

Contents

■ Foreword	3
■ Chapter 1 Inflation assessment	5
Summary	5
The main scenario	8
The risk spectrum	11
Outlook beyond the forecast horizon	13
■ Chapter 2 Determinants of inflation	21
External economic activity and inflation	21
Interest rates and exchange rate	29
Demand and supply in the Swedish economy	32
Inflation expectations	42
Deregulations, political decisions and transitory effects	43
■ Chapter 3 The risk spectrum	45
■ <i>Boxes</i>	
Recent inflation	6
Economic policy and inflation	14
The introduction of euro notes and coins	26
The relationship between growth and inflation	38
Forecasting inflation with a repo rate	50



Foreword

Monetary policy is targeted at keeping inflation at 2 per cent, with a tolerance for deviations up to ± 1 percentage point.

This Inflation Report reproduces the main features of the presentations and discussions of inflation at the Executive Board meetings on 22 and 29 November 2001. The assessment of inflation presented here is the Riksbank's overall appraisal of inflation prospects in the current situation.

The Report constitutes the background to the Bank's monetary policy decision on 4 December 2001. Executive Board members may differ in their opinions about how inflation's main determinants will develop and the resultant impact on future inflation. Any divergent opinions of inflation prospects are recorded in the separate minutes of the Board meeting on 4 December, to be published on 18 December 2001.

The Inflation Report aims to provide a basis for monetary policy decisions and spread an awareness and knowledge of the Riksbank's assessments to a wider public, so that monetary policy is easier for outsiders to follow, understand and evaluate. The Report is also intended to encourage a discussion of matters relating to monetary policy.

This Report presents the Riksbank's appraisal of inflation prospects up to the end of 2003 Q4. In order to clarify the consequences for monetary policy, the analysis starts from the technical assumption that the repo rate is unchanged.

Chapter 1 presents the Riksbank's overall assessment of inflation prospects. Chapter 2 contains a discussion of the most probable development of inflation's principal determinants. The assessment of the risk spectrum in inflation prospects follows in Chapter 3. The report also contains a number of boxed texts, the purpose of which is to provide additional knowledge about matters of importance for inflation assessments and the formation of monetary policy.

Stockholm, December 2001
Urban Bäckström
Governor of Sveriges Riksbank

Inflation assessment

The general assessment of inflation prospects up to the end of 2003 Q4 is presented in this chapter, given the technical assumption that the repo rate is held unchanged.

Summary

Inflation is currently just below 3 per cent. As the effects of last spring's price increases for certain goods and services diminish and import prices become more subdued in connection with lower oil prices and the Swedish krona's recent appreciation, inflation will fall back and for a time be below the Riksbank's target. Somewhat weaker demand and lower resource utilisation contribute to this. Towards the end of the forecast period there is some renewed increase in inflation, partly on account of rising commodity prices. The overall assessment, including the risk spectrum, is that inflation one to two years ahead will be approximately in line with the Riksbank's target.

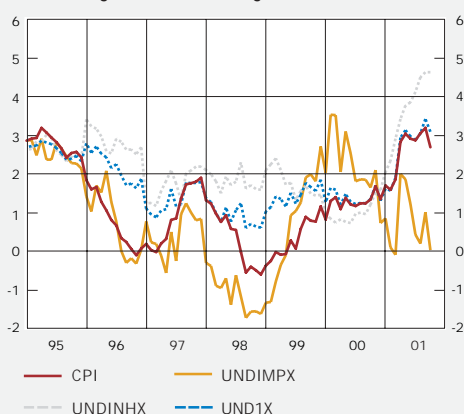
The short-run prospects for growth in the rest of the world seem to be more unfavourable than assumed in the October Report. Still, the major economic policy realignment, above all in the United States but also in other industrialised countries, together with an end to stock adjustments, does point to a recovery during the forecast period. Somewhat weaker economic activity internationally and lower commodity prices contribute to a more subdued development of international export prices. Towards the end of the forecast period, however, imported inflation will become higher, mainly on account of rising oil prices.

In Sweden, too, economic policy contributes to a recovery. Tax cuts and increased transfers generate a strong increase in household disposable income. The effect of real interest rates on domestic demand is also expansionary. The krona is expected to appreciate but is markedly under-valued initially, which is one reason why exports recover during the forecast period. GDP growth has been revised downward in the main scenario and is expected to be 1.2 per cent this year, 1.8 per cent in 2002 and 2.4 per cent in 2003.

With lower resource utilisation, domestic inflation is expected to be more subdued than was envisaged in the October Report. At the same time, imported inflation two years ahead is calculated to be higher. In the main scenario, CPI inflation is judged to be 2.0 per cent one year ahead and 2.1 per cent after two years, while the corresponding forecasts for UND1X inflation are 2.0 and 1.9 per cent.

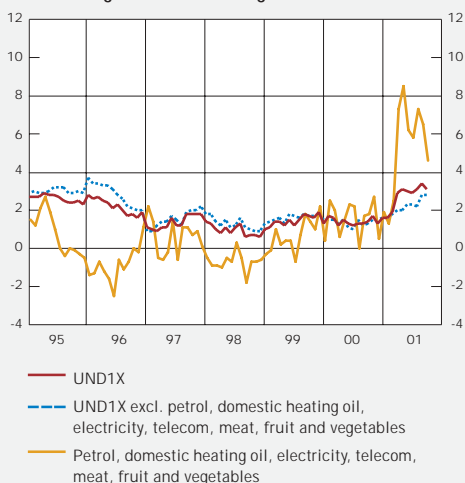
The spectrum of risks is highly relevant for the formation of monetary policy. The uncertainty in the assessment has decreased since the time of the October Report but is still considered to be greater than normal. There is a risk of inflation being lower than in the main scenario as a result of weaker economic activity, both in the rest of the world and in Sweden. At the same time there is a risk of inflation being higher if inflationary pressure and the pass-through from a weak exchange rate have been underestimated. The spectrum of risks is judged to be balanced.

Figure B1. Inflation indexes.
Percentage 12-month change



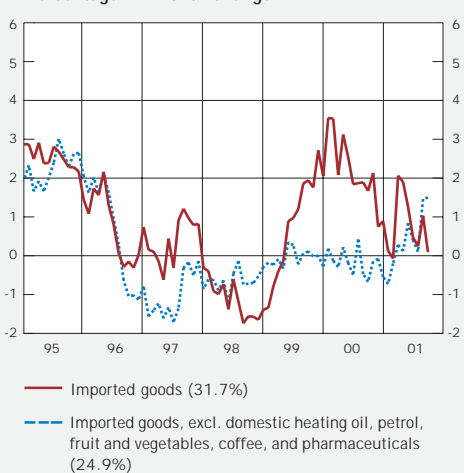
Sources: Statistics Sweden and the Riksbank.

Figure B2. UND1X with and without specified items.
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

Figure B3. Imported inflation.
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

RECENT INFLATION

In October the 12-month rate of CPI inflation was 2.7 per cent and UND1X inflation 3.1 per cent (Fig. B1). At 4.6 per cent, domestic inflation (UNDINHx) was high in October, while imported inflation excluding taxes was still low. Domestic inflation has followed the forecast in the October Report, while imported inflation (UNDIMPX) has been somewhat lower than anticipated.

Since the spring, inflation has been comparatively high and exceeded the forecasts in the course of last year. The October rate of UND1X inflation, for example, is as much as 1.4 percentage points higher than had been expected a year ago (Fig. B8, p. 38).

The main factors behind the unexpectedly high inflation are occasional supply shocks that have led to higher prices for electricity, meat, fruit, vegetables, petrol and domestic heating oil, for example. This assessment is supported both by signs that these price increases are beginning to slacken (Fig. B2) and by evidence that their recent movements are not primarily attributable to the state of demand (see the box on pp. 38–42). But even when these transitory price changes are excluded, during the past six months the increase in inflation somewhat exceeds expectations.

Table B1. Contributions to UND1X inflation in October 2001.
Percentage points

	12-month change	Contribution
Services excl. telephone charges	4.7	0.9
of which: Services priced administratively	3.3	0.2
Swedish goods excl. meat, fruit and vegetables	2.8	0.4
Meat, fruit and vegetables	7.6	0.4
Rents	2.6	0.4
Other housing expenditure	7.7	0.3
Electricity	18.1	0.4
Telephone charges	5.2	0.1
Domestic inflation (UNDINHx)	4.6	3.1
Imported manufactured goods	1.5	0.4
Petroleum products, coffee, imported fruit and vegetables, etc.	-4.5	-0.3
Imported inflation excluding taxes, total	0.0	0.0
UND1X	3.1	3.1

Sources: Statistics Sweden and the Riksbank.

OTHER IMPORTED GOODS AND SERVICES

After a long period with either a downward or just a slightly upward path, prices for manufactured imported goods rose in September and October at a 12-month rate of 1.5 per cent (Fig. B3). This may be a sign that effects of the weak exchange rate are now beginning to have some impact on consumer prices.

OTHER DOMESTIC GOODS AND SERVICES

Prices for other domestic goods and services rose in October at a 12-month rate of 3.5 per cent. The increase for goods was 2.8 per cent, which means that since the middle of last year, rising resource utilisation in the Swedish economy has been accompanied by some acceleration of price increases here (Fig. B4).

During the 1990s the price rise for services was low, partly on account of low resource utilisation and the exposure of parts of this sector to increased competition. This seems to have changed towards the end of last year, when prices started rising on a broader front. A disaggregated analysis suggests that rising prices for electricity, petroleum and food products have left their mark on transportation and restaurant prices. The relatively high resource utilisation is probably one reason why the rising costs could be passed through to consumers. Administratively determined prices for services, for example municipal tariffs and vehicle inspection charges, have also risen at an accelerating rate since the beginning of 1999 (Fig. B5).

During the past year, housing costs have risen increasingly rapidly. This is partly attributable to increased labour costs and rising electricity prices (Fig. B6).

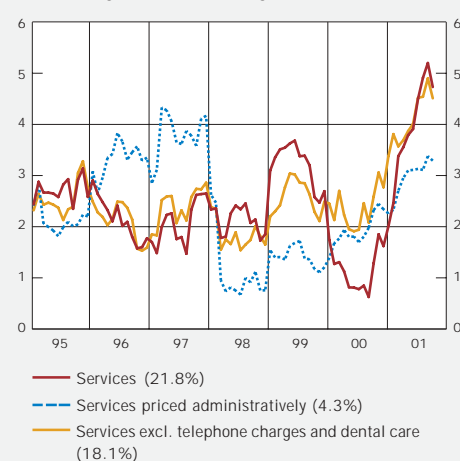
To sum up, the recent price movements can be explained comparatively satisfactorily by transitory supply shocks, the weak exchange rate and rising resource utilisation.

Figure B4. Swedish goods.
Percentage 12-month change



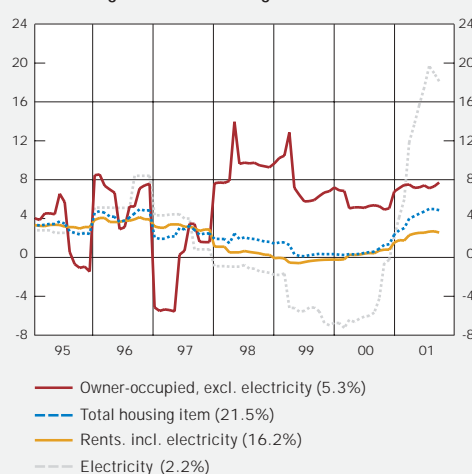
Sources: Statistics Sweden and the Riksbank.

Figure B5. Services.
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

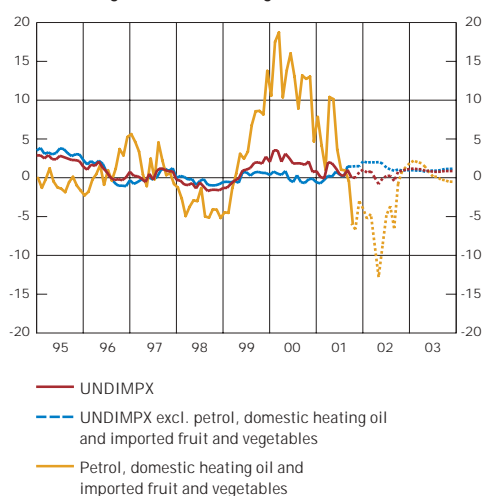
Figure B6. Housing.
Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

The main scenario

Figure 1. UNDIMPX with and without specified items. Outcome and main scenario. Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

The international economic slowdown has become increasingly synchronous. Recent statistics mainly point to activity becoming weaker than assumed earlier, though it is difficult to gauge the extent to which this has to do with temporary effects of the terrorist attacks in the United States.

Of greater importance for prospects one to two years ahead is the circumstance that economic policy has become more expansionary in virtually the whole of the OECD area. In the United States, the combination of expansionary fiscal and monetary policies is expected to underpin the propensities to invest and consume. Low inflation also helps to maintain households' real income and spending propensity without precluding increased saving that will contribute to a gradual correction of the saving imbalances that have accumulated in recent years.

Expansionary economic policies are expected to contribute to a recovery of international economic activity.

In the euro area, in contrast to the United States, the exchange rate tends to modify effects of the economic slowdown. Monetary policy's impact on demand is also expansionary in Europe, while the fiscal stimulation is not as extensive as in the United States (see the box on pp. 14–19).

In the main scenario, a recovery in global activity is assumed to begin around the middle of next year as the adjustment of stocks and investment comes to an end and the effects of the expansionary economic policy become stronger. All in all, GDP growth in the OECD area is calculated to be 0.9 per cent this year, 0.8 per cent in 2002 and 2.8 per cent in 2003.

Somewhat lower activity internationally and lower commodity prices tend to make international export prices more subdued. The world market price of oil is substantially lower than at the time of the October Report but partly in view of increased demand, towards the end of the forecast period it is expected to rise from the current levels. The extent to which international price movements affect inflation in Sweden depends in part on the exchange rate. The Swedish krona is still weak but its path has been stronger than assumed in the October Report, possibly due in some measure to less uncertainty in global financial markets. Fundamentals such as the current-account surplus and relative growth speak for a continued appreciation in the forecast period.

Decreased international uncertainty is good for the krona.

Lower international prices and a stronger exchange rate are judged to dampen imported inflation next year. In 2003, however, the contribution to inflation from import prices is marginally higher than foreseen in the October Report, mainly on account of lower oil prices initially (Fig. 1).

In Sweden, the cyclical path is characterised by weak activity initially, after which demand turns upward in connection with an expected international recovery, a weak exchange rate, an expansionary fiscal policy and some increase in share prices. The less favourable prospects in the short run are mainly connected with a somewhat weaker development of exports and investment on account of the downward revision of growth in the rest of the world.

Lower international demand has dampened economic activity in Sweden.

A recovery of spending on private consumption next year is indicated by a continuation of the strong development of household real income in connection with, for example, tax cuts and increased transfers. In time, moreover, the recovery of exports and consumption is judged to stimulate investment. All in all, GDP growth is expected to be 1.2 per cent this year, 1.8 per cent in 2002 and 2.4 per cent in 2003, which is below the assessments in the October Report.

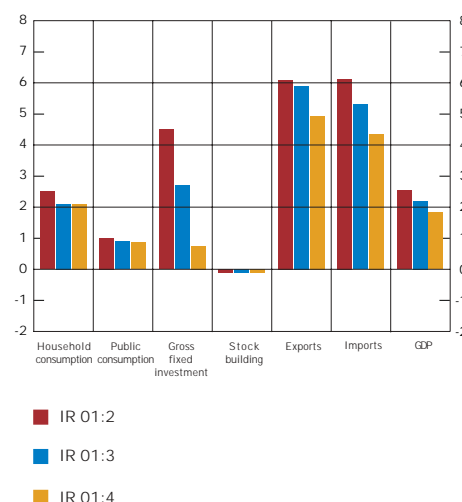
Despite the economic slowdown, employment has risen strongly this year. Next year the weaker growth is assumed to show up in employment and lead to some increase in open unemployment. Lower aggregate demand pressure and more unutilised resources prompt a downward revision of resource utilisation. With the present growth forecast, unutilised resources are calculated to become more plentiful this year and in most of 2002, followed by a gradual reduction. Towards the end of the forecast period it is foreseen that the economy will once more be approaching full capacity utilisation.

