



# Inflation Report

2003:3



# Contents

- FOREWORD 5
- SUMMARY 7
- DETERMINANTS OF INFLATION 17
  - The financial markets 17
  - International economic activity and inflation 20
  - Economic activity in Sweden 29
  - Inflation expectations 41
- INFLATION ASSESSMENT 45
  - Inflation prospects in the main scenario 45
  - The risk spectrum 49
  - Outlook beyond the forecast horizon 52

## *Boxes*

- The Riksbank's monetary policy – target and indicators 12
- Oil Prices 25
- Recent developments in inflation 42
- Deflation - an outline of the problems 55



## ■ Foreword

This Inflation Report comprises the basis for the Riksbank's monetary policy decision on 15 October. Work on the forecasts presented in this report began prior to 14 September, when the referendum on whether Sweden should adopt the euro took place. Initially, it was therefore necessary to work with forecasts under several different assumptions of future monetary policy. The result of the referendum means that monetary policy will continue to be conducted in the same manner as before.

The Riksbank's monetary policy will continue to be targeted at keeping inflation at 2 per cent, with a tolerance for deviations up to  $\pm$  1 percentage point. The collective view of future inflation is described in the Riksbank's Inflation Reports. The Executive Board's monetary policy decisions and discussions are reported in separate press releases. Executive Board members may differ in their opinions of future inflation. The Board members' assessments and individual stances on monetary policy decisions are reported in the minutes of the Executive Board's monetary policy meetings. Any divergent opinions of inflation prospects will thus be recorded in the separate minutes of the Board meeting on 15 October, to be published two weeks later.

Pursuant to Chapter 6, Article 4 of the Sveriges Riksbank Act (1988:1385), the Riksbank is obliged to provide a written report on monetary policy to the Riksdag Committee on Finance at least twice a year. The Riksbank has chosen to use two of the year's four Inflation Reports for this purpose. This report constitutes one such account to the Riksdag.

This Report presents forecasts for inflation up to the end of Q3, 2005. It reproduces the main features of the presentations and discussions of inflation at the Executive Board meetings on 2 and 8 October 2003.

The purpose of the Inflation Report is not only to produce background material for monetary policy decisions and to account to the Riksdag; it also serves to diffuse knowledge of the assessments made by the Riksbank to a broader public. The Riksbank wishes to make it easier for external parties to follow, understand and assess monetary policy.

The Riksbank's analyses are based on the technical assumption that the repo rate will remain unchanged during the forecast period, in order to make clear the consequences for monetary policy. Several other important assumptions are used as a basis for the forecasts and these are described in more detail within the Report. This report contains a boxed text on developments in oil prices and the assumptions the Riksbank makes from these. Another boxed text describes how the Riksbank uses various measures of underlying inflation to produce assessments of future developments in its target variable, the consumer price index (CPI). A further box deals with an issue that has been much debated over the past year and on which the Riksbank has had reason to take a stance: the risk of deflation. The Riksbank hopes that the forecasts and other analyses in the Inflation

tion Report will encourage discussion of monetary policy issues and thereby lead to an even better foundation for monetary policy.

Chapter 1 contains a summary of the Report. Chapter 2 contains a discussion of the most probable development of inflation's principal determinants. Chapter 3 presents the Riksbank's overall assessment of future inflation in the main scenario and the main risks of other scenarios occurring. In addition, there is a discussion of factors influencing developments in the longer term, beyond the forecast horizon.

Stockholm, October 2003

Lars Heikensten

Governor of Sveriges Riksbank

## ■ Summary

*It was observed in the June Inflation Report that the generally weak level of activity in the world economy would have a subduing effect on resource utilisation in Sweden. The forecast for inflation one to two years ahead was below target. There have been no major changes in this picture, but statistics received since the summer indicate some strengthening of economic activity in Sweden and in the world economy as a whole. However, the picture is fragmented as, for instance, prospects in the United States look much brighter than in Europe.*

*The inflation rate has declined somewhat, although less than anticipated. This is because energy prices have not fallen as predicted. In August, consumer price index (CPI) inflation amounted to 1.7 per cent and UND1X inflation to 2.2 per cent.<sup>1</sup> The slightly stronger GDP growth during the first half of the year and the Riksbank's repo rate cuts, totalling 0.75 percentage points since June, are expected to contribute to slightly higher resource utilisation during the forecast period. This is assumed to lead to a slight increase in inflationary pressure towards the end of the forecast period. The Riksbank foresees that CPI inflation two years ahead will be slightly above the target level and that UND1X inflation will be just below the target.*

### ■ ■ More expansionary economic policy.

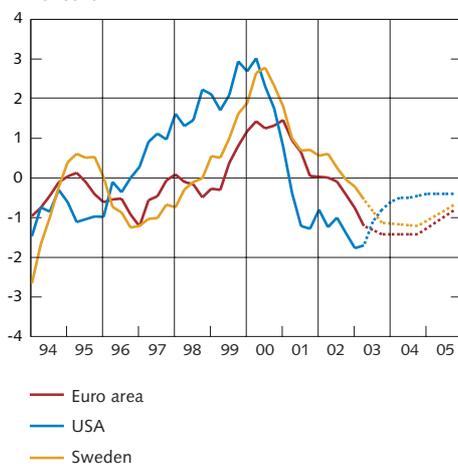
It was observed in the June Inflation Report that for some time there had been downward revisions to the forecasts for the world economy. There were several reasons for this, including the geopolitical unease and increased caution among households and firms in the wake of the stock market fall. The sluggish growth had led to a shift towards more expansionary economic policy in many countries. The ECB and the Federal Reserve, as well as a number of other central banks, continued to cut their key interest rates during the summer, reaching historically very low levels. Fiscal policy is also expansionary on the whole and a new taxation package was presented in the United States during the summer.

It now appears as though the expansionary policies have begun to make an impact in certain areas. Stock markets around the world have risen, the uncertainty in the financial markets appears to have declined and long-term interest rates have increased. An important driving force behind the expected recovery in the world economy is domestic demand in the United States. There are now signs that US corporate investment has begun to increase, after a long period of decline. Meanwhile, US households appear to have increased their consumption slightly more than anticipated, which necessitates some upward revision to the forecast for US growth this year. Private consumption is expected to continue to show strong growth, while investment is expected to pick up.

### ■ ■ Continued sluggishness in euro area.

<sup>1</sup> UND1X is defined as CPI excluding household mortgage interest expenditure and the direct effects of changes in indirect taxes and subsidies.

**Figure 1. Output gap (HP) for euro area, Sweden and the USA.**  
Per cent



Note. The GDP series have been adjusted for trends using an HP filter (Whittaker-Henderson or Hodrick- Prescott filter). A production filter has been used for the USA. The broken lines indicate forecasts.

Sources: Bureau of Labor Statistics, Eurostat, NiGM, Statistics Sweden, US Department of Commerce and the Riksbank.

On the other hand, there are still no clear signs of an upturn in the euro area. The National Accounts for Q2 instead indicated an unexpectedly sluggish growth in many European countries. The low growth rate is partly due to the substantial appreciation in the euro over the past two years. The GDP forecast for the euro area has therefore been revised downwards somewhat for both this year and next year. However, in the longer term, the euro area is also expected to show an increase in growth. This upturn will be supported by the good growth in the United States and by expansionary economic policy.

#### ■ ■ Relatively rapid growth in Asia.

The Asian economies are continuing to develop relatively strongly. Both trade and manufacturing output have continued to grow, while domestic consumption in most of these countries appears to have recovered from the downturn at the beginning of the year. The Japanese economy has also shown surprisingly strong growth recently.

All in all, the Riksbank's assessment is therefore that GDP growth in the OECD area will be 1.9 per cent this year, 2.8 per cent in 2004 and 2.6 per cent in 2005. This is in line with the assessment at the most recent monetary policy meeting in August. The economic upturn is still expected to be relatively modest. One reason for this is that firms and households are expected to reduce their indebtedness.

#### ■ ■ Slightly higher international export prices.

Slightly stronger international growth is expected to lead to marginally higher resource utilisation abroad, compared with the assessment in the June Inflation Report. It will also lead to higher international price pressure. However, the assessment does not differ to any great degree from that made in June and the analysis is still that there will be a relatively large amount of unutilised resources during almost the entire forecast period (see Figure 1). International price pressure is therefore assumed to be relatively moderate over the coming years.

Oil prices have been higher than expected during the summer. This is partly due to continued disruptions in production in Iraq. At the same time, the demand for oil appears to have been greater than expected. Oil prices are expected to fall again as the supply increases, and this will have a downward effect on Swedish import prices. However, forecasting future oil prices is made more difficult by the fact that the market is strongly governed by political factors (see Box "Oil prices").

The krona exchange rate is also expected to contribute to curbing the rate of price increase on imported goods. On average, the exchange rate has been slightly weaker during the summer than the Riksbank assumed in the June Inflation Report. However, following the euro referendum, the krona appreciated again relatively quickly and is now in line with the earlier forecast. More recent developments are probably due to the market's long-term assessment of the strength of the Swedish economy relative to the euro area, but also to the weakening of the dollar. The krona is expected to strengthen further in the near future, which is in line with the assessment in the previous Inflation Report.

Import prices for consumers are only expected to show a slight increase over the coming year, despite higher international prices. This is because import prices excluding oil products have increased less than expected since June and it is estimated that the weaker trend will persist over the coming year. After that, the rate of price increase for imported goods is expected to increase slightly as international inflationary pressure increases and the krona appreciation abates (see Table 1).

#### ■ ■ Slightly more rapid recovery in Sweden.

The Riksbank pointed out in its June Inflation Report that poorer international growth prospects were expected to have a subduing effect on demand in Sweden, which would result in a lower level of resource utilisation. However, new statistics indicate that growth during the first half of the year was somewhat stronger than was anticipated in June. This means that the picture of the Swedish economy appears to be slightly brighter now. The repo rate cuts totalling 0.75 percentage points since June contribute to this. GDP growth will be mainly reflected in household consumption expenditure both this year and during the rest of the forecast period. As in the June assessment, continued stable development in incomes, wealth and employment is expected to lead to a smooth growth in household consumption. During 2004 and 2005, an increase in investment is also expected to contribute to GDP growth. On the other hand, foreign trade and public sector consumption are not expected to provide any sizeable positive contribution.

The Riksbank anticipates that the improvement in economic activity and higher level of resource utilisation will lead to wages in the private sector increasing slightly more rapidly in 2004 and 2005 than was calculated previously. On average, total wage costs in the business sector are expected to rise by 4.1 per cent a year during the forecast period. Domestic cost pressure is accordingly expected to be slightly higher during these years. A minor upward revision has therefore also been made in the forecast for domestic inflation excluding electricity prices during the latter part of the forecast period.

#### ■ ■ Inflation close to target two years ahead.

Inflation has on the whole eased since May, although to a lesser extent than expected. This is mainly due to energy prices failing to fall as predicted. However, when adjustments are made for energy prices, UND1X inflation has been lower than expected. Developments have been affected by a slower increase in unit labour costs than was anticipated earlier, as a result of both more rapid productivity growth and lower wage increases.

Over the coming months, energy prices are expected to remain at a higher level than in the June Inflation Report's assessment. Electricity prices are not anticipated to return to more normal levels until spring 2004. This means that they cannot be expected to subdue inflation in the coming year as much as was estimated in the June Report. Instead, some of the restraining effect will be postponed and occur towards the end of the forecast period. At the same time, resource utilisation is

Figure 2. UND1X inflation, outcome and forecasts in present and previous Inflation Reports. Percentage 12-month change

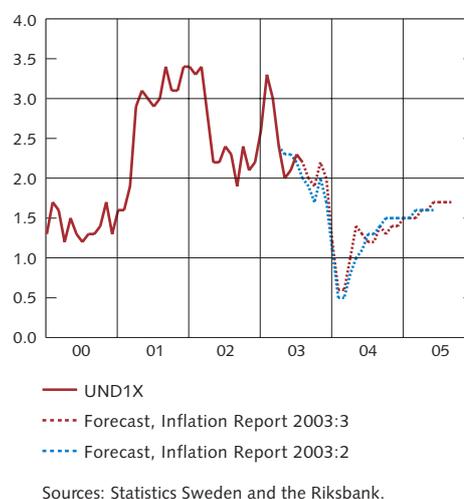


Figure 3. CPI inflation, outcome and forecasts in present and previous Inflation Reports. Percentage 12-month change

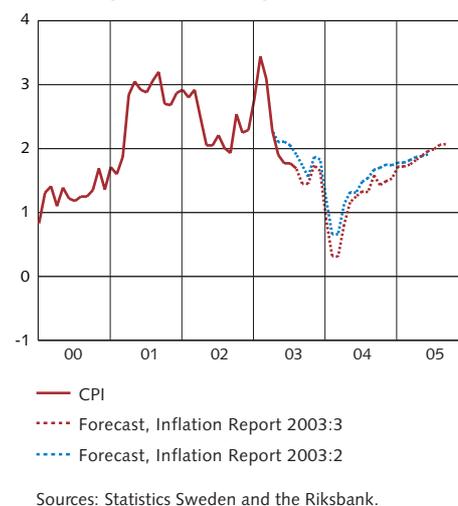
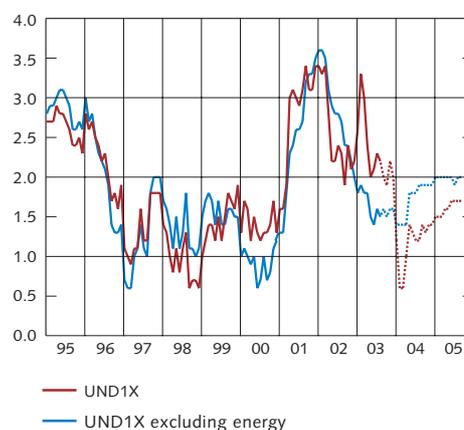


Figure 4. UND1X inflation including and excluding energy, outcome and forecast according to main scenario. Percentage 12-month change



expected to be slightly higher during the forecast period, so labour costs for 2004 and 2005 have been revised upwards.

As was the case earlier this year, the path of future inflation will be affected to a large degree by fluctuations in energy prices (see Figure 4). UND1X inflation is expected to amount to 1.7 per cent two years ahead, which is marginally higher than the June forecast. CPI inflation is estimated to reach 2.1 per cent in September 2005.

Inflation excluding energy prices is expected to increase slightly during the forecast period as a result of the rise in domestic and international price pressure. During the latter part of the forecast period inflation adjusted for energy prices is expected to develop in line with the Riksbank's target (see Figure 4). The expectation of a higher rate of increase stems from the marginally higher resource utilisation.

#### ■ ■ Balance of risks.

The balance of risks is also relevant for the formation of monetary policy. The most important risk factors on the demand side are still linked to the global economic climate, while energy prices and wage trends are the most important risk factors on the supply side. As expressed in the June Inflation Report, there is still a risk that private consumption and investment in Europe and the United States could show weaker growth than forecast in the main scenario. In Europe the strained fiscal policy situation in Germany and France in particular creates uncertainty, which could affect the future actions of firms and households.

In the United States, the deficits in the current account and public finances may force an upturn in interest rates that curbs consumption and investment. However, there is also a possibility that GDP growth in the United States will be surprisingly strong. It is conceivable that US households might choose not to increase their savings at the rate assumed in the main scenario, and instead make use of the extensive tax reductions to increase their consumption expenditure. In addition, there are risks connected with the international foreign exchange markets. While a weakening of the dollar could contribute to facilitating adjustment of some imbalances in the US economy, it could also delay the economic upswing in Europe, particularly if there was a dramatic dollar fall.

All in all, the Riksbank's assessment is that there is a risk that international economic activity will lead to lower inflation than in the main scenario. However, the downside risk is now somewhat smaller than assumed in the June Inflation Report.

Wage formation and energy prices are still estimated to comprise a risk of higher inflation than assumed in the main scenario, but these risks are also smaller than estimated in June. The risks linked to wage formation have declined after the Municipal Workers' Union signed a two-year wage agreement at lower levels than was originally feared. However, a large number of collective wage agreements will expire during the forecast period and there is still a risk that the outcome will entail higher wage increases than expected.

The fact that electricity and oil prices are now expected to remain relatively high during a longer period of time means that the risk of contagion effects from these to other costs and prices has increased

somewhat. At the same time, the possibility of electricity prices being even higher than assumed in the main scenario cannot be dismissed. The overall assessment for inflation in Sweden is that the risks of higher inflation than in the main scenario are offset by the risks of lower inflation.

**Table 1. Inflation forecasts according to main scenario.  
Percentage 12-month change**

	Annual rate			12-month rate		
	2003	2004	2005	Sept 2004	June 2005	Sept 2005
CPI	2.1 (2.2)	1.1 (1.3)	1.9	1.6 (1.7)	2.0 (1.9)	2.1
UND1X	2.3 (2.3)	1.2 (1.1)	1.6	1.4 (1.4)	1.7 (1.6)	1.7
UNDINHx	3.6 (3.4)	2.0 (1.8)	2.2	2.0 (2.2)	2.3 (2.3)	2.4
UNDIMPx	-0.1 (0.0)	-0.5 (-0.3)	0.4	0.1 (0.0)	0.4 (0.3)	0.4
UND1X excluding energy	1.6 (1.9)	1.7 (1.8)	2.0	1.9 (1.8)	2.0 (1.8)	2.0

Note. The annual rate for 2005 refers to the period January to September. The figures in brackets show the corresponding forecast in the previous Inflation Report. UND1X is CPI inflation excluding household mortgage interest expenditure and the direct effects of indirect taxes and subsidies. UNDINHx refers to prices of mainly domestic goods in UND1X. UNDIMPx refers to prices of mainly imported goods in UND1X.

Sources: Statistics Sweden and the Riksbank.

#### Revised forecasts since the June Inflation Report.

- GDP growth in the United States has been revised upwards for 2003 and 2004. This is because private consumption appears to have been slightly higher than anticipated so far this year, while economic policy has become more expansionary.
- GDP growth in the euro area has been revised downwards, primarily for this year, because of unexpectedly poor growth during the first six months.
- International export prices are expected to increase more rapidly during 2004 and 2005 as a result of higher oil prices and stronger growth in the OECD area.
- The forecast for the krona exchange rate remains largely unchanged.
- Oil prices are expected to be higher throughout the forecast period.
- Electricity prices are expected to fall less at the beginning of the forecast period but more towards the end.
- Resource utilisation in Sweden is expected to be higher throughout the forecast period as a result of apparently stronger growth than expected during the first half of this year and of the interest rate cuts.
- The assessment of CPI and UND1X inflation remains largely unchanged. Towards the end of the forecast period energy prices are expected to fall more and to offset the effects of higher resource utilisation.
- UNDINHx and UND1X inflation excluding energy are expected to increase slightly more quickly towards the end of the forecast period, as a result of higher resource utilisation.

## The Riksbank's monetary policy – target and indicators

The Sveriges Riksbank Act states that "the objective of the Riksbank's operations shall be to maintain price stability".

When the Riksbank's inflation target was adopted in 1993, the Bank declared that its operational objective was to keep inflation, measured in terms of the consumer price index (CPI), at 2 per cent per year, with a tolerance interval around this target of  $\pm 1$  percentage point. In 1999 the Bank published a clarification that also reiterated this target.<sup>2</sup>

The reasons given then for choosing CPI were, as in 1993, that CPI comprises a very large proportion of household consumption, the index is published regularly and relatively often, and is the most familiar measure of inflation.

Thus, the Riksbank's inflation target is expressed in terms of CPI. However, the Bank often emphasises other measures of inflation in Inflation Reports, speeches and other external communication. A recent example was in spring 2003, when the outlook for UND1X inflation excluding energy was given a prominent role in the formulation of monetary policy. The discussion of other inflation indices has sometimes led to questions as to whether the Riksbank has changed its monetary policy target, and adopted a different definition of inflation than changes in CPI. This is not the case, however, and the aim of this box is to explain why the Riksbank sometimes chooses to highlight other measures of inflation than changes in CPI. In short, the main reason is that the CPI is often affected by transitory inflation disturbances. In such cases, the Riksbank can – in accordance with its clarification in 1999 – decide not to counteract these disturbances through interest rate adjustments. To provide motivation for its interest rate decisions, the Riksbank can also publish forecasts or outcomes of other inflation indices than CPI that support its assessment of longer-term inflation, as measured by CPI.

### *The role of CPI, UND1X and other inflation indices for monetary policy – some examples*

In the above-mentioned clarification that was published in 1999, it was stated that monetary policy should normally be conducted so as to attain the Bank's target of 2 per cent CPI inflation one to two years ahead. However, it was also emphasised at the time that there are

situations that can justify deviating from this simple monetary policy rule.

*First*, disturbances may occur that have only a temporary impact on CPI inflation. In such cases, there may be reason to refrain from taking monetary policy measures if CPI inflation one to two years ahead is affected by specific factors that are judged to have no substantial permanent impact on inflation or the inflationary process. Three examples of such transitory effects were given in the clarification. The first is that changes in the repo rate affect CPI through home mortgage interest expenditure. The Riksbank should not attempt to counter such effects, even though they sometimes can have an impact on CPI one to two years ahead. The second was that one-off changes to indirect taxes and subsidies may have transitory effects on inflation. The third example was so-called supply shocks, for example changes in oil prices or prices of other imported input goods. If these disturbances are judged to have only transitory effects on CPI inflation, then monetary policy should not attempt to counteract them.

*Second*, there may be reason to deviate from the simple monetary policy rule if inflation has diverged substantially from the inflation target. In this case, a more cautious monetary policy may be justified, i.e. inflation may be brought back to the target over a slightly longer horizon, in order to avoid undesirable effects on the real economy (such as GDP growth or employment).

The Riksbank often refers to other inflation indices than CPI, mainly due to the occurrence of these transitory fluctuations in CPI. The clarification in 1999 discussed briefly the possibility of changing the index for the inflation target and instead adopting an index that excluded all transitory effects. One fundamental problem associated with this, however, is that there is no single index that is appropriate for all situations and that also excludes all transitory effects. What constitutes a transitory effect varies over time and the consequences for monetary policy depend partly on the impact it has on inflation expectations. As a result of this complication, the Riksbank decided to continue to define the target in terms of CPI inflation. The Bank emphasises instead different indices at different points in

<sup>2</sup> See Heikensten, L., "The Riksbank's inflation target – clarifications and evaluation", *Sveriges Riksbank Quarterly Review* 1, 1999.

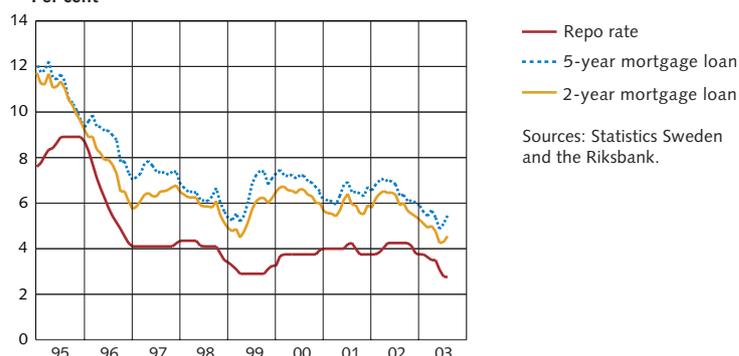
time, and these can be interpreted as indicators of longer-term inflation.

Three examples can help illustrate how the Riksbank has handled these problems. The first comes from the second half of the 1990s. Between autumn 1995 and spring 1999 the repo rate was lowered from almost 9 per cent to under 3 per cent. During the same period, the yield on a 5-year government bond had fallen from just over 11 per cent to about 5 per cent (see Figure B1). These repo rate cuts and the lower level of interest rates in general affected CPI inflation via the traditional demand channels, but also via home mortgage interest expenditure, which fell after the rate cut.<sup>3</sup> Since home mortgage interest expenditures are included in CPI the effect of the policy measures taken was that CPI initially dropped dramatically. The exceptionally large change in interest rates also meant that the lower home mortgage interest expenditures affected CPI during a much longer period than the usual forecast horizon. During this period, the Riksbank was often asked why the repo rate was not cut when current inflation was below target. In order to explain that the Riksbank did not want to counter the low CPI inflation which was due to the Bank's previous rate cuts, UND1X was highlighted as an especially important inflation index. For instance, in Inflation Report 1999:2, it was forecast that UND1X inflation would be in line with the inflation target towards the end of the forecast period while CPI inflation was expected to be substantially below target (see Figure B2). The Riksbank decided to refrain from further repo rate cuts since the low CPI was a result of previous policy rate changes.

