for our interest rate policy? A hypothetical reasoning may perhaps help us to understand the concepts. If one looks at our most recent forecast made in April, the CPI was fairly close to, although still a couple of tenths above the target of 2 per cent at the end of the forecast horizon. The CPIX was slightly lower, just under 2 per cent. If we were to be in exactly the same position as in April, but with the difference that we had already decided to phase out the CPIX – would we have made different forecasts for the repo rate and for the CPI? No, we would not. Our target has not changed. We considered the

rate at which the CPI approached the target according to our April forecast to be reasonable on the basis of our task.

It is also important to put the phasing out of the CPIX in a broader context. The Riksbank conducts a policy of flexible inflation targeting. This means, for instance, that we can let it take a couple of years before the CPI reaches 2 per cent in our forecast if we consider this to be justified by, for instance, temporary shocks. The long-term difference between the CPI and the CPIX is calculated, as I have mentioned earlier, at roughly 0.3 percentage points. The flexibility of our monetary policy means that this type of deviation does not need to have any immediate consequences. But it is of course important that deviations from the inflation target are not too large and that it is clear that the CPI will reach 2 per cent. Otherwise we jeopardise the credibility of the inflation target.

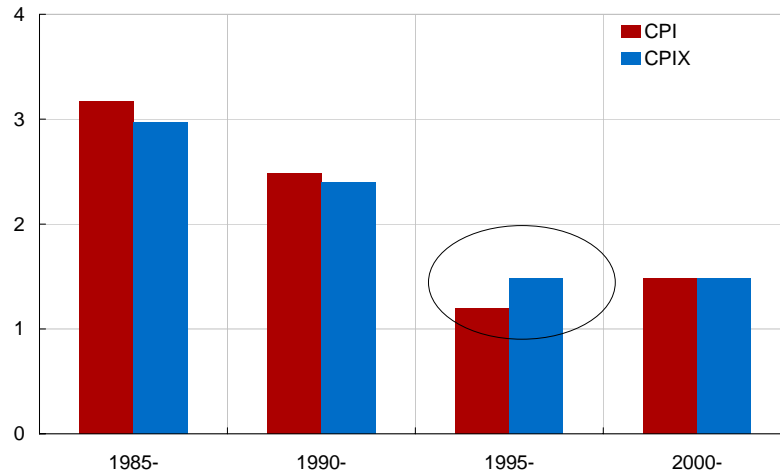
The current situation involves factors that have much greater significance for which future interest rate developments we believe to be reasonable than the difference between the CPI and the CPIX. For instance, there is great uncertainty over what the consequences of the turmoil in the world financial markets might be for economic developments. In Sweden there are signs of a slowdown and GDP increased at a slightly slower rate than expected, according to statistics published by Statistics Sweden just over a week ago. At the same time, inflation is high and above the target. World market prices for some commodities, such as oil, have risen sharply over a period of time and this is a challenge for central banks around the world. New information of significance for inflation is constantly coming in.

As the Riksbank has also pointed out on several occasions, inflation expectations have risen in recent months and they are above our target of 2 per cent. There may be several different reasons for this. The most important reason is probably that actual inflation has risen and this usually leads to expectations rising. The Riksbank monitors inflation expectations closely; the important thing is that they do not become entrenched at a high level, whatever the reasons behind them. To curb expectations we would have to act more forcefully.

To summarise – our strategy has not changed and our target stands firm. We will continue to use a large number of alternative measures of inflation in our work, not least to illustrate the direct effects of our own interest rate policy. But the focus will be on our target variable, the CPI. The CPIX will be phased out of our reports and our communication in general. This will not have a tangible effect on the actual interest rate decisions in the future. However, we hope that this change will make the way we conduct our monetary policy clearer.



