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# Foreword

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

The purpose of the Inflation Report is to provide a basis for monetary policy decisions and to make our deliberations known to a wider public, so that monetary policy is easier to follow and understand. The Report is also intended to encourage a discussion of matters relating to monetary policy.

The Report starts from the presentations and discussions of inflation at the Executive Board meetings on 16 September and 1 October 1999. The inflation assessment presented in this Report mirrors the Riksbank's appraisal of inflation prospects in the present situation. The assessment constitutes the background to the Executive Board's monetary policy decision on 5 October 1999; the minutes of that Board meeting will be published on 20 October 1999.

The Riksbank Act (1988:1385, Chapter 6, Article 4) requires the Riksbank to hand over a written monetary policy report to the Parliamentary Standing Committee on Finance at least twice a year. The Riksbank has chosen to use the Inflation Report for this purpose.

This Report presents the Riksbank's appraisal of the path of inflation up to the end of 2000 Q3. In order to bring out the consequences for monetary policy, the analysis is based on an unchanged repo rate.

In Chapter 1 the recent consumer price tendencies are considered in relation to the assessments in the June Inflation Report. Chapter 2 presents the most probable development of the main factors that determine the path of inflation. The chapter is structured to follow a simple inflation model so as to provide a clear picture of the factors that are most important for future inflation. Chapter 3 summarises the Riksbank's assessment of inflation prospects. The Report also contains a number of boxed texts, the purpose of which is to provide more detailed insights into matters of importance for inflation assessments and the formation of monetary policy. The procedure for constructing the Riksbank's inflation assessments and the part they play in the formation of monetary policy are discussed in an appendix.

*Stockholm, October 1999*

Urban Bäckström  
Governor of Sveriges Riksbank





# Summary

■ Since the June Inflation Report both *CPI and underlying inflation* have broadly followed the expected path. In August 1999 the 12-month rate of CPI inflation was 0.6 per cent. The underlying rate of inflation, measured by UND1X, was 1.5 per cent.

*International economic activity and inflation.* International economic prospects have improved since the June Report. In the period 1999–2001, annual GDP growth in the OECD area is judged to be not quite 2.5 per cent. Activity in the emerging markets has picked up after the Asian crisis. This year's growth in the Japanese economy is stronger than expected and activity in the United States does not seem to be slackening as markedly as had been foreseen. Prospects for the euro area have also improved. With the better world market situation and higher commodity prices, the increase in international export prices is judged to be somewhat higher than was foreseen in June. However, the *Swedish krona* is expected to appreciate and this, together with falling oil prices, is assumed to contribute to a damping of Swedish import prices in one to two years' time. The aggregate CPI contribution from *import prices* is expected to be about 0.5 percentage points in 1999 but negligible in both 2000 and 2001.

*Domestic demand relative to supply.* The brighter international economic prospects should stimulate exports and the associated investments. Domestic demand is judged to be stronger than was expected in June. Households as well as firms are optimistic about the future; real wages and employment are rising rapidly and public finances are being strengthened. The Government target for the public sector's financial surplus means that the general direction of fiscal policy is restrictive. In the coming years, however, the restrictive effect on demand is judged to decrease and compared with our June prediction, the fiscal stance in 2000 and 2001 is now assumed to be more expansionary. All in all, the GDP growth rate is judged to be 3.6 per cent in 1999, 3.8 per cent in 2000 and 3.0 per cent in 2001. It is considered that the economy has unutilised resources at present but they will be utilised more quickly than was foreseen in June. This entails somewhat higher underlying inflationary pressure. Wages are judged to rise 4–4.5 per cent a year in 2000 and 2001, which is somewhat higher than was assumed in the June Report.



*Deregulations* in the markets for telecommunications and electricity, together with subdued agricultural prices as a consequence of Agenda 2000, are calculated to have much the same downward effect on consumer prices as was foreseen in June, that is, 0.2 percentage points in 1999, 0.3 in 2000 and 0.1 in 2001.

*Inflation expectations* have tended to rise somewhat but their level is still low. Inflation in one year's time is expected to be below 2 per cent. Expectations for the medium and longer run have been anchored for some time around 2 per cent. One consequence of this is that inflationary impulses from the stronger activity should be smaller than in earlier upswings.

*Transitory factors.* Changes in indirect taxes, subsidies and house mortgage interest expenditure are judged to hold back the CPI increase in the coming twelve months by 0.5 percentage points. The effect after twenty-four months, however, is judged to be upward and amount to 0.1 percentage point. Under present circumstances the Riksbank disregards these factors in the formulation of monetary policy because they are judged to have no permanent effect on inflation or inflation expectations. This means that in practice monetary policy is currently based on an assessment of inflation as measured by UND1X.

■ To sum up, the improved economic prospects imply somewhat stronger inflationary pressure. In the main scenario, however, the trade-off between growth and inflation is judged to be somewhat lower than envisaged in the June Report. In recent years the Riksbank has revised its appraisal of this relationship a number of times. According to various international observers, the corresponding relationship in the OECD area has become somewhat more favourable. Low and stable inflation expectations, as well as increased competition in the Swedish economy in connection with deregulations and EU membership, suggest that the same applies to Sweden. Another indication in this direction is the comparatively weak development of underlying inflation. The upward tendency in underlying domestic inflation is therefore assumed to be comparatively restrained despite stronger activity. Moreover, import price increases in 2000 and 2001 are judged to be somewhat lower than foreseen earlier. If the repo rate is kept unchanged, in the main scenario the rate of UND1X inflation is judged to be 1.8 per cent twelve months ahead and 2.1 per cent after twenty-four months. The favourable economic prospects imply rapidly growing demand and the unutilised resources that exist at present will be utilised in the coming two years. The clearest risk in this context is that labour market shortages will be more marked. This in turn could lead to higher wage increases and thereby to stronger inflationary pressure than is allowed for in the main scenario.



■ The conclusion from the reported assessments is that, excluding transitory effects from changes in indirect taxes, subsidies and interest rates, and given that the repo rate remains unchanged at 2.90 per cent, inflation will rise in the coming years and be marginally above the Riksbank's target in twenty-four months' time.





# Consumer prices

*This chapter presents consumer price tendencies in recent months and their significance for inflation prospects in the near future. The account begins with an analysis of price movements for the goods and services that are included in underlying inflation as measured by UND1X. This is followed by a discussion of consumer price effects from indirect taxes, subsidies and house mortgage interest expenditure.*

Over the most recent four-month period the level of consumer prices has hardly changed. In August the 12-month change in the consumer price index (CPI) was 0.6 per cent (Fig. 1), which is in line with the inflation forecast in the June Report. Inflation's underlying rate, measured by UND1X, was 1.5 per cent in August and thus likewise well in line with the Riksbank's latest assessment. Underlying inflation's domestic component has shown a marginally weaker tendency than expected earlier.

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**The consumer price tendency has been as expected.**

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While the combined price movements are moderate, behind them lie considerable differences between various components. A moderate price rise for goods in the past year has been accompanied by strong price increases for services, offset by decreased housing costs (Fig. 2).

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**Services prices have risen faster than prices of goods.**

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## MINOR PRICE MOVEMENTS FOR IMPORTED GOODS

The price tendency in recent months for goods that are mainly imported has been very moderate (Fig. 3). In the first place this reflects low import prices to producers.

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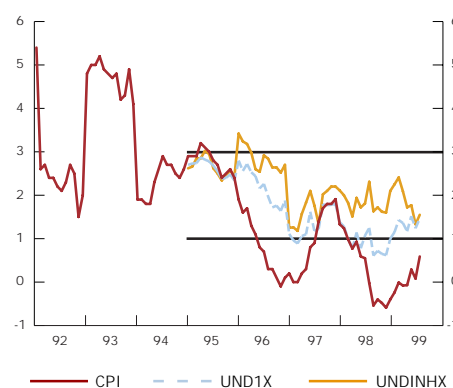
**Imported inflation is still weak but rising on account of high oil prices.**

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Recently, however, price movements for imported goods for consumption have swung from a downward tendency to a moderate increase. The main factor behind this change is price increases for motor fuel as a consequence of the unexpectedly strong oil price rise since the beginning of the year (Fig. 4).<sup>1</sup> On the other hand, prices for more manufactured imported goods have been somewhat weaker than expected.

<sup>1</sup> As pharmaceuticals are included in the 'mainly imported' category of goods, the reduction of subsidies for prescribed medicines in June 1999 has also had an effect.

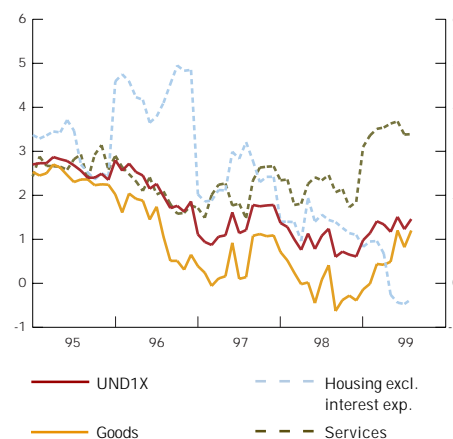
**Figure 1. CPI and underlying inflation. Percentage 12-month change**



Note. UND1X is defined as the CPI excluding interest expenditure and direct effects of altered indirect taxes and subsidies; UNDINHX is the CPI excluding interest expenditure, goods that are mainly imported and direct effects of altered domestic indirect taxes. The horizontal lines from 1995 onwards represent the Riksbank's tolerance interval for the annual change in the CPI.

Source: Statistics Sweden.

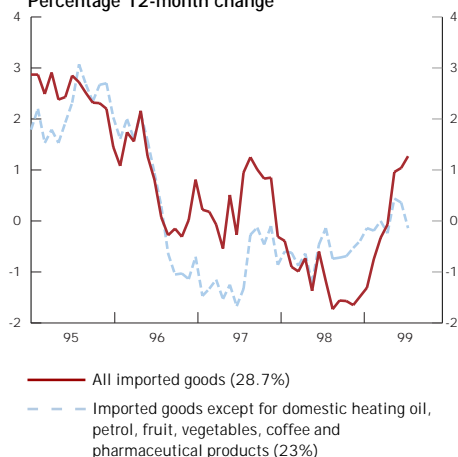
**Figure 2. UND1X components: goods, services and housing. Percentage 12-month change**



Note. UND1X corresponds to the CPI excluding indirect taxes, subsidies and house mortgage interest expenditure. Housing costs do not include effects of the freeze of taxable property values.

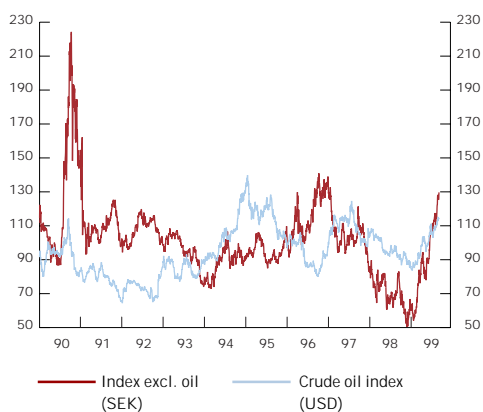
Source: Statistics Sweden.

Figure 3. CPI component: imported goods excluding taxes. Percentage 12-month change



Source: Statistics Sweden.

Figure 4. Crude oil price index and import-weighted commodity price index excl. crude oil. Daily quotations, January 1996=100



Note. The commodity price index covers aluminium, copper, nickel, zinc, gold, silver, lead and tin, each weighted for its annual share of total Swedish imports; the aggregate share is approximately 2 per cent, while the share for crude oil is about 3 per cent (1998). Quotations until 23 September 1999.

Sources: Ecwin, Statistics Sweden and the Riksbank.

Table 1. Price indexes for manufacturing, 1999. Percentage change

	Dec 1998– Aug 1999	Mar. 1998– Mar. 1999	Aug 1998– Aug 1999
Export price index	-0.3	-3.4	-0.6
Home market price index	1.4	-1.7	0.3
Import price index	2.0	-1.2	3.7
Price index for domestic supply	1.7	-1.5	1.9
Producer price index	0.5	-2.7	-0.1

Source: Statistics Sweden.

To sum up, rising prices for metals and oil-based goods, mainly motor fuel and heating oil, are judged to generate price pressure in the short run that is somewhat stronger than assumed in the June Report.

PRICE INCREASES FOR SWEDISH GOODS HAVE SLACKENED

Price increases for goods produced in Sweden have slackened in recent months; the unexpected fall-off comes mainly from weak price tendencies for fruit and vegetables (Fig. 5). Prices for these products are normally very volatile and difficult to predict. The price trend for Swedish goods excluding fruit and vegetables has been more stable. Still, the producer price rise in the home market to date this year has been underestimated and in the coming months this may lead to price increases for goods produced in Sweden that are somewhat higher than expected.

Low prices for fruit and vegetables subdue the price trend for Swedish goods.

SERVICES PRICES RISE FASTER

AS USUAL THAN PRICES FOR GOODS

The price trend for services is normally stronger than for goods, particularly in periods when the krona is appreciating. This is a natural phenomenon, for several reasons. For one thing, productivity gains in the production of services are usually smaller than in the production of goods, while the development of wages is usually fairly similar. For another, goods in general are more exposed to international competition. Moreover, goods have a considerably larger import content than services and an appreciation of the krona tends to subdue prices for these intermediate products.