The second example goes back to spring 2001, when CPI inflation rose sharply, partly due to mad cow disease and foot and mouth disease. The Riksbank decided then not to raise the repo rate, as it was judged that these price increases were mainly transitory in nature and that they would disappear from CPI inflation relatively quickly. In this case no deviation was needed from the simple monetary policy rule. However, it was important to explain in external communication why the repo rate was

not raised despite CPI inflation being higher than the target level. With a view to supporting the judgement that the increases were temporary, Inflation Report 2001:2 also included a measure of inflation that excluded these price increases that were seen as being transitory (see Figure B3).<sup>4</sup>

**Figure B1. Repo rate and rates on 2-year and 5-year mortgage loans.**  
Per cent

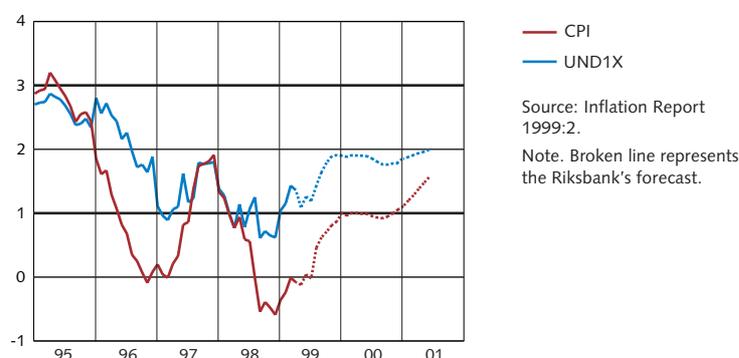


— Repo rate  
 ···· 5-year mortgage loan  
 — 2-year mortgage loan

Sources: Statistics Sweden and the Riksbank.

The third and final example is that the Riksbank during the current year has emphasised UND1X excluding energy as a highly significant index for assessing more permanent inflationary pressures. This is no more indicative than before that the Riksbank has changed its monetary policy target, but can instead be interpreted in the same way as the two previous examples. At the monetary policy meeting in April this year, the Riksbank made the assessment that if the repo rate were to

**Figure B2. CPI and UND1X inflation: outcomes and forecast in Inflation Report 1999:2.**  
Per cent



— CPI  
 — UND1X

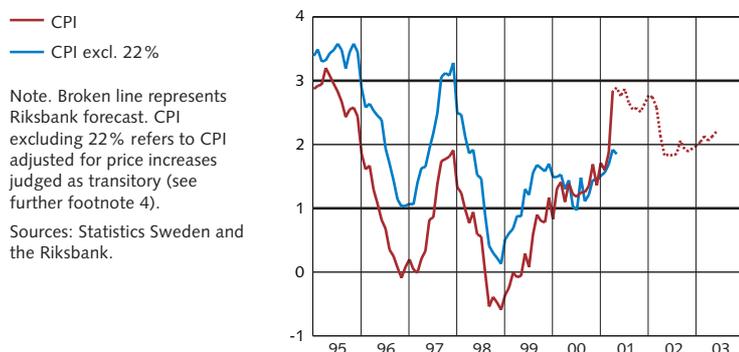
Source: Inflation Report 1999:2.  
 Note. Broken line represents the Riksbank's forecast.

3 The component "home mortgage interest expenditure" in CPI is calculated according to the capital invested by current owners in their homes. The interest rate that affects the component is a weighting of the interest rates on bank loans, variable-rate mortgages and the outstanding stock of fixed-rate mortgages with terms of 2 and 5 years. The average interest rate on the stock of fixed-rate loans is calculated as an average of the historical rates on 2-year and 5-year mortgages over the past 24 and 60 months, respectively. Exactly what effect a lowering of the repo rate has on home mortgage interest expenditure depends therefore on what happens to all of these interest rates.

4 CPI excluding these transitory effects was calculated as CPI excluding price rises on meat, electricity, domestic heating oil, interest rates, petrol, fruit and vegetables, and telecommunications. The remaining components comprised approximately 78% of CPI.

remain unchanged, inflation towards the end of the forecast period would be slightly below target. In this case a purely mechanical application of the simple monetary policy rule would have entailed a lowering of the repo rate, but the Riksbank decided to leave it unchanged. Although the assessment was that the effects of the energy price fluctuations would not subside totally over the two-year

**Figure B3. CPI inflation: outcomes and forecast in Inflation Report 2001:2, and CPI excluding transitory effects.**  
Per cent



forecast period, they were not expected to have an impact on long-term inflation justifying a repo rate cut. In order to clarify that the Riksbank did not wish to bring inflation back to the target over the normal two-year horizon, the Bank chose in its external communications to place particular importance on an inflation index that was not as strongly affected by the fluctuations in energy prices.

#### *Inflation targeting - what can we learn from economic theory?*

The objective of monetary policy is therefore to limit annual CPI inflation to 2 per cent. In the short term, however, CPI is affected by disturbances that the Riksbank neither can nor fully wishes to counter with repo rate adjustments. Some form of calculation of underlying inflationary pressure is necessary to determine the appropriate stance of monetary policy. The three examples discussed above illustrate how the Riksbank has chosen to deal with this problem. At the same time, it is worth noting that considerable research is conducted

in these issues. What are the most important insights we have gained from modern economic research and how does the Riksbank's policy correspond to them?

In research into inflation targeting it is often assumed that the objective of a central bank is to limit the variation of inflation around a specific level, e.g. 2 per cent, but with certain consideration given to developments in the real economy. The latter means that a central bank can choose to counter divergences from its inflation target differently in terms of speed and extent, depending on the importance placed on real economic stability (GDP, employment, etc.) The more important a central bank considers real economic stability to be, and the larger the divergence, the slower it will bring inflation back to target after a disturbance. Another feature of standard monetary policy theory is that central banks take account of the entire future path of inflation, and set interest rates with a view to, broadly speaking, keeping the expected future path of inflation as close to target as possible (once again, in consideration of real economic developments).

What does this simple line of reasoning say about the episodes described above?

According to the logic of the simple standard model, there is no real need to precisely identify transitory disturbances and distinguish them from other more permanent ones. What is important for monetary policy is how the entire path of expected inflation is affected. Forecasting in itself involves judging whether a disturbance is transitory. However, before a monetary policy recommendation can be made, it is necessary to conclude how quickly a change in the repo rate would affect inflation and what changes this would bring about in the real economy. For example, if the CPI forecast indicates that the inflation disturbance will have subsided before monetary policy takes effect, there is no reason to adjust the repo rate. But if the forecast points to a more permanent divergence from the target, the central bank must act. However, the speed with which inflation is brought back to the target depends on a central bank's attitude towards fluctuations in the real economy as regards its ambition to keep inflation close to its target.<sup>5</sup>

<sup>5</sup> Se vidare i t.ex. Apel, M., M. Nessén, U. Söderström och A. Vredin, "Olika sätt att bedriva inflationsmålspolitik – teori och praktik", *Penning- och Valutapolitik* 1, 1999; Nessén, M. och U. Söderström, "Core Inflation and Monetary Policy", *International Finance* 4 (3), 2001.

Here the similarities with the Riksbank's approach to conducting monetary policy under an inflation target are obvious. In its clarification in 1999, the Bank stated that substantial divergences from the inflation target could justify deviating from the simple monetary policy rule – attaining the target one to two years ahead – out of consideration for developments in the real economy. In this instance there is a very close connection between theory and practice.

There is a minor difference, however, as regards the time perspective. In theory, it should look ahead into the "infinite" future, which of course is an impossibility in practical policy. In practice there is considerable uncertainty about how various aspects of the economy interact and about the effects of monetary policy. The Riksbank publishes forecast figures for up to two years ahead, as this is approximately how far forecasts with acceptable precision can be made. In addition, there is usually a discussion of slightly longer-term developments to illustrate whether there are any particular factors that may affect inflation beyond the usual forecast horizon. Developments beyond this 2-year horizon thus have significance for monetary policy decisions. If fluctuations in specific components of CPI are judged to disappear after the normal forecast horizon the Riksbank may, as was discussed above, choose to refrain from monetary policy actions. To illustrate the practical considerations that form the basis of its monetary policy decisions, the Riksbank often highlights inflation indices other than CPI that are of particular significance at the time in question for understanding the long-term inflation trend and thereby also monetary policy.

#### *Summary and conclusions*

The objective of monetary policy is to maintain price stability. The Riksbank has chosen to formulate its operational inflation target as a rate of 2 per cent for CPI inflation with a tolerance interval for deviations from this target of  $\pm 1$  percentage point. However, the Riksbank sometimes draws attention to other infla-

tion indices when CPI is affected by disturbances that the Riksbank neither needs nor fully wishes to offset through changes in the repo rate. Disturbances that the Riksbank does not need to counteract are either those that are expected to disappear within the usual forecast horizon or disturbances that can be attributed to some specific factor that is judged not have any substantial permanent impact on inflation or inflationary processes, even though the CPI forecast one to two years ahead is affected. Disturbances that the Riksbank does not fully wish to counteract can be due to sharp divergences from the inflation target. In this case, dramatic monetary policy measures would be required, with their attendant negative effects on the real economy, in order to eliminate them completely. Out of consideration for real economic stability, divergences from the target over a limited period may then be accepted.

CPI data is published monthly, but these monthly figures in themselves provide only limited information about the long-term inflation trend since a variety of transitory disruptions occur. Thus, some kind of calculation of underlying inflation is necessary. One manifestation of this is how the Riksbank at various points in time highlights different inflation indices that are judged to be appropriate indicators of the longer-term inflation rate.

The inflation forecast that guides monetary policy is not just the forecast two years ahead, but also an assessment of the period before and after that. This is because it takes time for monetary policy to achieve its full impact and because the formulation of an appropriate monetary policy depends on the entire path of expected future inflation.

Thus, the monetary policy target remains unchanged. The Riksbank seeks continuously, however, to improve its methods for forecasting and analysis. In time, as these are incorporated into the decision-making process for monetary policy decisions, the communication of the decisions will be enhanced.



# ■ Determinants of inflation

Monetary policy has become more expansionary during the summer both in Sweden and abroad. The Riksbank has cut its repo rate by 0.75 percentage points, which has contributed to lower short-term market rates. Developments in the financial markets indicate increased optimism and a decline in uncertainty over world economy growth, and particularly the United States. Equity prices have continued to rise and long-term interest rates have increased. Following the euro referendum, the krona exchange rate strengthened relatively quickly. Some continued appreciation is expected.

## The financial markets

### ■ ■ Positive economic signals led to higher interest rates.

During the late spring, continuing low key interest rates in the United States, together with a lack of concrete signs of an economic upturn contributed to a sharp fall in interest rates in many countries. However, since the middle of the summer, long-term government bond rates have shown an upsurge (see Figure 6). The increase in interest rates is due to positive economic signals and a toning down of the deflation threat. (See the box "Deflation – a review of the problems" for an analysis of deflation risks.) Other factors behind this increase are the large issues of government bonds during the summer and the fact that public finances in the United States in particular, but also in Europe, have led to a greater supply of government securities. In addition, the risk level appears to have declined, which is indicated by the implicit volatility of OMX options (see Figure 5). The lower risk level and the stock market upturn are connected with changes in investors' portfolios, with a larger holding of equity relative to bonds.

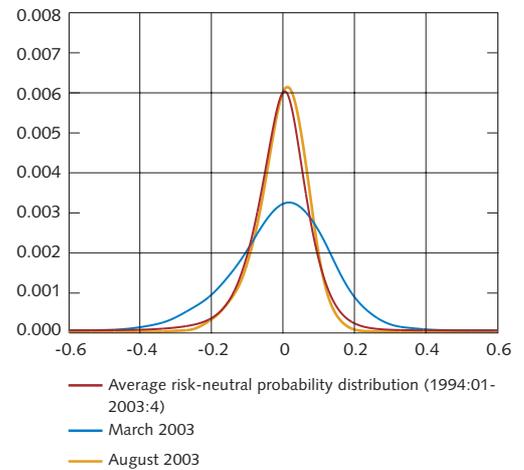
In future, long-term interest rates in Sweden are expected to rise gradually as economic activity strengthens. The ten-year treasury bond rate is expected to increase to an average of 5.2 per cent in 2004 and 5.6 per cent in 2005.

### ■ ■ Market expectations of unchanged repo rate.

Monetary policy has become more expansionary during the summer both in Sweden and abroad. The Riksbank cut its repo rate by 0.5 percentage points in connection with the June Inflation Report and by a further 0.25 percentage points in July to 2.75 per cent. These cuts have contributed to lower short-term market rates and lower variable mortgage interest rates.

The market's expectations of monetary policy appear to have shifted towards a higher interest rate situation since the beginning of July (see Figure 9). This is probably connected with a slightly more positive view of economic activity. Market pricing indicates that expectations are for an initial repo rate increase of 0.25 percentage points during Q3 2004. The survey carried out by Prospera at the end

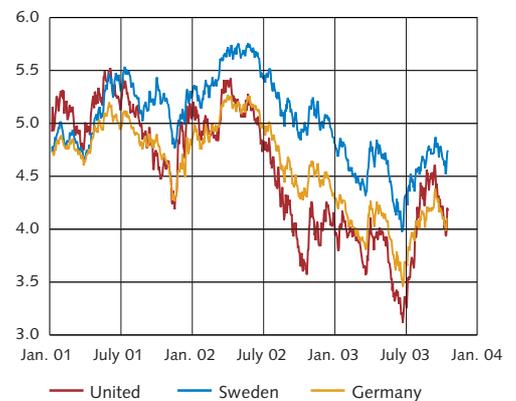
Figure 5. Risk perception expressed in pricing of OMX options.



Note. The implicit probability distribution is an estimate of the probability distribution for an annual yield on the OMX index about one month ahead on the assumption that market participants are risk-neutral. The area under each individual distribution totals one. The horizontal axle shows yield.

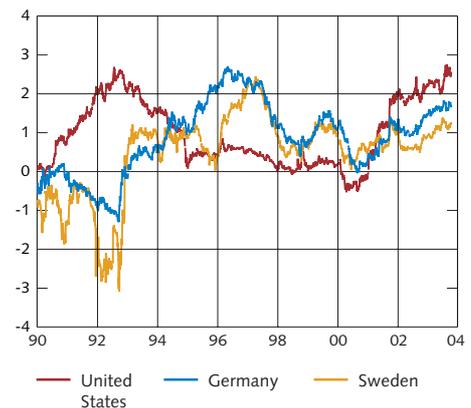
Sources: Citibank and the Riksbank.

Figure 6. 10-year government bond rates in Sweden, Germany and the USA. Percentage points, daily rates



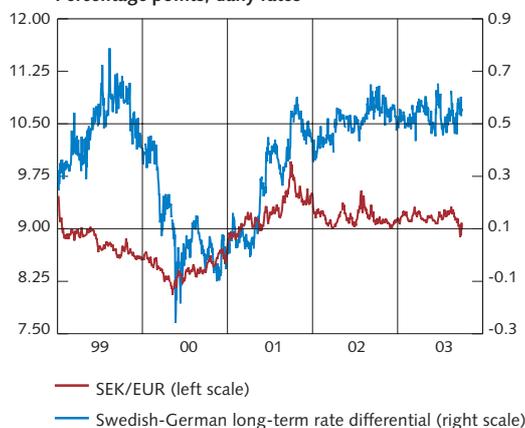
Source: The Riksbank.

Figure 7. Yield curve slope expressed as the differential between government bond rates with maturities of 10 and 2 years. Percentage points, daily rates



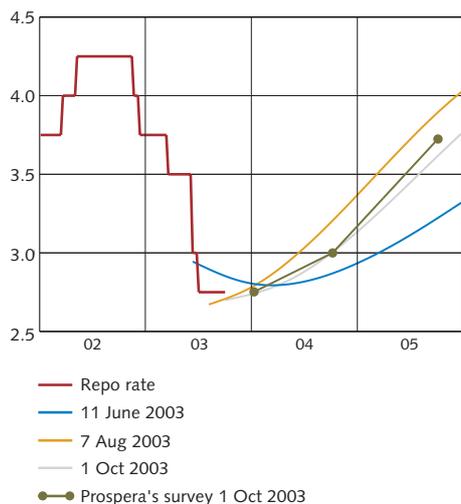
Source: The Riksbank.

**Figure 8. Differential between German and Swedish government bond rates with 10 year maturity and SEK/EUR exchange rate. Percentage points, daily rates**



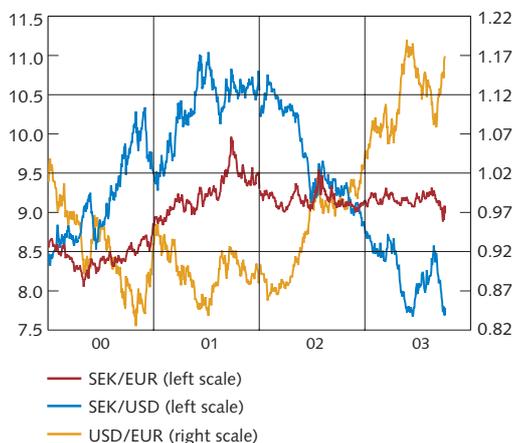
Source: The Riksbank.

**Figure 9. Monetary policy expectations based on forward interest rates and Prospera's market survey. Per cent**



Sources: Prospera and the Riksbank.

**Figure 10. SEK/USD, SEK/EUR and USD/EUR exchange rates. Daily rates**



Source: The Riksbank.

of September largely supports the picture given by market pricing (see Figure 9).

**■ ■ Krona strengthened after referendum.**

During the summer the krona weakened somewhat against both the euro and the dollar. This development is considered to be related to uncertainty prior to the euro referendum. Following the referendum, the krona strengthened relatively quickly (see Figure 10). The recent development is probably due to the market's long-term assessment of the strength of the Swedish economy relative to the euro area, but the continued weakening of the dollar has probably also contributed. The krona exchange rate is expected to continue to strengthen somewhat in the near future. In TCW index terms, the krona is expected to appreciate to an average of 124.0 during 2004 and 123.7 during 2005. The forecast for the krona exchange rate over the coming two years remains largely unchanged since the June Inflation Report.

**■ ■ Stock market expects an economic upturn.**

Stock markets around the world have risen in value in recent months (see Figure 11). This is probably due to expectations of higher growth, as well as to surprisingly good profit developments during Q2 and assessments of a lower risk level (see Figure 5). The Swedish stock market is one of those that has risen most, with an upturn of around 20 per cent this year.

Interim reports for Q2 have shown that reduced costs have been most significant in improving profits for larger Swedish corporations listed in the OMX index. However, increased sales now appear to be contributing more to profits.

There is, however, a risk that market participants have excessively high expectations of future profits. Surveys indicate that market participants are expecting profits on the same levels as at the turn of the millennium. If firms fail to fulfil the market's apparently high expectations over the coming quarters, there is a risk of a stock market recoil.

**■ ■ Real interest rates and real exchange rate have expansionary effect.**

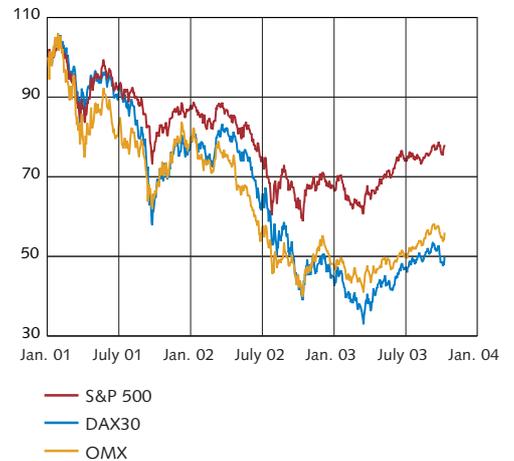
Key rate cuts both in Sweden and abroad have contributed to continued low levels for real short-term interest rates. In Sweden the real TCW exchange rate has been relatively weak on average during 2002 and 2003. To some extent, the stimulation from the real short-term rate and the exchange rate is offset by the increase in the real five-year rate during this period. On the other hand, asset prices in the form of equity and house prices have shown an increase in real terms since the June Inflation Report.

The Riksbank's assessment is that the inflation rate will rise somewhat in future but that the improved economic activity will lead to higher market rates, both in nominal and real terms. At the same time, the krona is expected to appreciate. Interest rates and exchange rate conditions will thereby have less expansionary effects.

**Revised forecasts and assumptions since the previous Inflation Report**

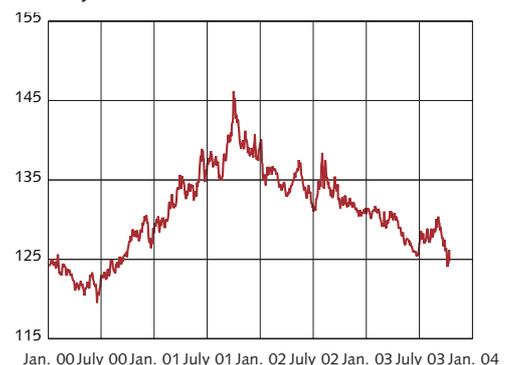
- The Swedish repo rate has been cut by 0.75 percentage points. This means that short-term interest rates are expected to be lower during the forecast period.
- Despite the recent appreciation, the krona exchange rate has been weaker on average than the assessment in the June Report. The forecast for the future remains largely unchanged.

**Figure 11. Stock market developments for OMX, DAX and Nasdaq.**  
Index: 1 January 2001=100. Daily listings



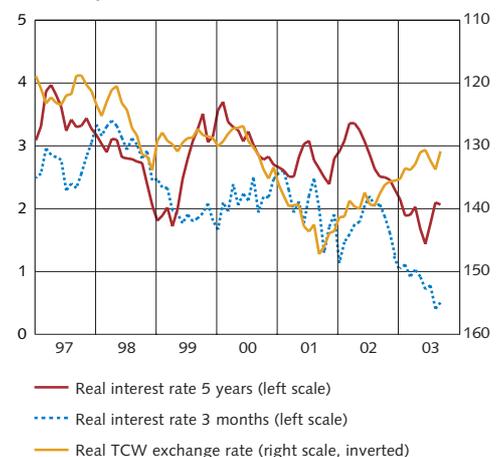
Source: The Riksbank.

**Figure 12. SEK/TCW exchange rate.**  
Daily rates



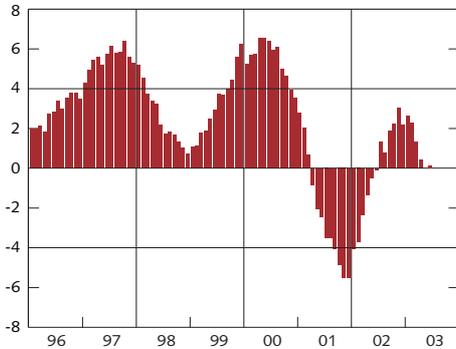
Source: The Riksbank.

**Figure 13. Real interest rates for 5-year and 3-months to maturity and real TCW-weighted exchange rate.**  
Per cent and index: November 1992=100. Monthly data



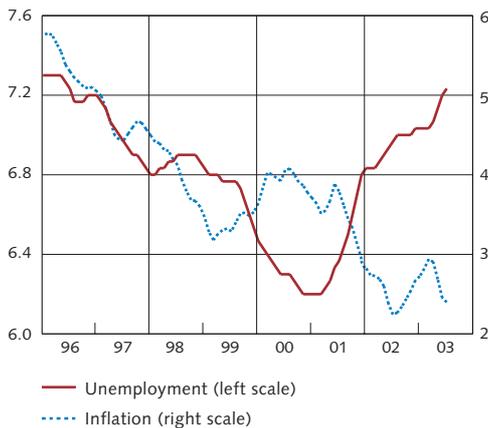
Sources: National Institute of Economic Research, Prospera and the Riksbank.

**Figure 14. OECD area: manufacturing output.**  
Percentage 12-month change



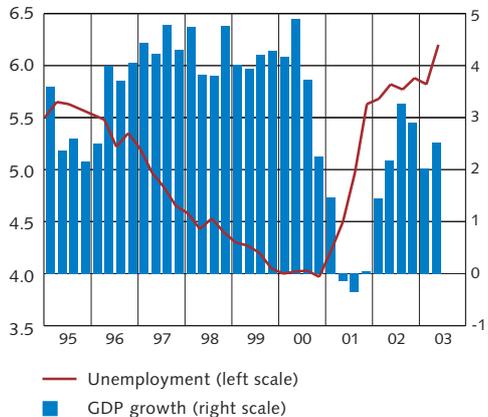
Source: OECD.