The wage forecast has also been revised marginally downwards compared with the October Report. The question of whether the rate of wage increases is compatible with stable, low inflation depends in part on productivity. This year's weak productivity growth is considered to be temporary and a successive return to more normal levels is foreseen. Unit labour costs are judged to rise 3.3 per cent this year and 1.8 per cent in 2002 as well as 2003.

Inflation two years ahead is judged to be in line with the targeted rate.

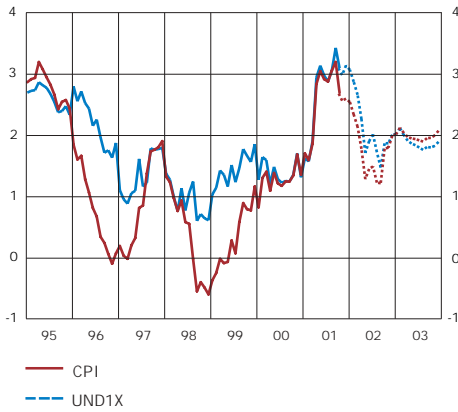
The high inflation outcomes to date this year mean that in the short run inflation is either just above or inside the target's tolerance interval. In the coming year, however, the rate is judged to be lower than forecast in the October Report. This is mainly because, contrary to an earlier announcement, Telia will not be raising subscription charges. A factor in the opposite direction is that the effect on rents from the reduction of property taxes seems to be smaller than expected earlier. As before, the sizeable price increases for certain items (electricity, telecom, vegetables and meat) that have been a major factor behind the higher inflation, are considered to be mainly of a transitory nature.

Figure 2. Inflation Report forecasts of supply and demand in 2002. Percentage annual change



Source: The Riksbank.

Figure 3. CPI and UND1X. Outcome and main scenario. Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

The lower resource utilisation this year and next is expected to result in more subdued domestic inflation than was foreseen in the October Report. Together with the prospects for imported inflation, in the main scenario CPI inflation is accordingly judged to be 2.0 per cent one year from now and 2.1 per cent after two years, while the corresponding forecasts for UND1X inflation are 2.0 and 1.9 per cent (Table 1).

Table 1. Inflation forecasts in the main scenario. Per cent

	Annual rate			12-month rate		
	2001	2002	2003	Dec. 2002	Sept. 2003	Dec. 2003
CPI	2.6 (2.6)	1.8 (2.0)	2.0	2.0 (2.0)	2.0 (2.1)	2.1
UND1X	2.7 (2.8)	2.1 (2.4)	1.9	2.0 (1.9)	1.8 (2.0)	1.9
UNDINHX	3.8 (3.8)	3.0 (3.2)	2.4	2.5 (2.5)	2.3 (2.7)	2.4
UNDIMPX	0.7 (0.7)	0.4 (0.7)	0.9	1.1 (0.8)	0.8 (0.7)	0.9

Note. The figures in parentheses are the forecasts in the October Report. UNDIMPX represents price changes for goods that are mainly imported, excluding direct effects of changes in indirect taxes and subsidies.

Source: The Riksbank.

The risk spectrum

In that inflation forecasts are inherently uncertain, the spectrum of risks is also relevant for monetary policy. In the present assessment it is considered that the downside risks for inflation from a weaker economic trend, internationally as well as in Sweden, are balanced by an upside risk that stems mainly from the possibility that inflationary pressure in a wide sense has been underestimated.

A central feature of the inflation assessment in the main scenario is economic prospects, internationally as well as in Sweden. If, say, the saving imbalances in the United States are corrected to a greater extent than assumed here, or if the security policy situation were to worsen, the economic recovery could be further delayed. For the Swedish economy, lower global trade could lead to weaker GDP growth and ultimately to a lower rate of price increases. Some of the initial uncertainty after the terrorist attacks has disappeared since the October Report, as is evident, for example, from the stabilisation of financial markets, and economic policy has become more expansionary. Moreover, the main scenario's assessment of international activity has been revised downwards compared with the October Report. Consequently there is now considered to be less risk of the international economic trend being essentially weaker, particularly towards the end of the forecast period, than foreseen in the main scenario.

In Sweden, economic activity could also be weaker on account of domestic factors. During this year, export growth for goods has come to a standstill at the same time as the weakening of the krona does not seem to have countered this tendency to the same extent as in earlier slowdowns. This has raised questions about an unfavourable composition of exports and more far-reaching structural problems in export industries. Another conceivable cause of weaker domestic economic activity is a more marked worsening of the labour market that delays the upswing in consumption. Resource utilisation and inflationary pressure would then be lower, too.

The risk of inflation being lower than in the main scenario is accompanied by upside risks. As previously, one risk of higher inflation lies in a less favourable relationship between growth and inflation in a wide sense. In the course of this year inflation has moved up even though total resources do not seem to have been particularly strained. This is the case even when allowance is made for some price increases being of a transitory nature. Econometric studies of the relationship do not suggest that the Riksbank has appreciably misjudged either the level of the output gap or the effects on inflation from changes in resource utilisation.¹ Recently, moreover, inflation has in fact become somewhat lower. Against this background, there are arguments for the upside risk from the relationship between growth and inflation being somewhat smaller than at the time of the October Report.

1 For a more detailed analysis, see the box on pp. 38–42.

The picture of inflation expectations is not uniform. Financial market prices point to expectations around 2 per cent and the survey data for households and manufacturing support this. With some exception, professional forecasters likewise count on inflation falling back towards the targeted rate. According to Prospera's latest survey, however, labour market organisations and purchasing managers in the corporate sector expect inflation to remain high. If these measurements give a reasonably accurate picture of expectations of future inflation among wage- and price-setters, there is a risk of a permanent increase in inflation. It would be particularly serious if the temporary increase in inflation were to serve as a ground for higher wages in the future, with a risk of inflation being permanently elevated.

There are also the risks of the exchange rate following a weaker path and the pass-through to import prices being larger than allowed for in the main scenario.

The decreased international uncertainty has reduced the risk of a weaker exchange rate, which means that the risk of higher inflation on this account is now judged to be smaller than before. At the same time, the feasibility of raising prices may have been underestimated: the outlook for household income is favourable, retailers count on rising demand and the growth of private consumption in the coming years is judged to be higher than in 2001. Moreover, if households and firms count initially on a higher rate of price increases, there is presumably a greater risk of rising import prices.

All in all, the downside risks from weaker economic activity are balanced by the upside risks from domestic inflationary pressure. This means that the assessment with the risk spectrum taken into account is congruent with the main scenario's forecast. The rates of UND1X inflation one to two years ahead are expected to be 2.0 and 1.9 per cent, respectively.

Prospects beyond the forecast horizon

Monetary policy is normally directed at fulfilling the inflation target one to two years ahead. However, even developments in both the shorter and the longer run may be significant for monetary policy. A picture of inflation in a somewhat longer perspective is therefore sketched below.

In the latter part of the forecast period, the main scenario envisages a relatively strong recovery. A development along these lines makes it reasonable to count on gradually rising resource utilisation and inflationary pressure, which in time may call for higher interest rates. With more strained resources, the re-negotiation of wage agreements for large groups of employees in the course of 2004 could result in settlements at higher levels. High inflation during 2002 and 2003 could contribute to such an outcome because it would upset wage-earners' confidence in the 2 per cent target. Higher wage levels raise corporate costs and normally tend to push prices up, at least if they cannot be countered by higher productivity growth.

The exchange rate is also relevant for inflation prospects. It is judged that towards the end of the forecast period the krona will still be under-valued in relation to its equilibrium rate. In the light of the economic development outlined in this Report, there is a number of fundamental factors that speak for a continued appreciation of the krona, for example, substantial current-account surpluses and sound government finances. There may also be a referendum on Sweden's full participation in the third stage of the European Monetary Union. A more rapid appreciation after the forecast period would help to counter the effects of increasingly high resource utilisation.

If the international economic trend were to be stronger than expected and/or the measures of economic policy were to have larger effects on demand and inflation, the increase in inflationary pressure could be even more marked. A rapid upswing in commodity prices might also contribute to this.

There is also a considerable risk of the international economic recovery being weaker or more protracted than in the main scenario. That would entail more subdued international price developments, not least for commodities, and domestic resource utilisation and inflation in Sweden would be lower. In such a situation the recovery would accordingly be delayed. Moreover, resource utilisation at the end of the forecast period would be lower if monetary policy had not been changed earlier. The krona would then probably not appreciate as much as in the main scenario, which would partly counter lower resource utilisation's downward effect on inflation.

ECONOMIC POLICY AND INFLATION

During the past year there has been a considerable expansionary adjustment of both fiscal and monetary policies in a number of countries. This text aims to describe how expansionary Swedish economic policy is and relate this to the situation in the United States and the euro area.

MONETARY AND FISCAL CONDITIONS

The Riksbank and other central banks influence inflation indirectly through the instrumental rate's effects on market interest rates, credit flows, the exchange rate and other asset prices and these effects act in turn on inflation expectations, resource utilisation and ultimately the rate of price increases. One approach to measuring country differences in monetary policy uses a monetary conditions index (MCI). In its traditional form, an MCI's components are just a short-term interest rate and the exchange rate, so a number of important factors in the transmission mechanism are disregarded. Another problem lies in country differences in the transmission mechanism. The exchange rate's impact may vary with, for example, an economy's degree of openness, just as the relative importance of the real interest rate can depend on, among other things, country differences in the duration of household and corporate borrowing. It follows that an interest rate adjustment's impact on demand and the price level in Sweden is not necessarily the same as in the euro area and the United States.²

An MCI is normally based on estimations of how the short real interest rate and the real effective exchange rate affect resource utilisation and inflation. The uncertainty in such estimations is considerable, neither are the relationships necessarily stable over time.³ Partly for these reasons, most central banks do not now publish a monetary index.⁴

A rough comparison of some major indicators of the fiscal and monetary conditions in the United States, the euro area and Sweden is presented in Table B2.

- 2 Dornbusch, R., Favero, C.A. & Giavazzi, F. (1998), The immediate challenges for the ECB, *NBER Working Paper 6369*. Gerlach, S. & Smets, F. (1995), The monetary transmission mechanism: evidence from the G-7 countries, *CEPR Discussion Paper 1219*.
- 3 Eika, K.H., Ericsson, N.R. & Nymoen, R. (1996), Hazards in implementing a monetary conditions index, *Oxford Bulletin of Economics and Statistics*, 58, 765–790.
- 4 King, M. (1997), Monetary policy and the exchange rate, *Bank of England Quarterly Bulletin* May, 225–227. Stevens, G.R. (1998), Pitfalls in the use of monetary conditions indexes, *Reserve Bank of Australia Bulletin* August, 34–43.

Table B2. Monetary and fiscal conditions.

Per cent and percentage change

	United States				euro area				Sweden			
	1995-00	2000	2001	latest	1995-00	2000	2001	latest	1995-00	2000	2001	latest
Treasury bonds												
3-month less CPI	2.8	2.6	0.7	0.1	2.6	2.1	1.7	1.2	3.9	2.7	1.5	1.0
2-year less underlying inflation	3.3	3.8	1.4	0.1	2.9	3.6	1.8	0.6	4.0	3.5	1.6	0.9
5-year less long-term inflation	3.4	3.6	2.1	1.4	3.7	3.4	2.7	2.2	4.2	3.2	2.7	2.4
10-year less long-term inflation	3.6	3.5	2.6	2.0	4.3	3.6	3.2	3.0	4.7	3.3	3.1	2.9
Housing bonds (5-7 yrs.) less long-term inflation	4.1	4.7	3.1	2.6	3.36	4.21	3.74	3.58	3.6	4.0	3.3	3.4
Corporate bonds (5-7 yrs.) less PPI	5.0	3.4	2.6	5.4	3.90	0.01	1.48	3.70	5.0	2.2	3.2	4.2
M1 y/y	-0.6	0.2	2.1	5.6	7.9	7.8	3.2	5.3	4.7	6.5	5.6	7.2
M3 y/y	8.0	9.3	11.4	13.0	5.0	4.8	5.1	7.4	4.9	6.2	1.7	4.9
Exchange rate y/y	2.4	4.2	7.0	2.5	-3.0	-9.4	0.1	5.4	0.4	0.2	-8.7	-8.9
Stock market y/y	20.1	10.5	-18.2	-23.5	23.8	32.3	-20.3	-35.6	27.2	48.7	-30.5	-33.3

Note. *Latest*: October outcome data. *Euro area bonds*: French, German, Italian and Spanish T-bonds weighted for GDP. *Underlying inflation* in the United States and the euro area: CPI excluding food and energy. *Long-term inflation* assumed to be 2.5 per cent for the United States, 1.75 per cent for the euro area and 2 per cent for Sweden. *Housing bonds*: United States, Lehman Brothers' index; euro area, a German *pfandbriefe*; Sweden, Handelsbanken's housing bond index (5-7 years). *Corporate bonds*: United States and euro area, Lehman Brothers' corporate bond index; Sweden, Handelsbanken's index. *Exchange rates*: Bank of England's effective exchange rate index. *Monetary aggregate*: Sweden, M0 instead of M1. *Stock market*: Wilshire 5000, DAX and OMX.

These variables say something about the extent to which the monetary and fiscal conditions are expansionary.

It will be seen from the table that real T-bond rates are lower in the United States than in Sweden and the euro area. In a historical perspective it is reasonable to maintain that the impact on demand from real interest rates, short-term rates in particular, has been expansionary in all three regions.

The development of monetary aggregates could indicate that monetary policy is more expansionary in the United States than in Sweden and the euro area. The exchange rate can be said to be restrictive in the United States, while in the euro area the weak exchange rate probably acts as something of a stimulus; however, the recent appreciation of the euro implies that this effect is diminishing. In Sweden, the weak exchange rate constitutes a clear difference in the monetary and fiscal conditions there compared with the United States and the euro area. In relation to the calculated real equilibrium rate, the krona is appreciably weaker than the dollar in particular.

The stock-market trend in Sweden has been weaker in the past year than in the United States and the euro area. This effect is offset to some extent by share prices having risen faster in a longer perspective in Sweden and the euro area compared with the United States.⁵

5 The lack of comparable statistics for real-estate prices makes it difficult to interpret differences in the development of wealth.

FISCAL POLICY

Discretionary (active) changes in fiscal policy can affect the price level both *directly* and *indirectly*. A change in direct taxes (taxes on income, for instance), public consumption or public investment influences inflation indirectly via effects on demand, while the price level is affected directly by changes in taxes on goods and services as well as by price controls, for example. Public investment in infrastructure, education, research and development, as well as certain tax reforms, normally tends to enhance potential output, at least over the long term.

Besides analysing fiscal policy's direct and indirect impact on the price level and inflation, it is important to assess the public finances' cyclical sensitivity. The combination of a progressive tax system and income-related transfers strengthens the automatic stabilisation of economic activity even in the absence of an active stabilisation policy.

It is important to distinguish between *fiscal stance*, which denotes the direction of discretionary fiscal policy, and *fiscal impulse*, which stands for fiscal policy's impact on the economy. The direction of fiscal policy is usually measured in terms of the structural budget balance (the cyclically adjusted balance). A structural balance that is deteriorating over time indicates that policy is becoming more expansionary.⁶

Table B3. Structural budget balance in Sweden, the United States and the euro area.

Per cent of GDP				
	2001	2002	2003	Change 2001–03
Sweden	4.4	2.8	1.9	-2.5
United States	0.7	-0.5	-0.2	-0.9
Euro area	-0.9	-0.6	-0.5	+0.4

Note. The OECD's calculation for Sweden in 2003 has been adjusted for an additional step in the income tax reform.

Sources: OECD and the Riksbank.

It will be seen from Table B3 that the direction of fiscal policy in Sweden is considerably more expansionary than in the United States and an average for the euro area. Among other things, this relative difference should be seen in the light of Sweden's public sector financial surplus in recent years. The public finances in a number of large EU countries, including France and Germany, have been weaker, which limits the scope for easing fiscal policy.

⁶ Note that there are a number of alternative methods for calculating the structural budget balance and they yield appreciably different results. However, this is less of a problem when analysing *changes* in the balance.

Changes in the structural balance indicate the direction and magnitude of the fiscal impulse but say less about its likely effect on inflation. The deterioration of the structural balance indicates a recent expansionary shift in the fiscal impulse. Even so, the public sector financial balance shows a surplus.

Economic effects of fiscal policy are also influenced by other factors. The same weakening of the structural balance in two countries can lead to effects of different magnitudes on account of, for example, differences in the composition of fiscal policy, households' expectations and the size of the automatic stabilisers.