In recent months the price trend for services has, as expected, been comparatively strong, even though it has lately shown a tendency to slacken. This is partly explained by price movements of a more transitory nature (Fig. 6). The strong rise at the beginning of 1999 was partly due to increased dental charges when pricing was deregulated. Excluding dental charges, market price increases have accelerated. Prices for travel and hotel accommodation, for example, have moved up appreciably. However, this has been accompanied by price reductions for telecommunication services. The continuation of strong economic activity is judged to result in a continuation of rising inflation in market prices for services.

The price trend for services has been dampened in recent months by price changes of a more transitory nature.

The services prices (apart from housing) that are set more administratively have shown a relatively moderate tendency, though signs of an accelerating increase have been evident since the beginning of 1998. In August the 12-month change was 1.4 per cent. Since the June Report there has been no new information that appreciably alters the short-term outlook.

HOUSING COSTS  
LOWER THAN A YEAR AGO

Household expenditure on housing is subject to price controls and administrative decisions. In recent months the aggregate level of housing costs has been lower than in the corresponding period a year earlier (Fig. 7). This expected development has several explanations. One is that interest expenditure and decreased property taxes have lowered costs for property owners. Another is that the imminent deregulation of the electricity market has already contributed to lower electricity prices. A third explanation is that Statistics Sweden has altered the way in which the depreciation item in costs for owner-occupied housing is calculated and this entails a marked retardation of the item's price change: the annual change in the depreciation item has fallen from about 15 per cent to approximately 5 per cent; the latter is equivalent to a contribution of 0.2 percentage points to CPI inflation.

The recent marked increases in long-term interest rates and the price of oil will raise the costs of property owners. In the short run this may lead to somewhat higher rents than expected in the earlier forecast.

UNDERLYING INFLATION AS EXPECTED

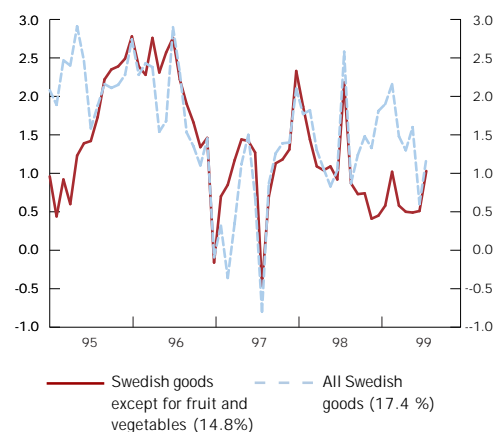
There are various ways of measuring underlying or core inflation. One measure is the 12-month change in UND1X, which is calculated by Statistics Sweden as the sum of price movements for the goods and services discussed above. Another way of estimating the underlying price trend is to use an econometrically estimated model. A model-based approach was presented in the June Report.<sup>2</sup> It decomposes inflation into contributions from inflation expectations, demand, transitory effects and supply shocks; the sum of the contributions from expected inflation and demand can be used as a measure of underlying inflation. There has been a slight increase in inflation expectations and some increase in the contribution from demand in 1999 Q2 (Fig. 8). According to this model-based indicator, which is most akin to Statistics Sweden's index of underlying domestic inflation, UNDINHX, the underlying rate of inflation is about 2 per cent.

**Underlying inflation is rising slightly, as expected.**

To sum up, the underlying rate of inflation is still fairly low and the tendency has been well in line with the earlier assessment. Recent developments, with unexpectedly rapid price increases for oil and other commodities as well as rising capital costs for property owners, are judged to entail a somewhat higher future rate of price increases.

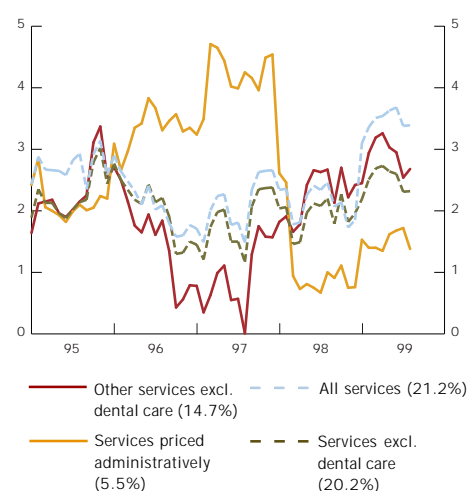
<sup>2</sup> See *Inflation Report 1999:2*, box on pp. 51–52.

Figure 5. CPI component: Swedish goods excluding indirect taxes. Percentage 12-month change



Source: Statistics Sweden.

Figure 6. CPI component: services excluding indirect taxes. Percentage 12-month change



Source: Statistics Sweden.

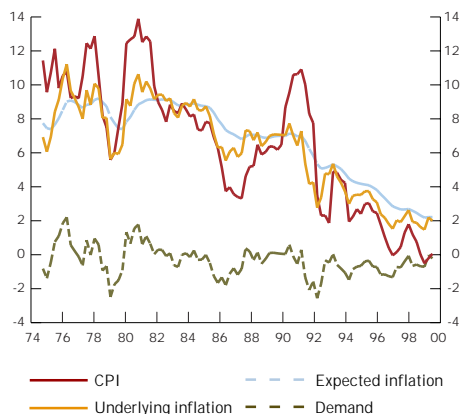
Figure 7. CPI component: housing excluding indirect taxes and interest expenditure. Percentage 12-month change



Source: Statistics Sweden.

POLITICAL DECISIONS AND HOUSEHOLD INTEREST  
EXPENDITURE DAMPING THE CPI

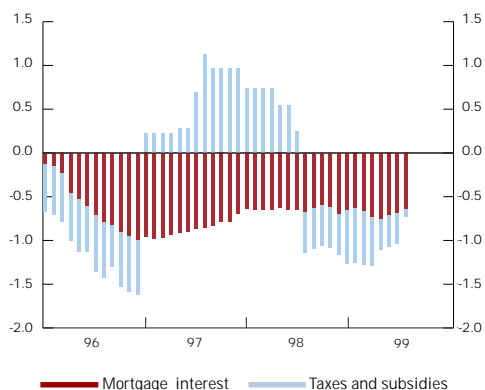
Figure 8. CPI inflation and model-based indicators of underlying inflation. Percentage 12-month change



Note. The estimates are based on preliminary national accounts data (NR 99 Q2).

Sources: Statistics Sweden and the Riksbank.

Figure 9. CPI effects of changes in indirect taxes, subsidies and house mortgage interest expenditure. Percentage points



Sources: Statistics Sweden and the Riksbank.

The difference between underlying inflation, measured as UND1X, and CPI inflation consists of the aggregate effect from changes in indirect taxes, subsidies and house mortgage interest expenditure (Fig. 9). In August the effect of indirect taxes on the 12-month change in the CPI decreased sharply. The reason for this is that the tobacco tax cut in August 1998 ceased to affect CPI inflation.

**Altered indirect taxes are not damping consumer prices as much as before.**

A considerable swing has occurred in recent months in the money and bond market. Among other things, bond rates have risen sharply, particularly for housing paper. The rate for a 5-year house mortgage loan, for instance, has moved up about 2 percentage points since the June Report. This increase will lead to a rise in the CPI that is higher than expected.

*To sum up, since the June Report the consumer price tendency has been very weak, as expected. However, the recent tendencies – with rapid price increases for oil and other commodities, a producer price rise in the home market that is somewhat stronger than expected, and a considerable increase in interest rates, above all for house mortgages – are judged to cause the acceleration of both UND1X and CPI inflation in the near future to be somewhat stronger than expected in the June Report.*

## PRICES IN THE PAST YEAR AND THE RIKSBANKS FORECASTS

Table B1. Forecast and registered 12-month price changes in August 1999.

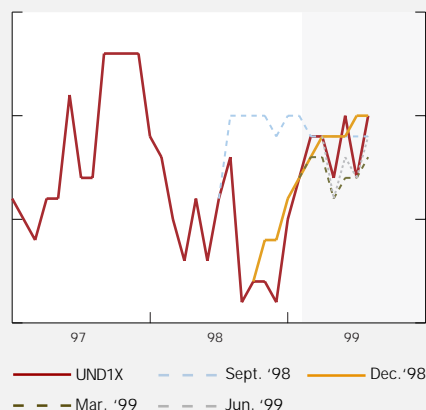
Percentage-point contributions to CPI  
and per cent

	IR 1998:3	IR 1998:4	IR 1999:1	IR 1999:2	Outturn
Imp. goods	0.0	-0.1	-0.3	-0.2	-0.2
Ind. taxes	-0.6	-0.5	-0.4	-0.5	-0.5
Inter. exp.	-0.3	-0.5	-0.6	-0.7	-0.7
Dom. prices	1.3	1.2	1.2	1.2	1.1
<b>CPI</b>	<b>0.4</b>	<b>0.1</b>	<b>-0.1</b>	<b>-0.2</b>	<b>-0.2</b>
<b>UND1X</b>	<b>1.5</b>	<b>1.1</b>	<b>1.0</b>	<b>1.0</b>	<b>1.1</b>
<b>UNDINHX</b>	<b>2.0</b>	<b>1.8</b>	<b>1.9</b>	<b>1.8</b>	<b>1.8</b>

Note. The Riksbank's Inflation Report (IR) forecasts consistently start from the assumption of an unchanged repo rate in the forecast period.

Sources: Statistics Sweden and the Riksbank.

Figure B1. Underlying inflation: outturn and forecasts.  
Percentage 12-month rate



Note. The outturn for underlying inflation, measured as UND1X, is shown together with the main scenario in four consecutive Inflation Reports.

Sources: Statistics Sweden and the Riksbank.

Monetary policy is targeted at keeping CPI inflation at an annual rate of 2 per cent with a tolerance interval of  $\pm 1$  percentage point. It normally takes about twelve to twenty-four months for the full effect of monetary policy to show up in inflation. This means that policy has to be based on a forecast of inflation's path in the coming one to two years. The actual development of prices is considered here in relation to the Riksbank's forecasts in the past twelve months, that is, from September 1998 to August 1999.

Isolated 12-month change figures (the change in the price level between the same month in two consecutive years) can be greatly affected by transitory factors. Shifts in the normal seasonal pattern of prices, for instance, may produce considerable changes that then disappear after a couple of months. It is therefore usually more appropriate to assess price developments in a somewhat longer, for example annual, perspective.

In the twelve months to August 1999 the level of consumer prices was about 0.2 per cent lower than in the corresponding period a year earlier (September 1997 to August 1998). Underlying inflation, measured as UND1X, rose, however, by almost 1.1 per cent. The difference came from decreased indirect taxes and a steep fall in house mortgage interest expenditure, which dampened CPI inflation (Table B1).

In the Riksbank's assessment in September 1998, the average price trend in the twelve months to August 1999 was overestimated for the CPI as well as UND1X (Table B1 and Fig. B1). The main reasons for this were that the downward effect of the Asian crisis on international prices was somewhat stronger than had been expected and that house mortgage interest expenditure was overestimated. The latter is primarily explained by the forecasting assumption of an unchanged repo rate. Since September 1998 the repo rate has been reduced by 1.2 percentage points.

In the three most recent Inflation Reports the main scenario's forecast changes in both the CPI and UND1X, as well as in UNDINHX, were in very good agreement with the outcome.



# Determinants of inflation

*This chapter presents the assessment of the most probable development of inflation's main determinants in the coming twenty-four months. International factors are considered first, followed by a survey of demand relative to supply in the Swedish economy.*

## International activity and inflation

The signs of a global recovery have been confirmed and become stronger since the June Report. In the euro area, the weak beginning to 1999 has been followed by an upturn, supported by low interest rates, strong consumer sentiment and a weakening of the euro. At the same time, a vigorous increase in activity in the emerging markets heralds the end of the Asian crisis. In the United States, however, yet another year of remarkably high growth is expected to give way to a gradual slowdown, though growth will remain good. In the main scenario, annual growth in the OECD area in the coming two years is calculated to be almost 2.5 per cent (Fig. 10).

**Signs of a global recovery have been confirmed and become stronger since the June Report.**

Notwithstanding the improved international prospects, a low price outturn this year is expected to be followed by just a marginal price rise in the main export markets. Future international price increases are also likely to be held back by unutilised production capacity and strong price competition.