**Figure 15. OECD area: unemployment and inflation.**  
Per cent



Source: OECD.

**Figure 16. USA: GDP growth and unemployment rate.**  
Percentage 12-month change and per cent



Sources: Bureau of Labor Statistics and US Department of Commerce.

## International economic activity and inflation

*Since the June Inflation Report, activity in the euro area has remained sluggish. On the other hand, there are some signs of continued improvement in the United States. The assessment is that growth in the world economy and the Swedish export market will increase next year. International export prices are expected to rise during the forecast period as resource utilisation increases.*

It was observed in the June Inflation Report that for some time there had been downward revisions to the forecasts for the world economy. There were several reasons for this, including the geopolitical unease and increased caution among households and firms in the wake of the stock market fall. The sluggish growth had led to a shift towards more expansionary economic policy in many countries. The ECB and the Federal Reserve, as well as a number of other central banks, continued to cut their key interest rates during the summer, reaching historically very low levels. Fiscal policy is also expansionary on the whole and a new taxation package was presented in the United States during the summer.

It now appears as though the expansionary policies have begun to make an impact in certain areas. Stock markets around the world have risen, the uncertainty in the financial markets appears to have declined and long-term interest rates have increased.

However, the statistics for the OECD countries do not provide a clear-cut picture of activity in the world economy. Industrial output has stagnated in recent months, following a recovery towards the end of 2002 and in early 2003 (see Figure 14). At the same time, unemployment is still rising and inflation is falling (see Figure 15). On the other hand, the OECD countries' exports have increased at a stable rate since the downturn in 2001.

### ■ ■ Strong US domestic demand.

There appear to be signs of a continued upturn in economic activity in the United States (see Figure 16). During Q2 it appears that consumption in both the private and the public sectors showed relatively strong growth. Corporate sector investment also provided a contribution to GDP growth. Tax relief and low interest rates have made it easier for households to maintain their consumption and for firms to strengthen their balance sheets. In addition, labour costs have fallen, which has contributed to a recovery in profits. This in turn creates the right conditions for further investment (see Figure 17). As a result of the apparently more rapid growth in private consumption than was assumed in the June assessment, an upward revision has been made in the forecast for US GDP growth in 2003.

At the same time, it is worth noting that there has as yet been no clear turnaround in the US labour market. The number of hours worked in the corporate sector has continued to decline, despite an increase in production (see Figure 18). A low level of demand and

vacant capacity are probably the explanations for firms' caution with regard to new recruitment.

### ■ ■ US growth will increase in 2004.

Most indications are that consumption in the United States will continue to show stable growth. More expansionary fiscal policy gives cause for an upward revision of the assessment of consumption for next year, too, compared with the June Inflation Report. Unlike the past two years, growth during the coming period will be supported by an increase in corporate sector investment. At the same time, the recent dollar weakening will help to strengthen exports, particularly during 2004. The result will be that the US economy is expected to grow at slightly above its long-term potential rate over the coming year, which should assist a recovery in employment. Growth is expected to fall slightly between 2004 and 2005 as a consequence of less expansionary economic policy. The taxation package adopted by Congress during the summer is expected to have a greater impact in 2004 than during the following year. The current account and public finances will show large deficits (see Figure 19). It is reasonable to assume that these deficits will decline over the forecast period.

However, the possibility of a more abrupt adjustment to the current account deficit cannot be completely ruled out (see also the section on the balance of risks). There are plenty of vacant resources initially, which means that the rise in inflation will be moderate over the coming two years (see Figure 1 and Table 2).

### ■ ■ Sluggish activity in euro area.

The Riksbank is assuming that the euro area will show a much slower growth rate than the rest of the world economy this year. Production and employment have shown weaker growth than the Riksbank and most other analysts had expected. GDP fell during Q2 this year, while unemployment rose (see Figure 20). In addition, an increasingly strong currency had a negative effect on exports. The poor growth rate caused the ECB to cut its key rate to 2 per cent at the beginning of June.

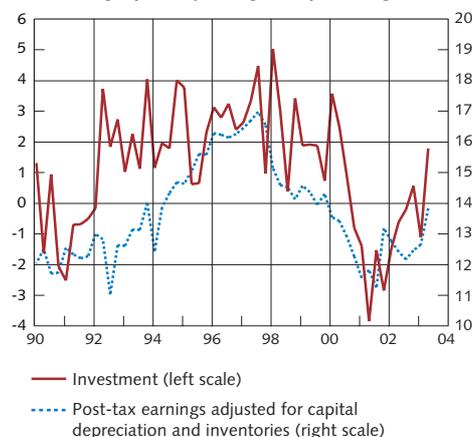
The sluggish activity in the euro area as a whole is relatively evenly distributed over the Member States (see Figure 21). Germany, France, Italy, the Netherlands and Belgium have shown weaker growth during Q2 than the Riksbank anticipated in its June Inflation Report. Spain, on the other hand, showed a surprisingly strong growth rate, partly due to a strong labour market and tax relief.

The weaker growth in the real economy also affects the Member States' budgets and public sector borrowing requirement. The European Commission calculated in June that the total public sector deficit in the euro area would be around 2.5 per cent both this year and next year. During this period both Germany and France are expected to exceed the deficit limit stipulated in the Stability and Growth Pact.

During the summer, firms in the euro area have begun to take a more optimistic view of their order intake. Indicators such as the

**Figure 17. US corporate sector: investment and earnings.**

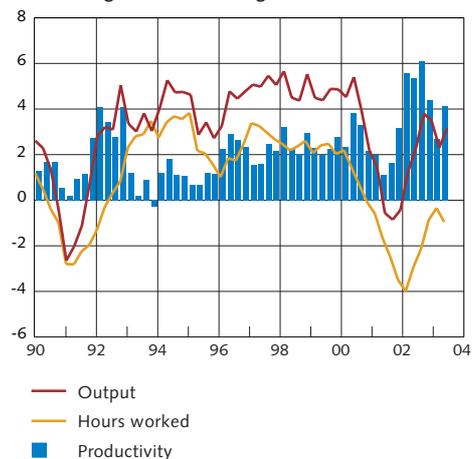
Percentage quarterly change and percentage of GDP



Sources: Bureau of Economic Analysis (BEA) and US Department of Commerce.

**Figure 18. US corporate sector: productivity, output and hours worked.**

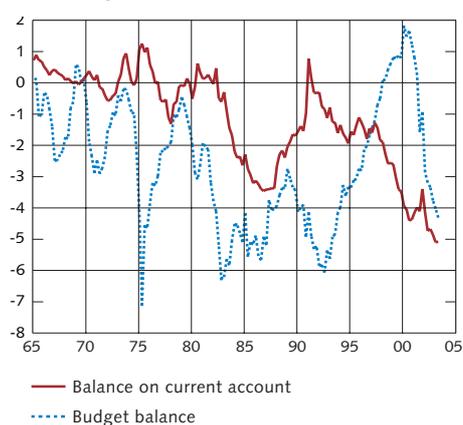
Percentage 12-month change



Sources: Bureau of Economic Analysis (BEA) and Bureau of Labor Statistics (BLS).

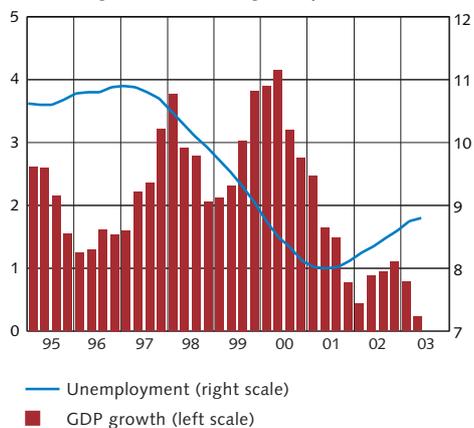
**Figure 19. USA: Public sector budget balance and current-account balance.**

Percentage of GDP



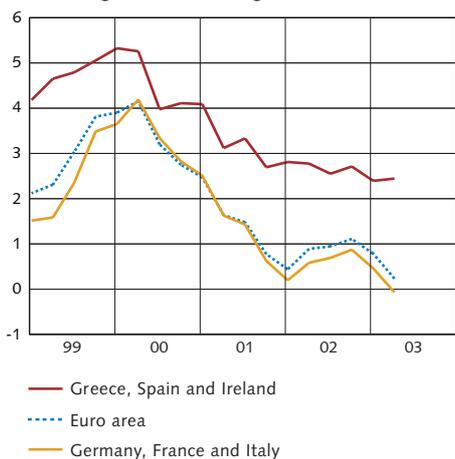
Sources: BEA and the Riksbank.

**Figure 20. Euro area: GDP growth and unemployment rate.**  
Percentage 12-month change and per cent



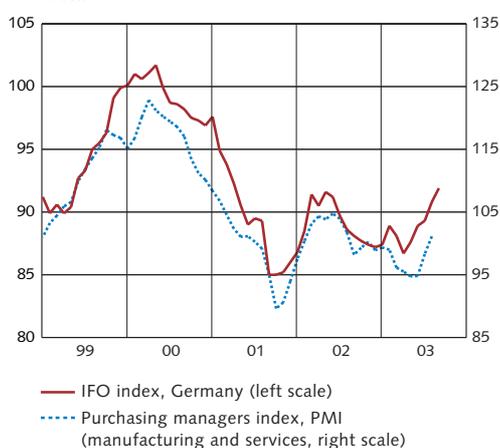
Source: Eurostat.

**Figure 21. GDP growth rates in euro area.**  
Percentage 12-month change



Source: Eurostat

**Figure 22. Euro area: confidence indicators.**  
Purchasing managers index in EMU and German IFO index.



Sources: IFO Institute and NTC Research.

purchasing managers index and the German IFO have risen in recent months (see Figure 22). The OECD's Composite Leading Indicator (CLI) also indicates some improvement in the near future.<sup>6</sup>

During 2004, growth in the euro area is expected to increase. The assessment is that Europe will be helped along by strong activity in the United States, which will lead to exports accelerating. At the same time, growth in consumption is expected to pick up gradually and investments to increase again after falling for three years. This anticipated course of events is a fairly normal part of the economic cycle, with good growth in productivity, rising real wages and expansionary monetary policy. The result will be growth in line with the potential growth rate next year and above this in 2005. The current forecast is that inflation will remain below the ECB's target level during the coming two years as a result of rising productivity, falling labour costs and low utilisation of resources.

■ ■ Economic upturn in UK, Denmark and Norway.

The United Kingdom has experienced a comparatively moderate economic downturn in an international perspective over the past few years and the growth rate for 2003 is expected to be just below 2 per cent. Developments have been marked by low interest rates, low inflation, rising property prices and a favourable development in the labour market. However, the British export and industrial sectors have been weak. One explanation is that sterling has been strong, despite some depreciation over the past year, and has thus not provided any tangible support to exports.

The rate of increase in private consumption in the United Kingdom is expected to decline somewhat over the coming years as a result of an anticipated check in the rapid rise in house prices. However, domestic demand will be sustained by an upsurge in investment resulting from the improvement in the world economy. All in all, growth in the United Kingdom is expected to rise slowly over the coming years.

During the economic downturn, Denmark has benefited from an export industry that is relatively insensitive to cyclical fluctuations, including foodstuffs and pharmaceuticals. Its growth rate has clearly exceeded that of euro area countries in recent years. However, growth slackened during the first two quarters of 2003.

In Norway, the overheating during 2000 and 2001 has led to rising inflation and a decline in competitiveness. Inflationary pressure led to higher interest rates, which in turn contributed to reinforcing the Norwegian krone. The result was a severe check in growth. In December 2002 the Norwegian central bank eased its monetary policy and its key rate has since been cut from 7 per cent to 2.5 per cent. Nevertheless, growth is expected to remain weak this year (see Table 2).

Over the coming years, growth in both Denmark and Norway, who together account for 15 per cent of Swedish exports, is expected

<sup>6</sup> OECD's Composite Leading Indicator shows an accelerating recovery for the United States. The most recent survey is based on August data and was published in early October.

to rise to just over two per cent (see Table 2). Low interest rates and the improved international economic climate will contribute to the forecast recovery in both countries.

### ■ ■ Strong growth in Asia.

The Japanese economy has surprisingly grown at an increasingly rapid rate. However, there may be reason for caution in interpreting the most recent economic statistics, even if other Asian economies also appear to be showing better growth than anticipated. The Riksbank's assessment is that Asia and Latin America, as well as eastern and central Europe, will continue to show good growth. This is expected to have a positive contagion effect on the world economy as a whole.

### ■ ■ Improving export market growth.

The Riksbank is making a downward revision to its assessment of Swedish export market growth, particularly during the current year. This is partly due to weaker import growth than expected in countries important to Sweden's foreign trade. Additionally, the stronger growth in the US economy does not offset the weaker growth in Europe with regard to Swedish trade. However, export market growth is expected to increase as international economic activity improves.

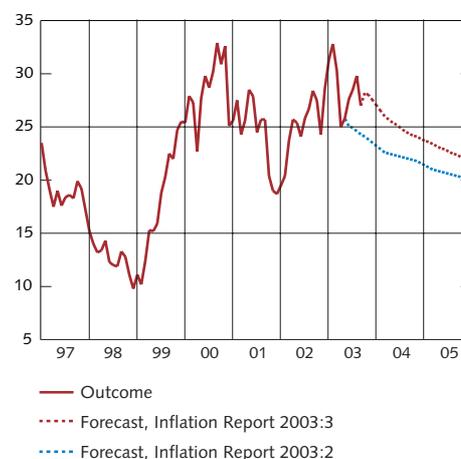
### ■ ■ Higher oil prices during forecast period.

As a result of unexpectedly low levels in oil stocks in the United States and continued disruptions in production in Iraq, oil prices have been higher than expected in the June Inflation Report (see Figure 23). The market's expectations of future oil prices are also more pessimistic now than they were last spring. The Riksbank's assessment is therefore that oil prices will fall back in the future, but remain at a higher level during the forecast period than was anticipated in the June Inflation Report (see Figure 23). This is an upward revision for long-term oil prices compared with the assessment in the previous Report (see Box "Oil prices" which includes a review of revisions to forecasts).

### ■ ■ Higher international export prices.

International export prices have shown a weak trend in recent years. After annual rates of increase around 4 per cent during the 1980s and early 1990s, prices have risen by just over 1 per cent a year in recent years. As this is connected with a general decline in inflation, the Riksbank's assessment is that international export prices will rise more rapidly as global resource utilisation increases. However, the long-term rate of increase is currently assessed to be lower than in previous decades. The reason for this is stiffer competition in international product markets as a result of increased integration in the world economy, as well as a general decline in inflation resulting in changes in the monetary policy objective. Stronger growth in the OECD area and higher oil prices during the coming two years are expected to lead to a slightly larger increase in international export prices during 2004 than was estimated by the Riksbank in June. The forecasts for this year and 2005 remain largely unchanged, however (see Table 2).

Figure 23. Oil prices: outcome and forecast.  
USD/barrel



Sources: International Petroleum Exchange and the Riksbank.

**Table 2. International conditions.  
Percentage 12-month change**

	BNP					KPI				
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
USA	0.3	2.4	2.9 (2.5)	4.0 (3.5)	3.2 (3.2)	2.8	1.6	2.3 (2.4)	1.7 (2.1)	2.3 (2.2)
Japan	0.4	0.2	2.6 (1.1)	1.9 (1.0)	1.5 (1.4)	-0.7	-0.9	-0.2 (-0.5)	0.1 (-0.4)	0.3 (0.1)
Germany	0.6	0.2	0.0 (0.4)	1.6 (1.6)	2.0 (2.0)	1.9	1.3	1.1 (1.1)	1.1 (1.1)	1.4 (1.4)
France	2.1	1.3	0.3 (0.9)	1.7 (2.0)	2.4 (2.4)	1.8	1.9	1.9 (1.8)	1.5 (1.5)	1.5 (1.6)
United Kingdom	2.1	1.7	1.8 (2.0)	2.5 (2.4)	2.7 (2.7)	2.1	2.2	2.7 (2.6)	2.4 (2.4)	2.5 (2.5)
Italy	1.7	0.4	0.6 (0.9)	1.8 (2.0)	2.5 (2.5)	2.3	2.6	2.6 (2.4)	1.9 (1.8)	2.1 (2.1)
Denmark	1.4	2.1	1.0 (1.4)	2.0 (2.1)	2.2 (2.2)	2.3	2.4	2.2 (2.3)	2.0 (2.0)	2.0 (2.0)
Finland	1.2	2.2	1.4 (2.1)	2.5 (2.8)	3.2 (3.6)	2.7	2.0	1.4 (1.7)	1.3 (1.7)	1.8 (1.8)
Norway	1.7	1.3	0.5 (1.1)	2.3 (2.3)	2.6 (2.6)	3.0	1.3	2.2 (2.8)	2.0 (2.0)	2.5 (2.5)
Euro12	1.6	0.8	0.6 (0.9)	1.9 (2.0)	2.5 (2.5)	2.3	2.3	2.0 (1.9)	1.7 (1.6)	1.7 (1.7)
Sweden's TCW										
export markets	1.4	1.2	1.1 (1.3)	2.3 (2.2)	2.5 (2.5)	2.2	1.9	2.0 (2.0)	1.7 (1.7)	1.9 (1.9)
OECD 19	0.9	1.5	1.9 (1.7)	2.8 (2.5)	2.6 (2.6)	2.1	1.4	1.8 (1.8)	1.5 (1.6)	1.8 (1.7)
						2001	2002	2003	2004	2005
Market growth for Swedish exports						1.0	3.1	4.0 (4.7)	6.1 (6.3)	6.9 (7.0)
Average export prices in national currencies						1.7	0.1	0.5 (0.5)	1.7 (1.3)	1.9 (1.8)
Crude oil prices, annual average (USD/barrel Brent Blend)						24.5	25.0	28.5 (26.2)	25.2 (22.3)	22.8 (20.7)

Note. CPI stands for RPIX in the United Kingdom and for HICP in Germany, France, Italy, Denmark and Finland. In Norway GDP refers to the mainland economy. OECD 19 is the EU countries (excluding Luxembourg), the United States, Canada, Japan, Norway and Switzerland. The figures in brackets are the forecasts in the June Inflation Report. Market growth for Swedish exports is measured in terms of imports to all countries that are recipients of Swedish exports, weighted with each country's share of Swedish exports of goods 2000–2001.

Source: The Riksbank.

### Revised forecasts since the June Inflation Report

- Oil prices are expected to be higher during the forecast period. In the short term this is due to unexpectedly high outcomes.
- GDP growth in the United States is expected to be stronger this year and next. This is due to unexpectedly strong consumption so far this year and to expectations of more expansionary fiscal policy.
- GDP growth in the euro area has been revised downwards, primarily for this year, because of unexpectedly poor growth during the first six months.
- Swedish export market growth is revised downwards for this year in particular, but also for 2004 and 2005.
- International export prices are expected to increase more rapidly during 2004 as a result of higher oil prices and stronger growth in the OECD area.

## Oil Prices

Changes in oil prices affect inflation in Sweden both directly and indirectly. The direct effect comes through price changes for petrol and fuel oils. These components comprise almost 5 per cent of CPI. The indirect effect on CPI comes from price changes for input goods and manufactured products that are imported or produced in Sweden. Oil prices therefore have considerable significance for inflation trends. At the same time, oil prices are very volatile and not merely steered by economic factors but also by political factors. This makes it difficult to forecast oil prices. Over the past two years, oil prices have fluctuated between 17 and 34 USD per barrel. Below follows a review of how oil prices have been influenced by structural and political changes in recent decades. This is followed by a discussion of how the Riksbank's forecasts for oil prices have been revised in recent years.

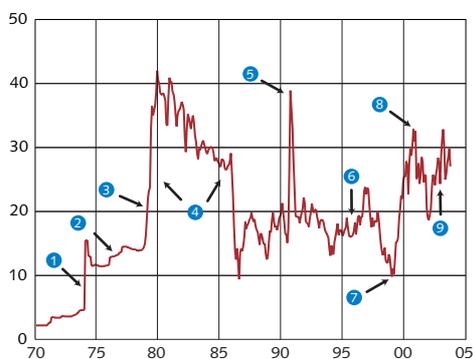
### *Oil prices – a retrospective*

Prior to 1973, oil prices were very stable and controlled by the large international oil corporations. During the 1970s, the oil industries in the OPEC countries were nationalised and the cartel gained increasing influence over the oil market.<sup>7</sup> The oil crises during the 1970s gave rise to several structural changes in the oil market. Firstly, the high oil prices made it profitable to produce oil even in, for instance, the North Sea area, which had previously been regarded as too costly. Norway and the United Kingdom now account for 8 per cent of the world's total oil production. Moreover, during the 1990s former Soviet Union countries have doubled their exports. The OECD countries' dependence on oil from OPEC countries has thus declined. Secondly, the oil price shocks have led to industrial nations choosing to reduce their oil dependence in favour of other energy sources. At the end of the 1970s, oil accounted for more than half of the OECD countries' energy consumption. This share has now fallen to around 40 per cent. Over the past decade, global consumption of oil has only increased by an average of one per cent a year, most of which has come from countries in Asia. This can be compared with an annual rate of increase around 8 per cent during the period 1966 to 1972. OPEC has thus been exposed to pressure on both the supply and demand side.

7 OPEC was formed in 1960 by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Over the course of the years more countries have joined. Today, Algeria, Libya, Indonesia, Nigeria, United Arab Emirates and Qatar are also members.

8 See, for instance, Lynch, M.C., "A new era of oil price volatility", WEFA, 2001.

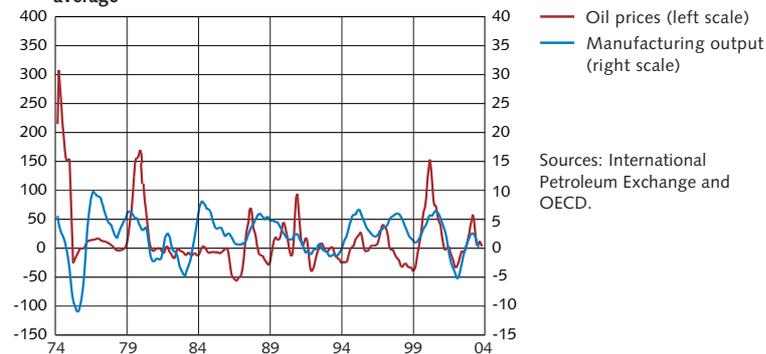
**Figure B4. Political and economic factors affecting oil prices 1970-2003. USD/barrel**



Between 1973 and 1986, oil prices reacted very little to changes in economic activity. It was political concerns that lay behind the large fluctuations in price (see Figure B4). OPEC had also chosen to take on the role of swing producer during this period. This meant that the cartel, in practice Saudi Arabia, would provide the remaining oil required after the other producers had sold their oil.

After 1986 oil prices became even more volatile.<sup>8</sup> OPEC had changed its pricing policy and moved over from the earlier policy of setting oil prices and allowing production to fluctuate, to applying production quotas and letting prices fluctuate. Saudi Arabia also abandoned its role as "swing producer". A growing spot market for oil also contributed to greater fluctuations in oil prices.

**Figure B5. OECD manufacturing output and oil prices. Percentage 12-month change, 3-month smoothed average**



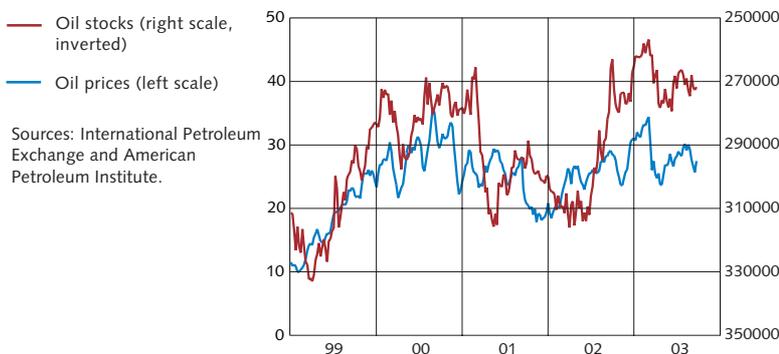
Sources: International Petroleum Exchange and OECD.