Large components of the fiscal easing in Sweden in the forecast period are aimed at household income (Table B4). The extent to which they affect private consumption depends in part on which categories of household are recipients. If the tax cuts are aimed at low-income households, who are often assumed to consume a larger proportion of their income, the effect on total demand and the price level will be greater than if they are aimed at high-income households, who are assumed to save more. The income tax cuts in Sweden mainly constitute compensation for employee-paid contributions to the national pension system, which means they are aimed at all individuals who pay the pension charge.⁷

Table B4. Sweden's public sector financial balance.

Change as a percentage of GDP

	2000	2001	2002	2003
Financial balance	2.5	-0.2	-2.4	-0.1
of which from:				
Discretionary policy	-1.4	-1.7	-1.7	-1.2
of which:				
Direct effect on household disposable income	-0.7	-1.2	-1.4	-0.9
Automatic stabilisers	0.9	-0.7	-0.3	0.2

Note. Periodisation effects of taxes, etc., are disregarded. The size of the automatic stabilisers has been calculated by multiplying the budget elasticity (assumed to be 0.75) by the change in the output gap. As the source for this table is not the same as for Table B3, differences in underlying assumptions may have led to some discrepancies in the results.

Sources: Ministry of Finance and the Riksbank.

In the United States, a factor that points to the tax relief having more limited effects on private consumption is saving's very low initial level, which is hardly sustainable in the longer run. This makes it reasonable to foresee a rising saving ratio in the coming years and to some extent that would counter the impact

⁷ As the marginal consumption propensity (the change in consumption that results from additional income) is smaller in the short than the long term, effects of the tax cuts can also be expected to vary in size over time. Moreover, the marginal consumption propensity should be somewhat smaller when a permanent increment to income comes unexpectedly than when it has been foreseen.

of fiscal policy. A rising saving ratio is also expected in Sweden but as the saving imbalances in the United States are relatively larger, their tendency to counter fiscal policy's impact is likely to be greater.

The effect on private consumption also depends on whether households expect the tax cuts to be permanent or not. Although the level of the structural balance should be interpreted very cautiously, it does indicate that the tax cuts in the United States and Sweden are sustainable in the longer run, so their upward impact on private consumption can be expected to be more permanent.

A difficulty when gauging the demand impact of fiscal policy concerns the extent to which households have already adjusted consumption to the expected future tax take. In both the United States and Sweden, the public sector financial balance has improved in recent years, which may have been an important inducement to reduce private saving. To the extent that households have already adjusted consumption, the impact of the current tax cuts will be reduced. In the United States it has been announced that further tax relief will be forthcoming in the coming decade, which may accentuate the short-term impact.

In the ongoing economic slowdown, the automatic stabilisers may also tend to maintain consumer demand. The effect of these stabilisers is reflected in budget elasticity (the increase/decrease in the budget balance, as a percentage of GDP, that accompanies a 1 per cent increase/decrease in GDP, given an unchanged fiscal policy).⁸ The higher the budget elasticity, the greater in principle is the effect of the automatic stabilisers. For Sweden, budget elasticity is usually estimated to be 0.75. The magnitude of the automatic stabilisers is shown in Table B4. In 2001 and 2002, automatic stabilisers and discretionary fiscal policy are expected to pull in the same direction; in 2003, when a renewed increase in resource utilisation is foreseen, the automatic stabilisers will have a somewhat restrictive effect.

The OECD's estimated figure for budget elasticity in the United States is 0.25. Compared with the United States, the tendency for the automatic stabilisers to smooth cyclical fluctuations in the economy can therefore be expected to be considerably stronger in Sweden.

8 Budget elasticities should be interpreted very cautiously, partly on account of the considerable uncertainty in the empirical estimations but also because no allowance is made for the cause of the change in GDP. In that tax on exports is low in Sweden, an export-led economic slowdown should not affect the public finances as much as a slowdown led by falling domestic demand. A method for calculating the structural budget balance that to some extent takes this problem into account was presented recently by the European Central Bank (ECB Working Paper 77, *Cyclically adjusted budget balances: an alternative approach*).

SUMMARY

Comparisons of economic policy's impact in different countries are fraught with difficulties. It should therefore be underscored that the present conclusions are to be interpreted cautiously.

The impact of the monetary and fiscal conditions on demand and the price level appears to be somewhat more expansionary in Sweden than in the United States and the euro area. Real interest rates are admittedly lower in the United States but Sweden's exchange rate is appreciably weaker. The more marked share price fall in Sweden in the past year is not considered to make up for the whole of this difference.

Fiscal policy in Sweden is judged to be more expansionary than in the United States and the euro area. Large components of the fiscal easing in Sweden and the United States in the forecast period affect household disposable income. The saving imbalances in Sweden are not as considerable as in the United States, the tax cuts are aimed at low and medium incomes and the credibility of the government finances' long-term sustainability is firm, so there are grounds for expecting that the shift in fiscal policy will contribute in the coming years to a comparatively favourable development of demand in Sweden.

Determinants of inflation

The most probable development of inflation's determinants in the coming two years is presented in this chapter. International factors are considered first, followed by a review of exchange rates and interest rates. Finally, economic developments in Sweden are discussed.

External economic activity and inflation

In keeping with the assessment in the October Report, in the rest of this year economic activity in the OECD area is judged to remain weak, partly on account of the synchronous international slowdown. The outlook for corporate profits has worsened and share prices have fallen, thereby weakening investment and consumption propensities. The terrorist attacks in the United States have contributed to a further deterioration of activity in the OECD area and increased uncertainty about the future.

The global slowdown has become even more pronounced after the terrorist attacks in the United States.

The great uncertainty about the future is evident from pricing in international financial markets. International share prices are highly volatile, though they have risen since the October Report. After falling since the summer, long-term interest rates have also begun to turn upwards. In recent months the euro has weakened against the U.S. dollar (Figs. 4–6).

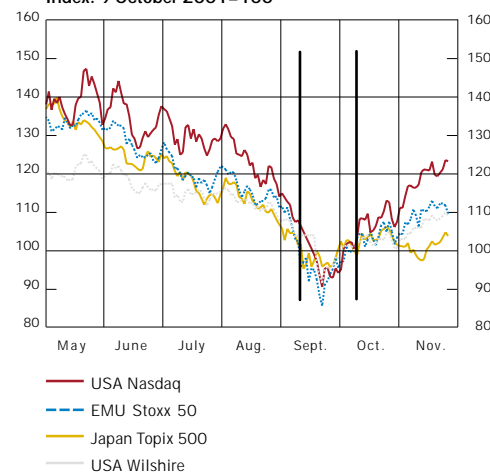
The ongoing global slowdown is evident in new statistics. To date, however, the immediate effects of the terrorist attacks, in terms of lost production and consumption in the United States, have been less than expected. But in most OECD countries, households as well as the business community have become appreciably more pessimistic (Fig. 7).

Together with rising unemployment, the lower confidence in the future is expected to contribute to a weakening of private consumption in the coming months (Figs. 8 and 9).

Growth in the OECD area towards the end of this year is accordingly judged to be weaker than foreseen at the time of the October Report. It follows that next year's growth will also be lower (the downward revision of growth in the closing part of 2001 has a major impact on the calculation of growth in 2002).

During the second half of 2002 and in 2003, however, the expansionary economic policy in many OECD countries is expected to contribute to a recovery in both the United States and the euro area, given that the global political and security policy situation does not deteriorate. The clear economic

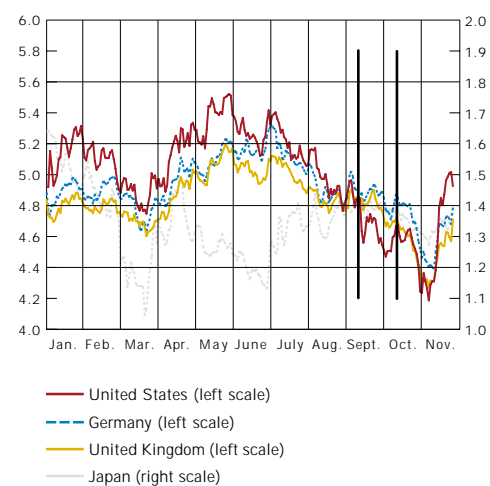
Figure 4. International stock exchange indexes in 2001.
Index: 9 October 2001=100



Note. The vertical lines indicate the cut-off date for the October Report and the date of the terrorist attacks in the United States.

Source: Hanson & Partners AB.

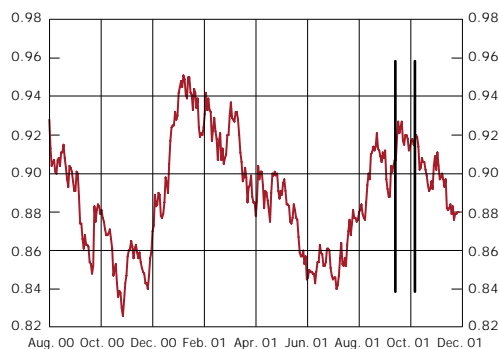
Figure 5. International bond rates in 2001.
Per cent



Note. The vertical lines indicate the cut-off date for the October Report and the date of the terrorist attacks in the United States.

Source: The Riksbank.

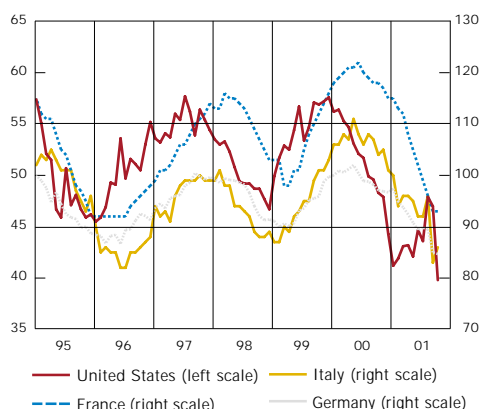
Figure 6. USD/EUR exchange rate. Daily quotations (dollars per euro)



Note. The vertical lines indicate the cut-off date for the October Report and the date of the terrorist attacks in the United States.

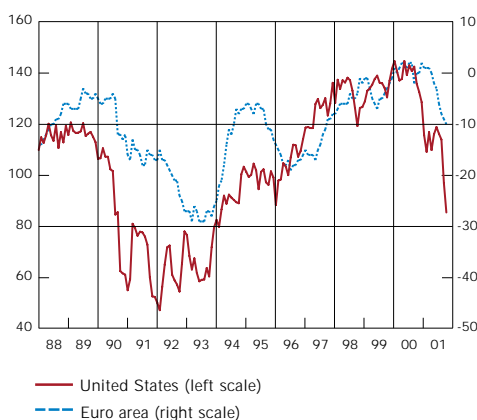
Source: Hanson & Partners AB.

Figure 7. Business confidence in selected countries. Index



Sources: United States, NAPM; France, INSEE; Italy, ISAE; Germany, IFO.

Figure 8. Consumer confidence in the United States and the euro area. Index



Sources: Conference Board and EU Commission.

slowdown – particularly in a number of important Swedish export markets such as the United States, Germany and the Nordic area – has worsened prospects for Swedish exports. The weaker demand in the rest of the world has also acted as a damper on inflation since the time of the October Report (Table 2). Inflation expectations point to inflationary pressure in the OECD area remaining low during 2002.

All in all, Swedish export markets and international export prices are both expected to be comparatively weak in the coming year.

Table 2. International conditions. Percentage annual change or annual level

	GDP			CPI		
	2000	2001	2002	2000	2001	2002
U.S.A.	4.1	1.0 (1.0)	0.6 (1.5)	3.4	3.0 (3.0)	1.7 (2.0)
Japan	1.5	-0.9 (-1.2)	-0.9 (-0.4)	1.2 (1.6)	-0.7 (-0.8)	-0.7 (-0.2)
Germany	3.0	0.7 (0.9)	1.1 (1.8)	2.1 (2.3)	2.6 (2.6)	1.2 (1.3)
France	3.4	1.8 (1.9)	1.6 (2.0)	2.5 (2.5)	1.8 (1.7)	1.3 (1.4)
United Kingdom	2.9	2.2 (1.9)	2.1 (2.3)	2.5 (2.5)	2.1 (2.2)	2.3 (2.3)
Italy	2.9	1.8 (1.8)	1.4 (2.0)	2.5 (2.5)	2.6 (2.7)	1.8 (1.8)
Denmark	3.2	1.2 (1.4)	1.7 (1.9)	2.2 (2.2)	2.7 (2.3)	1.9 (1.9)
Finland	5.7	0.8 (1.8)	2.0 (2.5)	2.7 (2.7)	3.0 (2.7)	1.6 (1.8)
Norway	2.3	1.2 (1.2)	1.6 (1.6)	1.8 (1.8)	3.1 (3.2)	2.0 (2.0)
Euro 12	3.4	1.5 (1.6)	1.5 (2.0)	2.6 (2.6)	2.3 (2.6)	1.5 (1.6)
Sweden's TCW						
export markets	3.2	1.4 (1.4)	1.4 (1.8)	2.5 (2.5)	2.3 (2.5)	1.6 (1.7)
OECD 19	3.4	1.0 (1.0)	0.8 (1.5)	2.8 (2.6)	2.3 (2.2)	1.3 (1.6)
				2000	2001	2002
Market growth for Swedish exports				10.8	2.6 (3.7)	4.2 (5.4)
OECD area export price						
in national currency				1.2	0.5 (0.8)	0.2 (0.5)
Crude oil price						
(USD/barrel, Brent Blend)				28.4	24.4 (25.6)	20.0 (23.0)
						22.2 (22.2)

Note. In the United Kingdom CPI stands for RPIX and in Germany, France, Italy, Denmark and Finland for HICP. In Norway GDP refers to the mainland economy. The figures in parentheses are the assessments in the October Report. Market growth for Swedish exports is measured in terms of imports of goods to all countries that are recipients of Swedish exports, weighted with each country's share of total Swedish exports of goods 1998–99.

Source: The Riksbank.

An increasingly expansionary economic policy is expected to stimulate demand.

Although new statistics herald weaker growth in the near future, there are good grounds for counting on a recovery in the OECD area in the course of next year, mainly on account of more expansionary monetary and fiscal policies.

Monetary policy has been gradually eased in the greater part of the OECD area. Since October the U.S. Federal Reserve has lowered its instrumental rate another 0.5 percentage points to the historically low level of 2.0 per cent. The current rate is also low in real terms (Fig. 10). The European and British central banks have likewise reduced their instrumental rates by 0.5 percentage points, to 3.25 and 4.0 per cent, respectively. Further

cuts may lie ahead. Towards the end of next year and during 2003, however, it is foreseen that instrumental rates in the major OECD countries will be raised again as economic activity picks up.

The effects of the monetary stimuli are uncertain, above all in the United States.

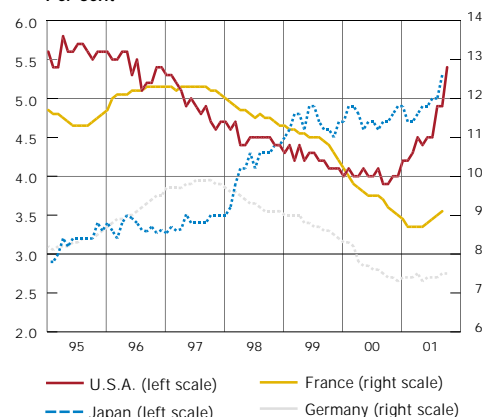
There are factors, however, that can limit and counter the effects of the instrumental rate reductions to date in the United States. The persistently strong dollar and the share price fall in the past year act as dampers. The greatly increased spread in recent years between treasury bonds and both corporate and housing bonds has a similar effect. As regards the real interest rate for corporate investment, moreover, both current and expected producer prices have fallen. This may make a real interest rate comparison based solely on consumer prices misleading.

There are also some arguments for the interest rate elasticity being lower than normal for households as well as firms. If over-investment has led to a considerable and widespread capacity surplus, the investment propensity may be subdued despite the low real interest rates. The surplus capacity is most notable, however, in the sector for information and communication technology (ICT), which is a small segment of the total corporate sector. Moreover, the relatively short depreciation times for ICT products should contribute to any over-investment here being written off in the course of next year. On the other hand, the low household saving may tend to lessen the impact of the interest rate cuts.

All in all, the interest rate cuts are judged to stimulate demand in the United States, although their impact may be delayed. The rapid growth of lending to the non-bank public and various money aggregates does indicate that the policy is having effects.