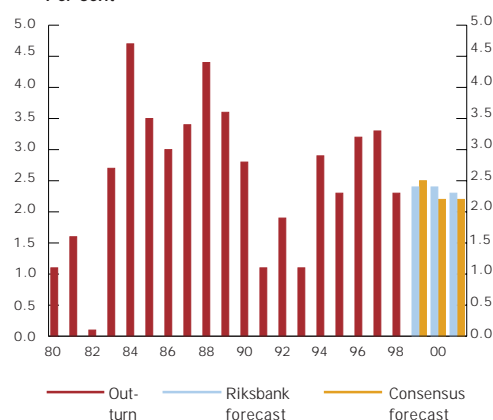
### RECOVERY IN EUROPE

A recovery in the *euro area* is expected already in the second half of 1999, as foreseen in the June Report. Manufacturing output is beginning to stabilise, after falling in the early months of the year. Industrial activity is still low but leading indicators, including survey data and order books (Figs. 11 and 12) have improved appreciably during the year. The weakening of the euro in the first six months, together with increasingly strong demand from the rest of the world, has contributed to more optimistic expectations and rising export orders. Meanwhile, the growth of private consumption seems to be continuing at an undiminished rate. It looks as though the positive development of external

**Table 2. Main scenario assessments of international growth and inflation.**  
Percentage annual change and annual level

	1999	2000	2001
(OECD) area growth	2.4	2.4	2.3
Market growth for Swedish exports	4.6	6.2	6.4
OECD area inflation	1.4	1.7	2.0
OECD export prices in national currency	-0.6	1.6	1.8
Crude oil prices (USD/barrel Brent Blend)	16.8	18.5	17.2

**Figure 10. GDP growth in OECD area, forecasts for 1999–2001.**  
Per cent

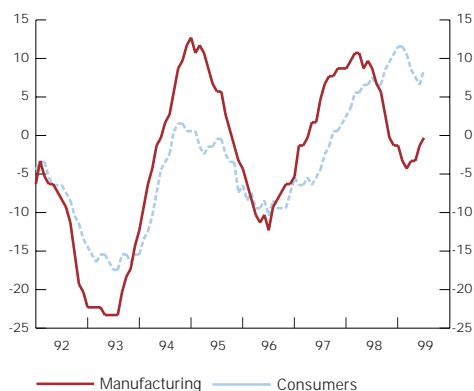


Note. Consensus forecast is an average based on a survey of around 200 international forecasters.

Sources: Consensus and the Riksbank.

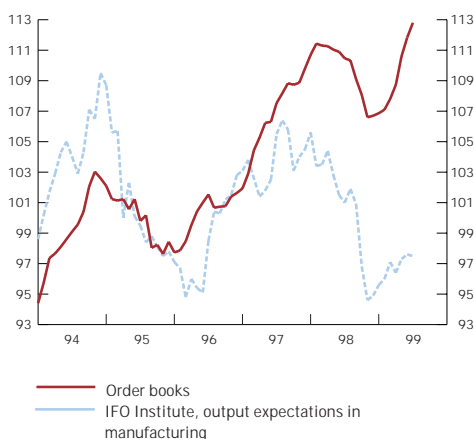


Figure 11. Euro area consumer and manufacturing confidence indicators. Net level expressed as deviation from trend



Source: Ecowin.

Figure 12. Germany: order books and output expectations. Index: 1991=100



Source: Ecowin.

demand and strong consumer confidence will continue and become stronger in the coming years. GDP growth in 2000 and 2001 is therefore expected to be somewhat higher, especially in Finland, than forecast earlier.

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**Leading indicators and a continuation of strong consumption point to a recovery in the euro area.**

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Rising energy prices and the euro's depreciation point to a gradual increase in HICP inflation for the euro area; at the same time, however, price increases are being dampened by stiffer competition and an expected monetary policy tightening.

Renewed optimism is also evident in the European non-euro markets that are important for Swedish exports—the United Kingdom, Denmark and Norway—where activity to date in 1999 has been weak. Growth in *United Kingdom* has picked up again and it looks as though the fall-off will be both shallower and briefer than was foreseen in the June Report. In September, however, concern that inflation would rise above the Bank of England's target of 2.5 per cent led to an interest rate increase. Activity in *Denmark* slowed in the early months of this year but a renewed increase is foreseen during the second half and in the coming year. Danish households and manufacturers have become more optimistic, property prices have risen and unemployment has gone on declining. Activity in *Norway* is still weak but some recovery can be foreseen thanks to the higher price of oil, interest rate reductions and wage settlements that are more moderate than in previous years.

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**Major European non-euro export markets are marked by renewed optimism.**

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#### SOFT LANDING IN THE UNITED STATES AFTER A STRONG 1999

In the United States, growth remained strong in the first half of 1999.<sup>3</sup> GDP growth in 1999 Q2 on a year earlier was 3.9 per cent. At the same time, however, the imbalances in the US economy have become more marked. At 3.6 per cent of GDP, the Q2 current-account deficit is the largest in modern times. The discrepancy between consumption and income remains large and the saving ratio has gone on declining since the June Report (Fig B2). The level of stock market prices, which has contributed to the strong consumption, is now very high historically in relation to corporate profits.

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**Growth in the United States has remained strong but imbalances have continued to increase.**

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Some fall-off in consumer confidence has now begun, moreover, albeit from levels that are historically high. There are many signs

<sup>3</sup> If, as the present assessment foresees, the growth were to continue during 2000, the upward phase will be this century's longest in the US economy.



that consumption has now reached a peak, particularly if share prices were to stop rising or even decline, instead of supporting the growth of household wealth with further increases (Fig. 13).

Consumption seems to have reached a high unless further share price increases support the growth of household wealth.

A downturn for private consumption, as well as for corporate and residential investment, could be generated by the upward movement in interest rates. The Federal Reserve's tighter monetary policy, marked by the two interest rate increases in June and August, mirrors concern about strained capacity utilisation and the risk of labour shortages leading to inflationary wage increases. Employment did slacken in August but is continuing to rise and unemployment remains at a record low level, 4.2 per cent in August (Fig. 14).

Still, inflationary tendencies to date are modest. Since the June Report there has been some increase in the CPI's 12-month change figure, partly as a result of higher energy prices, but the level is still moderate at around 2 per cent. Inflation expectations<sup>4</sup> also remain at that level but producer prices are beginning to move up as the downward effects of the Asian crisis have disappeared and commodity prices have risen (Fig. 15).

When consumption and investment slacken, the US economy is expected to make a cautious soft landing, with growth moving into a somewhat calmer phase during 2000 and 2001. This tendency is countered to some extent by the better economic prospects in the rest of the world; together with some expected weakening of the dollar, this implies an increase in export growth and some acceleration of inflation from the present low level.

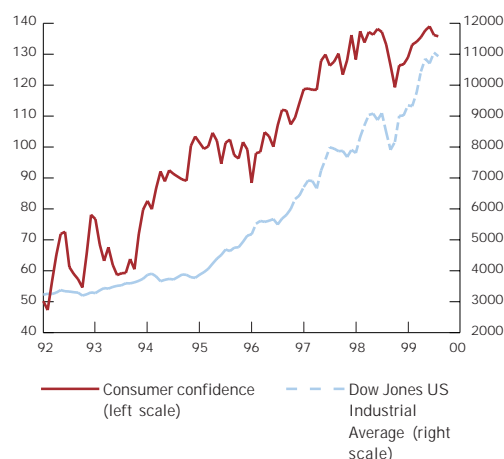
#### UPTURN IN EMERGING MARKETS

A recovery in the emerging markets seems to be leaving its mark on 1999.

In *Latin America*, the region that was hardest hit by currency crises in the wake of the Asian crisis, a recovery is expected already this year. Some unrest has admittedly been generated by the recession in Argentina and the collapse of the currency and debt in Ecuador, but so far this has been made up for by Brazil – after the currency fall at the beginning of the year – managing to contain the increase in inflation and lower real interest rates. A return to growth, after a weak 1998, is expected this year in the region's dominant economies, Brazil and Mexico. The picture is clouded, however, by the unstable government finances in Brazil and concern about the situation in Argentina.

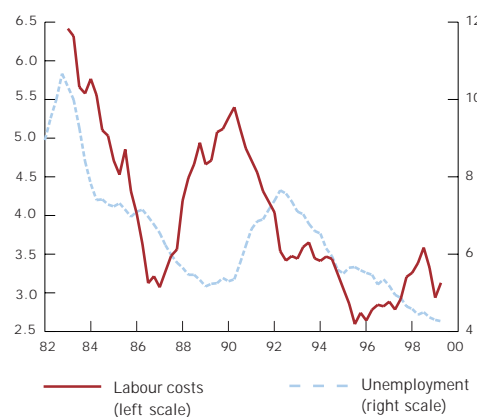
<sup>4</sup> Measured as the difference between the rates for conventional ten-year federal bonds and indexed bonds.

Figure 13. USA: consumer confidence and stock market prices. Indexes



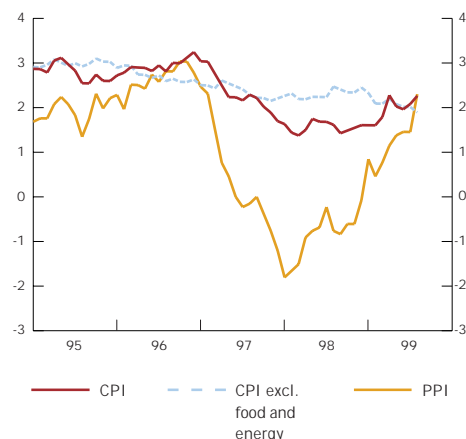
Source: Ecowin.

Figure 14. USA: labour costs and unemployment. Percentage 12-month change; per cent of labour force



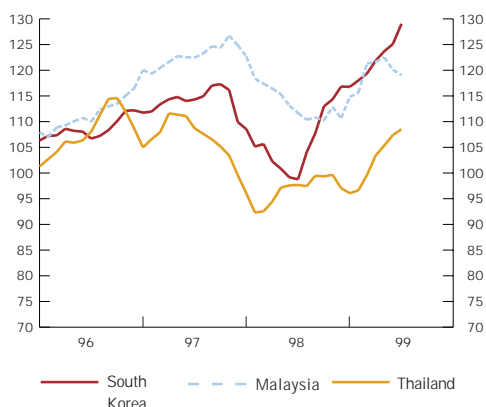
Source: Ecowin.

Figure 15. USA: consumer and producer prices. Percentage 12-month change



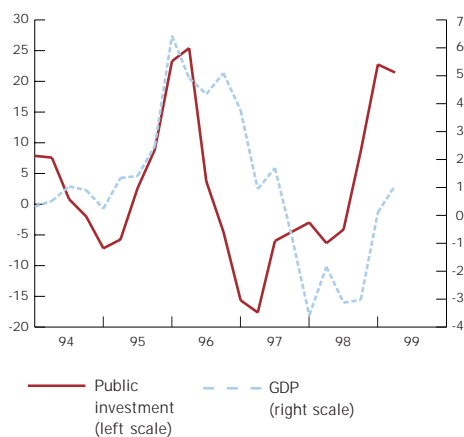
Source: Ecowin.

Figure 16. Southeast Asia: manufacturing output. Index



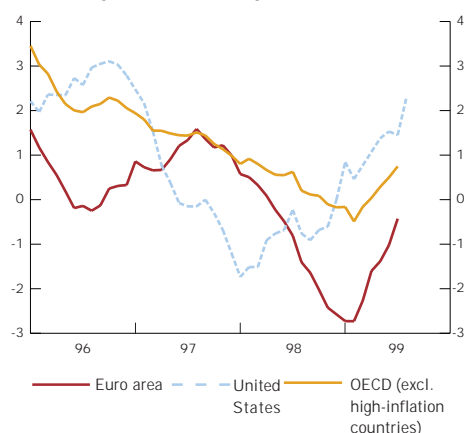
Source: Ecowin.

Figure 17. Japan: public investment and GDP. Percentage change on a year earlier



Source: Ecowin.

Figure 18. Producer prices. Percentage 12-month change



Source: Ecowin.

Sweden's main trading partners in *Central and Eastern Europe* seem to be making a quick recovery after the crisis in Russia. Growth in Russia also seems to have been restored after the collapse last year.

A return to strong growth is foreseen next year in many of the countries in Southeast Asia that were hit by the crisis there.

The most striking development, however, is the recovery in the *East Asian* economies that were hit in the first place by the Asian crisis. Asian manufacturers have made a quick comeback this year, aided by competitive export prices after the currency collapse, declining real interest rates and a renewed inflow of foreign capital. Output in South Korea has already risen above the pre-crisis levels and a return to strong growth in other crisis-hit economies is foreseen next year (Fig. 16). However, the markedly expansionary fiscal policies that have supported consumption in many countries may soon give way to more restrictive government finances that may dampen the upswing. Unless the growth-enhancing structural reforms that were initiated after the crisis are completed, above all in the financial sector, sustaining growth at the high levels from the past will be difficult.

*Japan* continues to be the main source of uncertainty for the Asian economies. GDP growth in 1999 Q1 from the previous quarter reached a remarkable 2 per cent and was followed by an unexpected continuation of 0.2 per cent in Q2. The main reason is considered to be that the effects of last year's massive public spending proved to have an unexpectedly long duration (Fig. 17), which led to a cautious upturn in private consumption. Another important factor is greater confidence in economic policy in the light of the consolidation of the banking system and structural changes in the financial sector. All this calls for an upward revision of the forecast, from earlier predictions of markedly negative growth in Japan to a stabilisation of GDP this year followed by a cautious increase in the coming years.

But even with an instrumental rate close to zero, a start on consolidating the bank sector and plans for additional public spending, it is still uncertain whether a turning point in Japan's lengthy recession will be achieved this year. When the effects die away, a new slowdown is expected towards the end of 1999, followed by growth generated by domestic demand. However, consumer confidence remains low. At the same time, growing government debt limits the scope for the new budgetary stimuli that are planned for 2000.