1. October War
2. Saudi Arabian oil industry nationalised
3. Revolution in Iran
4. 3 mill. barrels/day less in supply from Iran & Iraq
5. Gulf War
6. Some recovery in Kuwait's supply. OPEC increases capacity.
7. Asia crisis and mild winter. Saudi Arabia produces according to quota. Iraq resumes oil exports.
8. OPEC reduces production quotas
9. Iraq/USA

Sources: International Petroleum Exchange and Center for Global Energy Studies.

Since the mid-1990s volatility has continued to increase. Oil prices now appear to react more to changes in the economic cycle than they did before (see Figure B5). The reason for this is that surplus capacity in all areas (production, transport, refining and distribution) has declined and the industry has reduced its oil stocks. The average level of stocks (measured as the number of days of consumption) has fallen over a long period of time, but the decline has intensified since the

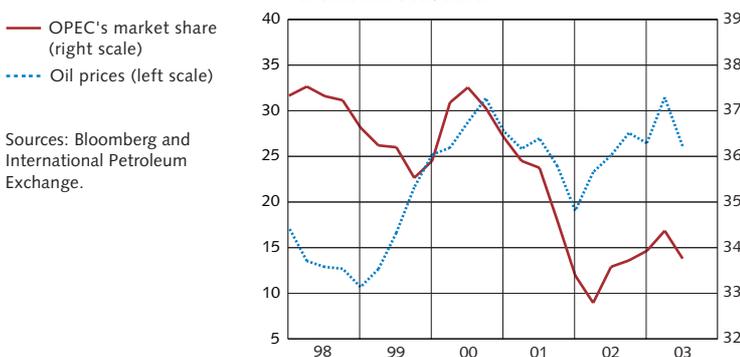
**Figure B6. Oil prices and oil stocks in the USA.**  
USD/barrel and 1000s of barrels



mid-1990s. This means that changes in demand have a much more rapid and larger impact on oil prices. Previously, it was possible to parry these fluctuations in demand to a great extent with the aid of changes in stocks.

At the end of the 1990s, OPEC changed its policy. The Asia crisis led to a greater check in economic activity in Asia, and thus also demand for oil, than most analysts had expected. Demand for oil fell by 1.7 million barrels a day. At the same time, the OPEC countries had been experiencing problems with internal discipline for some time, in that certain countries

**Figure B7. OPEC's market share and oil prices.**  
Per cent and USD/barrel



increased their production over official quotas. Saudi Arabia decided to take a more aggressive line and increased its production substantially. The result was a severe fall in oil prices. Oil prices fell during the course of one year from a total of around USD 19 per barrel at the end of 1997, to approximately USD 10 per barrel. This increased the incentive for OPEC members to hold together and they reduced their official production quotas. OPEC's strategy in recent years has been to prevent build-up of stocks in order to control prices (see Figure B6). In 2000, OPEC launched a price interval of USD 22-28 per barrel, with a preferred price of USD 25 for oil. The cartel has thus once again changed its price policy; from having stabilised production to stabilising prices.

As a result of the change in price policy, OPEC's market share has fallen from around 37 per cent of total world oil production in 1999 to around 33 per cent (see Figure B7). Other oil-producing countries, mainly Russia and Angola, have increased their production by an average of one million barrels a year in recent years. At the same time, the global demand for oil has only increased by an average of 0.6 million barrels a year.

The international economic downturn in 2001 put pressure on oil prices. In spring 2001, OPEC implemented a series of quota reductions. At the end of the summer the market showed concern that the cartel had squeezed supply too far and feared that a shortage would arise during the autumn when demand for fuel oils usually increases. Oil prices had therefore already begun to rise when the act of terrorism occurred in the United States on 11 September 2001. The first reaction in the market was soaring oil prices. However, poorer growth prospects, which indicate lower demand for oil, weighed more heavily than concern over disruptions in supply. Oil prices fell below OPEC's lower interval and were down to USD 17 per barrel at their lowest point. After taking contact with other countries, the cartel implemented production cuts in January 2002, together with Norway and Russia.

Political tensions related to the conflict in Iraq, an uneasy Easter period in the Middle East, improved economic prospects and the winter's reduction in supply pushed up oil prices in spring and summer 2002. The general impression in the market was that there was a risk premium of around USD 3-4 in the oil

prices. Simple estimates showing the correlation between stocks levels and oil prices also support this theory (see Figure B8). In September, oil prices were up around USD 28 per barrel. Later in the autumn, however, oil prices began to fall. The reason for this was that the immediate risk of a war in Iraq appeared more remote following disagreement in the UN Security Council, while OPEC's production above the official quotas increased. In November oil prices touched OPEC's lower limit of USD 22 per barrel. However, a widespread strike in Venezuela, which paralysed the country's entire oil industry, made oil prices climb to above USD 30/barrel at the end of December 2002. Oil stocks in the United States were then at their lowest levels in 30 years.

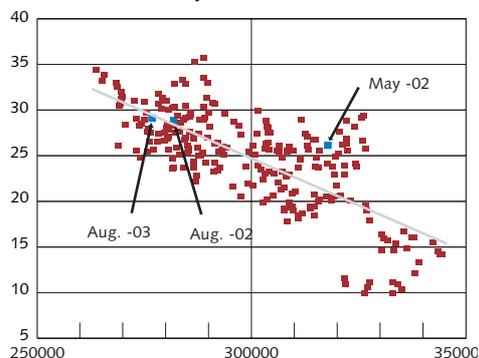
At the beginning of 2003, oil prices rose as a result of uncertainty over a possible war in Iraq and its outcome. Prices were in the interval of USD 34-35 per barrel at the beginning of March. After that prices fell heavily once again, to USD 22-23 per barrel at the end of April, when the war in Iraq proved to have a rapid outcome. At the same time, the market believed that all of the Iraqi oil fields had been secured for continued production. However, production has not proceeded as smoothly as hoped, partly as a result of sabotage to oil fields and pipelines. This is an important explanation for the renewed price increases in summer 2003, to around USD 30 per barrel at the end of August. The low crude oil stocks in the United States also contributed to higher prices. During September, oil stocks began to rise, which led to falling oil prices. However, this was offset by an unexpected cutback in production by OPEC at the end of the month. Oil prices amounted to an average of USD 27 per barrel in September.

To summarise, oil prices have amounted on average to USD 26 per barrel during the period 2000-2003, which is within the set interval of USD 22-28 per barrel. However, price fluctuations have been fairly substantial, with a lowest price of USD 17 per barrel and a highest of USD 35 per barrel.

#### *The Riksbank's forecasts of oil prices*

The description of oil prices in recent years shows the difficulties of forecasting oil prices. It will never be possible to fully predict the short-term fluctuations. One basis for forecasts of oil prices is that medium term fluctuations in re-

**Figure B8. Correlation between US oil stocks and oil prices, 1999-2003.**  
Millions barrels/day and USD/barrel

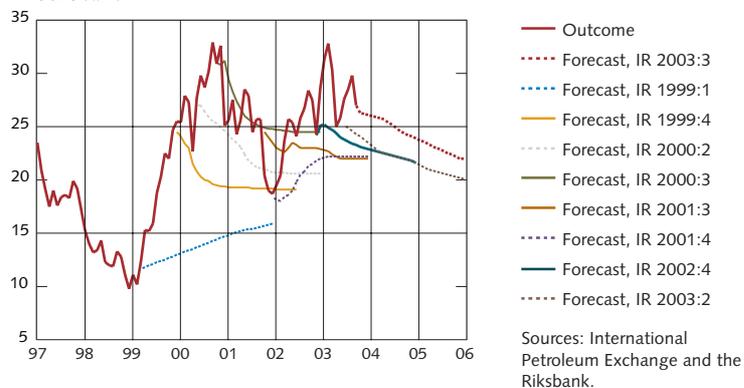


Sources: International Petroleum Exchange and American Petroleum Institute.

cent years have followed relatively closely fluctuations in global economic activity. In addition, the oil price has to a large extent been driven by factors which are difficult to forecast, and which are politically affected.

At the beginning of 1999 it was assumed that oil prices would recover and amount to around USD 16 per barrel at the end of 2001. However, the strength of the recovery was underestimated and at each forecast up to Inflation Report 2000:2 the assumption was that the highest level had been passed and that oil prices would fall (Figure B9). As oil prices continued to rise unexpectedly, the final point was gradually revised upwards. The forecast in Inflation Report 2000:2 was that oil prices would reach around USD 20/barrel at the end of 2001, which is the historical average. Structural changes in international supply and demand conditions, such as falling production

**Figure B9. A selection of historical oil forecasts and outcomes.**  
USD/barrel



Sources: International Petroleum Exchange and the Riksbank.

costs and a deterioration in cooperation within the cartel, were expected to cause oil prices to fall back to a level more sustainable in the long term. Forward prices had also risen during 1999 and 2000 and indicated long-term oil prices of around USD 20 per barrel.

When it became clearer that OPEC could manage to cooperate to keep prices up and when the cartel launched its price band of USD 22-28 per barrel during 2000, a review was made of long-term price levels. The long-term level was assumed to be USD 22/barrel instead of USD 20/barrel, i.e. in the lower interval of OPEC's band. Forward prices had also risen for the longer maturities. The reason the final price level was not considered to be higher, perhaps USD 25 per barrel, which is the cartel's benchmark, was that the supply from other oil-producing countries was estimated to increase.

However, it is always difficult to interpret data and to know which changes are temporary

and which are more permanent. During 2002 it became increasingly clear that supply might not increase at the same rate as assumed earlier, which could motivate higher long-term oil prices. At the same time, however, it appeared more probable that the United States would attack Iraq, which has a very large unutilised potential, and this had the opposite effect. The final price was therefore revised downwards slightly during 2003, from around USD 22 per barrel to just over USD 20 per barrel. As a result of the continued unrest in Iraq, the market's assessment is now much more pessimistic with regard to Iraq's future oil production and there are indications that it will be many years before production returns to earlier levels. At the same time, the international economic climate means that demand for oil can be expected to rise in the near future. There is therefore reason to expect long-term oil prices at a slightly higher level, around USD 22 per barrel.

## Economic activity in Sweden

The Riksbank pointed out in its June Inflation Report that poorer international growth prospects were expected to have a subduing effect on demand in Sweden, which would result in a lower level of resource utilisation. The view of the Swedish economy remains largely the same as in the previous report. However, new statistics indicate a slightly stronger growth rate during the first half of the year, compared with the assumption in the June report. Together with the repo rate cuts of 0.75 percentage points, this makes the picture of the Swedish economy look slightly brighter.

### ■ ■ Slightly brighter economic prospects.

Newly-received statistics and indicators still fail to provide clear-cut information on economic trends. The overall assessment in the June Inflation Report was that economic activity had been slightly poorer than anticipated. The repo rate cuts and slightly stronger growth during the first half of the year mean that the conditions for an upturn are a little better now than they were in June. Some upward revision has therefore been made in the assessment of GDP growth during the forecast period in relation to the June Inflation Report. GDP growth is now estimated at 1.5 per cent this year, 2.4 per cent during 2004 and 2.5 per cent in 2005.

**Table 3. Demand and supply in the main scenario.**  
Percentage 12-month change

	2002	2003	2004	2005
Household consumption	1.3	1.8 (1.8)	2.3 (2.1)	2.0 (1.7)
Public authority consumption	2.1	0.8 (0.3)	0.9 (0.9)	0.8 (0.7)
Gross fixed capital formation	-2.5	-1.0 (-0.8)	4.6 (5.9)	6.0 (5.1)
Inventory changes, subsidies	-0.1	0.4 (0.3)	0.1 (0.1)	0.0 (0.0)
Exports	0.4	3.5 (3.3)	4.9 (4.9)	5.8 (5.8)
-goods	2.3	3.4 (3.9)	5.2 (5.2)	6.2 (6.2)
-services	-4.0	4.0 (1.3)	4.0 (4.0)	4.5 (4.5)
Imports	-2.7	3.8 (3.4)	5.5 (5.7)	5.9 (5.5)
-goods	-1.4	3.8 (3.6)	6.0 (6.1)	6.6 (6.0)
-services	-5.0	3.6 (3.0)	4.0 (4.5)	4.0 (4.0)
GDP at market price	1.9	1.5 (1.2)	2.4 (2.4)	2.5 (2.4)

Sources: Statistics Sweden and the Riksbank.

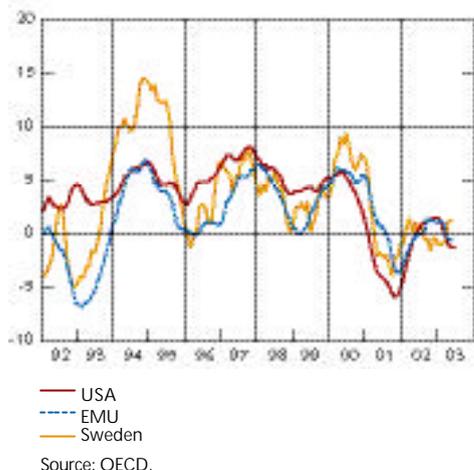
This year GDP growth is mainly expressed in household consumption expenditure. During 2004 and 2005 it is mainly household consumption expenditure and investment demand that are expected to contribute to GDP growth. As in the June Inflation Report, the Riksbank's assessment is that continued stable growth in incomes, wealth and employment will contribute to a smooth increase in household consumption.<sup>9</sup> Growth figures for fixed gross capital formation have been revised downwards for 2004 and upwards for 2005. As concluded in the previous report, net exports and public sector consumption are expected to show relatively moderate growth.

### ■ ■ Signs of improved manufacturing activity.

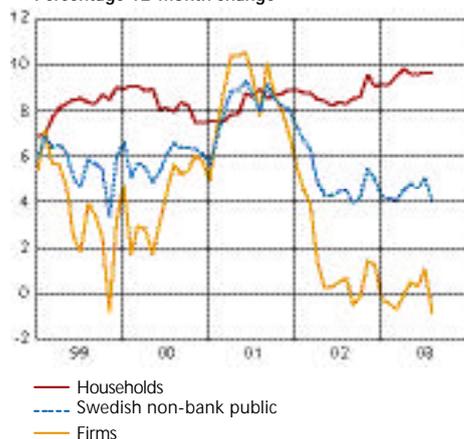
Manufacturing activity in Sweden, as in the rest of the world, has

<sup>9</sup> The difference in the growth rates for 2004 and 2005 is largely due to the leap year in 2004.

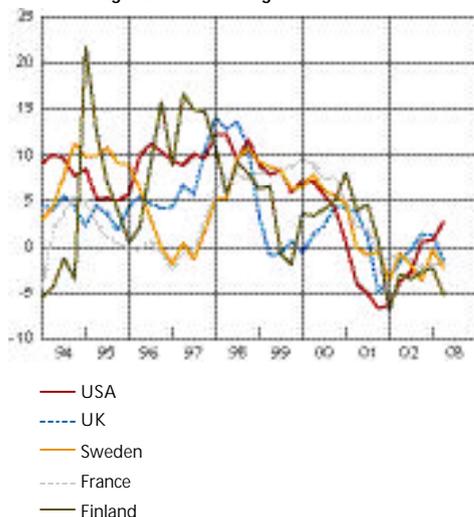
**Figure 24. Industrial output.**  
3-month moving average of percentage changes from corresponding month in previous year



**Figure 25. Lending by all credit institutions to Swedish non-bank public, sector breakdown.**  
Percentage 12-month change



**Figure 26. Total gross fixed capital formation in Finland, Sweden, USA, France and UK.**  
Percentage 12-month change



been weak since early 2001. Tendencies towards a recovery during 2002 and early 2003 have been followed by periods of weakening. The July business tendency survey from the National Institute of Economic Research showed a downturn in the manufacturing industry during Q2, compared with Q1. The number of new orders has declined both from the domestic market and the export market. However, manufacturing activity data shows that production increased slightly between Q1 and Q2 this year and indicates a positive trend in recent months (see Figure 24).

The National Institute of Economic Research's monthly business tendency surveys for August and September, along with the purchasing managers index, have shown a somewhat brighter outlook for manufacturing activity than the gloomy quarterly survey published in July. However, the recovery appears slow-moving. The purchasing managers index declined again slightly in September. According to the Institute's business tendency survey for September, figures for new orders have remained largely unchanged in recent months and production volumes have increased only marginally. However, prospects for the investment goods industry look slightly better than for manufacturing as a whole, although new orders to the motor vehicles industry declined somewhat according to the September survey.

The technology companies have published a business tendency survey for the engineering industry with regard to Q3. According to this survey, which was carried out in August, 6 out of 8 sub-branches reported an increase in new export orders on the previous quarter. It is mainly the larger engineering companies that have seen an increase in demand from the export market. All in all, the assessment is that manufacturing activity remains weak, but that there are some signs of an improvement.

#### ■ ■ Gross investments pick up at end of forecast period.

Total gross fixed capital formation fell by approximately 2 per cent during Q2 this year, compared with Q2, 2002. This was the ninth quarter in a row that capital formation deteriorated. Growth in lending to firms therefore remains very low (see Figure 25). The lack of growth is mainly explained by the international economic climate and a low level of capacity utilisation. The low demand for investment in Sweden in recent years follows developments in the other OECD countries (see Figure 26). During the period 1994 to 1999 the deviation in growth rates in individual countries was much greater. This indicates that the common denominator for the low investment levels among OECD countries in recent years has been the weak international economic trend.

The currently weak construction activity will lead to a low level of residential construction this year and a weak recovery next year. Housing investment has been weaker this year than was assumed in the June Inflation Report (see Figure 27). The growth rate for housing investment has therefore been revised down for both 2003 and 2004. Public investment is also expected to be slightly lower as a result of

strained finances in the public sector. The Riksbank has therefore made a downward revision in its figures for total fixed gross capital formation in 2003 and 2004, compared with the June Inflation Report. However, it is assumed that the investment subsidy for production of smaller apartments and low interest rates will have a positive effect on housing construction towards the end of the forecast period. Slightly more stable economic prospects, low interest rates and rising capacity utilisation are expected to gradually stimulate total fixed gross capital formation during the forecast period. The repo rate cuts since the June Inflation Report have contributed to an upward revision of the growth rate for total fixed gross capital formation in 2005.

During the first half of the year, inventory investments comprised approximately 0.5 percentage points of GDP (see Figure 28). The relatively large increase in the growth rate for inventory build-up that began at the end of 2002 appears to have slowed somewhat during the first half of this year. A slowdown in the rate of increase can also be noted for finished goods in manufacturing (see Figure 29). However, the percentage of firms responding that stocks are too large in the business tendency survey has increased during Q2 this year. All in all, the contribution to GDP growth from inventory investment is expected to be slightly higher this year in relation to the assessment made in the June Inflation Report.

■ ■ **Upturn in both exports and imports.**

Exports of goods showed weak growth last year. At the beginning of this year the rate of increase picked up for a while but then declined again. All in all, exports have shown slower growth than expected so far this year. This is probably connected with the fact that imports in the euro area in particular have been unexpectedly weak. New statistics and a downward revision of Swedish export market growth motivate a downward revision in the forecast for exports of goods in 2003. During the remainder of the period, growth in goods exports is expected to rise in line with the expectations in the June Inflation Report. An upturn in world market growth and low export prices measured in Swedish kronor are expected to provide impetus for exports.

Imports of goods declined last year but are now expected to increase. The assessment for growth in goods imports remains largely unchanged this year and next year compared with the June Inflation Report. On the other hand, a higher level of private consumption and investment leads to higher expected growth in imports of goods at the end of the forecast period, than assumed in the June Inflation Report.

From January to July this year, exports and imports increased in volume by around 3.5 per cent, compared with the same period last year. Exports of motor vehicles and pharmaceuticals increased most among manufactured goods, while iron ore increased most among raw materials. With regard to imports, the main contribution to the increase comes from petroleum products, motor vehicles and steel.

■ ■ **Trade in services still difficult to assess.**

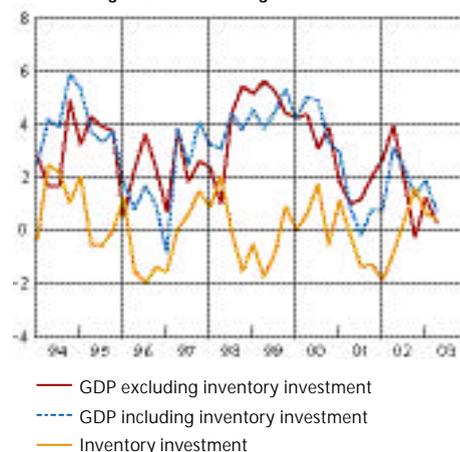
**Figure 27. Housing investment and started new construction of apartments. Percentage 12-month change**



Note. Figures for started new construction of apartments over the past four quarters are calculated taking account of systematic underestimations in reporting.

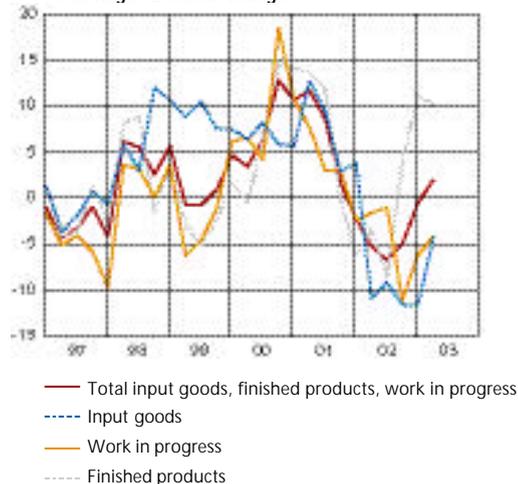
Sources: Statistics Sweden and the Riksbank.

**Figure 28. Inventory investment, percentage of GDP and GDP including and excluding inventory investment. Percentage 12-month change**



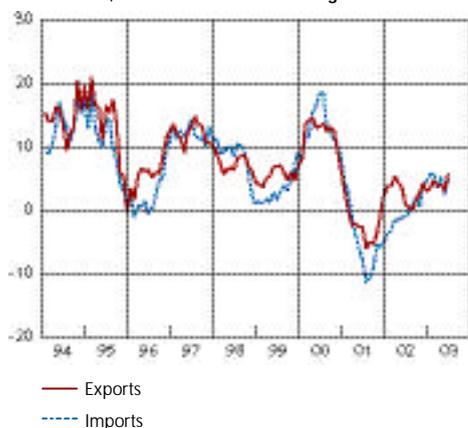
Sources: Statistics Sweden and the Riksbank.

**Figure 29. Inventory growth in industry, inventory type. Percentage 12-month change**



Sources: Statistics Sweden and the Riksbank.

Figure 30. Exports and imports of goods.  
Per cent, smoothed 3-month average



Sources: Statistics Sweden and the Riksbank.

Cross-border trade in services is difficult to assess, as it consists of several disparate activities, such as goods transports, travel, insurance, data and communication services and various types of corporate services. After a rapid increase in relation to GDP since the latter part of the 1990s, exports and imports of services have declined in both absolute terms and as a percentage of GDP during 2002. A changeover in statistical reporting at the beginning of 2003 creates particular uncertainty when comparing statistics for 2003 and 2002.

The assessment of the forecast period is based on the assumption that the downturn in cross-border trade in services has been temporary and that both exports and imports of services will recover and increase at a slightly more rapid rate than GDP during the forecast period. Exports and imports of services are expected to grow at the same rate.

#### ■ ■ Fiscal policy will become less expansionary.

A number of savings were presented by the government and its coalition parties in the 2003 spring budget bill to avoid exceeding the expenditure ceiling this year and next. An important aspect of the government's package is a reduction in the costs of sick leave. Calculations implied that further measures would be necessary to meet the expenditure ceiling for these years. This picture stands firm for 2003. New calculations indicate that the relevant expenditure will be in line with the ceiling in 2004 and below the ceiling announced in the budget bill for 2005. The slightly improved economic prospects contribute to this.

Since the June Inflation Report, two outcomes for public consumption have been presented in the National Accounts. During the first half of this year, public consumption has increased by 0.8 per cent. Central government consumption has increased more than expected; it rose by 0.7 per cent during the first half of 2003, compared with the corresponding period in 2002. The assessment for this year is that the unexpectedly strong figures for central government consumption motivate an upward revision of the forecast for total public sector consumption. In coming years, central government consumption is expected to develop in line with the forecast in the previous Inflation Report.

According to Statistics Sweden, the Municipal Workers' Union strike during the spring lowered local government consumption by around one percentage point. Despite this, local government consumption expenditure increased by almost one per cent during the first half of 2003. Over the coming years, growth in local government consumption is expected to be weak compared with recent years. The rate of wage increases in the local government sector is estimated to continue to be higher than in the economy as a whole. Local governments now find themselves in a difficult economic situation and the assessment that this sector must raise its taxes further in 2004 remains.