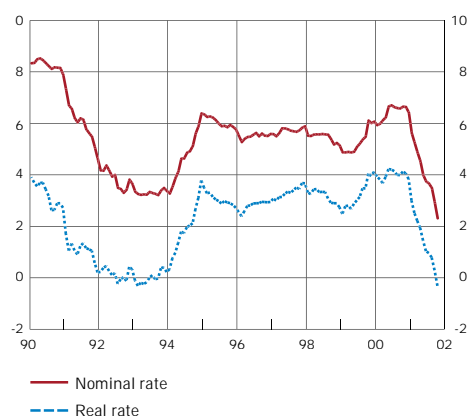
Tax cuts and specific measures on account of the terrorist attacks represent a substantial easing of American fiscal policy, too. Moreover, additional relief aimed at the household and corporate sectors will probably be forthcoming, as well as an earlier implementation of tax cuts that were approved earlier. An implementation of the corporate tax cuts will favour the investment propensity. A substantial part of the fiscal easing is, however, aimed at households with a high consumption propensity, which is judged to pave the way for increased consumption as well. But there is also the prospect of increased household saving, which should be seen in the light of a historically low level at present and a loss of confidence in the future. The consumption propensity is therefore likely to be relatively restrained in the near future, which contributes to weak import demand and an improvement in the current-account balance. These developments would accordingly lead to a reduction of the saving imbalances in the United States (Fig. 11). In the main scenario, private sector saving is expected to strengthen from -6 per cent of GDP in 2000 to just under -3 per cent of GDP in 2003.

Figure 9. Unemployment in selected countries. Per cent



Sources: United States, BLS; Japan, Management and Coordination Agency; Germany, Federal Labour Office; France, National Employment Agency.

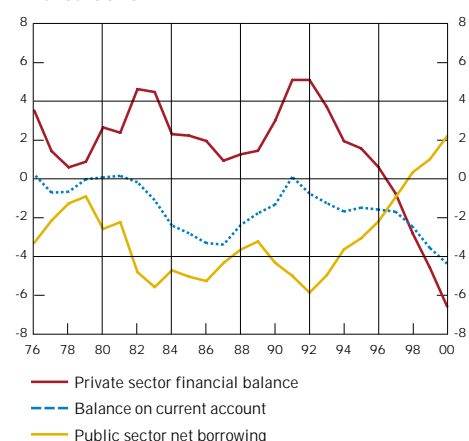
Figure 10. Nominal and real three-month interest rates in the United States. Per cent



Note. The real rate is calculated as the nominal rate deflated with underlying inflation (CPI excluding food and energy).

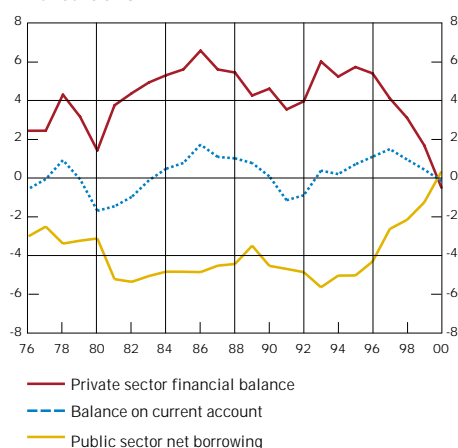
Source: The Riksbank.

Figure 11. Saving in the United States. Per cent of GDP



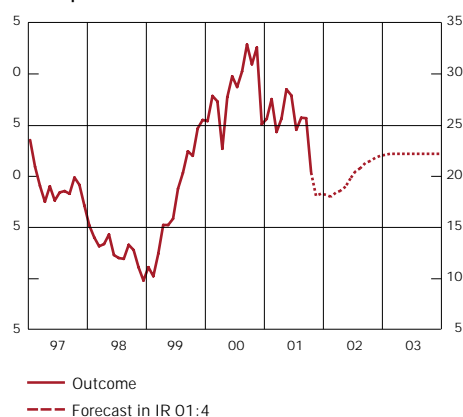
Source: OECD.

Figure 12. Saving in the euro area.
Per cent of GDP



Source: OECD.

Figure 13. Price of crude oil (Brent).
USD per barrel



Note. Forecast from November 2001.

Sources: IPE and the Riksbank.

The completion of stock adjustments is also expected to contribute to increased activity in the United States.

Stock adjustments should soon be completed and during 2002 a build-up of stocks is also expected to support a recovery of growth. One sign of this is that after rising since the second half of last year, the stocks ratio (manufacturing stocks relative to sales) has begun to fall back.

In the euro area, saving imbalances are less of a problem.

In the euro area, the scope for fiscal policy is limited in that in recent years, despite good growth, the major countries did not do enough to strengthen the public sector's financial balance. No additional stimulus is therefore foreseen on top of the planned tax cuts and effects of automatic stabilisers. But monetary policy in the euro area should have a larger impact in that households in Europe have less need to step up saving than their counterparts in the United States (Fig. 12). Neither is the need to adjust capital stocks presumably as great.

Since the time of the October Report, short-term real interest rates have fallen (though not to such low levels as in the United States), the European stock-market index has risen, the euro has weakened and long-term interest rates have become marginally lower, all of which points to more expansionary financing conditions. Conditions are therefore good for an economic recovery in Europe in the second half of 2002.

Falling output and deflation in Japan.

In Japan it is foreseen that GDP contracts about one per cent both this year and next, accompanied by falling consumer prices. A package of fiscal measures was presented recently and includes programmes for new public sector jobs, but the effects are difficult to assess. Partly in view of the absence of a clear anchor for inflation expectations, the effectiveness of monetary policy is also uncertain.

Prices for oil and other commodities are expected to remain low and thereby help to keep inflation down.

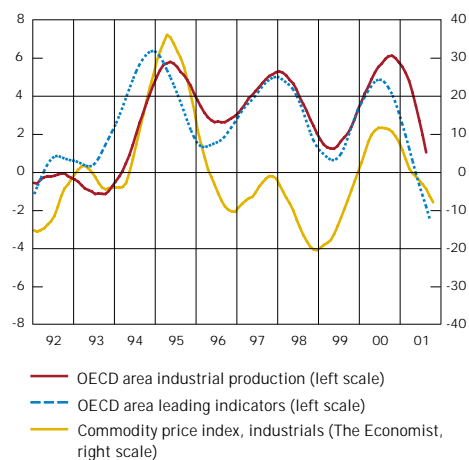
Since the time of the October Report the barrel price of oil has fallen to the lowest level in more than two years, followed by a slight recovery to around USD 19. In view of the poorer economic prospects, the oil price forecast has been revised downwards for both this year and next (Fig. 13 and Table 2). In the short run there is a risk of the oil price fall being greater than forecast here. At the same time, the oil price usually responds quickly to changes in demand and therefore often rises early in an upward cyclical phase. An upturn can accordingly be expected in the second half of 2002. To some extent, however, this tendency is dampened by an increased supply from non-OPEC oil producers.

Other commodity prices fell more than expected in October. They have risen in November in connection with cuts in

production but this tendency is judged to be temporary. Commodity prices follow manufacturing output closely and as global industrial output is judged to be weaker than assumed earlier, some downward revision has also been made to the commodity price forecast (Fig. 14).

Moreover, with lower resource utilisation in the OECD area in the coming two years and lower commodity prices, the increase in international export prices in the forecast period has also been revised downwards. Towards the end of the forecast period, however, some increase is foreseen in these prices; the oil price rise from low levels is one reason why imported inflation in 2003 is judged to be somewhat higher than forecast in the October Report.

Figure 14. OECD area's industrial production and leading indicators; commodity price index.



Note. Percentage 12-month change, seasonally adjusted moving 12-month average

Sources: OECD and The Economist.

THE INTRODUCTION OF EURO NOTES AND COINS

As of 1 January 2002, an unprecedented currency conversion will add a physical dimension to the twelve euro countries' single currency. Their national notes and coins will be replaced as legal means of payment by 15 billion euro notes and 50 billion euro coins.

The imminent changeover to the euro as a physical currency has raised questions about its conceivable effects, above all on inflation in the euro area. It is primarily the issue of whether and, if so, how inflation will be affected by the introduction of new notes and coins in the euro area that is discussed here. This is relevant for Sweden in that almost 50 per cent of our total imports come from euro countries and 40 per cent of exports go there.

First, however, it should be noted that any one-off shift in the price level that results from the changeover would act as an inflationary impulse over just a limited period. Provided the changeover does not alter inflation expectations, any effects would therefore be less important for monetary policy.

SHORT-RUN EFFECTS ON THE PRICE LEVEL

One hypothesis that has been put forward is that the conversion to euro notes and coins will increase the risk of inflation because price-setters use the opportunity of rounding the "new" euro prices upwards.

There are factors that speak for some upward price pressure in connection with the introduction of euro notes and coins. In that *menu costs* (outlays for preparing and implementing price adjustments) are substantial, prices are adjusted infrequently.⁹ Among Dutch retailers, for instance, about 40 per cent alter prices only once a year (the proportion of Swedish retailers is the same) and 10 per cent do so even less frequently. High menu costs could induce firms to use the conversion as an opportunity for price adjustments because it will entail costs in any event.

Another factor is the common practice of pricing goods at *psychological numbers*, for example 3.99 rather than 4.00 kronor. Studies show that a price reduction from, say, 4.00 to 3.99 kronor would stimulate demand appreciably more than a cut from 3.99 to 3.98 kronor.

9 This refers to the Netherlands, see *Risk of substantial price increases due to euro conversion seems limited*, De Nederlandsche Bank, June 2001. For a Swedish example, see the box on pp. 17–21 in *Inflation Report 2001:3*, Sveriges Riksbank.

The changeover to the euro as the physical means of payment entails an adjustment of prices to new psychological numbers, either upwards or downwards. In view of menu costs and depending on the competitive situation in a particular market, there is a risk that in setting new psychological numbers, firms use the opportunity to raise prices. In a study in the Netherlands, 30 per cent of retailers reported an intention of combining the euro conversion with an adjustment to attractive psychological numbers, while 43 per cent considered they would stick to the existing price level and adjust to more attractive numbers later on.

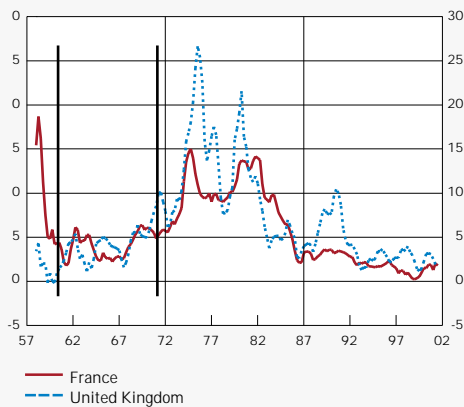
All in all, those who take the opportunity of raising prices and thereby avoiding additional menu costs could contribute to some impact on recorded inflation. But as this would no doubt replace price increases on another occasion, in the somewhat longer run average inflation would probably not be affected substantially. It is also reasonable to assume that some price adjustments to the nearest psychological number would be downwards, though this would mean that the firm has to lower profit margins and/or cut costs.

Consumers are usually aware of what purchases ought to cost and base their decisions on how the asked price relates to this *reference price*. It has been argued that euro prices will complicate such comparisons, at least initially. Meanwhile, an inflationary impulse might be generated in that consumers' faulty assessments lead to euro prices being seen as more attractive. Against this it can be said that information has been widely available and that dual pricing has been commonplace for some time.

EMPIRICAL EVIDENCE

Studies in Finland, France, Germany and the Netherlands have revealed price increases in connection with the euro's introduction as a legal means of payment. One of the cited reasons is upward rounding to the nearest psychological figure. However, historical examples do not provide evidence of increased inflation (Fig. B7). Although there was a transitory increase in inflation in the United Kingdom when a new decimal system was introduced in 1971, there is no empirical evidence that it was just the conversion which pushed prices up. Neither did the conversion to the "new franc" in 1959 lead to higher inflation in France; however, this was one of a number of measures for lowering inflation and restoring confidence in the Fifth Republic.

Figure B7. CPI for France and the United Kingdom.
Percentage 12-month change



Source: IMF.

LONG-TERM EFFECTS OF A MONETARY UNION

The introduction of the euro as a means of payment in the euro area will simplify inter-country price comparisons. Price differences between countries in the monetary union currently average about 16 per cent, which partly has to do with the psychological barrier to calculating in different currencies. Better possibilities of comparing prices will stimulate import demand for goods from the country where the price is lowest. This will result in increased competition and smaller price differences, which should tend to subdue prices. In time, moreover, the single currency should lower business costs — and thereby cut consumer prices — by, for instance, reducing transaction costs, simplifying accounting and financial systems and improving financing opportunities. Other benefits from a single currency could be increased trade and greater integration. All in all, the conversion to physical euro is of minor importance for inflation in the euro area in the short run, while its economic significance in the longer run may be greater.

Interest rates and exchange rate

The level of Swedish bond rates is marginally lower than at the time of the October Report. To a large extent this mirrors the international fixed-income market, particularly the long end of the yield curve (Figs. 15 and 16). The fall in the early part of the period mainly came from further indications of poorer economic prospects. In recent weeks, however, interest rates have moved up in Sweden as well as in the rest of the world, chiefly against the background of more positive statistics and reduced uncertainty about the war in Afghanistan, for example. The long-term interest rate differential with Germany, which had widened in connection with the terrorist attacks in the United States, has fallen back a bit. At the same time, the small difference between the expected instrumental rates in Sweden and Germany ten years from now indicates that confidence in monetary policy remains strong. Moreover, the absence of any appreciable change in Swedish swap and housing bond spreads can be said to signify that both banks and households in Sweden are still considered to be creditworthy.¹⁰

Somewhat lower long-term interest rates and a more level yield curve.

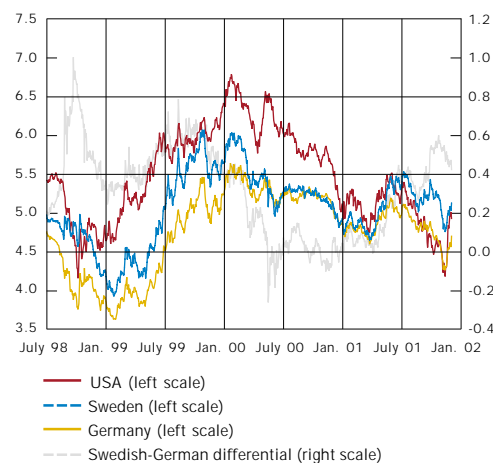
In view of the somewhat poorer economic prospects internationally as well as in Sweden, during 2002 long-term interest rates are judged to be marginally lower than foreseen in the October Report. The ten-year treasury bond rate is calculated to average 5.2 per cent in 2002 and 5.6 per cent in 2003.

Expectations of an unchanged repo rate in the short run.

The level of Swedish short-term interest rates is marginally higher than at the time of the October Report, which is somewhat different from the international picture. A probable explanation for the downward movement of short-term interest rates in the United States and the euro area is that for some time the market anticipated that the Federal Reserve and the ECB would lower their instrumental rates in November. The upward tendency in Swedish short-term interest rates stems in part from rising inflation expectations.

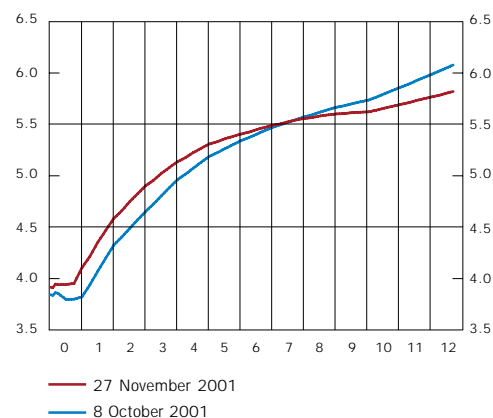
The Riksbank's decision in mid October to leave the repo rate unchanged had been expected by the market (Fig. 17). In connection with indications of poorer economic prospects and instrumental rate reductions by other central banks, during November the picture of monetary policy expectations shifted downwards, in keeping with Prospera's market survey early in the month.¹¹ It looks as though more positive statistics, monetary

Figure 15. Ten-year government bond rates in Sweden, Germany and the United States and the Swedish-German differential. Daily quotations, per cent and percentage points



Source: The Riksbank.