It is still uncertain whether the recession in Japan will turn upwards in 1999.

STILL NO IMMINENT  
THREAT OF INFLATION

The general international economic upturn and rising oil prices have contributed to a continued increase in producer prices in the OECD area (Fig. 18). The rate of consumer price increases, however, is still very low and for many countries the figures for 1999 have been lower than expected (Fig. 19).

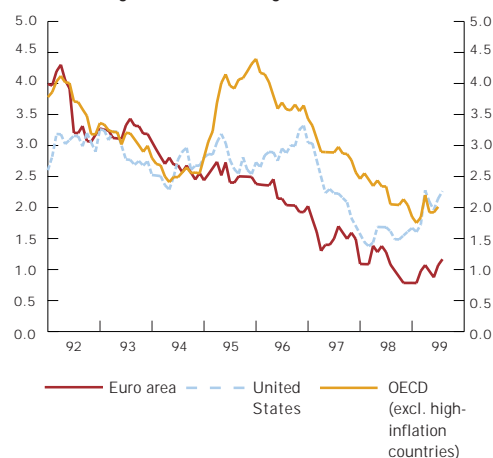
The forecast for OECD area inflation in 2000 and 2001 has been revised marginally upwards in view of the stronger international growth prospects.

The overall inflation assessment for 1999 in the June Report still holds, with a CPI increase for the OECD area of 1.4 per cent. For 2000 and 2001 the forecast rates are now marginally higher, 1.7 and 2.0 per cent, respectively, in view of the stronger international growth prospects. The producer price tendency is likely to be dampened in that there is still some way to go before aggregate international production capacity is again utilised after the consequences of the Asian crisis (Fig. 20).<sup>5</sup> In Europe, inflationary pressure is being subdued by the still high unemployment and the increased price competition that has to do with deregulation in the telecommunications and energy sectors and the establishment of the euro area. In the United States, the risk of more appreciable price pressure is diminished by the somewhat weaker activity in 2000 and the tighter monetary stance.

The price rise is probably being dampened by the unutilised international production capacity.

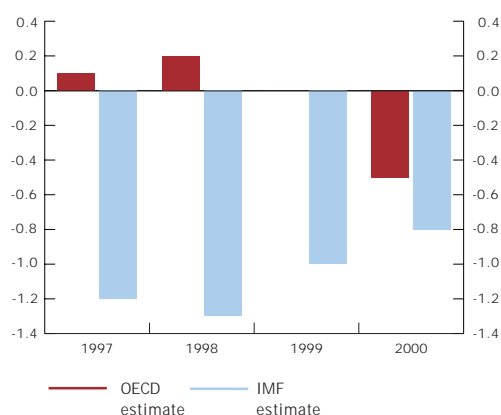
Still, in view of increased commodity prices, mainly for crude oil, as well as rising resource utilisation, a marginal upward revision has been made to the price forecast for manufactured exports in national currencies for the major competitor countries (OECD 14). The reasons why this does not pass through at all appreciably to international consumer prices are that the revision itself is small and competitive conditions make it difficult for firms to increase their prices for goods and services.

Figure 19. Consumer prices. Percentage 12-month change



Source: Ecwin.

Figure 20. OECD area output gap. Per cent of potential GDP

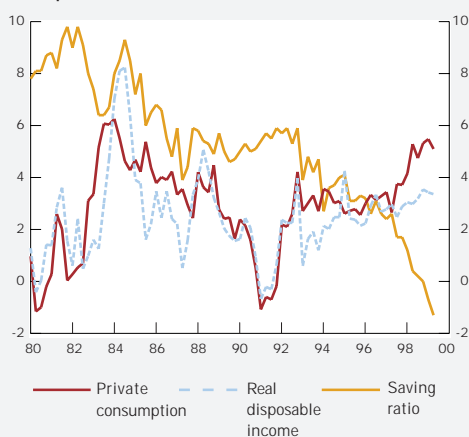


Sources: IMF and OECD.

<sup>5</sup> IMF estimates indicate that the output gap (the difference between actual and potential GDP) is still markedly negative in 1999 and 2000 for Japan and the largest countries in the euro area, whereas the gap for the United States is judged to have closed.

## EFFECTS OF A GLOBAL MARKET FALL

Figure B2. United States: Disposable income, consumption and saving ratio.  
Annual percentage change; per cent of disposable income



Source: Ecwin.

In recent years the long upward phase in the US economy during the 1990s has led to an increase in household consumption that considerably exceeds the growth of income. As a result, the household saving ratio has fallen to levels that are historically low (Fig. B2). Meanwhile, corporate investment, not least in IT equipment, has risen more rapidly than total saving in the economy. The combined result of this, despite a strong increase in public sector financial saving, is that the deficit on current account has risen to new highs.

The imbalances that have accumulated in the US economy cannot continue forever. The question is *when* and *how* an adjustment will occur. Most observers foresee a soft landing for the US economy, with a gradual elimination of the imbalances. But one cannot rule out a situation in which, for some reason, households go in for rapidly increased saving, as happened in Sweden, for instance, in the early 1990s. That could result in a situation with a sharp reduction of growth. Such a course of events could be triggered, for example, by a price fall in US stock markets.

Many market observers consider that US stock markets are overvalued and this is also suggested by traditional valuation models. Both the IMF and the OECD have pointed on a number of occasions to a US stock market fall as a downside risk for activity in the OECD area. Factors that might cause such a fall are corporate profits appreciably below expectations or an unexpected tightening of monetary policy, for example. The share price fall might lead in turn to sharply increased household saving on account of the drastic reduction in wealth. That entails a risk of marked reductions in household consumption and GDP. US imports would then fall and dampen global demand. Furthermore, a steep stock market fall in the United States would probably spread to stock exchanges in other parts of the world. The 20 per cent drop on the New York exchange in 1987 was followed by falls elsewhere of between 10 and 30 per cent. A major correction of share prices would thereby probably have negative effects on economic activity throughout the OECD area, with falling consumption and increased saving along the same lines as in the United States.

Effects of a stock market fall have been simulated earlier by the IMF and the OECD.<sup>6</sup> In both cases it was found that the major GDP effect occurred in the first year after the share price fall. The OECD simulation concerned a 20 per cent share price fall in the G7 countries. In the first year, given that monetary policy is adjusted in a more expansionary direction, GDP growth is reduced by about 0.5 percentage points in the United States and by about 0.3 percentage points in the OECD area. Inflation in the OECD area falls initially by 0.3 percentage points. The IMF simulation used a 30 per cent drop in US stock markets and a 15 per cent fall in other industrialised countries. This results in a first-year loss of almost 2 percentage points of GDP growth in the United States, followed by a recovery.

The Riksbank has simulated a global share price fall of 20 per cent.<sup>7</sup> This gives lower GDP growth and inflation in the OECD area in the initial years but not a global recession. The loss of GDP growth in the OECD area amounts to over half of a percentage point in the first year and about two-tenths of a percentage point in the second year.<sup>8</sup> The effect is greatest in the United States, where GDP growth in the first year is lowered by around one percentage point.<sup>9</sup> The effects on GDP growth in Sweden are of the same magnitude as for the OECD area as a whole.

Inflation in the OECD area is over 0.2 percentage points lower in the first year after the share price fall and around 1 percentage point lower after two years, which mainly has to do with greatly reduced inflation in the United States. The price effect in Sweden is considerably smaller, about one-tenth of a percentage point lower inflation in the first year and around 0.5 percentage points lower after two years.

The results accordingly suggest that a global stock market fall can have major consequences for short-term cyclical activity in the OECD area. The risk of a longer recession is moderated by the possibility of economic policy being given a more stimulatory direction.

<sup>6</sup> OECD *Economic Outlook* 64, December 1998 and IMF *World Economic Outlook*, May 1999.

<sup>7</sup> The simulation was performed in NiGEM (National Institute Global Econometric Model). The model is described in NiGEM (1999), *The World Model Manual*, National Institute for Economic and Social Research, January 1999.

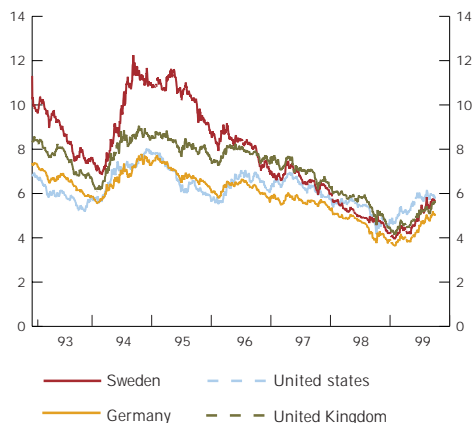
<sup>8</sup> The results of the simulation should not be over-interpreted. They are rather an indication of what can happen in a global stock market fall. A model is a clear simplification of reality and fails to catch a number of mechanisms.

<sup>9</sup> Introducing the assumption that US monetary policy becomes more expansionary moderates the negative effects on GDP growth in the United States.

## Interest rates and exchange rate

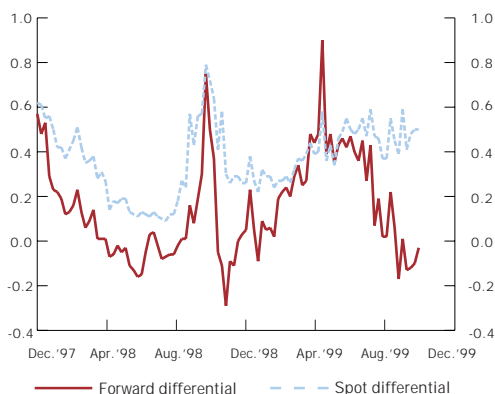
## RISING BOND RATES

Figure 21. Ten-year bond rates.  
Daily quotations, per cent



Source: The Riksbank.

Figure 22. Ten-year spot and forward rate  
differentials with Germany.  
Percentage points



Source: The Riksbank.

During 1999 the downward international movement in long-term interest rates has successively turned into a strong increase. Historically, however, bond rates are still relatively low (Fig. 21). One important factor behind the upward interest rate trend this year may be that international inflation expectations have moved up as a consequence of a better global economic picture together with rising commodity prices. The rising bond rates are also to be seen in the light of the 'exaggeratedly' low levels to which they fell in connection with the Asian crisis. Since the June Report the long-term interest rate has risen about 1.0 percentage point in Sweden and by somewhat less in the euro area and the United Kingdom. The level in the United States has been virtually unchanged but the increase since the beginning of the year is much the same as in the euro area.

Notwithstanding the marked upward shift in long-term interest rates, the differential between Swedish and German rates has widened only marginally.

Notwithstanding the marked upward shift in long-term interest rates, the differential between Swedish and German rates has widened only marginally. Since the June Report it has fluctuated around 0.5 percentage points (Fig. 22).<sup>10</sup> Earlier in the 1990s, upward international movements in bond rates have been accompanied by a growing differential. With the consolidation of government finances and the entrenchment of confidence in the Riksbank's commitment to low inflation, this pattern has been broken. A sign of confidence in the low-inflation policy is that the forward ten-year interest rate differential with Germany<sup>11</sup> is currently around zero.<sup>12</sup>

Swedish short and medium-term interest rates have risen considerably more than the equivalent rates in the euro area, which indicates that interest rate increases in Sweden are expected to be larger than in the euro area (Fig. 23). This in turn suggests that the modest increase in the long-term interest rate differential during 1999 is mainly explained by expectations that growth in Sweden will be stronger than in the euro area.

During the summer, several credit spreads (the difference between government borrowing rates and interest rates to the private sector) have widened in Sweden as well as internationally. Spreads of this type are liable to widen in connection with increased uncertainty about interest rate tendencies.

<sup>10</sup> The ten-year T-bond rate (zero coupon) calculated with the Nelson & Siegel method.

<sup>11</sup> Forward interest rates mirror expectations of economic conditions at a given future date. Spot rates mirror expectations of average economic conditions over the duration of the interest rate, which means that the long spot rates are also influenced by the expected conditions in the short term.

<sup>12</sup> Another factor that may affect the forward interest rate differential in the long term is expectations of participation in the euro area, the reason being that participation by Sweden would imply that the Swedish short-term interest rate would be the same as in the euro area.



Besides the uncertainty about future interest rates in a cyclical upswing, the wider spreads are seen in part as a millennium effect in that concern about limited liquidity at the turn of the year is said to be prompting some investors and borrowers to make their transactions earlier. Recently, however, most of these credit spreads have become somewhat narrower, in Sweden as well as internationally.

EXPECTATIONS OF HIGHER REPO RATE

At the time of the June Report, market expectations pointed to an unchanged Swedish repo rate in the near future. These expectations have proved to be correct.

Expectations of a future tightening of monetary policy are evident in survey data as well as in money market pricing.