The budget bill for 2004 includes a boost to the temporary employment subsidy for local governments and county councils of SEK 400 million for 2004 and states that this subsidy will be made

permanent as of 2005. The Riksbank's assessment is that most of this additional contribution will be used to improve county councils and local governments' financial positions. This assessment is based partly on the fact that the local government sector as a whole is expected to show a negative financial balance for 2005 and partly because the subsidy is of a general nature. However, the subsidy is expected to generate some increase in employment in the local government sector, which also motivates some upward adjustment in figures for growth in local government consumption.

As in the previous Inflation Report, the financial balance in the public sector is expected to increase gradually and to average around 1 per cent of GDP during the forecast period. However, the upward revision in public consumption for 2003 has prompted some downward revision in the financial balance for this year.

During the period 1998-2002 the public sector financial surplus has averaged 2.5 per cent of GDP. In this sense, fiscal policy can be said to have been contractionary over the past five-year period. It is mainly thanks to the large surpluses in the pension system that saving has been so high. However, the variations from year to year have been relatively large (see Figure 31). The surplus was particularly large in 2000 and 2001, while a clear deterioration in public saving took place in 2002.

Public finances are sensitive to fluctuations in economic activity and show a high covariation with GDP growth. The reason for the high level of saving in 2001, despite relatively low GDP growth, was that some tax payments are made in arrears. Adjusted for these periodisation effects, the public sector financial balance was much lower in 2001.

**Table 4. Fiscal policy measures 1998-2002.**  
SEK billion

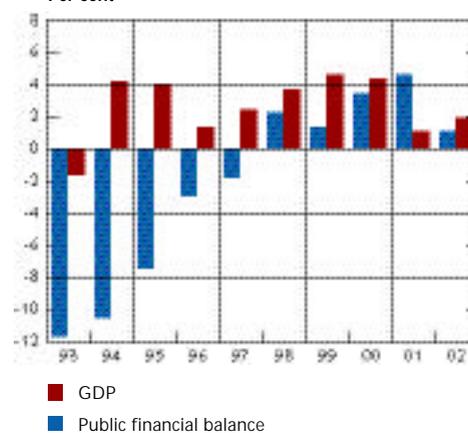
	1998	1999	2000	2001	2002
Measures a year	21	20	29	34	42
Accumulated	21	41	70	104	146

Source: National Institute of Economic Research.

Public finances showed an improvement during 1993-2001, but in recent years substantial tax reductions and increases in expenditure have been implemented. During the period 1998-2002 these measures totalled SEK 146 billion, with tax reductions accounting for less than half of this amount (see Table 4). These measures have thus meant that fiscal policy has become less contractionary. The positive development in employment and lower interest expenditure for central government debt have enabled these measures to be implemented without any marked deterioration in the public sector's financial balance.

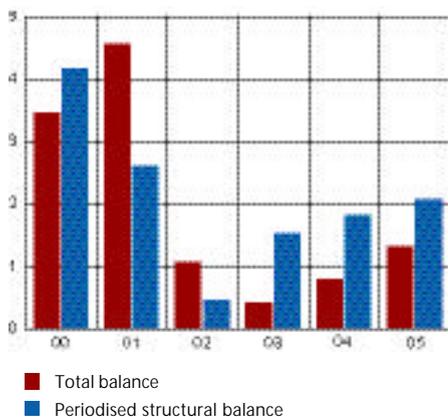
The target for the public sector financial balance is a surplus of 2 per cent of GDP on average over the economic cycle. It is possible to assess whether increases in expenditure and tax reductions in recent years have been compatible with this target by calculating the structural balance (adjusted for cyclical effects). A structural balance close to 2 per cent of GDP indicates that the target will be reached on

**Figure 31. Public sector financial balance and GDP growth.**  
Per cent



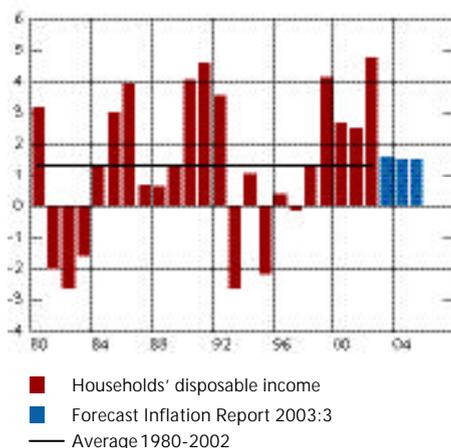
Source: Statistics Sweden.

**Figure 32. Consolidated public sector's financial balance and periodised structural balance. Per cent of GDP**



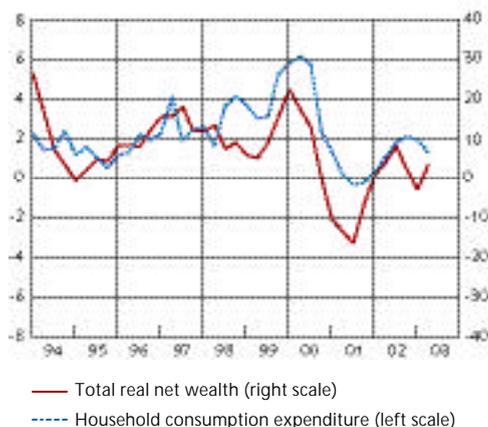
Sources: Ministry of Finance, Statistics Sweden and the Riksbank.

**Figure 33. Households' real disposable income. Percentage 12-month change**



Source: The Riksbank.

**Figure 34. Household consumption expenditure and total real net wealth. Percentage 12-month change**



Note. Real net wealth refers to property plus financial assets minus debts deflated by CPI.

Source: Statistics Sweden.

average over the cycle. Figure 32 shows the development of the (periodised) structural balance during the period 2000-2005. The structural balance deteriorated by just over 3 percentage points between 2000 and 2002, which agrees relatively well with the total for the fiscal policy measures during this period (see Table 4). The calculated structural balance fell a relatively long way below the target during 2002. However, it is expected to approach 2 per cent of GDP at the end of the forecast period as a result of savings in the 2003 spring budget bill and the local government tax increases. Whether it is possible to attain the balance target also depends on the economy's future potential growth rate.

■ ■ **Stable development in disposable incomes.**

Despite the recent downturn in economic activity, disposable incomes have shown a relatively high increase. The changeover to a more expansionary fiscal policy has contributed to this. However, as observed above, fiscal policy stimulation is expected to decline in the coming years.

The assessment of household incomes has not changed significantly since the June Inflation Report. Continued weak development in the labour market and moderate wage increases will subdue household incomes this year. Further local government tax increases in 2004 are expected to constrain total income development.

All in all, households' real disposable incomes are expected to increase by an average of just over 1.5 per cent during the forecast period, which is in line with the historical average growth rate since 1980 (see Figure 33).

■ ■ **Slight increase in household consumption.**

Growth in household consumption expenditure fell from around 6 per cent in mid-2000 to around zero during 2001. Since then, growth in consumption has risen again and is expected to continue to do so during the forecast period (see Figure 34).

It is primarily growth in household incomes and wealth that is decisive for growth in consumption. Households' confidence in the future and interest rates also affect private sector consumption.

Compared with the June Inflation Report, the forecast for disposable incomes has changed marginally. With regard to households' real net wealth, growth has been turbulent in recent years. It is difficult to determine how the sharp fall in equity prices during 2000-2001 will affect household consumption during the forecast period. Consumption of durable goods in particular is sensitive to changes in wealth. Demand for this type of goods fell during 2001, but has recovered since then (see Figure 35).

The most recent short-term statistics indicate that consumers have greater confidence in the future. According to the Consumer Survey, it is mainly their assessments of the Swedish economy and of unemployment that have become more optimistic (see Figure 36). Retail trade statistics also show a high growth rate over the past

months. This is also reflected in a high growth rate for M0, which measures the public's holdings of banknotes and coins (see Figure 37).

Lending to households, particularly from mortgage institutions, remains high (see Figure 25). Household borrowing is linked to developments in the housing market. House prices have increased slightly more this year than was assumed in the June Inflation Report. The low mortgage interest rates during the summer have probably contributed to this. However, the rate of increase in property prices is expected to decline during the forecast period.

Given the interest rate cuts since the previous Inflation Report and some upward revision of the growth in real wealth, growth in private consumption has been revised upwards slightly for 2004 and 2005. The main increase is expected to come in demand for durable goods. The forecasts for consumption and incomes mean that forecasts of household saving will be revised down for 2004 and 2005. However, the household saving ratio remains at an historically high level (see Figure 38).

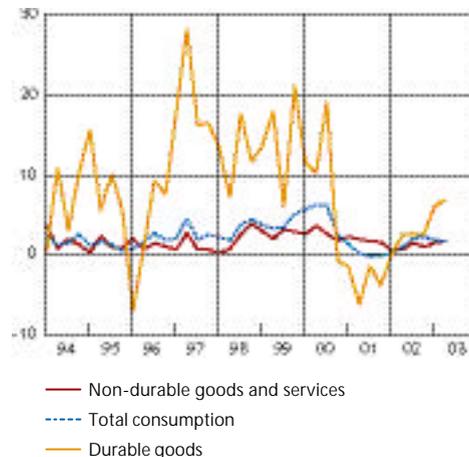
#### Revised forecasts since the June inflation Report.

- The repo rate cuts and the expected upturn in demand will contribute to a slightly larger increase in fixed gross capital formation towards the end of the forecast horizon.
- An upward revision in real wealth and lower interest rates will lead to slightly higher growth in private consumption.
- The upward revision of the growth rate for private consumption and total fixed gross capital formation leads to higher expected growth in imports of goods at the end of the forecast period.
- Slightly stronger figures for this year than expected and the increased employment subsidy for local governments motivate an upward revision in the growth rate for public sector consumption in 2003 and 2005.

#### ■ ■ Labour market growth remains weak.

Growth in the labour market remains weak. Employment figures were unchanged on average over the first eight months of the year, compared with the corresponding period last year. Employment growth has deteriorated gradually over the year, although the private services sector showed signs of some improvement during July and August. The number of employees in manufacturing has declined by around 25,000, or approximately 3 per cent, so far this year, while the number of public sector employees has increased up until the summer

Figure 35. Household consumption expenditure on durable and non-durable goods and services and total consumption. Percentage 12-month change



Source: Statistics Sweden.

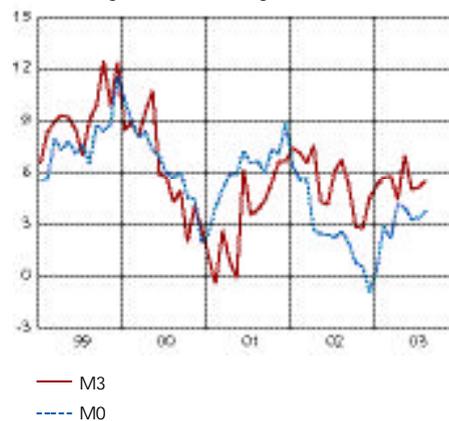
Figure 36. Households' expectations of their own finances, Sweden's economy and unemployment. Net figures



Note. Net figures refers to the percentage of households stating an improvement minus the percentage of houses stating a deterioration. Expressed as per cent.

Sources: National Institute of Economic Research and Statistics Sweden.

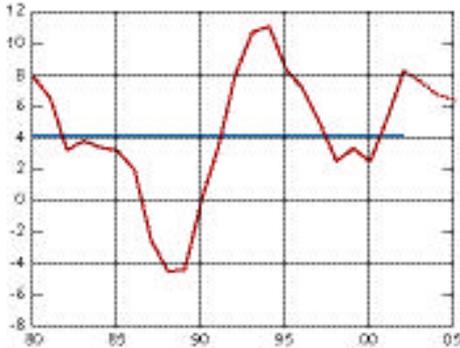
Figure 37. Money supply M0 and M3.<sup>10</sup> Percentage 12-month change



Source: Statistics Sweden.

<sup>10</sup> The narrow money aggregate M0 consists of the general public's holdings of banknotes and coins. The broad money aggregate also includes the general public's bank deposits and holdings of SEK-denominated bank certificates.

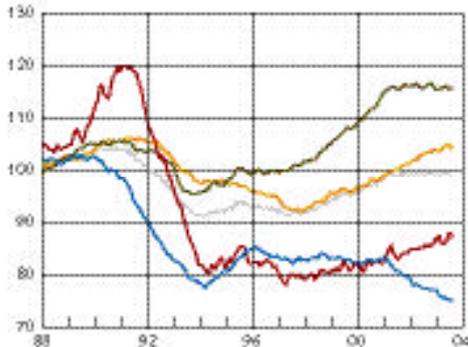
Figure 38. Household saving ratio.  
Per cent.



Note. Saving ratio follows new definition, i.e. net saving in contractual pensions is included. The horizontal line refers to the average 1980-2002. The broken line refers to the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank.

Figure 39. Number of employed in various sectors.  
Index 1987=100, seasonally-adjusted, 3-month  
sliding average

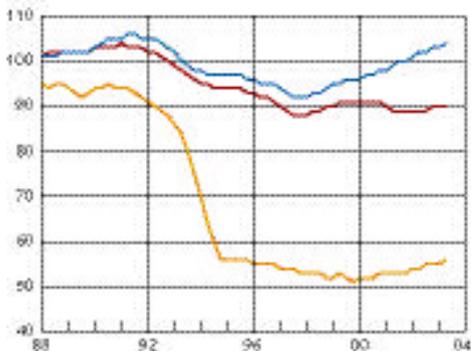


— Construction sector (6%)  
— Manufacturing industry (18%)  
— Public services sector (34%)  
— Total in Sweden  
— Private services sector (42%)

Note. Percentage of total shown in brackets.

Source: Statistics Sweden.

Figure 40. Employment in public sector.  
Index, 1987:1 = 100.



— Local government  
— Public sector services (Riksbank definition)  
— Central government

Source: Statistics Sweden.

(see Figure 39). New recruitment has increased primarily in the central government sector. There has also been a slight increase in the local government sector, probably partly due to the temporary employment subsidy (see Figure 40).

The cutbacks in National Labour Market Board training programmes and the phasing out of the Adult Education Initiative have led to a large influx of labour. During the first eight months of the year the labour force increased by approximately 30,000 people. Open unemployment continues to rise and was at 5.4 per cent in August.

The June Inflation Report predicted a more negative development in employment this year than has been the case. It was assessed that public sector employment would decline as early as the spring and that employment in the private services sector would not recover before the end of the year. Labour market data and slightly stronger GDP growth provide good reason for an upward revision in the Riksbank's forecast of employment this year. During the remainder of the forecast period relatively stable growth is expected. It is assumed that the large influx of labour will decline at the beginning of next year. When economic activity improves, labour is expected to re-enter the labour market and the labour force will increase at a steady rate throughout the rest of the forecast period (see Figure 41).

#### ■ ■ Decline in average working hours this year.

During Q1 and Q2 this year the number of hours worked declined by 0.4 and 2.5 per cent respectively. The Municipal Workers' Union strike accounted for approximately 0.3 percentage points of the decline during Q2. As employment has remained practically unchanged during this period, the reduction in the number of hours worked is solely due to a decline in average working hours. This decline has been the trend since 2000, and is largely explained by the increase in sick leave (see Figures 42 and 43). During the first six months of the year, the average working hours per employee fell by 1.4 per cent. If employees who were absent from work are discounted, average working hours fell by just under one per cent. Hence, there has also been a decline in average working hours since 2000 for persons who have been at work. This is because the normal hours worked and the amount of overtime have fallen in recent years.<sup>11</sup>

Labour force surveys suggest that the tendencies towards a more positive development in sick leave during Q1 this year are not continuing (see Figure 43). During Q2 this year sick absence increased by around 60,000 persons, from an increase of 30,000 during Q1 (compared with the corresponding quarter in 2002). New statistics from the National Social Insurance Board show that short-term sick leave has declined and that it is long-term leave that is increasing (see Figure 44). The average number of working hours this year will also be affected by the fact that there are fewer working days. Next year the average will rise because the number of working days will be unusually high. The

<sup>11</sup> During the first six months of 2003 normal working hours fell by 0.6 per cent and overtime by almost 11 per cent.

average number of working hours is being revised downwards this year, as sick leave and the amount of overtime have developed more negatively than expected. However, overtime is expected to increase in 2005 as economic activity improves and sick absence is expected to decline as the government's measures are implemented. This also requires an upward revision to average working hours for 2005. In total, this means that the number of hours worked will fall heavily this year and then show a moderate increase in 2004 and 2005.

**Table 5. Labour market forecast.**  
Percentage 12-month change

	2002	2003	2004	2005
Labour	0.1	0.5 (0.4)	0.3 (0.2)	0.4 (0.4)
Employed	0.1	-0.2 (-0.4)	0.3 (0.3)	0.6 (0.6)
Average working hours	-1.2	-0.6 (-0.2)	0.3 (0.3)	0.0 (-0.2)
Number of hours worked	-1.2	-0.8 (-0.6)	0.6 (0.8)	0.6 (0.4)
Open unemployment, percentage of labour force	4.0	4.6 (4.8)	4.6 (4.7)	4.5 (4.5)
Labour market programmes, percentage of labour force	2.6	2.1 (2.6)	1.9 (2.4)	1.8 (2.2)

■ ■ Continued moderate resource utilisation.

The June Inflation Report described resource utilisation as moderate. Estimates of the output gap have since been made using preliminary National Accounts data up to the end of Q2 2003 with the aid of three different methods:

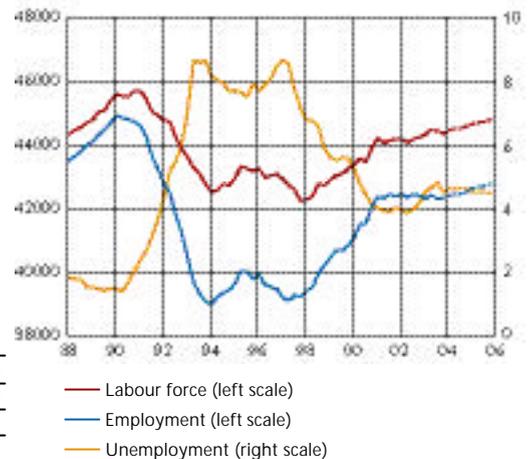
- The HP method, which estimates the output gap solely by adjusting for trends in GDP time series.
- The UC method, which estimates the output gap via correlations with unemployment and inflation.
- The production function method (PF method), which unlike the two previous methods takes into account developments in total factor productivity.

The output gaps indicate that there have been no major changes in resource utilisation between Q1 and Q2 this year and that resource utilisation remains moderate (see Figure 45).

The methods have different advantages and disadvantages and the results are very uncertain. The analysis should therefore be supplemented with several other indicators of resource utilisation.

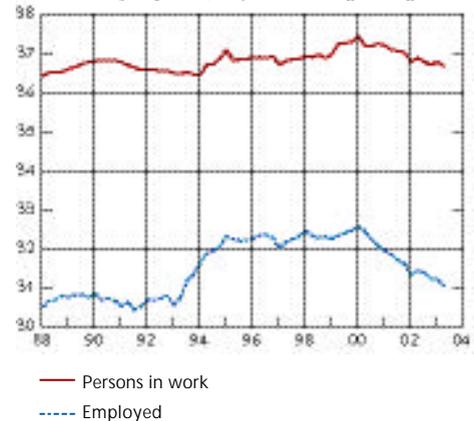
The National Institute of Economic Research's quarterly business tendency surveys contain a good deal of information that provides indications of resource utilisation in various parts of the business sector. The subdued growth in demand for industrial products has led to the present situation, where there appear to be considerable unutilised resources in industry. According to the July survey, the number of firms stating that production was primarily limited by access to production factors was at roughly the same level as in the cyclical lows of recent years, with the exception of the crisis years in the early 1990s.

**Figure 41. Labour force, employment and open unemployment.**  
100s of persons and per cent



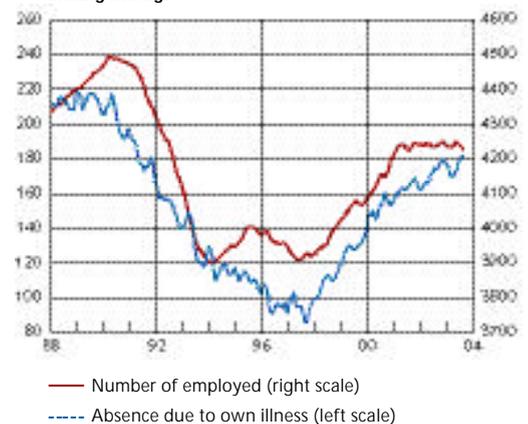
Note. Broken line represents Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank.

**Figure 42. Different measures of average working hours.**  
Seasonally-adjusted, 4-quarter sliding average



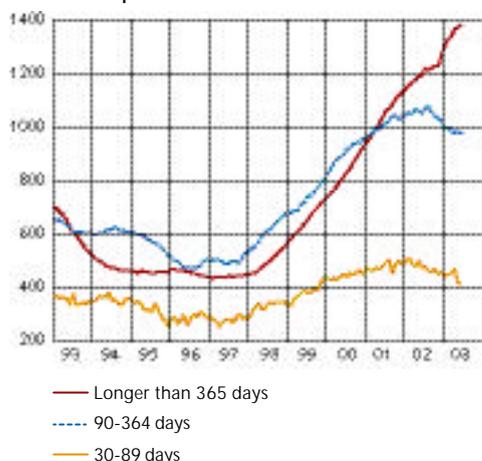
Source: Statistics Sweden.

**Figure 43. Number of employed and absentees from work due to illness.**  
1,000s of persons, seasonally-adjusted, 3-month sliding average



Source: Statistics Sweden.

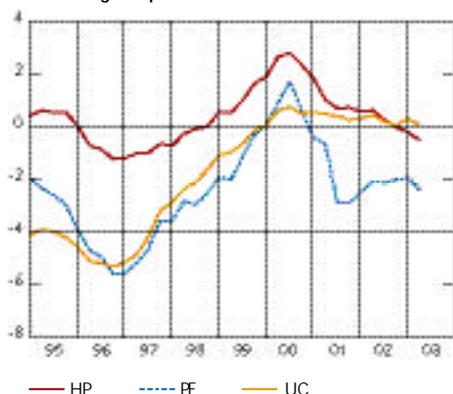
Figure 44. Sick leave, breakdown by length.  
100s of persons



Source: National Social Insurance Board.

Figure 45. Output gap according to three alternative methods, estimates using data from Q2 2003.

Percentage of potential GDP

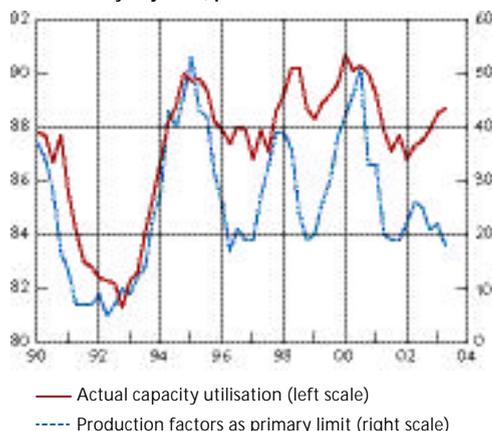


Note. HP is the Whittaker-Henderson or Hodrick-Prescott filter, UC refers to the Unobserved Components method and PF is the production function approach.

Sources: Statistics Sweden and the Riksbank.

Figure 46. Actual capacity utilisation in industry and percentage of firms with production factors as primary limitation.

Seasonally-adjusted, per cent



Sources: National Institute of Economic Research and Statistics Sweden.

Statistics Sweden's surveys of industrial capacity utilisation have covaried fairly well with the indicators in the business tendency survey. However, Statistics Sweden's data now shows an upturn in actual capacity utilisation (see Figure 46). The telecom industry accounted for some of the upturn between Q1 and Q2 this year, as a result of phased-out production capacity.

The number of firms in the construction industry reporting a labour shortage continued to decline according to the National Institute of Economic Research's July business tendency survey. At the same time, the percentage of firms citing insufficient demand as a factor limiting operations increased (see Figure 47).

Capacity utilisation is also low in the consultant sector. The business tendency surveys relating to these sectors contain data on both the percentage of firms with full capacity utilisation and the percentage with a labour shortage. The figures for capacity utilisation and labour shortage are currently so low in the consultant sector that they match the crisis years of 1992-93.