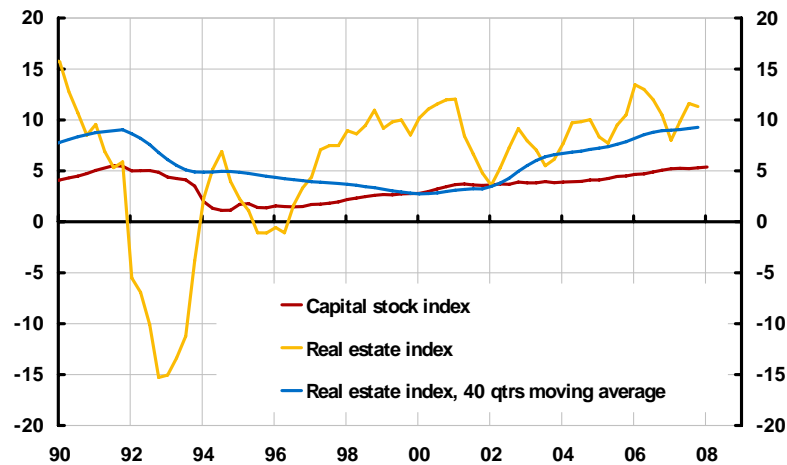
### Historically the difference has been small... Average of annual percentage change



Sources: Statistics Sweden and the Riksbank



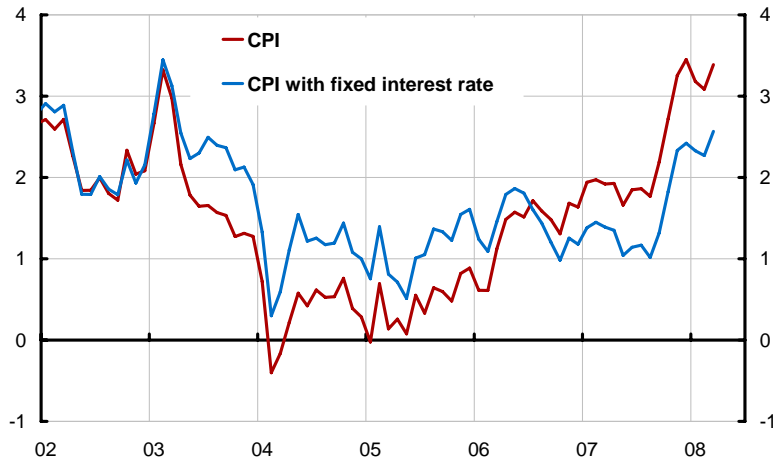
### Capital stock index in the CPI and the real estate price index Annual percentage change



Sources: Statistics Sweden and the Riksbank



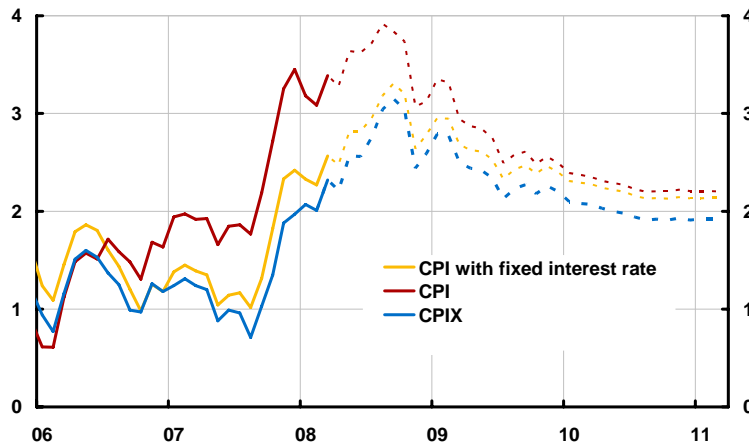
### CPI and CPI with fixed interest rate Annual percentage change



Sources: Statistics Sweden and the Riksbank



### CPI, CPIX and CPI with fixed interest rate Annual percentage change



Note: Dotted line represents forecast in MPU April 2008

Sources: Statistics Sweden and the Riksbank