Money market pricing now indicates expectations of a future tightening of monetary policy. The signs of stronger economic activity are probably one reason for this. A repo rate increase to around 3.50 per cent is expected by the turn of the year and to over 4.40 per cent by mid 2000, which would be over 1.5 percentage points above the current level (Fig. 24).<sup>13</sup> Survey data likewise represent growing expectations of a higher repo rate but these expectations are not as pronounced as those derived from market prices.<sup>14</sup>

STRONGER KRONA

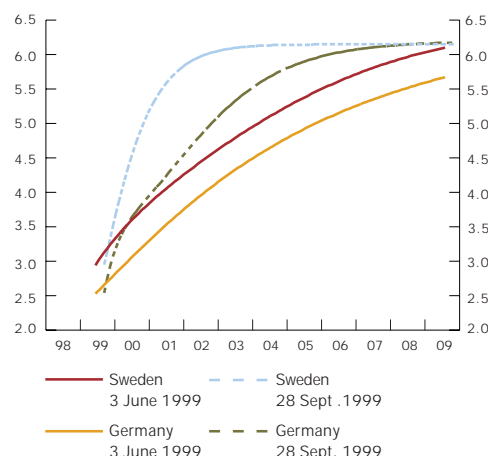
The TCW exchange rate was expected in the June Report to appreciate to just above 120 in twelve months' time and to about 118 after twenty-four months. Since then the index has in fact strengthened about 3.0 per cent to a level around 123.5 and is thus now at much the same level as before the financial turbulence started in the autumn of 1998 (Fig. 25).

The TCW exchange rate has strengthened since the June Report.

Against the euro, the krona has appreciated 9.5 per cent during 1999 and by around 3.5 per cent since the June Report. This is not fully in line with the assessment at that time, which envisaged that the krona's long-term undervaluation against the euro was less than in terms of the TCW index. Instead, the krona has appreciated more than expected against the euro and less than expected against the dollar and sterling.

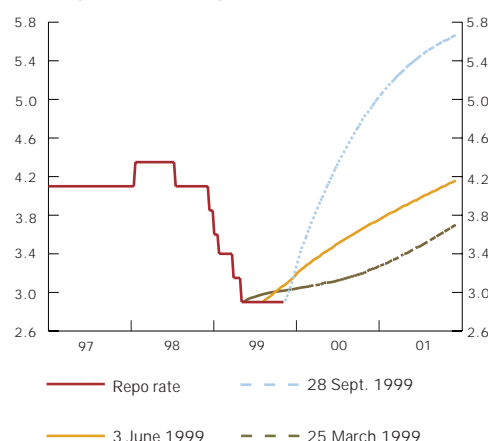
The appreciation of the krona is no doubt explained in part by the economic trend being stronger than expected in Sweden compared with the euro area. The market accordingly expects Swedish monetary policy to be more restrictive than in the euro

Figure 23. Implied forward interest rates: Sweden and Germany. Effective annual rate, per cent



Source: The Riksbank.

Figure 24. Repo rate and expected rate implied by forward interest rates. Simple annual rate, per cent

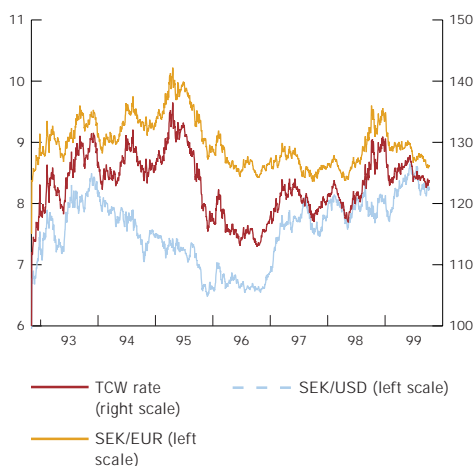


Source: The Riksbank.

<sup>13</sup> It is conceivable that market interest rates include some liquidity premium for the turn of the millennium, leading to somewhat higher forward rates around the turn of 1999.

<sup>14</sup> Another reason why forward interest rate curves indicate repo rate increases that are larger than what survey data suggest is probably that forward rates also reflect maturity premia, that is, the required return tends to grow with the duration of the interest rate. Adjusted for maturity premia, the forward rates would represent more modest repo rate expectations that are closer to those derived from survey data.

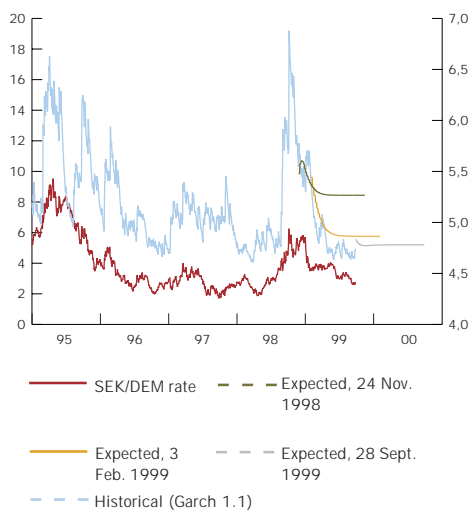
Figure 25. Effective nominal TCW exchange rate for SEK, SEK/USD rate and SEK/EUR rate.  
Daily quotations, index: 18 November 1992=100



Note. Prior to 4 January 1999 the SEK/EUR rate is based on an index, calculated by the Riksbank, for the krona's movements against the currencies with EUR exchange rates that are now irrevocably locked; this is equivalent to movements in the TCW index excluding all non-euro currencies, expressed as the SEK/EUR rate.

Source: The Riksbank.

Figure 26. SEK/DEM rate's historical and expected volatility.  
Per cent



Source: The Riksbank.

area. It is worth noting that the appreciation has occurred even though expectations that Sweden will soon be joining the euro area have decreased if anything in this period. Both the actual and the expected volatility in the SEK/EUR rate (earlier the SEK/DEM rate) are still historically low and indicate expectations of small exchange rate movements in the short run (Fig. 26).

#### LESS EXPANSIONARY EFFECTS FROM INTEREST RATES AND EXCHANGE RATE

The monetary stance is still expansionary but the combined effect on demand from interest rates and the exchange rate is calculated to have been smaller than was foreseen in the June Report. Since then, the real three-month interest rate<sup>15</sup> has moved down 0.1 percentage points to 1.8 per cent because inflation expectations have risen somewhat more than the nominal three-month rate. On the other hand, the real long-term interest rate<sup>16</sup> has risen about 1.0 percentage points to about 3.0 per cent, which means that the overall level of interest rates is less expansionary than calculated earlier (Fig. 27). At the same time, the real TCW exchange rate has appreciated more than 1.5 per cent from May to September,<sup>17</sup> in keeping with the assessment in the June Report.

#### ASSESSMENT OF INTEREST RATES AND EXCHANGE RATE

Future price movements are highly dependent on the development of short- and long-term interest rates and the exchange rate.

The assumption of an unchanged repo rate results in the assessment that short-term interest rates will be unchanged in the forecast period. In the June Report the long-term market rates were judged to rise successively, by over half of a percentage point in the forecast period. The increase has actually been larger and occurred earlier than expected. The forecast for longer-term interest rates has therefore been adjusted upwards. The two-year bond rate is judged to move up to five per cent at the end of 2001, while the longest bond rates (5–10 years) are judged to be relatively unchanged after the recent increase.

**The forecast for longer-term interest rates has been adjusted upwards in the light of market tendencies since the June Report.**

The krona has broadly followed the assessment of the TCW index in the June Report. However, one factor behind the appreciation seems to be growing expectations that the Riksbank will raise the repo rate. A development of the exchange rate that is consistent with the assumption of an unchanged repo rate accordingly points to a rate in the early part of the forecast period that is weaker

<sup>15</sup> The nominal three-month T-bill rate adjusted for the CPI change that households expect in the coming twelve months (HIP data).

<sup>16</sup> The average quarterly level of the five-year T-bond rate adjusted for the rate of inflation five years ahead that financial investors expect according to Aragon's survey.

<sup>17</sup> The series for the real exchange rate has been updated with the change in the average nominal exchange rate from August to September (28 September).



than was assumed in the June Report. But the picture of the long-term path is broadly the same as before. The average level of the TCW index is judged to be just over 123 in the coming twelve months and about 119 in the year after that.

The long-term assessment of the krona exchange rate is broadly the same as in the July Report

Considering the strong paths of the dollar and sterling in recent years, it seems reasonable to count on the krona's appreciation in terms of the TCW index being more marked than against the euro. The rate against the euro is assumed to be fairly stable (Table 3).<sup>18</sup>

*Given that the repo rate is assumed to remain unchanged, the combined effect on demand from interest rates and the exchange rate appears to be expansionary in the forecast period. With the high long bond rates, however, the expansionary effect is judged to be weaker than calculated earlier. Moreover, an appreciating krona and rising medium-term interest rates are assumed to contribute to a successive reduction of the expansionary effect in the coming twenty-four months.*

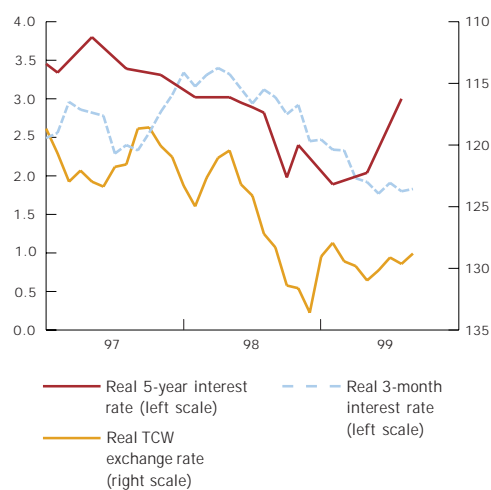
## Import prices

Swedish import prices affect inflation both directly and indirectly. Changes in international export prices and in the krona's exchange rate have a *direct* impact on consumer prices because a sizeable part of the CPI consists of imported goods and substitutes for imports. Moreover, movements in international prices and the exchange rate affect inflation *indirectly* in the somewhat longer run via effects on the relationship between domestic demand and supply. It is the direct effect that is discussed here; the indirect effect is considered in the next section.

The link between international price movements for commodities and manufactured products on the one hand and Swedish prices on the other is complex. The pass-through to producer and consumer prices is both lagged and incomplete, besides varying between goods of different kinds. Simplifying somewhat, the pass-through can be said to be more immediate and complete to the extent that the goods are exposed to competition, homogeneous and resemble commodities.<sup>19</sup>

Towards the end of the forecast period, the international price tendency for manufactured exports is expected to be somewhat stronger than foreseen in the June Report. This mainly has to do with effects from generally stronger world market activity and a lagged impact of the

Figure 27. Monetary conditions.  
Per cent and index: 18 November 1992=100



Source: The Riksbank.

Table 3. Interest and exchange rate expectations of money market agents in September 1999 (May 1999 in parentheses).

Median, per cent and index: 18 November 1992=100

	In 3 months	In 1 year	In 2 years
Repo rate	3.15(2.90)	3.80(3.15)	4.25(3.50)
TCW index	122.0(125.0)	120.0(122.3)	118.0(120.0)
SEK/EUR	8.60(8.90)	8.50(8.80)	8.50(8.70)

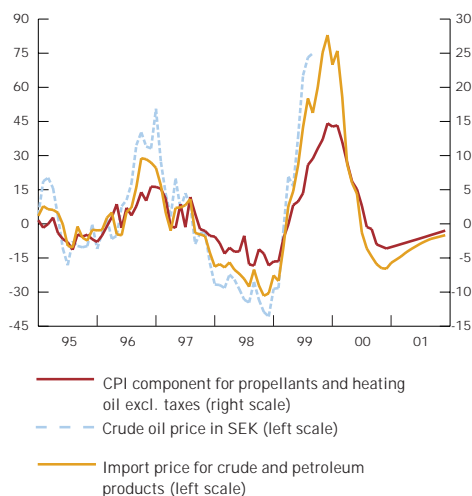
Note. The surveys were done on 10 May and 13 September 1999.

Source: Statistics Sweden.

<sup>18</sup> See *Inflation Report 1999:2*, box on pp. 27–30.

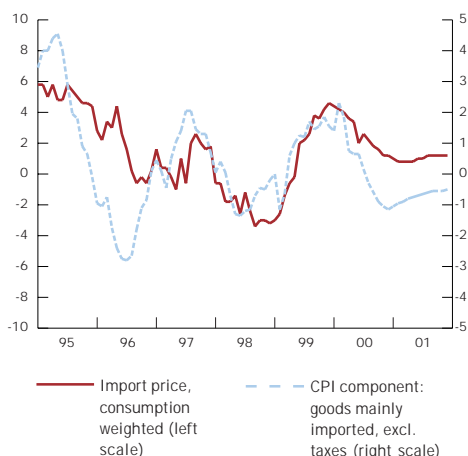
<sup>19</sup> See *Inflation Report 1998:4*, box on pp. 27–28.

Figure 28. Crude oil and petroleum product prices.  
Percentage change on a year earlier; 1999–2001  
forecast



Sources: Ecwin, Statistics Sweden and the Riksbank.

Figure 29. Import prices to producers and consumers.  
Percentage 12-month change; 1999–2001  
forecast



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

recent strong increase in commodity prices.

The Swedish krona is expected to be somewhat weaker at first than was envisaged in the June Report but, as pointed out earlier, the long-term assessment is broadly unchanged. In the forecast period the krona is assumed to go on appreciating to much the same level as foreseen in June.