Labour market statistics also support the impression that labour shortages are not a salient problem at present. The demand situation in the labour market remains weak. The number of new job vacancies registered declined during the first eight months of the year (see Figure 48). The main decline in demand is in the public sector. However, in the business sector the number of new job vacancies registered has increased. The remaining vacancy stock was 27 per cent lower in September than at the same point last year.

All in all, the new information indicates that resource utilisation in the economy has been further subdued. However, as the forecast annual GDP growth rate has been revised slightly upwards for all of the years in the forecast horizon, resource utilisation is expected to be slightly higher than the assessment reported in June. Nevertheless, as before, resource utilisation is expected to remain moderate during the entire forecast period.

#### ■ ■ Labour productivity growth slackens.

Despite subdued production growth in 2001, employment continued to rise. This contributed to a very weak increase in labour productivity. Last year the number of hours worked fell substantially, which contributed to a marked increase in labour force productivity. Resource utilisation in the economy is currently relatively low. Many firms are therefore in a position to increase production without increasing their labour force. This implies continued high growth in labour productivity, although some slackening is also expected during the forecast period. The National Accounts for the first half of this year show that production increased more than expected, while the number of hours worked declined surprisingly. Together with the assessment of developments in production and employment, this indicates that productivity growth in the economy as a whole and in the corporate sector will be stronger this year than was forecast earlier.

■ ■ **New wage bargaining rounds.**

Wages increased by an average of approximately 4 per cent a year during 2000 and 2001 but the rate began to decline last year (see Figures 49 and 50). This is due to the slacker labour market, and to the central wage agreements signed during 2001 providing higher wage increases at the beginning of the period than at the end. Preliminary wage statistics show that the rate of wage increases during the first half of this year averaged around 3.2 per cent. This is approximately one percentage point lower than the corresponding period in 2002. All sectors indicate a weaker rate of wage increases but the downturn has been particularly tangible in the corporate sector. Wages in the public sector have been kept up as a result of the relatively large demand for labour.

It was estimated in the June Inflation Report that wages in the public sector would increase by 4.2 per cent this year and wages in the corporate sector by 3.5 per cent. However, the preliminary results so far this year indicate slightly lower rates. The rate of wage increases has therefore been revised downwards for the current year.

During 2004 new central wage agreements will be signed, covering more than two million employees in both the private and public sectors. The agreements covering most of the private sector employees expire on 31 March 2004. The agreements for public sector employees expire on 30 September 2004. There is thus greater uncertainty than usual over wage developments in coming years.

Negotiations in the private sector will begin in late autumn 2003 or around the end of the year. The wage bargaining rounds will now take place in a different economic climate than the previous rounds in 2001. At that time, the negotiations were held in the final stages of an economic upturn. Now they are expected to begin in a situation with unusually few labour shortages. Labour demand has declined and the number of redundancy notices is high (see Figure 48). The rate of wage increases in coming years is therefore expected to be below 4 per cent, which is the average rate in recent years. Towards the end of the forecast period the recovery in economic activity will lead to a renewed rise in the rate of wage increases.

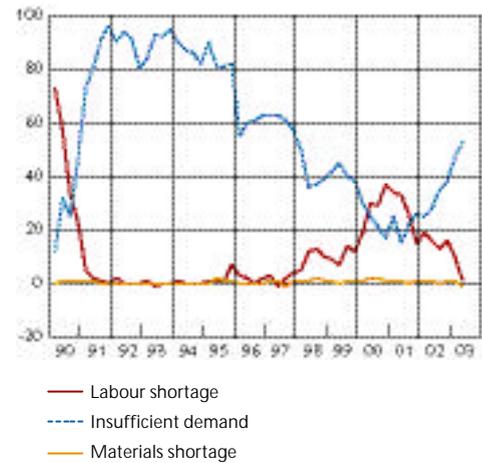
In relation to the previous Inflation Report, the improved prospects for the Swedish economy during the forecast period mean that wages in the private sector are expected to rise somewhat faster during 2004 and 2005. Wage increases in the public sector are expected to be higher than those in the private sector during the forecast period, because of a relatively stronger demand for labour.

**Table 6. Wages and productivity.**  
Percentage 12-month change

	2002	2003	2004	2005
Nominal wages, whole economy	4.1	3.6 (3.7)	3.7 (3.7)	3.9 (3.7)
Nominal wages, corporate sector	3.9	3.4 (3.5)	3.6 (3.5)	3.7 (3.6)
+ Other wage costs, corporate sector	-0.3	1.1 (1.2)	0.3 (0.4)	0.1 (0.2)
= Total wage costs, corporate sector	<b>3.7</b>	<b>4.5 (4.7)</b>	<b>3.9 (3.8)</b>	<b>3.8 (3.9)</b>
- Labour productivity, corporate sector	4.1	2.9 (2.7)	2.1 (2.3)	2.1 (2.2)
= Unit labour costs, corporate sector	<b>-0.5</b>	<b>1.6 (2.0)</b>	<b>1.8 (1.5)</b>	<b>1.7 (1.5)</b>

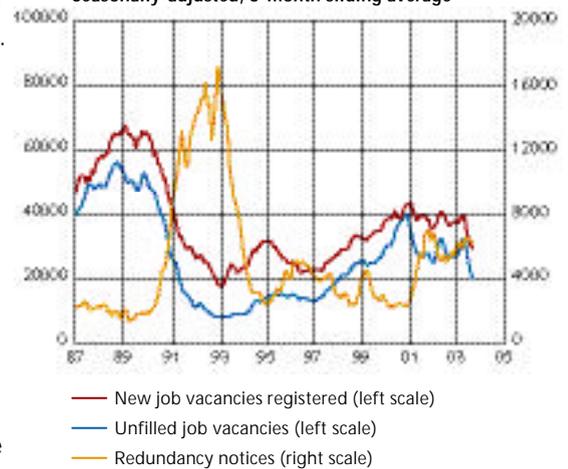
Note. Due to rounding off, figures do not add up to total.

**Figure 47. Bottlenecks in construction industry.**  
Per cent, seasonally-adjusted



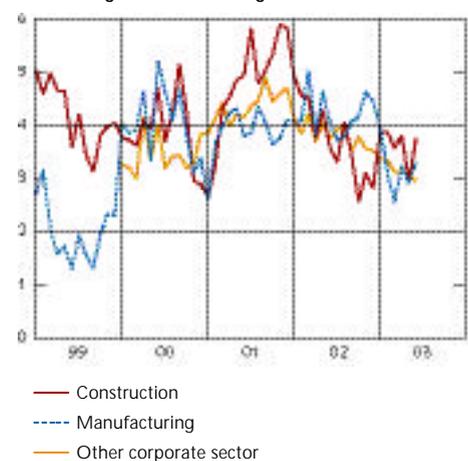
Source: National Institute of Economic Research.

**Figure 48. New and unfilled job vacancies with a duration of more than ten days and redundancy notices.**  
Seasonally-adjusted, 3-month sliding average



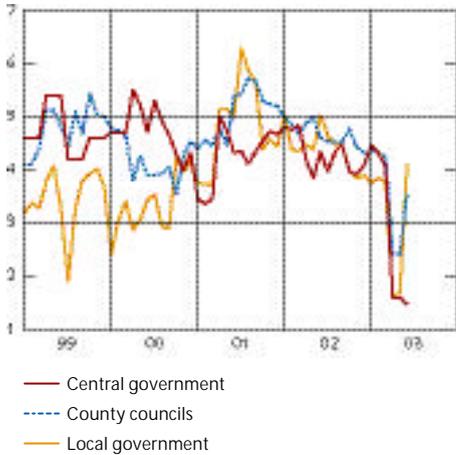
Source: Swedish National Labour Market Board.

**Figure 49. Hourly wages in corporate sector.**  
Percentage 12-month change



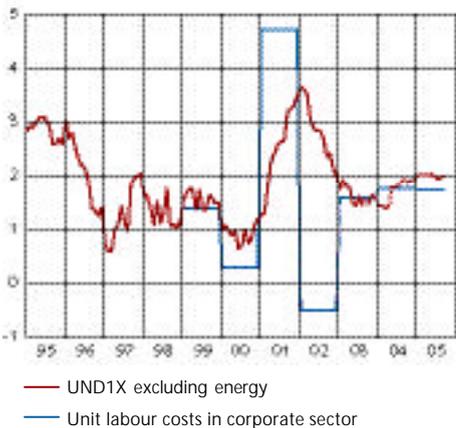
Source: National Mediation Office.

**Figure 50. Hourly wages in public sector.  
Percentage 12-month change**



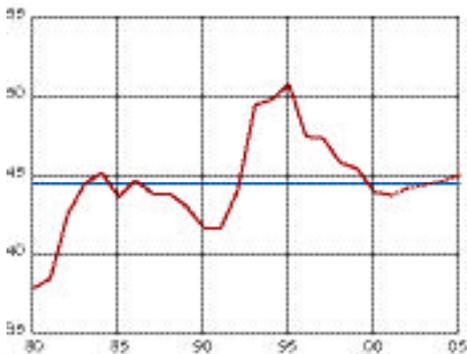
Source: National Mediation Office.

**Figure 51. Unit labour costs in corporate sector and  
UND1X excluding energy.  
Percentage 12-month change**



Note. The broken line represents the Riksbank's forecast.  
Sources: Statistics Sweden and the Riksbank.

**Figure 52. Profit shares in corporate sector.  
Percentage of GDP**



Note. The horizontal line represents average 1980-2002. The broken line represents the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank.

The negotiated employers' contributions have risen steeply this year. The main increase is in the costs for contractual pensions. In addition, employers' costs for sick leave will increase as firms' responsibility for sick pay was extended from two to three weeks with effect from 1 July this year. The assessment that wages are increasing at a slightly slower rate this year means that the negotiated employers' contributions can be expected to be slightly lower than assumed in the June Inflation Report. The proposed tax shift in 2004 means that costs for statutory employers' contributions will be approximately 0.1 percentage point lower next year. These contributions are expected to be reduced by a further 0.1 percentage point as a result of the tax shift in 2005 announced in the budget bill. Other wage costs are expected to make positive contributions to total wage costs of 1.1 percentage points this year, 0.3 percentage points next year and 0.1 percentage points in 2005. In total, wage costs in the corporate sector will be slightly higher over the coming two years than forecast in the June Inflation Report.

A higher level of labour productivity, combined with lower wage costs this year, mean that unit labour costs in the corporate sector are expected to increase at a slower rate than was assumed in June. During the remainder of the forecast period higher wage costs will lead to a slightly more rapid increase in unit labour costs than was forecast in the June Inflation Report (see Figure 51).

Profit margins in the business sector have fallen in recent years, but are expected to recover during the forecast period (see Figure 52).

#### Revised forecasts since the June Inflation Report:

- New statistics and stronger GDP growth provide good reason for an upward revision in the forecast of employment this year.
- The average number of working hours is being revised downwards this year, as sick leave and overtime have developed more negatively than expected.
- The slightly higher GDP growth rate will contribute to slightly higher resource utilisation.
- The unexpectedly high production outcome and unexpectedly marked decline in the number of hours worked have prompted some upward revision in forecasts for labour productivity this year.
- Lower wage increases than expected this year have led to a downward revision in the forecast for the current year. The upward revision in GDP growth contributes to a slightly higher rate of wage increases for 2004 and 2005.
- Higher labour productivity, combined with lower wage costs motivates a downward revision in the forecast for the growth of unit labour costs. The upward revision in the rate of wage increases for 2004 and 2005 means that unit labour costs

## Inflation expectations

Since the June Inflation Report, households' expectations of inflation one year ahead have fallen marginally, and were anchored in September at 2.2 per cent. Among firms, inflation expectations fell back comparatively sharply over the summer, according to the July business tendency survey of the National Institute of Economic Research (see Figure 53). Firms' expectations of inflation one year ahead have declined from 1.6 to 0.9 per cent since the previous survey in April.

The results of Prospera's latest survey in September point to lower inflation expectations over all time horizons compared with the May survey (see Table 7). The largest downward adjustment came from employee organisations.

In conclusion, expectations of inflation two and five years ahead are slightly above target. One year ahead, most surveys of expectations give an inflation rate just above 2 per cent, while a couple are lower. On the whole, however, expectations are lower than at the time of the June Inflation Report.

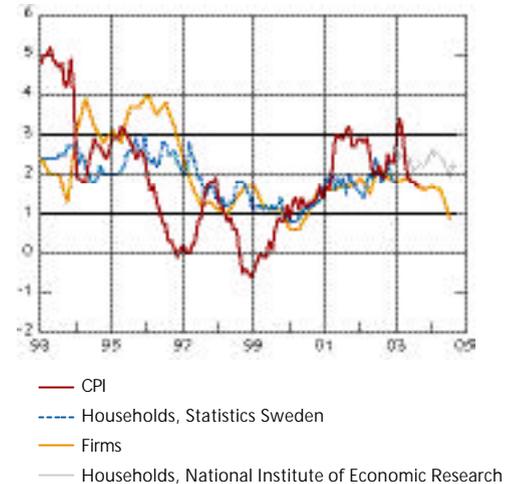
**Table 7. Expected 12-month rates of inflation according to Prospera's survey in October 2003, unless otherwise specified. Percentage 12-month change in CPI**

1 year ahead		
Money market agents	1.8	(-0.2)
Employer organisations	2.2	(-0.2)
Employee organisations	2.1	(-0.4)
Purchasing managers, trade	2.3	(-0.1)
Purchasing managers, manufacturing	2.4	(-0.2)
Households (HIP) in September (May)	2.2	(-0.1)
Firms (business tendency survey) in July (April)	0.9	(-0.7)
2 years ahead		
Money market agents	2.0	(-0.1)
Employer organisations	2.3	(-0.1)
Employee organisations	2.2	(-0.4)
Purchasing managers, trade	2.3	(-0.1)
Purchasing managers, manufacturing	2.5	(-0.2)
5 years ahead		
Money market agents	2.1	(0.0)
Employer organisations	2.1	(-0.2)
Employee organisation	2.3	(-0.2)
Purchasing managers, trade	2.3	(-0.1)
Purchasing managers, manufacturing	2.5	(0.0)

Note. The figures in parentheses are the changes in percentage points since the last survey.

Sources: National Institute of Economic Research and Prospera Research AB.

**Figure 53. CPI and inflation expectations of households and firms.**  
Per cent



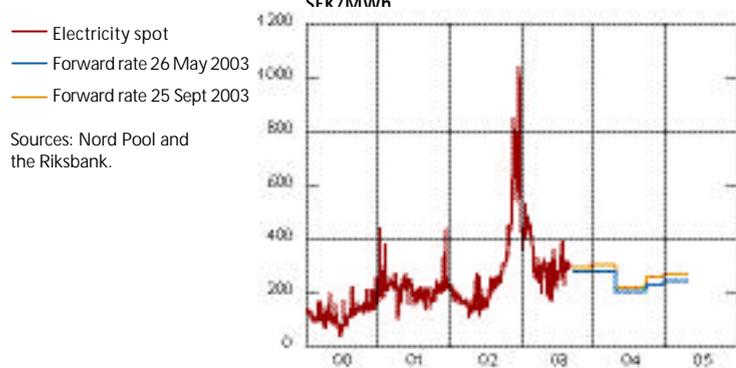
Note. The curves for inflation expectations have been displaced 12 months into the future to coincide with the CPI outcomes to which the expectations refer. The procedure for surveying households' purchasing plans was changed in January 2002.

Sources: The National Institute of Economic Research and Statistics Sweden.

## Recent developments in inflation

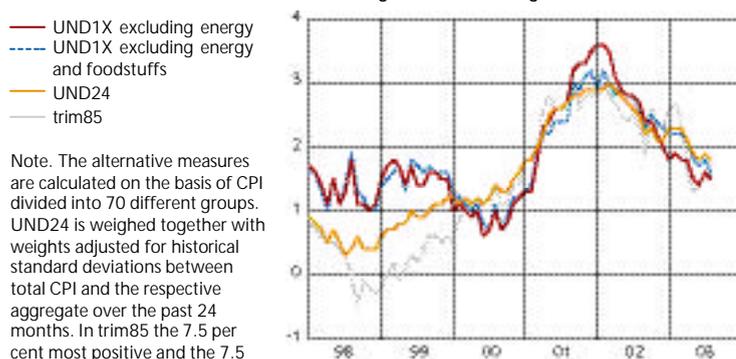
Since the June Inflation Report, CPI and measures of underlying inflation for the months May-August have been published. Rising energy prices have led to UND1X inflation being slightly higher than anticipated. In August, UND1X inflation amounted to 2.2 per cent, which is 0.2 percentage points higher than forecast in the June Inflation Report. However, when adjustments are made for the effects of energy prices, UND1X inflation has been lower than expected, amounting to 1.5 per cent in August.

Figure B10. Electricity spot and forward rates on Nord Pool.  
SEK/MWh



Sources: Nord Pool and the Riksbank.

Figure B11. Different measures of underlying inflation.  
Percentage 12-month change



Note. The alternative measures are calculated on the basis of CPI divided into 70 different groups. UND24 is weighed together with weights adjusted for historical standard deviations between total CPI and the respective aggregate over the past 24 months. In trim85 the 7.5 per cent most positive and the 7.5 per cent most negative price changes each month have been excluded.

Sources: Statistics Sweden and the Riksbank.

The Riksbank's two repo rate cuts, totalling 0.75 percentage points, since the previous Inflation Report have led to lower interest expenditure for households, which is included in CPI inflation but not UND1X inflation. As the Riksbank's inflation forecasts are made on the assumption of an unchanged repo rate, CPI inflation has been lower than in the previous forecast. In August, CPI inflation amounted to 1.7 per cent, compared with 1.9 per cent in the June forecast.

Spot prices on the Nordic electricity exchange Nord Pool have begun to rise again as a result of the dry summer, which led to low water levels in reservoirs. Pricing in the forward market indicates that electricity prices in Nord Pool will be almost 10 per cent higher per kilowatt-hour during the autumn and winter than was indicated at the beginning of the summer (see Figure B10). The world market price for oil has also been higher than previously calculated. All in all, this has meant that consumer energy prices have not fallen as expected.

Apart from the rising oil prices, imported inflation has been at a low level. For instance, prices of clothes and shoes fell surprisingly rapidly over the summer. A possible explanation for falling import prices could be an unusually strong impact from the earlier appreciation in the krona exchange rate. As import prices for consumers also contain a significant element of domestic processing, the unexpectedly slow increase in unit labour costs could also have played a role.

The Riksbank studies various measures of underlying inflation to analyse how inflation changes in the long term (see also the box "The Riksbank's monetary policy – target and indicators"). However, this is not a clear-cut concept; there are different methods of calculation. One common method is to exclude certain components from CPI inflation that are considered to reflect transitory shocks. UND1X excludes households' mortgage interest expenditure and the direct effects of changes in indirect taxes and subsidies from CPI inflation. UND1X excluding energy or UND1X excluding energy and foodstuffs are other relevant indexes, as prices for energy and foodstuffs have fluctuated considerably in recent times. Another method of measuring the underlying inflation rate, among several others, is to use formal statistical methods to systematically

exclude or reduce the significance of groups of goods and services whose prices have been shown to vary considerably.

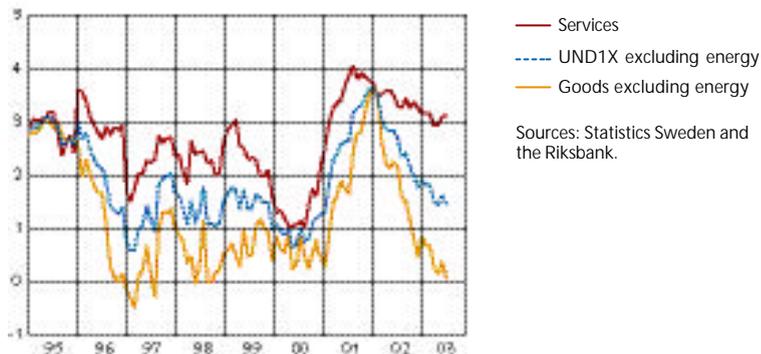
All types of measure of underlying inflation show a gradual decline in the inflation rate since spring 2002 and an annual rate of increase in August in the interval of 1.5-2 per cent (see Figure B11).

However, price trends differ considerably between goods and services (see Figure B12). The rate of increase of goods prices has fallen significantly since spring 2002. The same picture emerges if price trends in earlier processing channels are studied (see Figure B13). The rate of price increase on manufactured goods for the domestic market rose gradually from 2001 up to the end of 2002, but has declined since then and is still at a low level. For imported manufactured goods, the rate of increase has fallen since autumn 2001. The fall in prices of goods is probably connected with the slowdown in the rate of wage increases and with the improvement in productivity growth in the corporate sector during 2002. This has led to just a slow increase in unit labour costs. At the same time, the krona has strengthened gradually during the past two years and international export prices have risen only slowly. This has led to lower imported inflationary pressure.

The rate of price increases for services remains high, although it has declined somewhat over the past year. The rate for more administratively priced services, such as municipal taxes, has risen considerably in recent years as a result of the municipalities' strained finances (see Figure B14).

To summarise, unexpectedly high energy prices have meant that UND1X inflation has not fallen as much as expected since the June Inflation Report. On the other hand, lower interest expenditure for households has thus led to a smaller increase in CPI than forecast. Underlying inflationary pressure has continued to be subdued and various measures indicate a rate below 2 per cent.

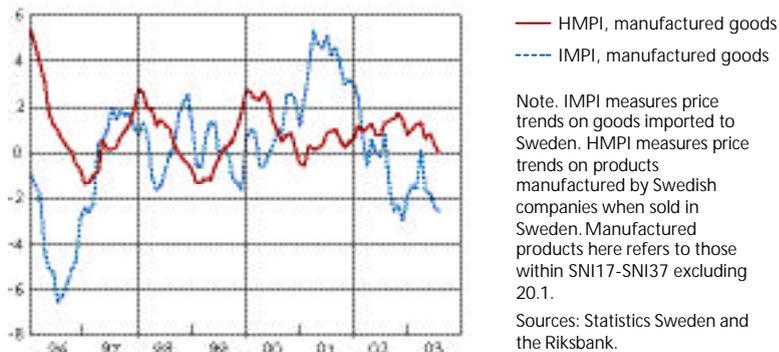
**Figure B12. UND1X inflation excluding energy broken down by goods and services. Percentage 12-month change**



— Services  
- - - UND1X excluding energy  
— Goods excluding energy

Sources: Statistics Sweden and the Riksbank.

**Figure B13. Manufactured products in the producer channel, domestic market prices and import prices. Percentage 12-month change**

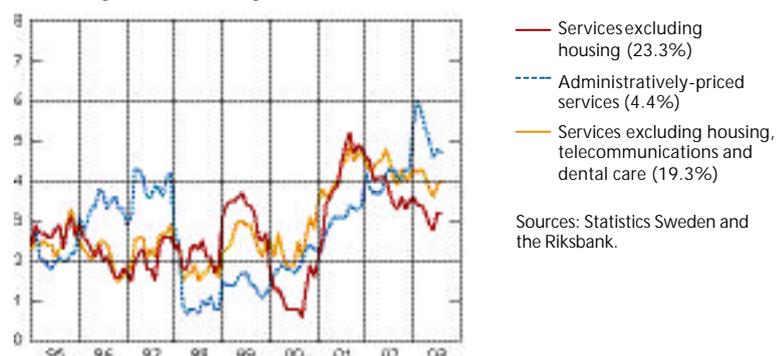


— HMPI, manufactured goods  
- - - IMPI, manufactured goods

Note. IMPI measures price trends on goods imported to Sweden. HMPI measures price trends on products manufactured by Swedish companies when sold in Sweden. Manufactured products here refers to those within SNI17-SNI37 excluding 20.1.

Sources: Statistics Sweden and the Riksbank.

**Figure B14. Services prices. Percentage 12-month change**



— Services excluding housing (23.3%)  
- - - Administratively-priced services (4.4%)  
— Services excluding housing, telecommunications and dental care (19.3%)

Sources: Statistics Sweden and the Riksbank.



## ■ Inflation assessment

The general assessment of inflation prospects up to the end of 2005 Q3 is presented in this chapter, given the technical assumption that the repo rate is held unchanged at 2.75 per cent. The chapter begins with a description of what is assessed to be the most likely path for inflation over the coming two years. This is then followed by an account of the uncertainty and risks inherent in this assessment. Finally, an outlook beyond the two-year horizon of the inflation forecast is presented.