Figure 16. Swedish yield curve on 8 October and 27 November. Per cent

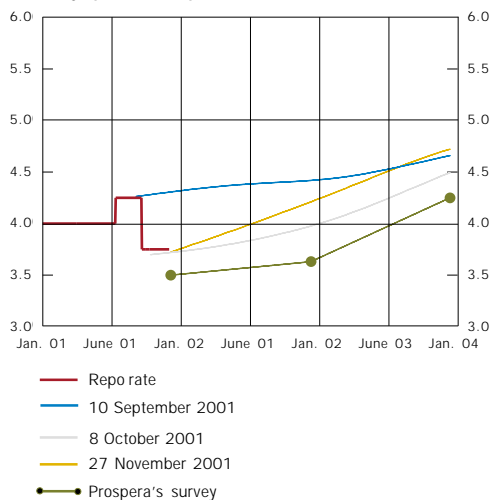


Sources: Datastream and the Riksbank.

10 Cf. *Financial Stability Report 2*, November 2001, Sveriges Riksbank. An analysis of movements in swap and housing bond spreads is one way of assessing changes in the creditworthiness of banks and households, respectively. A swap spread is the difference between the swap rate (the interest a counterparty, usually a bank, receives in a swap of maturities for fixed-income securities, for example) and the treasury bond rate for the same maturity; a housing bond spread is the difference between the rate for a housing bond and the treasury bond rate for the same maturity.

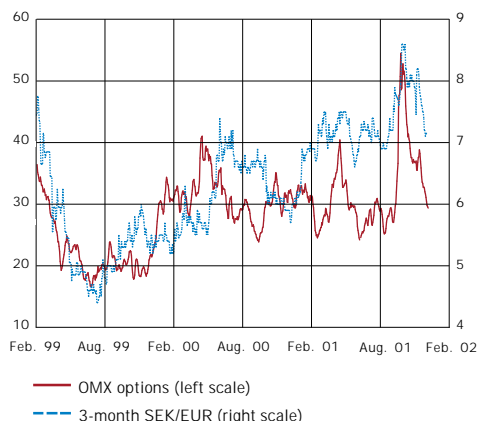
11 Prospera carried out the repo rate survey on 7 November.

Figure 17. Repo rate and expected rate implied by forward interest rates and Prospera's survey.
Daily quotations, per cent



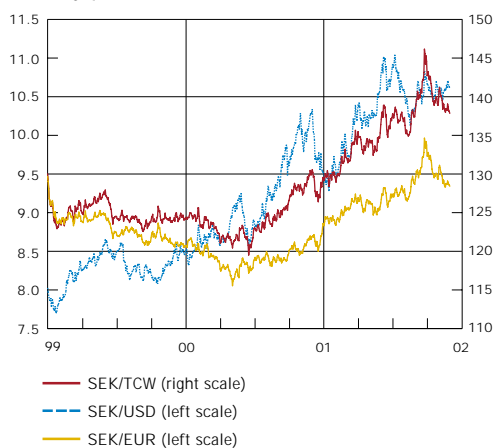
Source: Prospera Research AB and the Riksbank.

Figure 18. Implicit volatility in OMX options and SEK/EUR rate.
Per cent



Source: The Riksbank.

Figure 19. The krona's nominal effective TCW exchange rate and the rates against USD and EUR.
Daily quotations, index: 18 November 1992=100



Source: The Riksbank.

policy signalling and indications of rising inflation expectations, for instance, have subsequently contributed to market prices (derived from implied forward interest rates, cf. Fig. 17) that point once more to expectations of an unchanged repo rate in December (see p. 43). A repo rate increase of 0.5 percentage points is foreseen in the coming 12 months, after which market prices indicate expectations of further increases to a level of 4.75 per cent two years from now.

Rising M0 and M3 growth rates.

The 12-month growth of M0 moved up from 5.9 per cent in September to 7.3 per cent in October. The increase is probably explained by the comparatively strong growth of retail turnover. The 12-month growth of M3 moved up to 4.9 per cent, mainly due to greatly increased corporate deposits. This was accompanied by a marginal slowdown in the growth of corporate borrowing from banks. The recent development of corporate deposits in and borrowing from banks could have to do with some reduction of a liquidity shortage that may have arisen in connection with falling profits and poorer conditions for market financing. The flow of credit to the household sector remains high. One probable explanation is the persistently high activity and prices in the real-estate market.

More stable stock markets.

Notwithstanding the worsening of economic prospects, stock markets have become more stable in Sweden as well as internationally. Since the October Report the Stockholm Exchange's OMX index, for instance, has risen more than 11 per cent. A major factor behind the positive tendency is presumably less risk aversion among investors, who seem to perceive an increased probability of a cyclical recovery. Moreover, uncertainty seems to have fallen back from the very high levels at the time of the terrorist attacks; this is indicated by, for instance, the decreased implied volatility in OMX options (Fig. 18).

Stronger exchange rate.

The path of the Swedish krona has been stronger than foreseen in the October Report. The increased risk propensity and less financial market unrest have contributed to an appreciation of the kronor along with other currencies that depreciated markedly in connection with the terrorist attacks in the United States (Fig. 19). The correlation between the OMX index and the krona still seems to be high and the more stable stock market has probably contributed to the krona's appreciation.

Even after the recent appreciation, the krona is still considered to be under-valued. A stimulatory economic policy is expected to lead to a recovery in Sweden as well as abroad. Together with fundamentals such as relative growth, sound government finances and a current-account surplus, this is expected to contribute to a

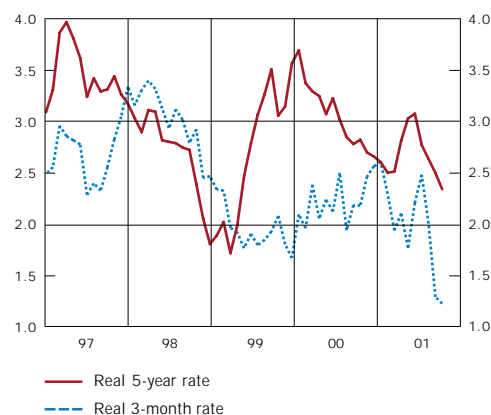
continued appreciation of the krona in the forecast period. In the October Report the exchange rate forecast had been adjusted for the highly uncertain conditions in connection with the terrorist attacks in the United States. Although there was a good case for the possibility of reaching a level in the vicinity of the more fundamental rate, it did not seem entirely reasonable to assume the strong appreciation this would require in the two-year period. In the light of the better outcome for the exchange rate and somewhat less financial market uncertainty, it is now judged that the krona's TCW index will be stronger than foreseen in October. Support for the krona is foreseen from rising export receipts and a more stable, positive stock-market trend as investors become less averse to risk and the expectations of an economic upturn are confirmed. The larger short-term interest rate differential with the rest of the world should also contribute. These effects may be countered, however, by a continuation of the problems with flows in connection with the diversification of portfolios abroad. The krona is expected to benefit from a general weakening of the U.S. dollar and sterling, besides appreciating against the euro. The SEK/TCW rate is set to strengthen to an average of 133.7 for 2002 and 127.0 for 2003.

Conditions remain expansionary.

In real terms, the combined economic impact of interest rates and the exchange rate seems to be much the same as foreseen in the October Report (Fig. 20). The stimulatory effect from the lower real five-year interest rate is countered by the real exchange rate's restrictive movement. But the conditions are expansionary in a historical perspective. An international comparison shows, moreover, that the economic stimulus from real interest rates and the real exchange rate is stronger in Sweden than in, for example, the euro area and the United States (see the box on pp. 14–19). However, given the prevailing inflation expectations and the forecast nominal interest rates and exchange rate, the real conditions can be expected to become less expansionary as the krona appreciates and interest rates start moving up in connection with an economic recovery.

In a broader perspective that also includes the real development of stock markets, during the past year the economic stimulus from the monetary conditions has been countered by falling share prices. Since the October Report, however, even the stock market's real development has been exerting an expansionary effect on the economy (Fig. 21).

Figure 20. Real interest rates, January 1997 to November 2001. Per cent



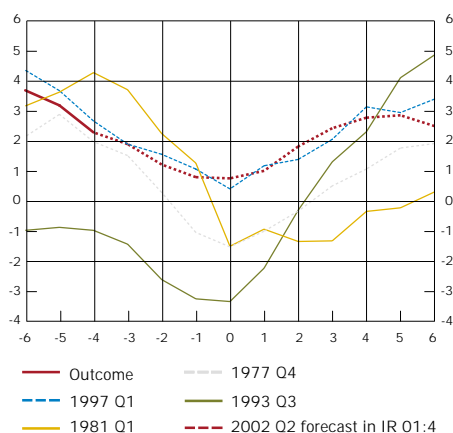
Source: The Riksbank.

Figure 21. Real stock-market and exchange-rate indexes, January 1997 to November 2001. 18 November 1992=100



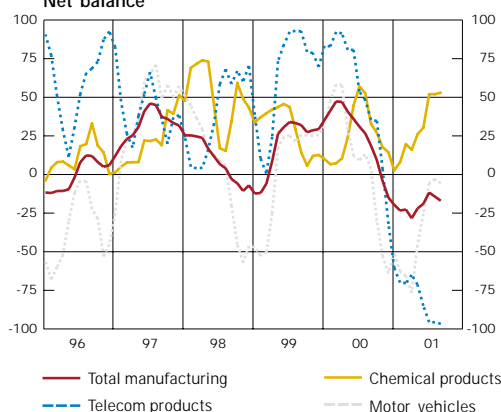
Sources: Datastream and the Riksbank.

Figure 22. Sweden's GDP growth in the six quarters before and after cyclical lows. Percentage annual change



Source: The Riksbank.

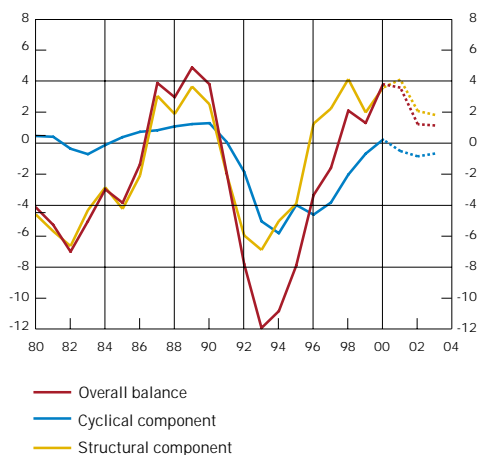
Figure 23. Export orders. Net balance



Note. Moving three-month average. Net balance calculated as the proportion of firms reporting an ex post increase less the proportion reporting a decrease.

Source: National Institute of Economic Research (business tendency surveys).

Figure 24. Consolidated public sector financial balance. Per cent of GDP



Note. 2001–03 forecast.

Sources: Statistics Sweden and the Riksbank.

Demand and supply in the Swedish economy

A GENERAL PICTURE

After an initial period of weak economic activity, during the forecast period demand is expected to turn upwards in connection with the prospect of a global recovery, a weak exchange rate, low real interest rates, an expansionary fiscal policy and moderately rising share prices (Fig. 22).

Private consumption is expected to pick up next year as disposable income rises comparatively strongly in connection with tax cuts, increased transfers and, despite the slowdown, persistently high employment, for example. Another factor here is the prospect of a real increase in household net wealth, generated by some improvement in share prices and lower inflation, for instance.

Table 3. Demand and supply.

Percentage annual volume change

	2000	2001	2002	2003
Household consumption	4.6	0.8 (0.8)	2.1 (2.1)	2.1 (2.1)
Public authorities consumption	-1.0	0.8 (0.8)	0.9 (0.9)	0.9 (0.9)
Gross fixed capital formation	5.0	1.7 (3.3)	0.7 (2.7)	4.5 (6.5)
Stockbuilding	0.6	-0.3 (-0.3)	-0.1 (-0.1)	0.0 (0.0)
Exports	10.3	0.3 (1.3)	4.5 (5.9)	6.1 (6.2)
Imports	11.5	-1.1 (0.6)	4.0 (5.3)	6.0 (5.9)
GDP	3.6	1.2 (1.3)	1.8 (2.2)	2.4 (2.8)

Note. 2001–03 forecast; the figures in parentheses are the assessment in the October Report. Stockbuilding is represented by the contribution to GDP growth in percentage points.

Sources: Statistics Sweden and the Riksbank.

Investment is expected to remain weak to begin with as a result of falling demand and decreased resource utilisation. Towards the end of the forecast period, however, strong investment growth is generated by the increase in demand via the accelerator effect, persistently low real interest rates, higher share prices and the construction of networks for third generation mobile telephony.

The contribution to growth from foreign trade is expected to be positive throughout the forecast period, partly on account of the weak exchange rate.

A point to note is that the average outcome for a calendar year may be very sensitive to the exact timing of a turn in cyclical activity. In other words, a comparatively marginal displacement of the turn can result in comparatively large changes in the outcome year on year. The figures in Table 3 must therefore be interpreted with some caution.

THE FORECAST PATH

The quarterly path of activity from 2001 to 2003 as forecast by the Riksbank is presented together with earlier slowdowns in Fig. 22.

The picture shows that the predicted downward and upwards phases are neither extremely steep nor extremely protracted. The path that is now forecast essentially resembles the course of events

around 1997.¹² This implies, for example, that at the cyclical low, growth will be positive. A number of factors contribute to this. A major explanation is economic policy's stabilising effect, not least in Sweden but also in the rest of the world. Moreover, with the restrained development of costs in recent years and the krona's depreciation, the problems with competitiveness that characterised the crises in the 1980s and 1990s do not exist today. In a historical comparison, this points to the slowdown being comparatively mild.

DEMAND

Although world market growth is positive and the level of costs for Swedish manufacturing is favourable, exports of goods are judged to fall this year. Important factors behind the decline are structural changes in the telecom industry and the weak situation for the production of motor vehicles (Fig. 23).

A weak exchange rate gives an upswing in export demand.

An increase in the growth of export demand is foreseen 2002–03 as a consequence of the exchange rate remaining historically weak, a stabilised inflow of export orders for motor vehicles, rising world market growth and a assumption that the negative effects of the restructuring of telecom production fade away.

The lower international growth recently suggests, however, that this year and next, total exports will be weaker than forecast in the October Report (Table 3).

Imports are also judged to turn upwards during 2002, partly in view of the higher growth of private consumption and increased demand for intermediate goods in export production. As demand growth is expected to be somewhat weaker initially, however, the upturn is calculated to proceed somewhat more slowly than assumed in the October Report.

Tax cuts contribute to an expansionary fiscal stance.

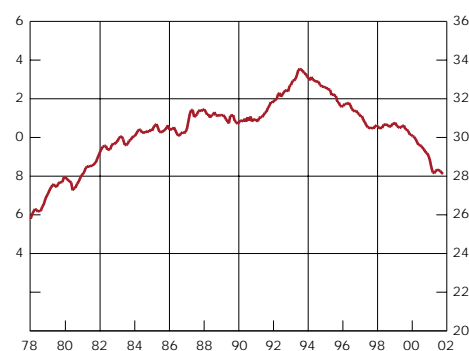
Fiscal policy has recently shifted in an expansionary direction. As a result of tax cuts and increased spending, during the forecast period the public sector financial surplus is calculated to dwindle.¹³

With the approved tax cuts and increased spending, fiscal policy is helping to maintain total demand. Although fiscal policy has become more expansionary, its overall impact on total demand is still restrictive in that the consolidated public sector's income is calculated to exceed expenditure throughout the forecast period.

12 There is, however, a clear difference behind the GDP figures: the downturn 1996–97 stemmed mainly from weak domestic demand, while export markets were strong.

13 The government target is a financial surplus for the consolidated public sector that averages 2 per cent of GDP over a business cycle. This means that periods when the surplus is less than 2 per cent have to be balanced by periods with a surplus of more than 2 per cent. Besides the medium-term target, there is therefore an annual target; for 2002 and 2003 this has been set at 2 per cent. A target with a stricter formulation is the spending ceiling, which limits central government expenditure in nominal terms. In the event of a risk of the spending ceiling being exceeded, the Budget Act requires the government to introduce measures that reduce expenditures.

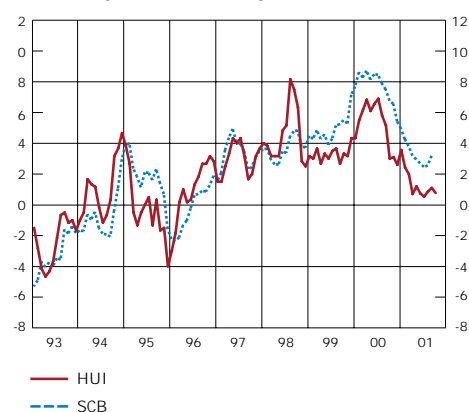
Figure 25. Local government employees as a percentage of all employees.