The barrel price of crude oil is expected to fall in the future, from the current level of about USD 23 to just over USD 17 (see Fig. 28), which is not quite USD 1 higher than foreseen in June. The assessment is well in line with forward price quotations in recent months. At present the forward price for crude oil (Brent) for September 2001 is just under USD 17/barrel. Some further increase in other commodity prices is foreseen in the forecast period.

The *consumption-weighted development of prices to producers for manufactured imports* has been somewhat weaker than expected and this calls for a minor downward revision for 1999. The somewhat stronger international price trend for manufactured goods towards the end of the forecast period is countered by the prospect of a faster appreciation of the krona at that time. All this is judged to result in a price trend for imported goods in 2000 and 2001 that is somewhat weaker than foreseen in June.

However, *consumer prices for imported goods*, including petroleum products, are judged to rise more than 2 per cent during 1999, which is somewhat more than was assumed in the June Report (Fig. 29). Rising prices for petroleum-related products are judged to be countered in part by lower producer prices for manufactured imports. During 2000 and 2001 combined, import prices are expected to move up rather more than 1 per cent, which is somewhat less than forecast in June. This reflects both the weaker trend in prices to producers for manufactured goods and the assumption of an oil price fall from the present level. The aggregate annual contribution to the CPI from import prices is judged to be about 0.5 percentage points in 1999, followed by a negligible effect in both 2000 and 2001.

*To sum up, international export price increases in national currency are assumed to be somewhat stronger than foreseen in the June Report, due to stronger world market activity and higher commodity prices. The exchange rate, however, is expected to appreciate during the forecast period. The total CPI contribution from import prices is expected to be about 0.5 percentage points in 1999 but negligible in both 2000 and 2001.*

## Demand and supply<sup>20</sup>

### SUMMARY OF GDP GROWTH 1999-2001

Growth prospects for the Swedish economy have improved fairly markedly since the June Report. A major reason for this is that the international crisis seems to be having smaller repercussions than expected on Swedish exports and parts of the economy connected with exports. In addition, the assessment in June seems to have been coloured by some general underestimation of domestic demand and an overestimation of imports. In the short run, it is clear that growth will be higher than envisaged in the June Report. The tendency in the longer run is more uncertain, partly because the increase in long-term interest rates can be assumed to exert a dampening effect towards the end of the forecast period. All in all and given an unchanged repo rate, the GDP growth rate is expected to be 3.6 per cent in 1999, 3.8 per cent in 2000 and 3.0 per cent in 2001 (Fig. 30, Table 4).

Growth prospects for the Swedish economy have improved fairly markedly since the June Report. Given an unchanged repo rate, GDP growth is expected to be 3.6 per cent in 1999, 3.8 per cent in 2000 and 3.0 per cent in 2001.

#### FOREIGN TRADE

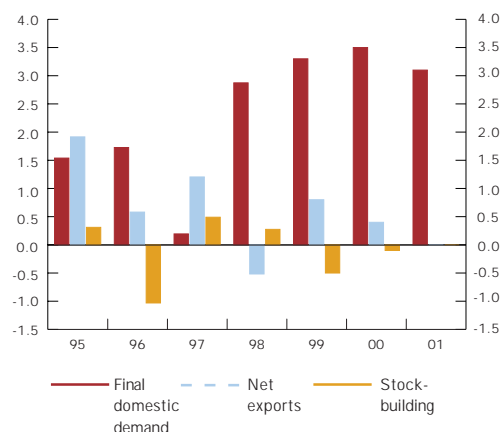
The national accounts and foreign trade statistics show that export growth to date this year has been stronger than expected, while import growth has been surprisingly low. Considering, for example, the development and composition of demand and price tendencies, the weak picture of import growth in the national accounts is remarkable. It is conceivable that part of the explanation lies in the good growth of private services, which generally have a low import content.

For exports, the picture of a clear increase is supported by indicators. Order books have been rising steadily this year and both the business tendency data from the National Institute of Economic Research and the purchasing managers index point to a continuation of the positive trend.

Export market growth has been revised upwards for the whole of the forecast period. For 1999 it is, for example, better growth in the euro area, the United Kingdom and Southeast Asia that prompts some upward adjustment. The successive conjunctural improvement in the euro area also has positive consequences in 2000, while the improvement in 2001 is more 'technical', coming as it does from shifts in various countries' shares of Swedish

<sup>20</sup> The real economic assessment is based on the new system of national accounts (SNA93/ESA95), whereas the assessment in the June Report used the earlier system (SNA68). For the six years that have been recalculated to date, the change of system entailed an upward revision of GDP at current prices of between 3.2 and 3.8 per cent. The main factors behind the change in the level of GDP are that the concept of investment has been broadened to include material with shorter depreciation times, computer software and mineral prospecting, and that public compensation for prescribed medicines as well as medical and dental care is now classified as public consumption.

Figure 30. Contributions to GDP growth. Percentage points; 1999-2001 forecast (main scenario)



Sources: Statistics Sweden and the Riksbank.

Table 4. Demand and supply in the main scenario.

	Percentage annual change		
	1999	2000	2001
Household consumption	3.4	3.6	3.1
Public authorities consumption	1.3	1.2	1.4
Gross fixed capital formation	8.0	8.4	6.8
Stock building	-0.5	-0.1	0.0
Exports	5.9	6.5	5.6
Imports	4.6	6.5	6.6
GDP at market values	3.6 (2.5)	3.8 (3.0)	3.0 (3.0)

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

Source: The Riksbank.

exports. All in all, market growth is expected to move up to about 4.5 per cent this year and then to over 6 per cent in both 2000 and 2001.

Little change in Sweden's competitive position is foreseen in the forecast period as a whole. In 1999 and 2000, however, the relative export price is expected to be somewhat lower than foreseen in June, mainly due to a weaker exchange rate. The appreciation of the krona from 2000 to 2001 is then calculated to affect exports in the latter year, with the prospect of some loss of market share.

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**The export forecast has been revised upwards since the June Report and the contribution to growth from net exports is expected to be positive in both 1999 and 2000.**

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All this means that the export forecast has been revised upwards since the June Report. Volume growth is expected to be about 6 per cent in 1999, 6.5 per cent in 2000 and just over 5.5 per cent in 2001.

Compared with the assessment in the June Report, import growth in 1999 has been revised markedly downwards on the basis of outcome data for the first half-year. Some build-up of stocks for the turn of the millennium may, however, have a positive effect on imports during the second half of 1999. During 2000 and 2001 both an appreciating krona and strong domestic demand growth are expected to act as a stimulus to imports. Volume growth is expected to be just over 4.5 per cent in 1999 and about 6.5 per cent in both 2000 and 2001.

With the revised forecasts for exports and imports, the contribution to GDP growth from net exports is clearly positive in 1999 and 2000. In the June Report it was envisaged that the contribution would be largely neutral throughout the forecast period.

#### FISCAL POLICY

In the latter part of the 1990s, fiscal policy has been guided by two goals. One is a target for the consolidated public sector surplus. The Government has announced the long-term ambition of achieving a surplus of 2 per cent of GDP over the business cycle. The aim in the shorter run, during the forecast period, is an adjustment process whereby the surplus reaches 0.5 per cent of GDP in 1999 and 2 per cent in both 2000 and 2001. The other goal is a ceiling on central government spending excluding debt interest expenditure.

Although there have recently been certain problems in complying with the spending ceiling, the development of public finances has been very favourable. A public sector financial surplus was achieved last year, for the first time since the crisis in the early 1990s. Mainly in view of the new, stronger growth forecasts, the surplus is judged to be larger throughout the forecast period than was assumed in the July Report.

In the Budget Bill this autumn the Government foresees that with the better growth prospects and an earlier underestimation

of the underlying trend for public finances, the surplus will already be appreciably above 2 per cent in 2000. Fiscal relief in the form of tax reductions totalling over SEK 15 billion has therefore been proposed for 2000. Around three-quarters of the total, or about SEK 12 billion, consists of tax relief aimed at the household sector. In 2001 it is calculated that the total transfer to the private sector could amount to about SEK 23 billion, of which about SEK 16 billion is directed to households (Table 5).

**Fiscal policy in the forecast period is expected to be more expansionary than was assumed in the June Report.**

In the main scenario the Riksbank adopts the conditions in the Budget Bill and assumes that the total tax burden on households is reduced by around SEK 12 billion next year and that the surplus above 2 per cent in 2001 is used for additional fiscal relief. The forecast accordingly envisages that a total of almost SEK 30 billion is transferred to the household sector in the coming two years. The tax relief is calculated to have positive effects on growth in the forecast period, mainly via higher private consumption. This means that fiscal policy in the forecast period is expected to be more expansionary than was assumed in the June Report and this is calculated to have positive effects on growth, for instance via private consumption.<sup>21</sup>

**In the next two years it is expected that household income will be augmented by tax relief totalling around SEK 30 billion.**

The forecast volume of public consumption in the whole of the forecast period has been revised upwards since the June Report. The main reason for the upward adjustment is that inputs approved since the Spring Bill are now expected to have a stronger impact than foreseen earlier, partly because the positive development of public finances is improving the local government economy. In this respect, too, fiscal policy is accordingly less restrictive than calculated earlier.

Although the tax relief and the growth of public consumption mean that the direction of fiscal policy is now more expansionary than before, in terms of the structural balance the fiscal stance is still restrictive.<sup>22</sup> This has to do with the consolidation programme, which had a total restrictive effect equivalent to SEK 126 billion in the period 1994–97. The balance in 1998 is judged to have been equivalent to about 3.5 per cent of GDP but during the forecast period it is calculated to weaken to about 2 per cent of GDP in 2001 (Fig. 31). This deterioration is almost 1 percentage point more than was envisaged in the June Report.

<sup>21</sup> The pension reform, which includes a transfer of funds from the pension system, to the central government, has been allowed for in the estimates. This greatly improves the central government financial balance and correspondingly weakens the pension system but the reform does not have any (direct) effect on the total public sector's finances.

<sup>22</sup> The structural balance, which can be interpreted as the long-term path of the overall balance, is calculated as the difference between the total and the cyclical financial balances for the consolidated public sector; the cyclical balance is calculated in turn on the basis of the output gap as estimated with the Unobserved Components method (cf. Fig 47).

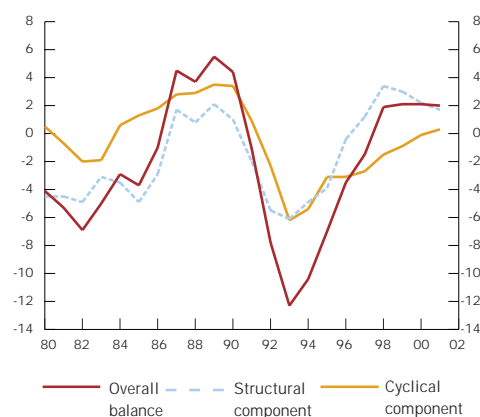
Table 5. Fiscal relief since 1997 Spring Bill.  
SEK billion

	1998	1999	2000	2001
Spring Bill 1997	-14.0	-19.8	-22.0	-16.1
Budget Bill 1998	-3.9	-9.2	-12.8	-12.8
Spring Bill 1998	-4	-11.5	-13.4	-16.1
Budget Bill 1999	-0.3	-8.9	-7.6	-13.0
Spring Bill 1999		7.7	1.3	-1.6
Budget Bill 2000			-16.5	-24.7
Total relief	-22.2	-41.7	-71.0	-84.3
Change from previous year	-21.3	-19.5	-29.3	-13.3
Change from previous year per cent of GDP	-1.1 %	-1.0 %	-1.4 %	-0.6 %

Note. The 1997 Spring Bill contained the first fiscal relief proposals after the consolidation programme.

Source: Ministry of Finance.

Figure 31. Consolidated public sector financial balance, cyclical and structural components.  
Per cent of GDP



Note. Riksbank forecast for 1999-2001.

Source: The Riksbank.

## HOUSEHOLD CONSUMPTION

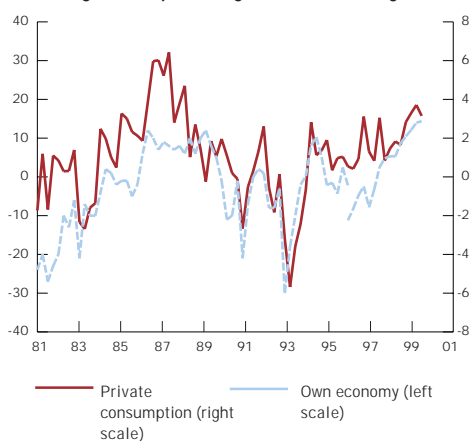
Figure 32. Price index for owner-occupied housing (1981=100) and Stockholm Stock Exchange share price index (end 1979=100)



Note. Month-end share prices.

Sources: Statistics Sweden and Stockholm Stock Exchange.

Figure 33. Households' own-economy expectations and private consumption. Net figure and percentage 12-month change



Note. The HIP statistics on private consumption were revised in October 1995.

Source: Statistics Sweden.