### Inflation prospects in the main scenario

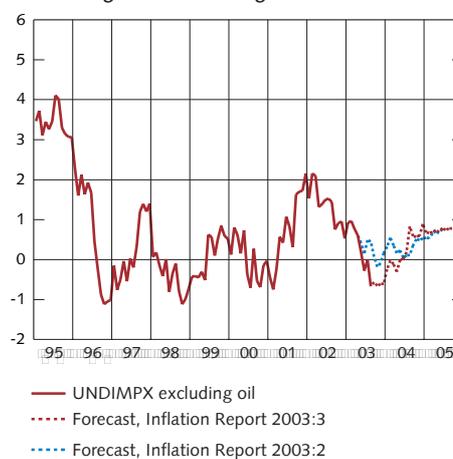
Inflation, measured in terms of UND1X, has been somewhat higher than forecast in the June Inflation Report. The reason for this deviation is that electricity prices have been higher than expected. Inflation adjusted for changes in energy prices has been lower than forecast, partly because prices of clothes and shoes fell more than anticipated over the summer. As a result of lower interest expenditure for households, the consumer price index (CPI) has increased less than forecast. In August, CPI inflation stood at 1.7 per cent while UND1X inflation was 2.2 per cent (see the box "Recent developments in inflation"). UND1X inflation excluding energy prices was 1.5 per cent in August. The corresponding figure for CPI inflation adjusted for energy prices was 0.7 per cent.

The price of crude oil was unexpectedly high during the summer. The outcome from June to September was an average of USD 3.5/ barrel higher than forecast in the June Inflation Report. The price is still expected to fall back, but not as far as previously assumed. Meanwhile, the Swedish krona has been weaker than expected, even though it has strengthened recently. The krona is judged to become stronger in the future, in line with the forecast in the June Inflation Report.

This suggests that imported inflation in the coming months will rise somewhat faster than forecast in the June Inflation Report. However, prices of imported goods excluding producer and consumer prices of oil have so far this year dropped more than expected (see Figure 54). UNDIMPX inflation excluding oil is therefore judged to remain subdued over the remainder of the year and also during the beginning of 2004. Modest rates of increase in international export prices also point to low imported prices in the year ahead.

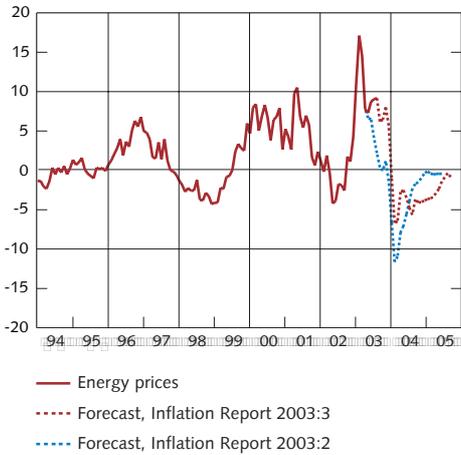
Falling oil prices and a slight strengthening of the exchange rate are expected to help restrain imported inflation in the short term. Towards the end of the forecast period, imported inflation is forecast to increase as the krona's appreciation diminishes in strength, unit labour costs rise and international export prices increase. International export prices are forecast to rise more quickly in 2004 and 2005 than assumed in the June Inflation Report. Thus, the forecast of UNDIMPX inflation two years ahead is expected to be somewhat higher than in the June Inflation Report (see Figure 54).

Figure 54. Consumer import prices excluding oil. Outcomes and forecast in the main scenario. Percentage 12-month change



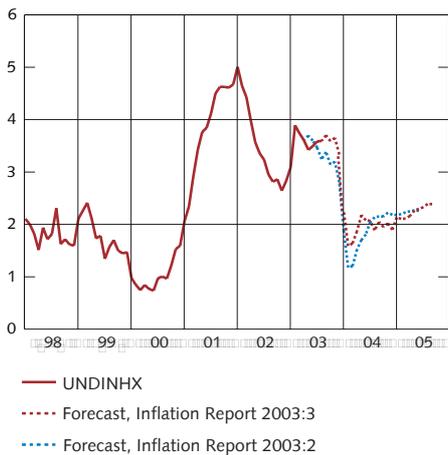
Sources: Statistics Sweden and the Riksbank.

**Figure 55. Energy prices.**  
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

**Figure 56. UNDINHX. Outcomes and forecast in the main scenario.**  
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

Supply shocks have contributed to high domestic inflation in recent years. In 2001 and 2002, food prices rose comparatively sharply. This year, increases in electricity prices have pushed up inflation. In the most recent Inflation Reports, electricity prices were forecast to fall back during the spring in line with a replenishment of reservoirs. As expected, prices also dropped last spring. Since then, the dry summer has once again pushed up prices on the Nordic electricity exchange, Nord Pool. This is one of the reasons that the forecast decline in consumer energy prices has therefore been delayed. Energy prices are judged to remain at approximately current levels during the autumn and winter. Only during spring 2004 are consumer prices for electricity expected to begin to recede. Thus, compared with the June Inflation Report, energy prices will provide a larger negative contribution to domestic inflation at the end of 2004 and during 2005 (see Figure 54).

In the short term, rising electricity prices will be countered by weaker growth in unit labour costs. Labour productivity is forecast to be higher this year, while increases in wage costs are expected to be lower. During the remainder of the forecast period, domestic inflationary pressures are judged to rise gently as resources become somewhat more strained, and this is expected to be reflected in, for instance, increasing wage costs. The forecast of wage inflation in the corporate sector has been revised up, as resource utilisation is expected to be somewhat higher over the forecast period than anticipated in the June Inflation Report. This is countered only partly by the forecast of slightly lower non-wage labour costs owing to a reduction in employer contributions. On balance, growth in wage costs is forecast to be somewhat stronger than anticipated in the June Inflation Report.

In the main scenario, rents are judged to rise by 2.7 per cent this year and by slightly less in 2004 and 2005. The impact of higher electricity prices on rents is countered by lower capital costs due to the lowering of the repo rate. Thus, the forecast for rents is unchanged compared with the June Inflation Report (see Table 8).

**Table 8. Domestic inflation (UNDINHX).**  
Percentage 12-month change

	2002	2003	2004	2005
GDP growth	1.9	1.5 (1.2)	2.4 (2.4)	2.5
Output gap	-0.4	-1.1 (-1.3)	-1.2 (-1.5)	-0.7
Units labour costs, corporate sector	-0.5	1.6 (2.0)	1.8 (1.5)	1.7
Rents, annual average	2.2	2.7 (2.6)	2.4 (2.3)	2.3
Electricity, annual average	4.8	20.5 (14.8)	-3.8 (-5.9)	-2.5
UNDINHX	3.5	3.6 (3.4)	2.0 (1.8)	2.2

Note. The figure for electricity prices and rents refers to September (June) in 2005. The annual average in 2005 for electricity prices, rents and UNDINHX refer to the average for January to September. The figures in parentheses are the forecasts in the June Inflation Report.

Sources: Statistics Sweden and the Riksbank.

The proposal in the Budget Bill to raise energy taxes as part of the green tax shift is expected to increase CPI inflation by around 0.2 percentage points per year over the coming two years (see Table 9).

This is a marginally lower contribution than previously assumed. The tax shift is expected to continue in 2005. CPI inflation will therefore be higher than UND1X inflation. This year, however, CPI inflation will be lower than UND1X inflation due to lower interest expenditure for households.

**Table 9. Change in CPI compared with UND1X.**  
Percentage 12-month change and percentage points

	Sept. 2003	Sept. 2004	Sept. 2005
UND1X	2.0 (1.9)	1.4 (1.4)	1.7
+ Effects of changes in mortgage interest expenditure	-0.8 (-0.3)	0.1 (0.1)	0.2
+ Direct effects of changes in indirect taxes and subsidies	0.2 (0.2)	0.1 (0.2)	0.2
= CPI	1.4 (1.7)	1.6 (1.7)	2.1

Note. The figures in parentheses are the forecasts in the June Inflation Report.

Source: The Riksbank.

On balance, average CPI inflation is forecast to exceed the target of 2 per cent in 2003, and to fall short in 2004. In the main scenario, CPI inflation is expected to be 1.6 per cent one year ahead and 2.1 per cent two years ahead (see Table 10 and Figure 57). The corresponding figures for UND1X inflation are 1.4 per cent and 1.7 per cent, respectively. Compared with the June Inflation Report, the forecast for UND1X inflation is largely unchanged (see Figure 58). The inflationary impulses from slightly higher resource utilisation at the end of the forecast period are countered by the larger negative contribution to inflation from electricity prices in 2005. UND1X inflation excluding energy prices has been revised up somewhat and is forecast at 2.0 per cent two years ahead (see Figure 59).

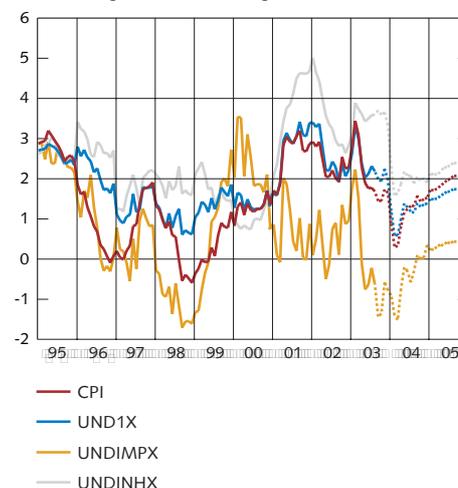
**Table 10. Inflation forecast in the main scenario.**  
Percentage 12-month change

	Annual average			12-month rate		
	2003	2004	2005	Sept. 2004	June 2005	Sept. 2005
CPI	2.1 (2.2)	1.1 (1.3)	1.9	1.6 (1.7)	2.0 (1.9)	2.1
UND1X	2.3 (2.3)	1.2 (1.1)	1.6	1.4 (1.4)	1.7 (1.6)	1.7
UNDINHX	3.6 (3.4)	2.0 (1.8)	2.2	2.0 (2.2)	2.3 (2.3)	2.4
UNDIMPX	-0.1 (0.0)	-0.5(-0.3)	0.4	0.1 (0.0)	0.4 (0.3)	0.4
UND1X excluding energy	1.6 (1.9)	1.7 (1.8)	2.0	1.9 (1.8)	2.0 (1.8)	2.0

Note. The annual average for 2005 refers to the period from January to September. The figures in parentheses are the forecasts in the June Inflation Report. UND1X is CPI inflation excluding household mortgage interest expenditure and the direct effects of changes in taxes and subsidies. UNDINHX refers only to prices of mainly domestic goods in UND1X. UNDIMPX refers to prices of mainly imported goods in UND1X.

Sources: Statistics Sweden and the Riksbank.

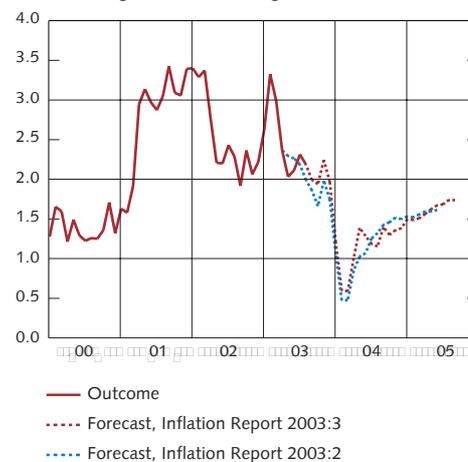
**Figure 57. Different measures of inflation, outcomes and forecasts in the main scenario.**  
Percentage 12-month change



Note. The broken lines represent forecasts.

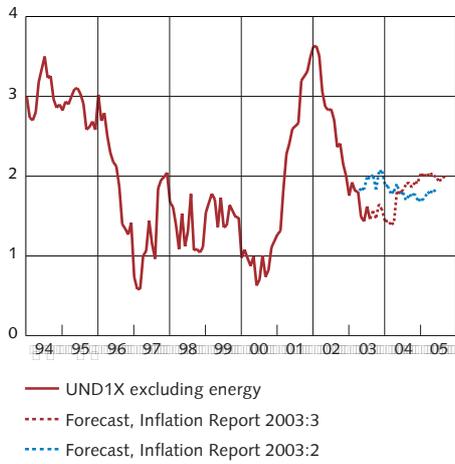
Sources: Statistics Sweden and the Riksbank.

**Figure 58. UND1X. Outcomes and forecast in the main scenario.**  
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

**Figure 59. UND1X excluding energy.  
Percentage 12-month change**



Sources: Statistics Sweden and the Riksbank.

#### Revised forecasts since the June Inflation Report.

- Import prices excluding oil have been revised down in the short term due to lower outcomes.
- The decline in consumer prices for electricity is judged not to begin until spring 2004. The negative contribution to UND1X inflation in 2005 will therefore be larger.
- Owing to slightly higher resource utilisation, inflation excluding energy will be slightly higher at the end of the forecast period.

## The risk spectrum

In the June Inflation Report, the Riksbank forecast that inflation one to two years ahead would be below target (given the assumption of an unchanged repo rate). At the same time, it was judged that the risks of inflation being lower than in the main scenario outweighed the risks of it being higher. The risks of lower inflation stemmed from the international economic outlook, while the risks of higher inflation were associated with domestic cost developments.

The main scenario of this report outlines a cautious upturn in economic activity in Sweden and abroad. This will give rise to moderate inflationary pressures, and inflation is expected to be on target a couple of years ahead. With regard to risks, the principal questions still concern if and when economic activity will gather pace and how Swedish cost levels will develop. In addition, there are risks associated with recent developments in the international foreign exchange markets.

### ■ ■ Downside risk from economic activity.

The most likely scenario over the coming years, the main scenario, is that economic activity will rise somewhat sluggishly both in Sweden and in our most important export markets. This assessment is based partly on a number of relatively clear indications of an imminent recovery, and partly on previous experience of what can be described as a normal economic cycle. For example, after a period of disinvestment, firms usually begin to rebuild the capital stock provided they expect to find a market for their products.

Compared with its assessment in the June Inflation Report, the Riksbank has now revised down slightly further its forecast of economic growth in the euro area this year. On the other hand, the growth forecast for the United States has been revised up. On balance, these revisions mean there is reason to assume a slightly slower market growth for Swedish exports this year, compared with the forecast in the June Inflation Report.

Despite this downward adjustment of Swedish export market growth, there are risks of even weaker growth. Households in the euro area may increase their consumption more slowly than forecast in the main scenario and save more. This is a possible consequence of both the continued relative weakness in the labour market and expectations of tighter fiscal policy. In turn, this could prompt firms to adopt a more cautious approach to investment.

There is also a risk that US growth has been overestimated in the main scenario. Household consumption of durable goods has been at a good level for a long period or time, partly because households have been able to refinance mortgages at lower rates. This possibility has now been reduced. At the same time, the deficits in the current account and public finances may lead to a rise in interest rates, which would curb consumption and investment.

The recent developments in the international foreign exchange markets also stem, at least in part, from the uncertainty surrounding

the implications of the deficits in the United States' foreign trade and central government finances. Although a weaker dollar could contribute to facilitating adjustment to a lower deficit in the United States, it could also have a negative effect on exports, production and employment in the euro area and even Sweden. Neither can the risk of the dollar weakening dramatically be ruled out. Experience indicates that periods of such financial market unrest tend to involve a weakening of the krona.

However, there is also reason to believe that developments in the world economy may be more favourable than forecast in the main scenario. The turnaround in the US economy may come sooner than expected. This is due in part to the effects of fiscal policy. In the Riksbank's main scenario, US households increase their saving relatively sharply owing to the adopted tax cuts and the mounting budget deficit. Were households instead to decide to use these large tax cuts to a greater extent to boost their expenditure, growth could be even higher over the coming years. Moreover, the rise in business investment may exceed the forecast in the main scenario. The connections that exist between GDP growth, profit levels and business investment suggest that this might be the case. It is also possible that US firms thus far have restrained their investment due to lingering uncertainty after the bursting of the equity price bubble and the war in Iraq. Should this uncertainty diminish perceptibly, it could lead to a steeper increase in investment than forecast in the main scenario.

On balance, the Riksbank judges the risks of economic activity leading to lower inflation than forecast in the main scenario to be greater than the risks of higher inflation.

#### ■ ■ Upside risks from cost developments.

Previously, the balance of risks was affected by fears that a high outcome in the wage negotiations for members of the Municipal Workers' Union (MWU) would spread to other sectors of the economy. This risk declined considerably after the MWU signed a two-year wage agreement at lower levels than was originally feared. However, risks remain over wage formation.

Negotiations in the private sector will begin in late autumn 2003 or around the end of the year. These negotiations will be conducted in an economic climate that is markedly weaker than during the last major wage bargaining round, when negotiations started at the end of the economic boom. This should have a restraining effect on wage formation.

However, there are still tensions in the labour market that could result in increased cost and inflationary pressures. The MWU's wage demands may be repeated by other low-wage unions, who may also demand an improvement in their relative wage situation. In the last wage bargaining round, the Swedish Trade Union Confederation agreed to concentrate their efforts on low-wage groups. Signals received from the Confederation indicate that this will also be the case in next year's negotiations. Experience shows that a focus on low-wage

groups tends to give rise to generally higher wage demands.

There is also a risk that tensions between blue-collar and white-collar workers in industry will complicate the Industrial Agreement and lead to high wage and price increases. The tensions are due to the fact that blue-collar workers, despite signing an agreement that gave them higher levels than their white-collar counterparts in the last wage bargaining round, have experienced weaker wage growth.

In the June Inflation Report, there was also judged to be a risk that the contagion effects from high electricity prices could be greater than forecast in the main scenario. In recent months, spot prices on the Nordic electricity exchange, Nord Pool, have not fallen as expected. Forward prices, which provide an indication of the future direction of spot prices, are currently almost 10 per cent higher during the autumn and winter than at the time of the June Inflation Report. Consumer prices for electricity declined over the summer, but not as much as forecast in the June Inflation Report. In the present main scenario, consumer prices for electricity are expected to remain approximately at current levels during the autumn and winter, and thereafter to begin to drop in spring 2004. There are risks, however, that electricity prices in the spot and consumer markets will remain at their present levels for longer than expected and that the indirect effects will be somewhat greater than assumed in the main scenario. Oil prices are also higher than expected.

The Riksbank's assessment is that wage formation and energy prices still constitute risks of higher inflation than in the main scenario.

The overall assessment for inflation in Sweden is that the risks of inflation being lower than in the main scenario are largely balanced by the risks of higher inflation. This assessment is shown in Figures 60 and 61, which show the uncertainty surrounding the forecasts of UND1X and CPI inflation.

**Table 11. Inflation forecasts including the risk spectrum. Percentage 12-month change**

	Annual average		12-month change	
	2003	2004	Sept. 2004	Sept. 2005
CPI	2.1 (2.2)	1.1 (1.3)	1.6 (1.4)	2.1
UND1X	2.3 (2.2)	1.2 (1.0)	1.4 (1.2)	1.7

Note. The table gives the mean values of the inflation assessment's probability distribution (see Figures 60 and 61). The figures in parentheses are the corresponding values in the June Inflation Report.

Source: The Riksbank.

**Table 12. UND1X inflation (12-month rate). Percentage probability for different outcomes.**

	UND1X<1	1<UND1X<2	2<UND1X<3	UND1X>3	Total
Sept. 2004	29 (49)	51 (43)	19 (8)	1 (0)	100
Sept. 2005	27 (33)	31 (32)	27 (24)	15 (11)	100

Note. The figures show the probability of UND1X inflation being in the column's interval. The figures in parentheses show the corresponding forecast in the June Inflation Report.

Source: The Riksbank.

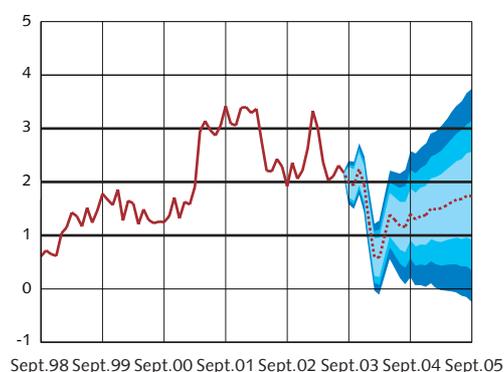
**Table 13. CPI inflation (12-month rate). Percentage probability for different outcomes**

	CPI<1	1<CPI<2	2<CPI<3	CPI>3	Total
Sept. 2004	21 (37)	52 (49)	25 (13)	2 (1)	100
Sept. 2005	19 (24)	29 (31)	30 (28)	22 (17)	100

Note. The figures show the probability of CPI inflation being in the column's interval. The figures in parentheses show the corresponding forecast in the June Inflation Report.

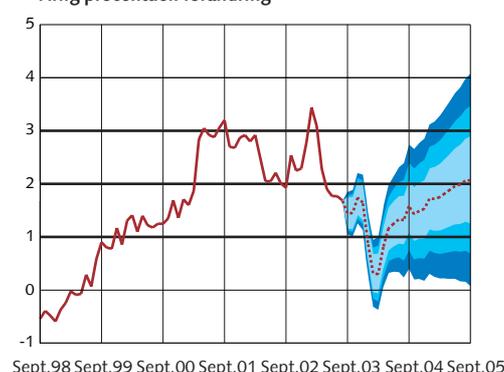
Source: The Riksbank.

**Figure 60. UND1X with uncertainty intervals. Percentage 12-month change**



Sources: Statistics Sweden and the Riksbank.

**Diagram 61. KPI-inflationen med osäkerhetsintervall. Årlig procentuell förändring**



Sources: Statistics Sweden and the Riksbank.

## Outlook beyond the forecast horizon

Monetary policy is normally based on inflation prospects one to two years ahead. A longer monetary policy horizon than one to two years is problematic because the precision in the forecasts of economic activity is likely to diminish with the length of the horizon (see also the Box "The Riksbank's monetary policy – target and indicators).

The uncertainty that surrounds developments beyond the two-year horizon, however, does not mean that these developments are insignificant for the stance of monetary policy. For instance, a situation may arise whereby inflation at the end of the forecast period is expected to be 2 per cent, but where the course of the adjustment is such that inflation beyond the two-year horizon is likely to be markedly above or below this level. In such cases it is difficult to argue that monetary policy is well balanced, despite the fact that inflation is expected to be on target within the forecast horizon. Generally, of course, it is also important to get as good an idea as possible of the more long-term tendencies in the economy so as to reduce the risk of unexpected future developments and misjudgements. Such a longer-term outlook can only provide a comparatively rough outline.

### ■ ■ The short-term perspective.

The main scenario outlined in this report is relatively undramatic. A recovery is foreseen during the forecast period but it is expected to be comparatively sluggish. After relatively weak growth this year, GDP growth is anticipated to be appreciably higher in 2004 and 2005. Total resource utilisation is forecast to rise gently over the forecast period, and a certain amount of unutilised resources is expected to remain into 2005. This should give rise to a slight increase in demand-driven inflationary pressures, although these are not expected to be a source of concern.

On the cost side, some uncertainty remains over the efficiency of Swedish wage formation. There are a number of indications, however, that there has been a reduction in the risk of high wage outcomes that could adversely affect employment in the long run. One such indication is the MWU agreement, which entailed considerably lower wage levels than was initially feared. There is still a distinct relationship between the outcome of wage negotiations and monetary policy after the result of the referendum, which suggests that wage growth should be relatively modest even during the first few years beyond the forecast horizon. However, it should be remembered that economic conditions at that time are likely to be more favourable than today, and that persistently weak labour supply growth in the long term could pose difficult problems for wage formation.

The main scenario for the Swedish economy is based on the assumption that international economic activity is also moving towards a revival. The expansionary economic policy in the United States means that the US economy is expected once again to provide impetus to the rest of the world. Growth in the majority of regions is forecast to be markedly higher over the coming two years than this

year, and unutilised resources are therefore expected to diminish gradually.

Both downside and upside risks for inflation are identified in the Inflation Report. On the whole, the risk spectrum is balanced. The downside risks mainly consist of the possibility that the deficits in public finances and on the current account in the United States will lead to a rise in interest rates and that consumption and investment demand in Europe will be weaker than expected, for instance as the result of tighter fiscal policy. The upside risks are mainly connected with wage formation and developments in electricity prices. Assuming that these risks do not materialise, it is reasonable to expect a continued rise in economic activity without overheating tendencies during the immediate years beyond the forecast horizon, whereby GDP growth for a period continues to surpass its potential level, both in Sweden and abroad.