Note. Seasonally-adjusted moving 3-month average. Linked series as of 1987 with a break at the turn of 2000.

Source: Statistics Sweden.

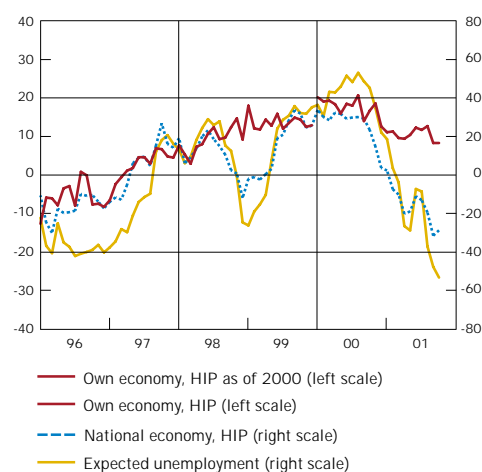
Figure 26. Retail turnover. Percentage 12-month change



Note. Moving 3-month average.

Sources: Wholesale & Retail Research Institute (HUI) and Statistics Sweden (SCB).

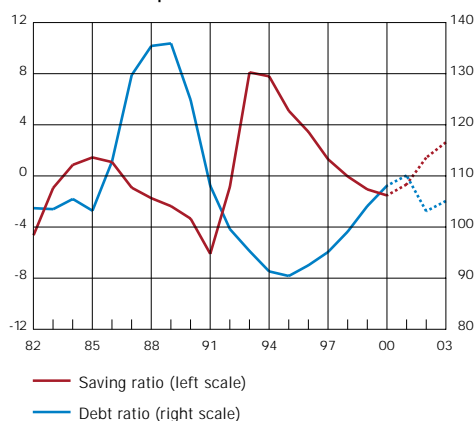
Figure 27. Households' expectations of their own economy, Sweden's economy and unemployment. Net balance



Note. The sampling procedure for the HIP survey was changed as of 2000.

Source: Statistics Sweden.

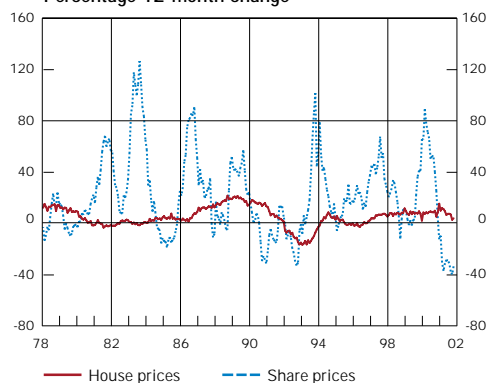
Figure 28. Household saving and debt ratios.
Per cent of disposable income



Note. 2001–03 forecast.

Sources: Statistics Sweden and the Riksbank.

Figure 29. Share and house price indexes.
Percentage 12-month change



Note. Affärsvärlden's all-share index; Statistics Sweden's house price survey.

Source: The Riksbank.

Figure 30. Total gross fixed capital formation:
model-based forecast compared with outcome.
Percentage 12-month change



Note. The model's ability to forecast the outcome has been studied by basing the forecast for the period 1998 Q1 to 2001 Q2 on the regression model's estimations of the period up to 1997 Q4.

Source: The Riksbank.

Besides active changes in taxes and spending, fiscal policy affects the economy indirectly through the automatic stabilisers. In particular, central government expenditure is sensitive to changes in the labour market. Calculations show that an increase of 1 percentage point in total unemployment generates additional central government expenditure of SEK 6–7 billion. In the event of a more protracted economic slowdown, measures to reduce expenditure may therefore be required to comply with the spending ceiling.

Rising local government employment.

In the forecast period public consumption is expected to rise almost 1 per cent a year. A large part of the increase is explained by additional local government employment in connection with, for example, the new maximum day nursery charge, higher directed central government grants, and demographic changes. The increase in employment is countered, however, by continued labour shortages for certain occupations and the stipulation that as of 2000 municipalities and county councils are not to have a budget deficit. The latter constraint applies in particular to county councils, where – in contrast to the municipalities – the financial balance is negative.

The growth of disposable income contributes to a favourable path for consumption.

From 1995 to 2000 the growth of household spending on consumption rose sharply, particularly for durable goods. Since the second half of last year the rate has fallen back, mostly for durables.

This year's growth of private consumption has been low on the whole, no doubt mainly as a result of diminishing household wealth and more pessimistic expectations for the future (Figs. 27 and 29). According to Statistics Sweden and the Wholesale & Retail Research Institute's (HUI) preliminary index, the growth of retail turnover remains low (Fig. 26). Although there seems to have been some stabilisation, there are still no clear signs of an increase in the growth of consumption.

Household real disposable income is expected to rise in the forecast period at an average annual rate of 3.5 per cent. The increase in 2002 is particularly marked, over 4 per cent. A large part of the growth stems from tax cuts and increased transfers. A continuation of high employment, despite the economic slowdown, also helps to keep disposable income up. The rapid increase in disposable income contributes to the prospect of increases in the growth of consumption as well as in the household saving ratio in 2002–03 (Fig. 28).¹⁴ The increased consumption

14 One consideration for the effect on private consumption is the extent to which households count on the tax cuts being permanent. Even when it is interpreted cautiously, the level of the structural balance indicates that the tax cuts in Sweden are sustainable in the longer run and can therefore be expected to have a permanent upward effect on private consumption.

is expected to consist mainly of durable goods, which is also pertinent for the expected growth of imports.

Notwithstanding some fall in house prices, an increase in the real net wealth of households is foreseen during 2002 and 2003 as a result of the expected cautious recovery of share prices, a falling debt ratio, lower inflation and historically low real interest rates. The growth of net wealth contributes to the prospect of an increase in household purchases of durable consumer goods towards the end of the forecast period.

Investment growth picks up towards the end of the forecast period.

Manufacturing activity has weakened and Statistics Sweden's survey indicates that manufacturing investment has slackened more than expected. Lower resource utilisation and the fall that has occurred in asset prices (Fig. 29) are also likely to contribute to decreased new investment in machinery and plant in the coming year.

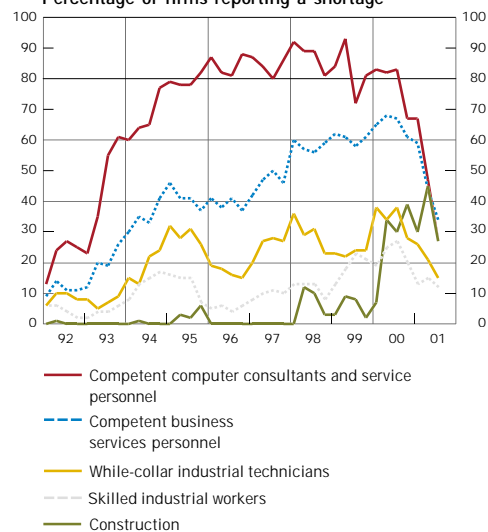
Towards the end of the forecast period, however, investment growth should pick up in connection with an expected increase in demand, a continuation of low real interest rates and rising share prices in 2002 and 2003. The expansion of third generation mobile telecom networks also contributes to increased investment activity in 2003, though it is difficult to pin down its magnitude and timing (cf. the Riksbank's *Financial Stability Report*, 2001:2).

Business tendency surveys show that construction activity stopped rising in Q3 this year and this is also evident from the sector's decreased labour demand. As a fall in house prices is also foreseen in the forecast period, the growth of residential investment can be expected to slacken.

It is hard to find evidence of extensive over-investment in Sweden in recent years and thus an indication that a recovery will be delayed. In a historical perspective, the recent growth of industrial investment has not been remarkably high. Moreover, a traditional model explains the path of total investment in recent years in terms of real interest rates, demand and capacity utilisation (Fig. 30). Against this background, total investment should be able to recover in the normal way when economic activity picks up, even though there are evidently problems in certain sectors, for example IT and telecommunications.

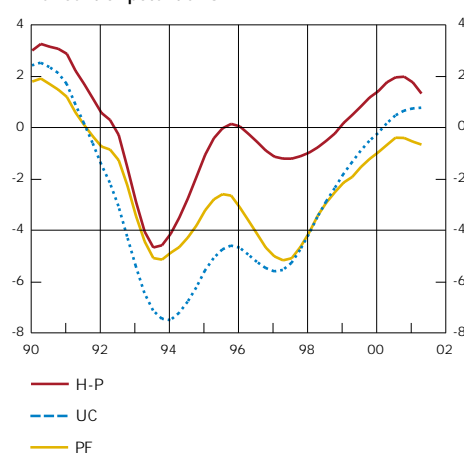
Neither is the corporate debt position expected to act as a damper on investment. Balance-sheet data for 2000 show that the financial position of non-financial companies is relatively good. Developments to date in 2001 indicate that borrowing is falling relative to investment and that a smaller proportion of investments is being financed in the credit market (see *Financial Stability Report*, 2001:2).

Figure 31. Labour shortages. Percentage of firms reporting a shortage



Source: National Institute of Economic Research.

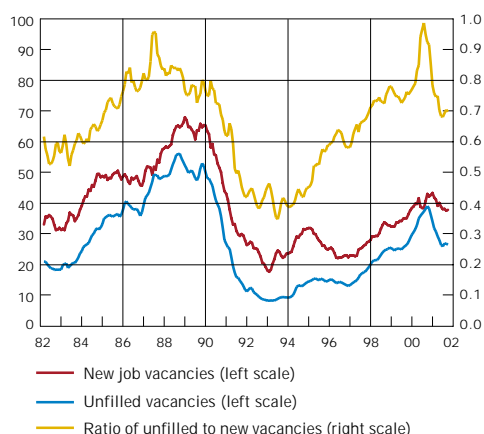
Figure 32. Econometric estimates of the output gap. Per cent of potential GDP



Note. Data presented as moving four-quarter means. H-P stands for the Hodrick-Prescott (or Whittaker-Henderson) filter, UC is the unobserved components method and PF is the production function approach.

Sources: Statistics Sweden and the Riksbank.

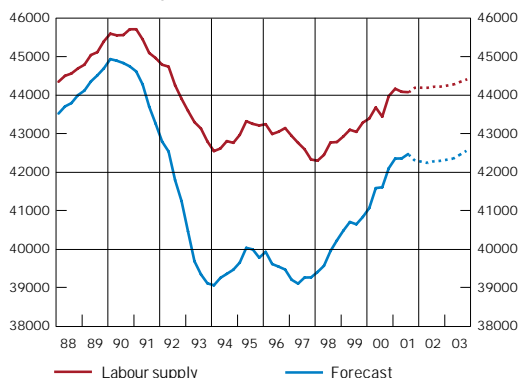
Figure 33. New job vacancies, number unfilled after 10 days and the ratio between them. Thousands



Note. The ratio can be interpreted as an indicator of difficulties in filling existing job vacancies. Seasonally-adjusted series expressed as moving three-month mean.

Source: National Labour Market Board.

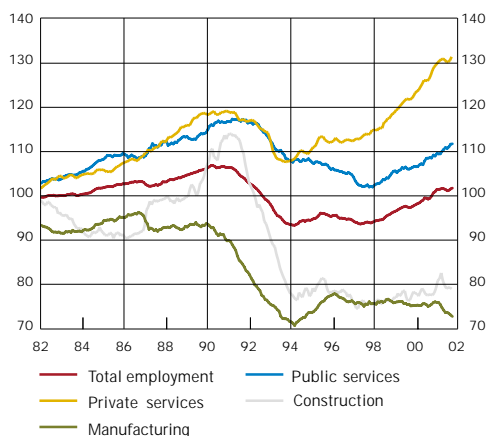
Figure 34. Labour supply and employment. Hundreds of persons



Note. Seasonally-adjusted series; 2001-03 forecast.

Sources: Statistics Sweden and the Riksbank.

Figure 35. Employment by sectors. Index: 1980 Q3=100



Note. Seasonally adjusted with a moving three-month average.

Source: Statistics Sweden.

Business tendency data show no appreciable changes in firms' stock assessments since the October Report. The GDP contribution from stockbuilding is judged to be somewhat negative in 2001 and 2002, while a neutral effect is assumed for 2003.

SUPPLY AND RESOURCE UTILISATION

The quarterly business tendency survey in October suggests that the utilisation of production factors decreased from 2001 Q2 to Q3. Labour shortages also decreased in virtually every industry and above all in the IT sector (Fig. 31).

The Riksbank considers that in the long term the Swedish economy can grow at an annual rate of 2-2.5 per cent without generating increased inflation. In the main scenario GDP growth in the early part of the forecast period is expected to be below the potential rate, which implies an increase in unutilised resources this year and most of 2002. This is followed, however, by some renewed increase in resource utilisation in the latter part of the period. At the end of the forecast period the economy again approaches full resource utilisation. Compared with the assessment in the October Report, resource utilisation is somewhat lower in all three years

A large part of the increase in employment is foreseen in the local government sector.

Growth has been weak this year, while employment has been comparatively strong. It is also conceivable that firms expect the slowdown to be comparatively mild and are therefore more prone to retain labour until an upturn materialises.¹⁵ This labour hoarding contributes to an initial fall-off in the growth of labour productivity but it also means there will be a potential for stepping up production when demand recovers.

The latest quarterly business tendency survey from the National Institute of Economic Research indicates that the construction sector and most of manufacturing foresee a slower growth of employment. The number of new job vacancies is falling and redundancy notices are still rising (Fig. 33). This points to a subdued growth of employment in the coming year. When production picks up again, labour demand is likely to rise (Table 4 and Fig. 34).

According to Statistics Sweden's labour force surveys, the recent increase in employment has occurred mainly in the private services sector and the public sector, while employment in manufacturing has fallen (Fig. 35).

Employment has fallen in manufacturing.

In the forecast period the major part of the increase in employment is also expected to come from business services and

15 An additional explanation could be that the slowdown occurred so suddenly that firms have not yet adjusted their work force to the weaker demand.

the public sector, local governments in particular, while decreased employment is foreseen in 2002 in manufacturing and construction.

The scaling back of labour market programmes is expected to result in an increment to the labour force but as the Government has announced that the Labour Market Board's appropriations for 2002 will be larger than indicated earlier, it is foreseen that programmes will not be reduced as much as was assumed in the October report. Even so, labour force growth is still expected to exceed the growth of employment next year, which implies an increase in open unemployment. With a more favourable labour market situation, some reduction of open unemployment is foreseen in 2003 (Table 4).

Table 4. Labour market forecast in the main scenario.
Percentage annual change and per cent of labour force

	1999	2000	2001	2002	2003
Nominal hourly wage	3.3	3.6	3.8 (3.8)	3.5 (3.7)	3.6 (3.7)
Labour productivity	1.4	2.1	0.7 (0.7)	1.7 (1.7)	1.8 (2.0)
Unit labour costs	2.2	1.9	3.3 (3.6)	1.8 (2.0)	1.8 (1.7)
Number employed	2.2	2.2	1.9 (1.9)	-0.2 (0.3)	0.4 (0.7)
Hours worked	2.7	1.5	0.6 (0.6)	0.0 (0.5)	0.6 (0.9)
Open unemployment (level)	5.6	4.7	4.1 (4.1)	4.4 (4.1)	4.3 (4.0)
Labour market programmes (level)	3.2	2.5	2.4 (2.4)	2.3 (2.2)	2.1 (2.0)

Note. The figures in parentheses are the assessment in the October Report; 2001-03 forecast.

Sources: Statistics Sweden and the Riksbank.

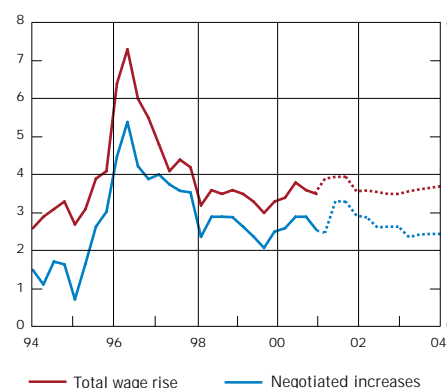
Average hours worked fell in the first half of this year due to increased sick leave and less overtime work. The economic slowdown may mean that sick leave falls back again on account of greater anxiety about unemployment. When economic activity turns up again, overtime work should rise again.