The most recent national accounts show that from 1997 to 1998 household expenditure on consumption rose 2.4 per cent, which is the strongest annual increase to date in the 1990s. The growth came above all from purchases of consumer durables. Retail trade in electronics and furniture rose comparatively rapidly, as did trade in cars and leisure articles. The latest statistics show that the strong growth of household consumption, above all of durable goods, is continuing. Between the first halves of 1998 and 1999 the increase according to the national accounts was 3.4 per cent.

A number of favourable factors have contributed to the growth of consumption in recent years. The wealth position of households has been strengthened, above all because the value of shares and owner-occupied houses has appreciated (Fig. 32). The financing of capital goods has been facilitated by low interest rates. The confidence of households in their own economic situation, as well as in the national economy, has also risen (Fig. 33).

Considering that it has been accompanied by a weak development of household real income, the growth of consumption in recent years has been comparatively marked. This has occasioned a successive decline in the saving ratio (defined as the saved share of disposable income). But household income rose again last year and a continued increase is expected, mainly as a result of a less restrictive fiscal policy and a better situation in the labour market, including rising real wages. The household sector's total debt ratio (gross liabilities relative to disposable income) has been rising continuously since 1996; even so, the ratio is still considerably lower than at the end of the 1980s.

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**Household consumption is affected positively by, for example, more sizeable and earlier tax cuts.**

---

In the June Report it was foreseen that household consumption would be stimulated by rising real wages, higher employment and some tax relief. The good wealth position of households, the development of credit and money aggregates (Figs. 34 and 35), and households' high confidence in their own economic situation were also considered to support a strong consumption trend. The picture in the present assessment is essentially the same and even somewhat more distinct, partly in view of more sizeable and earlier tax cuts directed at households.



The private consumption forecast has been revised upwards for the forecast period in relation to the assessment in the June Report.

Household consumption expenditure is expected to rise by around 3.5 per cent in 1999 as well as 2000. The growth of consumption should remain good in 2001 but be somewhat lower because, for instance, it is calculated that part of the accumulated need to purchase consumer durables will have been met by then. Compared with the assessment in the June Report, the forecast in the main scenario is accordingly somewhat higher for the whole period.

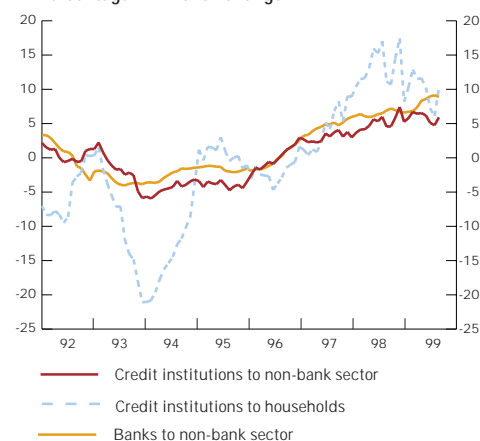
#### FIXED INVESTMENT AND STOCKBUILDING

The outlook for investment activity has clearly improved since the June Report. The slowdown in manufacturing, which was expected to dampen fixed capital formation there and in related parts of the non-manufacturing corporate sector in particular, seems to have been briefer than expected. Industrial capacity utilisation, as measured in the National Institute's business tendency surveys, has risen and so has the proportion of firms with machinery and plant capacity as the primary bottleneck (Fig. 36). This was accompanied by a positive shift in firms' expectations of order books and the volume of production. Overall economic growth during 1999 is also expected to be considerably above the June assessment. It is considered, moreover, that earlier tax relief will stimulate growth already in 2000 but the effect on investment growth is not foreseen until 2001 and then be limited. A contrary effect is indicated, however, by the rise in long-term interest rates this summer.

Even with the recovery in manufacturing activity, the growth of gross fixed industrial investment this year is judged to be fairly moderate. But an increase of about 10 per cent is foreseen in 2000, followed by the prospect of another good year after that.

In the non-manufacturing corporate sector the volume of investment still seems to be rising at a high rate; the increase in the first half of 1999 was 14.6 per cent. Business tendency data indicate positive expectations and a broad upswing in activity in the production of services, which represents a large part of this sector. To some extent, the turn of the millennium is likely to affect the development of investment, for example in computers, and this is a source of increased uncertainty. There are no grounds, however, for expecting this to occasion an appreciable fall-off in investment in the new year. The work on safeguarding administrative systems for the new millennium has forced firms to postpone other investments and these will be undertaken instead during 2000 and 2001.

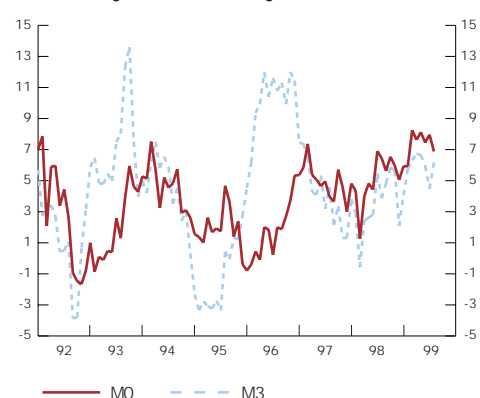
Figure 34. Credit development.  
Percentage 12-month change



Note. The non-bank sector consists of households, firms and local authorities. From January 1995 onwards the figures include banks' repos with the non-bank sector. Lending by housing institutions has been adjusted for the transfer of state housing loans to this category in July 1995.

Source: The Riksbank.

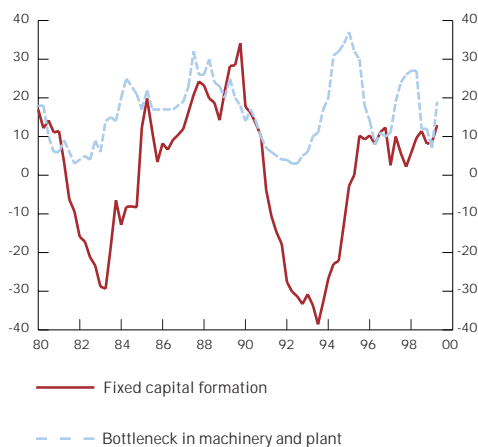
Figure 35. Money supply.  
Percentage 12-month change



Note. M0 covers the resident household and corporate sectors' holdings of banknotes and coins; M3 covers M0 plus the non-bank sectors' bank deposits and certificates of deposit.

Source: The Riksbank.

Figure 36. Gross fixed capital formation in manufacturing and firms with machinery and plant capacity as the primary bottleneck. Per cent



Note. Series seasonally and trend adjusted; the series for fixed capital formation at constant 1995 prices in accordance with SNA 93 has been linked to the earlier series at 1991 prices.

Sources: National Institute of Economic Research.

Residential investment is now clearly rising and the proportion of vacant dwellings in multi-family buildings has decreased. The national accounts show that in the first half of 1999 residential investment rose about 13 per cent. The statistics on building starts in new construction give a first-half increase of as much as 37 per cent. Thus there are several reasons for expecting a strong and steady upswing in residential investment in the forecast period. It is, however, uncertain just how quickly residential construction can rise in practice. During the summer the National Housing Board, for example, gave notice of problems in arranging construction sites in the expanding regions. A rapid increase in construction labour will also be needed. For these reasons, some downward revision has been made to the 2001 forecast for the volume of residential investment.

Gross capital formation in the public sector hardly changed in the first half of 1999 but in time it is reasonable to count on some increase in the volume of investment by public authorities. This is indicated by the stronger public finances and the increase in residential construction, which calls for public investment in streets and other facilities, for instance.

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**The assessment of gross fixed capital formation has also been revised upwards to some extent in the forecast period as a whole.**

---

Changes in stockbuilding in the first half of 1999 made a contribution to GDP growth of  $-0.9$  percentage points. The June assessment was an annual contribution in the region of  $-0.3$  percentage points. There do not seem to be any appreciable imbalances in stocks at present. There is uncertainty in connection with the turn of the millennium but the picture is much the same as in the spring. At the time of the June business tendency survey the National Institute asked for the expectations and plans of firms for the turn of the millennium; the responses suggest that firms count on some increase in stocks before the end of the year, with the clearest tendency in retail trade and the manufacture of consumer goods. The outcome for the first half of this year is considered to call for some downward revision of the stocks investment forecast for 1999. For 2000 and 2001 the contribution to GDP growth from stockbuilding is judged to be largely neutral.

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**Investment growth this year is expected to be 8 per cent, followed by about 8.5 per cent in 2000 and almost 7 per cent in 2001.**

---

The overall assessment of gross fixed investment has been revised upwards to some extent for the forecast period as a whole. Investment growth this year is expected to be 8 per cent, followed by about 8.5 per cent in 2000 and almost 7 per cent in 2001. The assessment for 2001 is a minor downward revision compared



with the June Report, partly in view of higher long-term interest rates and the modified appraisal of the practical conditions for the growth of residential construction.<sup>23</sup>

#### EMPLOYMENT AND PRODUCTIVITY

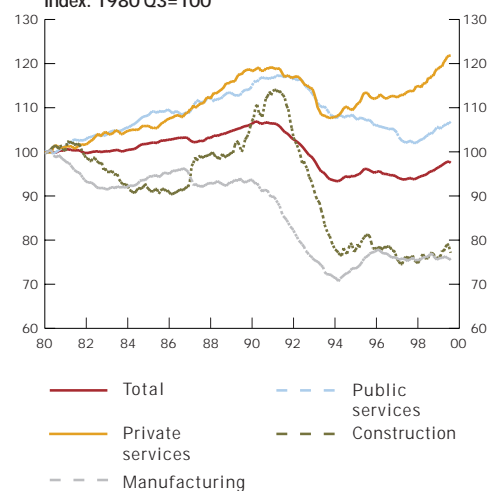
Employment has been rising for more than a year. To date during 1999 the number of persons in employment has increased by more than 100,000 on a year earlier. Employment in the private services sector has reached approximately the level from the beginning of the 1990s. The public services sector has also started to expand; in the first eight months of 1999 the number in employment rose about 30,000. So far, however, there has been no increase in industrial employment (Fig. 37). In the coming two years the strong growth of domestic demand means that the rapid increase in employment is expected to continue, above all in the services sectors. The beginning of an increase in the industrial sector is also foreseen next year. From 1998 to 2001 the growth of employment is expected to total about 240,000 persons, a recovery that amounts to approximately half of the fall in employment in the early 1990s.

The expansion of employment has been accompanied by an increased inflow to the labour market. In the first eight months of 1999 the number in the labour force rose by more than 50,000 on a year earlier. It follows that unemployment is not falling as much as employment is rising. The average unemployment rate in the first eight months of 1999 was 5.7 per cent or rather more than 1 percentage point lower than a year earlier (Fig. 38). Labour force growth is expected to continue in the coming years but less markedly than to date this year. In 2000 and 2001 the number of unemployed persons is calculated to decline by about 25,000 a year. This implies that registered unemployment is judged to decline to 4.6 per cent in 2000 and 4.0 per cent in 2001.

#### Registered unemployment declines to 4.0 per cent in 2001.

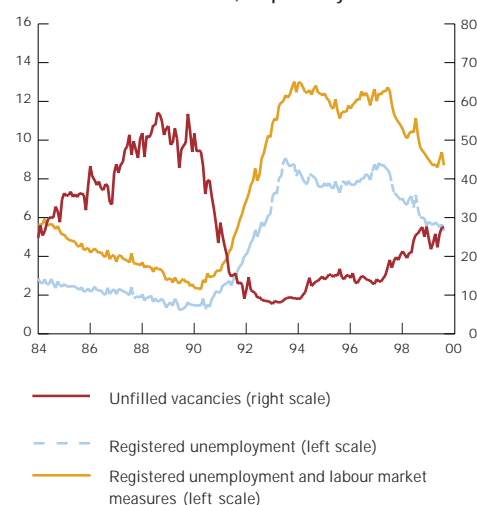
The labour force contracted from 1990 to 1998 by almost 300,000 persons. The effects of the recession on unemployment were mitigated to some extent by public inputs for university places, knowledge enhancement and educational measures. Now that activity is picking up, students and other latent job-seekers are returning to the labour market, probably in part with improved competence and employability. All else equal, this will tend to dampen the inflationary pressure from the general economic improvement. As the well-educated portion of the labour reserve begins to run out, however, certain labour shortages may begin to arise towards the end of 2000.

Figure 37. Employment (persons).  
Seasonally-adjusted moving 3-month average;  
index: 1980 Q3=100



Source: Statistics Sweden.

Figure 38. Unemployment and job vacancies.  
Per cent and thousands, respectively

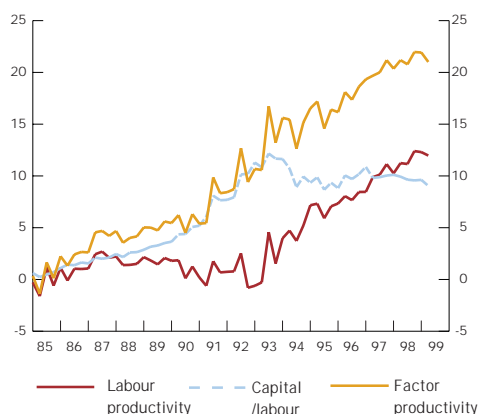


Note. Seasonally-adjusted data.