The rate of price increases in the economy is not only affected by domestically-driven inflationary pressures but also by imported inflation. The exchange rate plays a vital role in this context. There have long been expectations of an appreciation of the krona in the light of, for instance, substantial surpluses in the current account. However, towards the end of the forecast period and thereafter, the exchange rate is not expected to have any dampening effect on inflation. Meanwhile, international price pressures are forecast to rise over time in line with increasing global resource utilisation.

To sum up, the fundamental scenario is that the upturn beginning in the coming two years will continue at a modest pace during the immediate years beyond the forecast horizon as well. Inflationary pressures will increase gently as GDP both in Sweden and abroad approaches, and gradually begins to surpass, its potential level, while the restraining effect on inflation of an appreciating krona will subside.

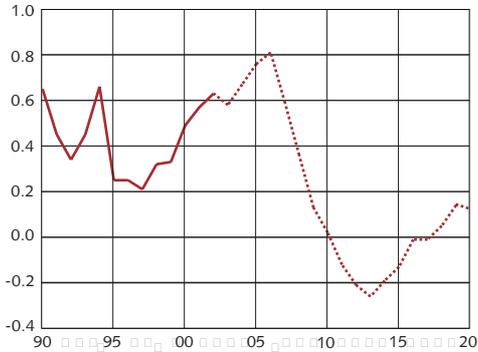
#### ■ ■ Potential growth – long-term tendencies.

One variable that is of vital importance when judging longer-term tendencies in GDP and inflation is potential, or trend, growth. The higher potential growth is, the faster Swedish GDP can grow without jeopardising the inflation target. Potential growth is determined by the rate of technological advance and the trend increase in the factors of production. A common way of analysing potential growth is by dividing it into the trend change in labour productivity (GDP per hour worked) and the trend change in labour supply (number of hours worked).

The 1990s witnessed a rapid rise in labour productivity growth, which stabilised around 2 per cent per year. This was a marked improvement on the 1980s, when the increase remained at around 1 per cent, and even more so compared with the 1970s, when the productivity trend was negative. It is not at all evident what forces actually drove developments in the 1990s, but it is possible to point to a number of factors that may have played a part.

One such factor that initially had a positive impact on productivity

**Figure 62. Population growth in Sweden, 16-64 years. Outcome and forecast. Percentage 12-month change**



Note. The broken line represents the Riksbank's forecast.

Source: Statistics Sweden.

was that the crisis at the beginning of the decade resulted in the folding up of low-productivity operations. This brought about a rise in measured labour productivity, but also an increase in unemployment. Different kinds of structural changes in the Swedish economy during the 1990s may also have been significant through their creation of a more favourable environment for productivity growth. These changes include the prioritisation of long-term sustainability in the public finances, reforms in the tax and social insurance systems, and the deregulation of several markets that were now exposed to domestic and international competition. It is likely that the relatively rapid growth in the private sector compared with the public sector also contributed, as did the progress and spread of information technology. The telecommunications sector in particular accounted for a considerable proportion of productivity growth at the end of the 1990s.

But since at least some of these factors only affect productivity growth in transitional stages, the growth seen since the crisis at the beginning of the 1990s should perhaps not lead us to make overly far-reaching conclusions about the future trend. It is fair to say, however, that long-term productivity growth today is markedly higher than during the 1970s and 1980s.

The other component of potential growth - the trend increase in labour supply - gives cause for greater concern. Even if productivity growth is usually more significant for growth than increases in the labour supply, the latter is far from unimportant. For instance, it is primarily differences in labour supply growth that explain why potential growth is considerably higher in the United States than in Sweden.

The labour supply, measured as the number of hours worked in the economy, is determined partly by the number of people in work and partly by mean working time. To some extent the labour supply is dependent on factors that are difficult to influence through economic policy. In Sweden and many other countries, for example, growth in the working-age population will be considerably less favourable within a number of years than during the last decade (see Figure 62). Consequently, the trend labour supply and trend growth will be subdued. The labour supply is also affected, however, by factors that are influenced by economic policy. This may involve finding better ways of making use of the labour reserve comprised by persons born abroad or of reversing the negative trend in long-term sick leave. In the medium term, such measures could help soften the more negative trend effect on the labour supply of our increasingly ageing population. An increase in labour force immigration could also alleviate the problems.

Taking growth in productivity and the labour supply together, it appears reasonable to conclude that long-term growth in the Swedish economy today is in the interval 2-2.5 per cent. The main part of this comprises improvements in productivity, while the trend increase in the labour supply accounts for a relatively modest proportion. It is possible, however, that potential growth will be 2 per cent rather than 2.5 per cent in the long term, unless measures are taken to counterbalance the negative demographic effects on labour supply.

## Deflation - an outline of the problems

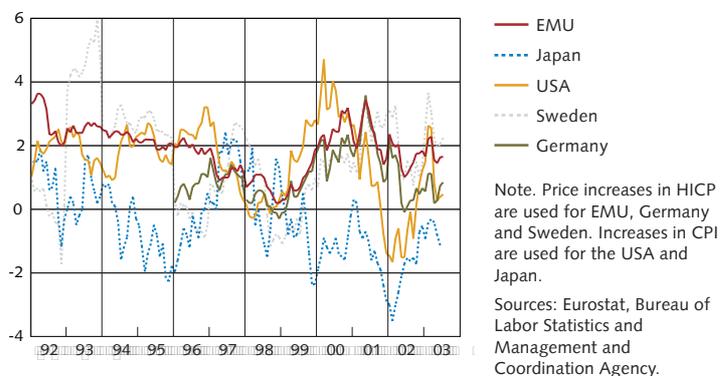
During a large part of the 1990s, the world economy experienced a general upturn in economic activity and relatively rapid GDP growth. However, over the past few years the trend appears to have turned. GDP growth has declined significantly in most countries and resource utilisation is now at a low level (see Figure 1). The trend in the Swedish economy has been slightly less negative, but there has been some slackening in economic activity. At the same time as the world economy has weakened, inflation rates in many countries have fallen appreciably. This applies in particular to goods prices, which have at times fallen in both the USA and Germany (see Figure B15). The question was then raised as to whether the USA and Germany, which are traditionally the driving forces behind global growth, were at risk of suffering the same fate as Japan, that is to say, tangibly weak growth and a prolonged fall in general price levels.<sup>12</sup>

There is good reason to always bear in mind the risk of deflation, as a fall in general price levels tends to be linked to significant problems in the real economy. However, it may be worth emphasising that falling prices are not always cause for concern, although this is often the impression given in the general debate.

### *Good and bad deflation*

The first natural distinction between good and bad concerns the length of the period of falling prices. While a more prolonged period of deflation can often have a negative impact on the functioning of the economy, this need not be the case if the fall in prices is short-lived. An example of the latter can be found in the Swedish economy at the end of 1998 and beginning of 1999. At that time, inflation measured as the 12-month change in CPI was negative for a few months, partly because an easing in monetary policy meant lower interest expenditure for households. The fact that prices were falling led to a number of eye-catching media headlines on the threat of deflation, but the real economic consequences of the actual price fall were probably very limited. Long-term inflation expectations were relatively firmly

**Figure B15. Consumer price developments for goods in different countries.**  
Percentage 12-month change



anchored around the inflation target.

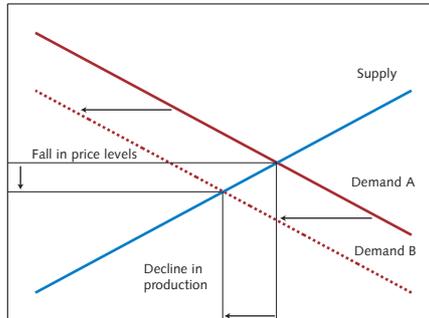
It is also important to distinguish between whether price trends are governed by developments on the demand side or on the supply side. A period of falling prices often originates from aggregate demand being significantly lower than the total supply of goods and services in the economy. This type of situation can arise for two reasons: One is that demand could fall heavily, for instance, as a result of households for some reason reducing their consumption. The other is that supply could increase significantly, for instance as a result of technological advances leading to increased productivity. Both reductions in demand and increases in supply can be linked to falling price levels. However, while demand-driven deflation is connected to a weak development in production, the opposite applies to supply-driven deflation (see Figures B16 and B17 for an outline of these effects). Because of the differences in the effects on production, these two types of deflation are sometimes referred to as "bad deflation" and "good deflation". Purely supply-driven deflation is probably fairly unusual, although developments in China over the past few years could provide an example of this. In the following discussion, deflation refers to a relatively prolonged period of falling prices and markedly weak demand. This is the definition on which international economic debate focuses.

<sup>12</sup> The situation in the United States is discussed in Bernanke, B.S., "Deflation: Making Sure 'It' Doesn't Happen Here", speech, Federal Reserve Board, 21 November 2002 and Bernanke, B.S., "An Unwelcome Fall in Inflation?" speech, Federal Reserve Board, 23 July 2003. For a discussion of the deflation threat in Germany (and the euro area), see for instance The Economist, "The Unfinished Recession", 26 September 2002, Issing, O., "The Euro after Four Years: Is There a Risk of Deflation?" speech, ECB, 2 December 2002 and Svensson, L.E.O., "The Risks of Deflation and the Effectiveness of Monetary Policy in the Euro Area", Briefing Paper (<http://www.princeton.edu/~svensson/>), 2003.

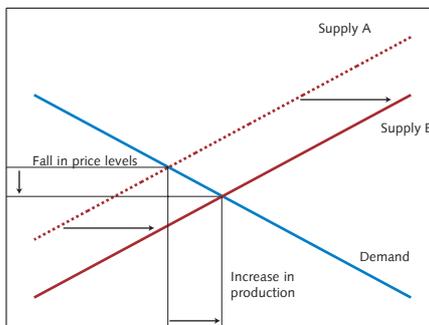
Note. The figure shows the effects on price levels (vertical axle) and production levels (horizontal axle) arising when demand falls from level A to level B.

Source: The Riksbank.

**Figure B16. Effects of a fall in aggregate demand. Price levels and production levels**



**Figure B17. Effects of an increase in aggregate supply. Price levels and production levels**



Note. The figure shows the effects on price levels (vertical axle) and production levels (horizontal axle) arising when supply increases from level A to level B.

Source: The Riksbank.

#### Why is deflation a problem?

Economic studies usually put forward three negative effects of deflation in particular. The first concerns the difficulty in reducing nominal wages. In a situation where demand and prices are falling, but nominal wages are not, firms are only able to compensate themselves for the loss of income by making staff cuts. The combination of sticky nominal wages and deflation thus reinforces the downturn caused by the initial decline in demand.

The second negative effect is due to the fact that deflation, if it is unexpected, results in a redistribution of wealth from borrowers to lenders. The reason for this is that deflation increases the real value of a given nominal debt in a way that was not anticipated when the loan contract was signed. If the loan was signed at a given nominal interest rate, the real interest payments will also be higher during the loan period. Similar effects could arise even if

inflation has an unexpected outcome that is not actually deflation. The basic problem is thus that prices do not develop as expected after the loan contract has been signed, not the deflation in itself.

The effects of deflation on the economy can be reinforced by borrowers' increased real debt burden affecting the credit granting process and financial stability. The increased real debts undermine firms' balance sheets and can make it more expensive and more difficult to borrow, which contributes to subduing economic activity.<sup>13</sup> Similarly, households whose wealth situation has deteriorated may experience problems in obtaining further credit. In addition, the increased real debt burden for borrower households and firms could lead to bankruptcies and to an increased percentage of bad loans in banks. If the worst comes to the worst, the long-term result could be problems with financial stability in the economy as a whole.

The third negative effect of deflation is related to the effects of monetary policy on activity in the economy. If a nominal interest rate of zero per cent is not sufficient to stimulate the economy and cure deflation, problems may arise. The real interest rate, that is, the nominal interest rate minus (expected) inflation, may need to be negative to stimulate a recovery. If the nominal interest rate is zero per cent, the real interest rate cannot be cut further but will remain positive.<sup>14</sup> The real interest rate that borrowers must pay will be equal to the deflation. The more prices fall, the higher the real yield needs to be for an investment to be profitable. The excessively high real interest rate in relation to demand will hamper investment and tend to reinforce the downturn.

#### What can be done to avoid deflation?

In the light of the problems outlined above, it is important to try to take preventive measures to avoid a deflation spiral. There is general agreement as to how the monetary policy framework should be designed to ensure that the risk of deflation is as small as possible. One central component is that monetary policy should be aimed at stabilising the inflation rate

<sup>13</sup> A fall in corporate sector investment as a result of a large increase in the real debt burden (known as debt deflation) is considered to have played a central role in the Great Depression of the 1930s. This hypothesis was launched by Irving Fisher ("The Debt-Deflation Theory of Great Depressions", *Econometrica* 1, 1933, pp 337-357).

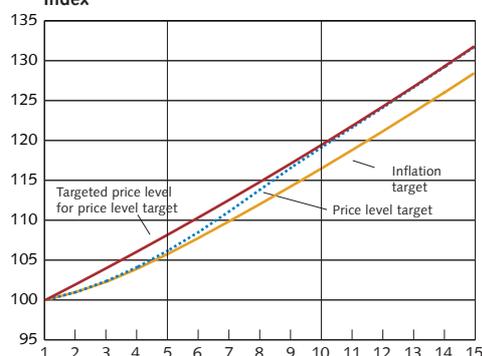
<sup>14</sup> The parallel to the case of rigid nominal wages is worth noting. While rigid nominal wages prevent a desired downward adjustment in labour costs, the zero limit for the interest rate prevents a desired adjustment of the intertemporal price of consumption today in relation to consumption tomorrow.

and inflation expectations at a positive, but low, level. This can be done by having an explicit inflation target that functions as a clear benchmark for participants in the economy. Monetary policy should be forward-looking to enable preventive measures to be taken if inflation threatens to fall below (or to exceed) the target level.

There is an interesting alternative - largely untested in practice - to defining the target in terms of a particular *inflation rate*. This is to set up a target path for future *price levels*, such as, that prices shall rise by 2 per cent a year (see Figure B18).<sup>15</sup> A price level target may be preferable to an inflation target when it comes to avoiding deflation. Perhaps the most important reason is that such a strategy, when perceived as credible, can be assumed a more efficient means of stabilising the long-term inflation expectations for the economy. A price level target means that today's inflation must be offset by higher inflation in the future (and vice versa). This means that the average inflation rate will be higher in this case than if there were no requirement to compensate for earlier low inflation, as is the case with an inflation rate target (see Figure B19).

In the slightly shorter term, a price level target can also contribute to more desirable downward adjustments in the real interest rate if deflation nevertheless occurs. The further price levels fall, the higher the future (actual and expected) inflation rate needs to be during a transition period in order to regain the target path. Further deflation will therefore "automatically" lower the real interest rate, even if the nominal rate has been cut to zero. Another advantage is that, in a deflation scenario, a price level target would not increase the real debt burden for borrowers in the same way as an inflation target risks doing. The reason is that the price level is brought back to the original path, which formed the basis for the lending contracts.

**Figure B18. Price level trends with a price level target and an inflation target respectively.**  
Index



Note. The figure shows the effects on price levels (vertical axle) arising over time (periods, horizontal axle) after inflation suddenly declines by 1 percentage point (from 2 to 1 per cent).

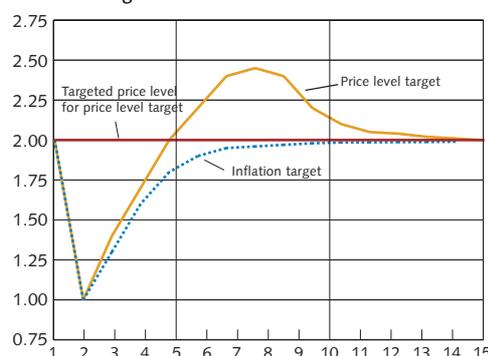
Source: The Riksbank.

*What can be done if deflation nevertheless occurs?*

Let us assume that a situation nevertheless occurs where demand is weak and prices fall, despite the central bank cutting its key rate as far as possible. What means are available to stimulate the economy? This question has been much discussed recently.<sup>16</sup> The debate has primarily concerned how the deflation trend in Japan could be broken, as well as how the Federal Reserve and other central banks should act in the event that they have exhausted all possibilities for stimulating the economy with interest rate cuts.

The discussion below focuses on monetary policy measures, but it may also be possible to use fiscal policy measures. If public finances are

**Figure B19. Inflation trends with a price level target and inflation target respectively.**  
Percentage increase



Note. The figure shows the effects on inflation (vertical axle) arising over time (periods, horizontal axle) after inflation suddenly declines by 1 percentage point (from 2 to 1 per cent).

Source: The Riksbank.

<sup>15</sup> See, for instance, Svensson, L.E.O., "Price Level Targeting vs. Inflation Targeting", *Journal of Money Credit and Banking* 31, 1999, pp. 277-295, for a more detailed discussion. Probably the only example of the implementation of a price level target is the policy conducted in Sweden during parts of the 1930s (see Berg, C. and L. Jonung, "Pioneering Price Level Targeting: The Swedish Experience 1931-1937", *Journal of Monetary Economics* 43, 1999, pp. 525-551).

<sup>16</sup> For a detailed description of the different methods and references to academic studies, see, for instance, Svensson, L.E.O., "Escaping from a Liquidity Trap and Deflation: The Foolproof Way and Others", under publication in the *Journal of Economic Perspectives*.

good to begin with, there may be scope for the central government to stimulate demand in the traditional way, by means of tax cuts and/or increases in expenditure. It is also possible to stimulate demand without an increase in the budget deficit, which could be an advantage in an economy where public finances have already been weakened. This can be done by, for example, lowering VAT and putting a tax credit on investment, which will make consumption and investment more attractive for a period of time. The central government can prevent an increase in the budget deficit by raising taxes that have less impact on demand in the economy.

With regard to monetary policy's ability to increase economic activity, the fundamental problem is that the central bank has cut its key rate to a level where it cannot be cut any further. However, there are other ways in which a central bank can try to stimulate the economy, although these are rather unconventional and largely untested. The basic idea behind most of these is that the central bank shall take measures that will lead to an increase in firms' and households' inflation expectations. As the real interest rate is defined as the nominal interest rate minus inflation expectations, it is possible to lower the real interest rate and thereby hopefully boost the economy.

However, there are also ways of influencing real interest rates via nominal interest rates. This can be achieved by aiming at other segments of the yield curve than the most short-term, if the longer-term rates are still positive. One way of trying to reduce interest on securities with a slightly longer maturity is for the central bank to declare that it intends to hold its key rate at zero per cent for a long period of time. According to the expectations hypothesis, which says that long-term interest rates are related to expected future short-term nominal rates, this should contribute to a cut in long-term interest rates. The central bank can also establish a low "interest rate ceiling" for bonds up to a certain maturity and commit itself to buying an unlimited number of bonds at this interest rate.<sup>17</sup>

A rather straightforward way of trying to

raise inflation expectations is to announce an inflation target or price level target. This has been recommended as a partial solution to the problems in Japan, where no quantified inflation target has been specified previously. However, if an inflation or price level target is to contribute to lowering the real interest rate and stimulating the economy, it must be perceived as credible by the participants in the economy. It may be difficult to gain their confidence, particularly in a situation where deflation already prevails and the key rate is around zero per cent.

One suggestion that has attracted considerable attention is based on the idea that the central bank can take action in the foreign exchange market to create the belief that inflation will actually rise. This idea can be described as follows.<sup>18</sup> The central bank announces and implements:

- 1 an upwardly inclined target path for price levels,
- 2 a depreciation and "crawling peg", i.e. a particular future path for the currency, and
- 3 an exit strategy, where the currency path is abandoned in favour of an inflation or price level target once the target path for price levels has been achieved.

To understand why steering the exchange rate can affect expectations of future price levels, it is useful to take an indirect route and ask the question: How would the exchange rate be affected *if* the promise of higher future price levels is perceived as credible by participants in the economy? Higher expectations of future domestic price levels entail a correspondingly weaker expectation of the future exchange rate. This is because the long-term interchange between domestic and foreign products is not affected. In Figure B12 the future price levels increase from PT to PT' and the exchange rate increases by an equivalent amount from VT to VT'. However, the weaker expected future exchange rate means that the exchange rate will weaken to an even lower level now (from VO to VO'). The reason for this is that if the domestic interest rate is zero per cent, while the foreign interest rate is positive, an

<sup>17</sup> These two methods have been advocated by, for instance, the US Federal Reserve, see the references to Bernanke in footnote 1.

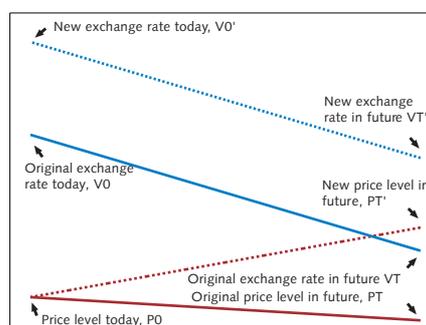
<sup>18</sup> See Svensson, L.E.O., "The Zero Bound in an Open Economy: A Foolproof Way of Escaping from a Liquidity Trap", *Monetary and Economic Studies* 19(S-1), Bank of Japan, 2001, pp. 277-312, and the reference to Svensson in footnote 5.

appreciation of the currency (around the size of the foreign interest rate) is necessary over time for the yield on an investment to be the same in domestic and foreign currency. The equilibrium condition in the international foreign exchange market would thereby be fulfilled. Figure B20 shows a parallel shift of the entire exchange rate path from line  $VOVT$  to line  $VO'VT'$ . In other words, if the promise of higher future domestic price levels is credible, this will be reflected in a significant depreciation of the domestic currency right now.

The "three-point programme" above reverses this reasoning and begins at the opposite end. The central bank can create expectations of higher domestic price levels and a weaker future exchange rate. It does this by announcing a depreciation of the currency and a crawling peg and by its actions shows that it is prepared to buy and sell unlimited amounts of foreign currency at the stated exchange rate. It should be noted that it is probably much easier to create credibility for this weaker exchange rate than for a currency exposed to depreciation pressure, as the krona was in the early 1990s. If the declared strategy does not hold, the domestic currency would appreciate back to the level prevailing before the central bank's announcement. An investor holding the domestic currency would then make a good deal. This means that there should initially, before the declared exchange rate path gains credibility, be a demand surplus for the domestic currency. This demand can easily be met by the central bank simply printing more money. The central element of this suggestion is that the central bank can create confidence in its promises through concrete action in the foreign exchange market. This is in contrast to a case where the central bank only announces an inflation or price level target.

To summarise, it can be observed that the best protection against deflation is probably to ensure that the economy develops in such a way that firms' and households' inflation expectations remain stable and at a reasonable

Figure B20. Price level and exchange rate trends.  
Price level and exchange rate



Note. The figure shows the effects on price levels and the exchange rate (vertical axle) occurring over time (horizontal axle) if the "three-point programme" is implemented.

Source: Svensson, L.E.O., "Escaping from a Liquidity Trap and Deflation: The Foolproof Way and Others", under publication in *Journal of Economic Perspectives*.

level. There are a number of indications that this level should be around 2 per cent.<sup>19</sup> Central banks that try to steer inflation towards a target of around 2 per cent can therefore be said to have an "additional insurance" with regard to avoiding the deflation trap. If deflation should nevertheless occur and the central bank has no means of cutting its key rate further, there are a number of measures to which it can resort. These include trying to influence interest rates on long-term securities, creating confidence in a higher future inflation rate or price level and taking fiscal policy measures. In this context it appears that small, open economies have a particular advantage. This is because the foreign exchange market offers an opportunity to create confidence in the promises that policy is aimed at raising future inflation and price levels.

How great a risk is there today that the USA, Germany or even Sweden will experience a situation similar to that in Japan? Most indications are that there is no major risk of deflation in any of these countries. All of them conduct monetary policy aimed, implicitly or explicitly, at maintaining price trends at a stable level around 2 per cent. In addition, economic activity has stabilised recently and even improved in some areas. It is also interesting to note that the Japanese economy has now begun to show signs of a more tangible recovery with significantly higher growth figures for GDP.

<sup>19</sup> Model simulations indicate that there is only a slight risk of the zero limit for the interest rate becoming binding when the average inflation rate is 2 per cent. Only in around 0-5 per cent of the cases does the economy approach the zero limit. See, for instance, Yates, T., "Monetary Policy and the Zero Bound to Nominal Interest Rates", *Bank of England Quarterly Bulletin*, 2003, pp. 27-37, for an outline of these simulations.