Stable rate of wage increases notwithstanding the subdued growth of employment.

The wage forecast is broadly unchanged from the October Report (Fig. 36). The profile of wage settlements is such that the rate of wage increases this year is relatively high, while lower rates are expected in the coming years for this reason and also on account of decreased labour demand.

The assessment of unit labour costs, which play a crucial part in domestic inflationary pressure, is also broadly unchanged (Fig. 37). This year's higher increase (due to lower productivity growth) is expected to be fairly temporary; in the years ahead, lower wage costs as well as higher productivity growth tend to hold back the increase in unit labour costs. This forecast also implies some increase in the profit share (Fig. 38).

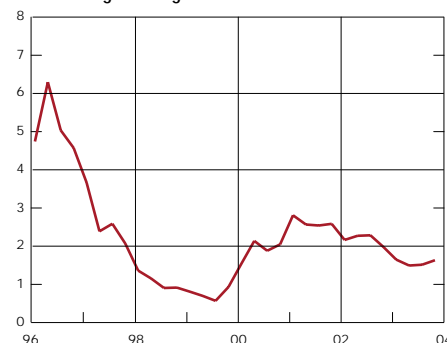
Figure 36. Negotiated and total wage rise in the whole economy.
Per cent



Note. 2001-03 forecast.

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

Figure 37. Corporate sector unit labour costs.
Percentage change



Note. Calculated with a moving eight-quarter mean; 2001-03 forecast.

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

Figure 38. Profit share.
Per cent of GDP at factor values

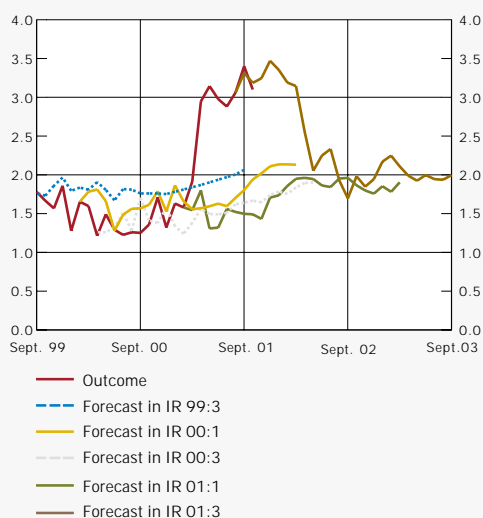


Note. 2001-2003 forecast.

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

THE RELATIONSHIP BETWEEN GROWTH AND INFLATION

Figure B8. UND1X, forecasts and outcome.
Per cent



Sources: Statistics Sweden and the Riksbank.

Inflation has risen rapidly in the course of this year. The increase, which occurred mainly in the spring, had not been expected (Fig. B8). It was mainly unforeseen price increases for meat, fruit and vegetables, domestic heating oil, petrol, electricity and telecom services that lay behind inflation's high rates. In recent Inflation Reports the price rise for these goods and services has been considered to be mainly of a more transitory nature; CPI inflation should fall back towards the targeted rate as pricing returns to more normal patterns.

Prices for these goods and services are among the items that have fluctuated most historically (cf. Fig. B2 on p. 6). But even when these price increases are excluded, it is still the case that inflation moved up at a time when resources were not considered to be particularly strained. This raises questions about the picture of resources utilisation and the effect on inflation. The high inflation outcomes recently could, for example, have to do with the relationship between growth and inflation being less favourable than has been assumed in recent Inflation Reports.

The relationship between growth and inflation is an umbrella term at the Riksbank that encompasses a wide variety of conceivable connections and relationships. It is primarily two aspects of growth's impact on inflation that are considered here. The first is the picture of resource utilisation: if the Riksbank's appraisal has been on the low side, that could at least partly explain the high inflation outcomes. The other aspect is resource utilisation's effects on inflation: if the Riksbank has underestimated these effects, inflation would be higher than forecast even with a correct appraisal of resource utilisation. Finally, the question is considered of whether the high inflation outcomes recently ought to have been foreseen by the Riksbank and other observers.

THE PICTURE OF RESOURCE UTILISATION

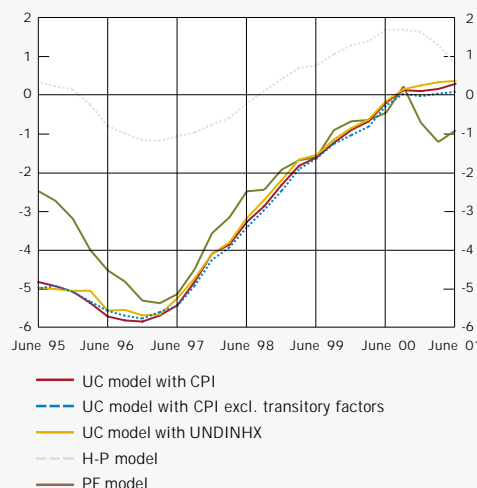
In Inflation report 1999:3 it was judged that during the forecast period resource utilisation would rise gradually and become increasingly inflationary in the course of 2000. As growth since that forecast has been lower than expected, last spring's increased inflation can hardly have been a sign of growing strains on resources. The appraisal of resource utilisation in 2000 has also been revised continuously downwards.

One approach to measuring resource utilisation uses the output gap. A problem here, however, is that the gap is not something that can be observed directly and therefore has to be estimated in one way or another. The Riksbank currently uses three methods for this (see Fig. B9; also Fig. 32 on p. 35).¹⁶ Additional information (labour market shortages, for example) is also included in the final assessment of resource utilisation.

Inflation rose last spring, as mentioned above, even excluding the price increases that were judged to be of a more transitory nature. The rise included inflation's domestic component (UNDINHX). It is conceivable that the price increases which were judged to be more transitory stemmed mainly from supply shocks and accordingly were not primarily driven by demand. In that inflation features in the estimation of the size of the output gap, including the transitory factors in the measure of inflation could give a faulty picture of the gap. It is also conceivable that resource utilisation in Sweden mainly affects inflation's domestic component. Using CPI instead of UNDINHX inflation could then give a faulty picture of resource utilisation. Output gaps estimated with inflation measured by the CPI, by UNDINHX and by the CPI excluding the price increases that are currently considered to be more transitory, are presented in Fig. B9. It will be seen that the choice of inflation measure is of little consequence for the size of the estimated output gap.

The output gap in 2000 is particularly relevant in the present context because, together with the potential growth rate, it determines whether a forecast rate of GDP growth is associated with rising or falling inflationary pressure. In the October Report, resources were judged to have been somewhat more strained in 2000 than had been allowed for earlier. The Riksbank's

Figure B9. Output gap estimated with the UC model, using three alternatives for inflation, and with the H-P and PF methods.
Per cent

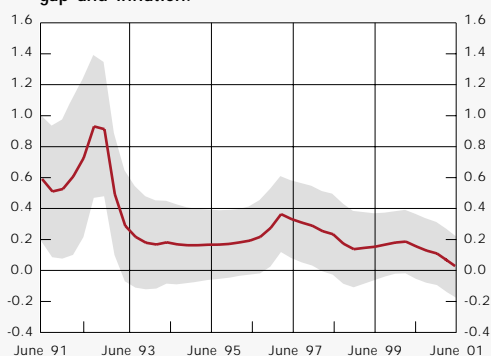


Note. The output gaps shown here are somewhat different from the picture in Fig. 32 on p. 35 because the latter are presented as four-quarter moving averages.

Source: The Riksbank.

¹⁶ One of the approaches to estimating the total output gap uses the UC model; whereas the other two – the HP filter and the PF (production function) approach – rely solely on GDP data, the UC model also takes inflation into account. For a description of this model, see Apel, M. & Jansson, P. (1999), System estimates of potential output and the NAIRU, *Empirical Economics* 24, 373–388.

Figure B10. Partial correlation between output gap and inflation.



Note. Partial correlation estimated with a rolling 40-quarter window with inflation represented by the CPI and the output gap obtained with the UC method. The shaded band indicates the 95 per cent confidence interval for the estimations.

Source: The Riksbank.

estimations of the output gap do not suggest that this was appreciably larger than was assumed after the upward adjustment.

RESOURCE UTILISATION'S EFFECTS ON INFLATION

On a number of occasions in recent years the Riksbank has made minor changes in the appraisal of resource utilisation's effects on inflation. Earlier studies have shown, for example, that the partial correlation between the output gap and inflation decreased during the 1990s. In an attempt to catch any changes more recently, the same Phillips curve as was used earlier has been estimated with a rolling window, which means that at each time-point the model is estimated with an unbroken series of preceding observations, in this case the 40 preceding quarters.¹⁷ The exercise confirmed earlier results. The partial correlation between the output gap and inflation decreased in the early 1990s and does not seem to have risen since then (Fig. B10).¹⁸

Interpretations of partial correlations should always be highly cautious. In a simple model, the relationship between the output gap and inflation is dependent *both* on resource utilisation's effects on inflation *and* on how the central bank reacts to inflation prospects.¹⁹ The Riksbank's inflation forecasts start from the technical assumption that the repo rate will be unchanged. The relevant question is then how resource utilisation affects inflation when monetary policy is unchanged. In empirical data, however, outcomes include monetary policy's stabilising influence on inflation. This means that when developments are analysed retrospectively, it looks as though the correlation has decreased.

The fall in the estimated partial correlation between inflation and the output gap in the 1990s is what one might expect after a successful implementation of inflation-targeting regime. A decreased partial correlation between resource utilisation and inflation should result from monetary policy's commitment to price stability around an inflation target.

There is nothing in Fig. B10 to suggest that the partial correlation between resource utilisation and

17 The earlier estimations are presented in *Inflation Report 1999:3*, in a box on pp. 52–55. The Phillips curve used there as well as here is written $\pi_t = \alpha + \beta_1 y_{t-4} + \beta_2 \pi_t^{exp} + (1 - \beta_2) \pi_{t-4} + \beta_3 \pi_t^* + \beta_4 r_t + \varepsilon_t$, where π is inflation, y a measure of resource utilisation, π^{exp} expected inflation derived from surveys, π^* external inflation, r oil price changes and ε denotes errors.

18 This conclusion is not crucially dependent on window size.

19 See e.g. Svensson, L.E.O. (1997), Optimal inflation targets, 'conservative' central banks and linear inflation targets, *American Economic Review* 87.

inflation has increased since the changeover to the inflation-targeting regime. This can be taken to imply that resource utilisation's effect on inflation has not increased, either. The result holds for different measures of both inflation and resource utilisation.

MODEL-BASED INFLATION FORECASTS

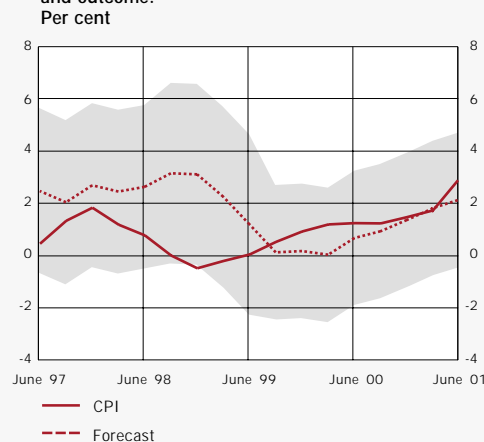
Can it be said that the Riksbank ought to have foreseen the high inflation outcomes recently? One approach to this question involves comparing various model-based forecasts with outcomes and studying whether the models catch the increased inflation. This has been done with the same Phillips curve as above. A forecast of inflation two years ahead has been obtained with each estimation in the rolling window and the results have been compared with the outcomes.

It will be seen from Figs. B11 and B12 that the models do not manage to foresee the high inflation recently. But when the transitory factors are excluded from the measure of inflation, the model's inflation forecasts are above the outcomes. So these results also suggest that this year's unexpectedly high inflation outcomes were primarily due to the transitory factors.

SUMMARY

The unexpectedly high inflation last spring has made it important to analyse whether the Riksbank's assessments of growth's impact on inflation in a wide sense were faulty. A number of approaches to this question are presented above. The conclusions from the analysis indicate, firstly, that the models yield no strong indications of the high inflation being a consequence of the Riksbank's forecasts underestimating resource utilisation. Secondly, there does not seem to be any clear indication that resource utilisation's effects on inflation have recently changed appreciably. Finally, when the transitory factors are included in the measure of inflation, recent inflation is underestimated, if anything, by simple econometric models. This supports the appraisal in the main scenario that it is above all the goods and services for which the price increases are considered to be of a transitory nature that led to the recent underestimation of inflation.

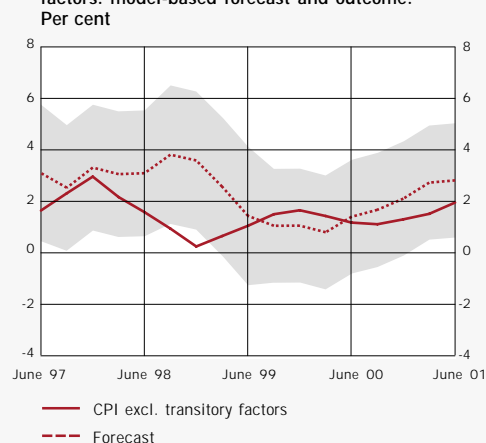
Figure B11. CPI inflation: model-based forecast and outcome.



Note. The shaded band indicates the 95 per cent confidence interval for the forecast.

Source: The Riksbank.

Figure B12. CPI inflation excluding transitory factors: model-based forecast and outcome.

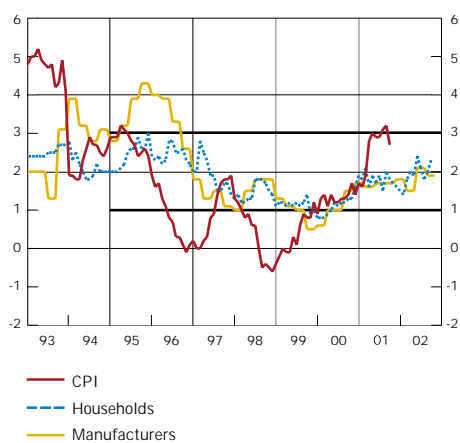


Note. The shaded band indicates the 95 per cent confidence interval for the forecast.

Source: The Riksbank.

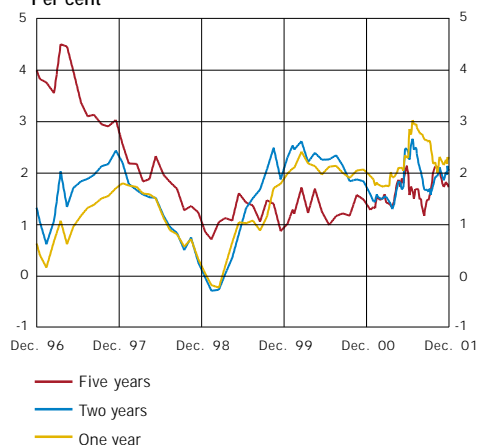
Inflation expectations

Figure 39. CPI and inflation expectations of households and manufacturers.
Per cent



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

Figure 40. Expectations of inflation one, two and five years ahead.
Per cent



Note. Expectations derived from implicit forward interest rates.

Source: The Riksbank.

The picture of inflation expectations in surveys that have been published since the October Report is somewhat mixed. Prospera's survey suggests that expectations of both short- and long-term inflation are rising (Table 5). According to this market survey, the increase is greatest among labour market organisations and purchasing managers, while the expectations of money-market players have risen only marginally and are still in the vicinity of the inflation target. The figures should be interpreted somewhat cautiously. There are indications that expectations are adaptive, so that expected future inflation is largely dependent on historical inflation. It should be noted, moreover, that Prospera's survey was largely carried out before the publication of the October CPI figures, which showed that inflation had fallen.

Table 5. Expected rate of CPI inflation
Annual rate, per cent

Expected inflation 1 year ahead		
Money market agents	2.2	(0.0)
Employer organisations	2.8	(0.2)
Employee organisations	2.9	(0.6)
Purchasing managers, trade	2.7	(0.1)
Purchasing managers, manufacturing	2.7	(0.2)
Households, HIP, October (September)	2.3	(0.3)
Manufacturing firms, business tendency survey, October (July)	1.9	(-0.3)
Services firms, business tendency survey, October (July)	1.8	(-0.4)
Expected inflation 2 years ahead		
Money market agents	2.2	(0.1)
Employer organisations	2.7	(0.3)
Employee organisations	2.7	(0.3)
Purchasing managers, trade	2.7	(0.2)
Purchasing managers, manufacturing	2.7	(0.2)
Expected inflation 5 years ahead		
Money market agents	2.1	(0.0)
Employer organisations	2.6	(0.3)
Employee organisations	2.6	(0.4)
Purchasing managers, trade	2.5	(-0.1)
Purchasing managers, manufacturing	2.6	(0.0)

Note. The data are based on Prospera's survey in November unless indicated otherwise; the figures in parentheses are the change in percentage points from Statistics Sweden's September survey.

Sources: National Institute of Economic Research, Prospera Research AB and Statistics Sweden (September).

Statistics Sweden's monthly survey of households in October shows that from September to October households adjusted their inflation expectations 0.3 percentage points upwards to 2.3 per cent.

Mixed picture of inflation expectations.

The October business tendency survey from the National Institute of Economic Research suggests, on the other hand, that in the manufacturing and services sectors, expectations of inflation one year ahead have been revised downwards since the October Report

and are once more in line with the inflation target. However, an increased proportion of firms intend to raise home market prices for consumer goods.

Market prices, derived from implied forward interest rates, indicate that inflation expectations are relatively stable for the coming two years, while expectations of inflation five years ahead are now somewhat lower than at the time of the October Report (Fig. 40). These measurements must also be interpreted cautiously because the implied forward interest rates are normally influenced by structural factors, for instance.

With some exception, professional forecasters count on inflation two years ahead being in line with the Riksbank's target. Note, however, that such assessments may be based on various assumptions about economic policy.

Deregulations, political decisions and transitory effects

No new proposals involving changes in indirect taxes and subsidies that directly affect the price level have been presented since the time of the October Report. Expected CPI effects from changes announced earlier are the same as in the October assessment. For rents, however, the impact of the reduced property tax on apartment buildings is calculated to be somewhat smaller than assumed in the October Report. The CPI contributions from house mortgage interest expenditure in September and October were largely as expected and the changes in the forecast are small (Table 6).

The Government has proposed a number of measures for strengthening competition in the electricity market. Moreover, increased competition in fixed telephony is expected to result from the introduction of a free choice of operator for local calls as of February next year, thereby paving the way for price reductions. All this can tend to dampen domestic inflation.

Table 6. Direct CPI effects from indirect taxes, subsidies and interest expenditure.

Percentage points

	Dec. 2001	Dec. 2002	Dec. 2003
Indirect taxes and subsidies	-0.3 (-0.3)	0.0 (0.1)	0.1
House mortgage interest expenditure	0.0 (-0.1)	0.1 (0.1)	0.3
Total direct effect	-0.4 (-0.4)	0.1 (0.1)	0.3

Note. The forecasts in the October Report are shown in parentheses for comparison.

Sources: Statistics Sweden and the Riksbank.

The risk spectrum

The assessment of the uncertainty and the spectrum of risks in the prospects for inflation is presented in this chapter.

The inflation forecast in the main scenario describes the development of prices the Riksbank considers most probable in the coming two years, given the assumption of an unchanged repo rate. As the forecast is uncertain, some alternative paths for inflation are compiled in the form a risk spectrum that is of importance for the formation of monetary policy.

In the October Report the downside risk associated with international developments was judged to be balanced by upside risks from growth's impact on inflation and the path of the exchange rate.

The risk of inflation in Sweden being lower than in the main scenario stems mainly from the *development of domestic and international economic activity*. The international picture is marked by a synchronous slowdown in all the major groups of countries. Since the time of the October Report, international economic developments have been closer to the path in the risk spectrum. In the main scenario in the present Report, growth has therefore been revised downwards, above all in the United States but also in the euro area and Japan. However, most of the downward revision applies to 2002 and it is conceivable that the recovery foreseen in the main scenario will be delayed.

Monetary and fiscal policies in the United States and many countries in Europe have become more expansionary. A large part of the stimulus in the United States is concentrated to 2002. The main scenario assumes that the impact of these measures will be more limited than might be expected under more normal conditions; it is conceivable, however, that their effect on demand will be even smaller. Pointers in this direction are the accumulation of private sector debt in the United States since the mid 1990s and the new situation after the terrorist attacks, with decreased confidence in the future. While the saving imbalances in the United States are corrected more quickly in the main scenario than assumed earlier, the possibility of an even faster correction constitutes a risk. In such a scenario, tax cuts and increased transfers lead mainly to higher saving, so that consumption remains weak. This would have negative consequences for the rest of the world via traditional channels for trade as well as through financial links.

A deeper decline of this sort could stem from a reappraisal of American households' assets and liabilities in the light of the weaker situation, for instance in the labour market. A protracted military conflict would probably also weaken household confidence.

The main downside risk for inflation in Sweden is considered to lie in the development of economic activity.

In addition, there are risks in economic development in Japan and Europe. The recession and deflation in Japan have already worsened before an austere programme of structural reforms has got under way. An even deeper crisis in the coming years can therefore not be ruled out. This applies in particular to the financial sector, where the prevalence of bad loans may exceed what has been reported. A financial crisis at a time when the room to manoeuvre in fiscal and monetary policy is limited could have international repercussions.

The euro area is mainly vulnerable to the slowdown in the United States but problems inside Europe also entail risks. The growth of employment in the euro area, which helped to maintain consumer confidence, has turned into a fall. While this is considered to be largely a cyclical phenomenon, it could also have to do with structural problems that are more serious than assumed earlier. In that case the slowdown in Europe could be more protracted than the main scenario assumes. As far as the euro area is concerned, however, the risk of a more protracted path is presumably smaller than in the United States in that the former does not seem to share the latter's problem with saving imbalances.

Finally there are domestic factors that pose a risk of economic activity in Sweden being more subdued than the main scenario assumes. Growth for exports of goods has come to an end this year, which means that the krona's depreciation has not countered the negative factors here to the same extent as in earlier slowdowns. This has raised questions about the composition of exports and effects of structural changes in the export sector. The export and investment forecasts in the main scenario presuppose that a major part of the negative consequences of structural adjustments in the telecom industry have already occurred or will do so soon. It is conceivable, however, that the recovery of telecom production, for example, materialises later – for instance as a consequence of uncertainty about the cash flows that 3G investment may generate – so that export and investment growth follow a weaker path. Another risk concerns the labour market: if unemployment were to start rising more than expected, households' confidence in the future could be affected so that the economic recovery is subdued, for example via lower growth of private consumption.

All in all, the downside risks for inflation in Sweden are judged to be smaller than foreseen in the October Report. The downside risk from international developments that was perceived in that Report has now been incorporated to some extent in the main scenario. This in turn implies a smaller risk of a weaker development of international export prices.

The risk of a weaker economic development internationally and in Sweden is counterbalanced above all by the risk of

inflationary pressure being underestimated. The unexpectedly high inflation last spring is mainly attributable to transitory factors. Food prices, for example, rose unusually strongly in connection with mad-cow and foot-and-mouth disease. Electricity and telecom prices also rose for reasons that do not seem to be related to the general level of demand. But even when the transitory factors are excluded, inflation moved up at a time when resources did not seem to be particularly strained. In the October Report this prompted a marginal upward adjustment of the picture of resource utilisation in 2000. Growth's impact on inflation is considered in more detail in a box on pp. 38–42. Although the uncertainty in the estimations is considerable, the results do not suggest that resource utilisation initially is appreciably higher than calculated or that the consequences of resource utilisation for inflation have become greater recently.

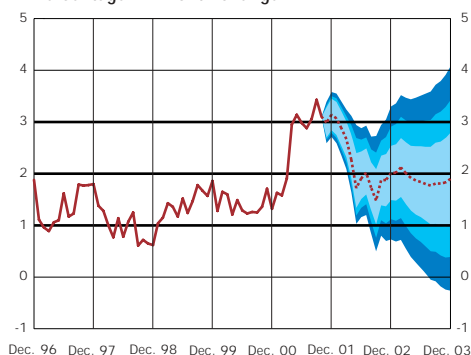
The main upside risk is considered to be that inflationary pressure is underestimated.

Certain measurements show a recent increase in inflation expectations. If the inflation expectations of labour market organisations, for instance, are a reasonably accurate reflection of general perceptions of future inflation, then a risk exists of inflation rising more permanently.

In addition there is a risk of the krona being weaker than in the main scenario. Since the October Report the krona has appreciated as the financial unrest connected with the terrorist attacks in the United States has subsided. In the main scenario the krona's appreciation is underpinned by an increasingly stable and upward stock market. The main risk of a weaker exchange rate in the main scenario has to do with increased financial unrest, for instance in connection with new terrorist attacks or a more subdued economic and stock-market trend. In such a scenario, the inflationary effects of a weaker exchange rate would presumably be countered by the international slowdown. Another possibility is an appreciation of the krona that is somewhat slower than expected because the financial flows associated with the diversification of portfolios abroad are larger than assumed in the main scenario. In such a scenario there is a risk of a weak krona having more substantial effects on inflation in Sweden. The problems from a weak exchange rate could be particularly marked if inflation expectations were to move up. It would then be easier for importers and retailers to pass through costs arising from the weak krona to consumers. Compared with the October Report, however, the upside risks associated with the exchange rate are now judged to be smaller, mainly in view of the decreased uncertainty in financial markets.

Finally, it is conceivable that the downward effect on inflation from the expected appreciation will be smaller than the main scenario assumes. One argument for this is that the krona's recent depreciation has not led to an equivalent increase in imported inflation, so that profit margins may have declined to an extent

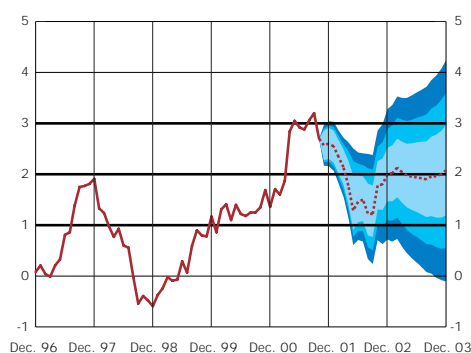
Figure 41. UND1X with uncertainty intervals.
Percentage 12-month change



Note. The uncertainty intervals show the 50, 75 and 90 per cent chances of UND1X inflation being within the respective range. The broken line represents the main scenario's forecast; the horizontal lines at 1, 2 and 3 per cent are the Riksbank's inflation target and the tolerance interval for the annual change in the CPI.

Sources: Statistics Sweden and the Riksbank.

Figure 42. CPI with uncertainty intervals.
Percentage 12-month change



Note. The uncertainty intervals show the 50, 75 and 90 per cent chances of CPI inflation being within the respective range. The broken line represents the main scenario's forecast; the horizontal lines at 1, 2 and 3 per cent are the Riksbank's inflation target and the tolerance interval for the annual change in the CPI.

Sources: Statistics Sweden and the Riksbank.

that is not perceived as sustainable in the longer run. Consequently there is a risk that, instead of lowering prices appreciably, firms use the krona's appreciation to make up for falling profits earlier.

All in all, the largest upside risk for inflation is considered to be that inflationary pressure is underestimated. This risk is likewise judged to be somewhat smaller than at the time of the October Report. The results of the studies on resource utilisation point to this, as do the facts that inflation has fallen back and the krona has appreciated.

The downside risks associated with economic development internationally and in Sweden are judged to balance the upside risk of inflationary pressure being underestimated. In other words, the probability of inflation being lower than in the main scenario is the same as the probability of higher inflation. This is evident from Fig. 41, which shows that the uncertainty around the forecast of underlying inflation, measured as the 12-month change in UND1X, is symmetric.²⁰ The spectrum of risks in the forecast of CPI inflation is also balanced (Fig. 42).

All in all, the spectrum of risks for UND1X as well as CPI inflation is considered to be balanced both one and two years ahead.

The uncertainty in the assessment of both underlying and CPI inflation is greater than usual but somewhat smaller than at the time of the October Report.

As monetary policy decisions are based primarily on an assessment of price tendencies twelve to twenty-four months ahead, it is the inflation prospects for this time horizon that are particularly relevant. As the risk spectrum is balanced, the comprehensive assessments of UND1X and CPI inflation coincide with the assessments in the main scenario (Table 7).

20 For an account of how the uncertainty interval is derived, see Blix, M. & Sellin, P. (1999), Inflation forecasts with uncertainty intervals, *Quarterly Review 2*, Sveriges Riksbank; for a fuller analysis, more focused on models, see *idem* (1999), *Uncertainty bands for inflation forecasts*, Sveriges Riksbank Working Paper 65.

Table 7. Inflation forecasts including the risk spectrum.

Per cent

	Annual rate			12-month rate		
	2001	2002	2003	December 2002	December 2002	December 2003
CPI	2.6	1.8	2.0		2.0	2.1
UND1X	2.7	2.1	1.9		2.0	1.9

Note. The table gives the mean values of the inflation assessment's probability distributions (see Figs. 41 and 42).

Source: The Riksbank.

Table 8. UND1X inflation.

Percentage probability, 12-month rate

	UND1X<1	1≤UND1X<2	2≤UND1X≤3	UND1X>3	Total
2002 (December)	10	40	40	10	100
2003 (December)	25	28	27	20	100

Note. The figures show the probability of UND1X inflation being in the column's interval.

Source: The Riksbank.

Table 9. CPI inflation.

Percentage probability, 12-month rate

	CPI<1	1≤CPI<2	2≤CPI≤3	CPI>3	Total
2002 (December)	10	40	40	10	100
2003 (December)	21	27	28	24	100

Note. The figures show the probability of CPI inflation being in the column's interval.

Source: The Riksbank.

The conclusion from the assessments presented here is that, given an unchanged repo rate of 3.75 per cent and excluding changes in indirect taxes, subsidies and interest rates, inflation in the main scenario, as well as with the risk spectrum taken into account, will be in line with the 2 per cent target both one and two years ahead. The uncertainty in the forecasts of future UND1X as well as CPI inflation is considered to be greater than normal but somewhat smaller than at the time of the October Report.

FORECASTING INFLATION WITH A REPO RATE BASED ON MARKET EXPECTATIONS

In the main scenario, inflation is forecast as usual on the technical assumption that the repo rate will be unchanged; this serves to bring out the consequences for the formation of monetary policy. However, market pricing and survey data on analysts' opinions currently indicate a somewhat different picture of the repo rate's expected path in the coming two years. The repo rate two years from now is generally expected to be higher than at present. An illustrative calculation is therefore presented here that incorporates repo rate increases in line with market expectations as reported in Prospera's survey in November 2001.

The survey data show expectations of repo rates of 3.5 per cent three months from now, just over 3.6 per cent one year ahead and 4.25 per cent after two years.²¹ Here it is assumed that the short-term market interest rates will broadly follow the repo rate, while the pass-through to the longer rates is smaller. Compared with the main scenario, the short rates are judged to be approximately 20 basis points lower one year ahead and 30 basis points higher after two years, while the effect on long rates stops at an average of 5 basis points higher. The higher level of interest rates two years ahead is also judged to strengthen the exchange rate marginally.

Thus, a path for the repo rate that follows market expectations has conflicting effects on demand from short- and long-term interest rates and the exchange rate. All in all, the expansionary effect from short-term interest rates is judged to be stronger one year ahead than the restrictive effects from higher long-term interest rates and the stronger exchange rate. After two years, however, the combined effect on demand from interest rates and the exchange rate would be less expansionary than in the main scenario. Inflation between one and two years ahead is affected mainly by the more expansionary conditions after one year and less by the expected interest rate increase during 2003. But on the whole, the effects on inflation are virtually negligible.

21 The median value of the surveyed expectations.

Table B5. Modified inflation forecast, incorporating interest rates derived from market expectations.

Percentage change and percentage points

	Annual rate 2002	Annual rate 2003	12-month rate December 2002	12-month rate December 2003
CPI	1.7 (-0.1)	2.2 (0.2)	1.9 (-0.1)	2.3 (0.2)
UND1X	2.1 (0.0)	1.9 (0.0)	2.0 (0.0)	1.9 (0.0)

Note. The figures in parentheses are the difference from the main scenario's rate of inflation with an unchanged repo rate.

Source: The Riksbank.

CPI inflation one year ahead is held back slightly by lower interest expenditure and a marginally stronger exchange rate. Higher interest expenditure during 2002 leads, however, to somewhat higher CPI inflation after two years. UND1X inflation, on the other hand, is judged to be more or less unchanged both one and two years ahead (Table B5).