Sources: National Labour Market Board and Statistics Sweden.

<sup>23</sup> The downward revision of the forecast for 2001 also has the purely technical explanation that the changeover to a new reference year involves changes in the weights.

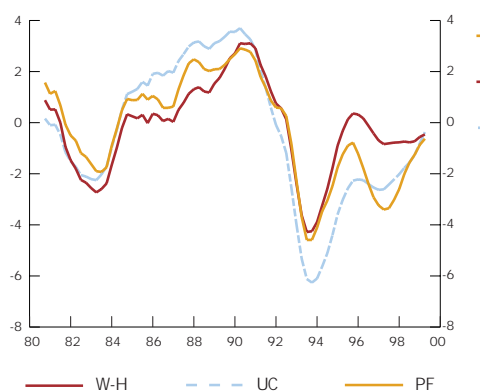
Figure 39. Corporate sector productivity.  
Logarithmic index: 1984=0



Note. Labour productivity decomposed with a Cobb-Douglas production function with constant returns to scale; the wage share of GDP is set at 0.6.

Sources: Statistics Sweden and the Riksbank.

Figure 40. Output gap estimates.  
Per cent



Note. Data based on preliminary national accounts for 1999 Q2. W-H stands for the Whittaker-Henderson or Hodrick-Prescott filter, which is based on the Riksbank's GDP forecast for 1999–2001; UC is the Unobserved Components method and PF the production function approach.

Source: The Riksbank.

Given certain conditions, labour productivity can be decomposed into one factor that is determined by the ratio between capital and labour and another that represents total factor productivity. The former mirrors the relative inputs of capital and labour, while the latter is usually described in terms of 'underlying technology'.

In the early 1990s productivity growth mainly consisted of an increased capital input in relation to the marked contraction of the labour force (Fig. 39). Since 1993–94, however, productivity growth as decomposed here has come mainly from 'technological' factors. The growth of employment in the past year represents a negative contribution of almost 1 percentage point. During the forecast period, a continued improvement in total factor productivity is likely to be countered in part by rising employment. It is also reasonable, above all in 1999, to expect productivity growth to be particularly weak when the main increment to employment is in the services sector, where improvements in productivity tend to be relatively smaller than in manufacturing, for example. Moreover, labour productivity in the total economy moved down 0.4 per cent in 1999 Q2. While isolated quarterly figures may be misleading, there are good reasons for expecting a weaker productivity trend in the future. The growth of labour productivity is therefore calculated to be weak in 1999, followed by increases of just over 1.5 per cent in the next two years, which is somewhat lower than foreseen in the June Report.

#### CAPACITY UTILISATION

Capacity utilisation plays a central role in assessments of inflation. One of many indicators for measuring it is the output gap, which aims to quantify the difference between actual output and the level that can be sustained without an acceleration of inflation. On average during 1998 the output gap is estimated to have been around –2 per cent (Fig. 40). In the forecast period, annual economic growth in Sweden is expected, as in the June Report, to be above the potential rate, which is currently estimated to be just above 2 per cent. This implies that the output gap will narrow successively and then acquire a positive sign.

With the upward revision of the growth forecast, it is foreseen that the unutilised resources at present will be utilised more quickly than assumed in the June Report.

Business tendency data on industrial capacity utilisation – measured directly as well as in terms of the proportion of firms with the primary bottleneck in production factors – show a remarkable development, with a steep fall in the winter of 1998/99 and a sharp increase from a low level in the March and June surveys (Fig. 42). The proportion of manufacturing firms with a shortage of skilled labour has also risen but the level in June was still low and labour supply was the primary bottleneck for only 6 per cent of firms. All in all, the picture of industrial capacity utilisation in the June survey gives no important grounds for concern. Capacity utilisation in the services sectors is still

relatively high in general, though the latest survey data indicate that the level in data processing is somewhat lower than during 1998 (Fig. 43). These sectors are characterised by low capital intensity, which means that the high capacity utilisation primarily reflects shortages of labour with industry-specific competence. In road freight, the proportion of firms reporting full capacity utilisation rose sharply in June but this should be interpreted with caution because the series has fluctuated markedly in the past and road freight firms have difficulty in excluding seasonal variations from their survey responses.

All things considered, the Riksbank's present assessment, like that in the June Report, is that some capacity shortage may arise towards the end of the forecast period. With the upward revision of the growth forecast, it is foreseen that the unutilised resources at present will be utilised more quickly than assumed in June.

#### WAGES, UNIT LABOUR COSTS AND PROFITABILITY

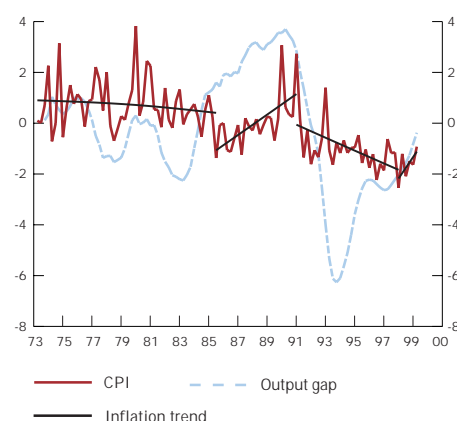
The forecasts for unit labour costs in the corporate sector and the total economy have been revised upwards since the June Report. Instead of the June figure of just over 2 per cent, the annual increase in unit labour costs in the total economy in 2000 and 2001 is now judged to be closer to 2.5–3 per cent. The revision is partly due to somewhat weaker productivity growth but also reflects an upward adjustment of the wage forecast.

Wage increases are judged to be somewhat lower in 1999 and somewhat higher in 2000 and 2001 than was assumed in the June Report.

The average hourly wage was assumed in the June Report to rise 3.5 per cent in 1999 and by 4 per cent a year in 2000 and 2001. The preliminary outcome for wages during 1999 has been comparatively low. Notwithstanding the prospect of an accelerating rate of wage increases this autumn, the low outcome figures have prompted some downward adjustment of the nominal hourly wage forecast for 1999. With the stronger labour demand and decreased unemployment, in the following years the rate of wage increases is, however, expected to move up to 4–4.5 per cent. Wage settlements that cover a large proportion of the labour market will not be renegotiated before 2001 and this may tend to hold back the rate of wage increases during 1999 and 2000.<sup>24</sup> Wage increases negotiated during 2000 are judged to average just over 2.5 per cent; the forecast rate for nominal wage increases accordingly implies moderate wage drift. At the same time, the absence of wage settlements for 2001 makes the forecast for that year more uncertain.

The forecast increase in unit labour costs in 2000 and 2001 has been adjusted upwards to allow for a higher nominal wage rise and lower productivity.

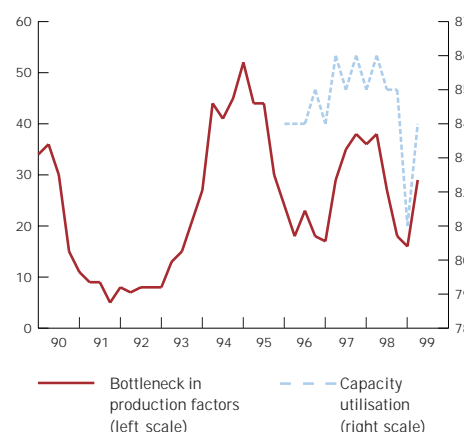
Figure 41. Output gap, CPI inflation and inflation trend.  
Per cent



Note. Output gap estimated by the Unobserved Components method (Fig. 40). CPI inflation represents the quarterly change in the CPI; the level of the series has been adjusted so that its mean value for the whole period is zero. Inflation trend calculated with the Whittaker-Henderson filter.

Source: The Riksbank.

Figure 42. Industrial capacity utilisation and firms with production factors as the primary bottleneck.  
Per cent



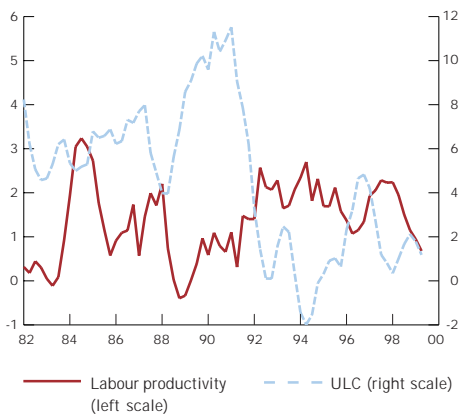
Sources: National Institute of Economic Research and Statistics Sweden.

Figure 43. Services firms with full capacity utilisation.  
Per cent of industry



Source: National Institute of Economic Research.

Figure 44. Unit labour costs (ULC) and labour productivity.  
Moving 4-quarter average; percentage 12-month change



Source: Statistics Sweden.

The forecasts imply a continued real wage increase at a rate that is historically high. Real wage increases that exceed productivity growth reduce the profit share in the economy and profitability declines. It is mainly in the export-oriented sectors of the economy that profitability declines, which is a natural consequence of the price pressure that is generated by an appreciating exchange rate. In the sectors that focus more on Swedish households, it is judged that the profit share will rise somewhat instead, partly as a result of an expected successive improvement in economic activity.

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**Profitability declines in the export-oriented sectors of the economy but rises in the sectors that focus more on households.**

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<sup>24</sup> See *Inflation Report 1998:4*, box on pp. 34–36.

## OUTPUT GAP, CAPACITY UTILISATION AND INFLATION

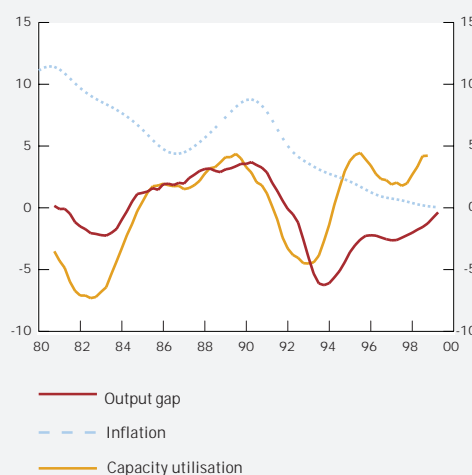
Price and wage increases tend to be higher when a large proportion of the economy's resources are being utilised, while a low level of capacity utilisation is usually associated with more subdued price movements. This makes measures of capacity utilisation potentially valuable indicators of inflationary pressure. Various available measures of capacity utilisation are discussed here, including their co-variation with inflation and the reasons for any differences between them.

As the Riksbank aims to control increases in the general price level, it is information about total capacity utilisation that is most relevant. This concept is often considered in terms of the output gap (the difference between actual and potential GDP, the latter being production's sustainable long-term level). Potential GDP is unfortunately not an observable quantity, so the output gap has to be estimated econometrically. Experience shows that the results of such estimates are comparatively sensitive to the choice of method, though several different measures can often be weighted together to provide a picture that is fairly coherent.

An alternative to econometric output gap estimations is capacity utilisation as measured in surveys by the National Institute of Economic Research and Statistics Sweden. These measures are based on firms' internal appraisals of capacity utilisation, so they should be comparatively reliable. For their practical use in economic policy, however, it is a drawback that they only cover mining and manufacturing, which now represents less than a quarter of the Swedish economy.<sup>25</sup> Moreover, the National Institute's present capacity utilisation series goes back only to 1996 and a longer observation period, at least a complete business cycle, is no doubt needed for meaningful applications in practical politics.

The link between the real economy and inflation is evident from the tendency for trend inflation to move up when the output gap is positive and fall when the gap is negative (Fig. B3). Similarly, inflation tends to rise when capacity utilisation is high and fall when utilisation is low. A complication here is that trend inflation is susceptible to other factors besides the level

Figure B3. Output gap, industrial capacity utilisation and trend inflation.  
Per cent



Note. Capacity utilisation calculated as the percentage deviation from the average for the period 1980 Q1 to 1998 Q4 and the output gap as actual GDP's percentage deviation from potential GDP; the data for both variables are moving four-quarter averages. Trend inflation calculated with a Hodrick-Prestcott (Whittaker-Henderson) filter with  $l=100$ .

Sources: Statistics Sweden and the Riksbank.

<sup>25</sup> The construction of a survey-based measure of capacity utilisation in the total economy should be feasible in principle, or at least a measure for the private sector (just over 80 per cent of GDP at present), though this would require solutions to technical measurement problems, for example the best way of measuring capacity utilisation in the production of services.

of activity. In recent years, for example, much of the downward shift in trend inflation is probably a result of the credibility that monetary policy has succeeded in investing in the inflation target. A clear illustration of this is the paths of various indicators of expected inflation during the 1990s.<sup>26</sup> But even when this is taken into account, there are probably grounds for claiming that in recent years something has happened above all to the relationship between industrial capacity utilisation and inflation.<sup>27</sup> During the recession in the early 1990s industrial capacity utilisation declined; but it subsequently recovered fairly quickly and reached high levels. For five years now the level has been on a par with the period of overheating in the late 1980s but this does not seem to have left any mark on the development of inflation.

One explanation for this is that while industrial production recovered fairly quickly, this was not the case, according to the estimates, for the total economy (see Fig. B3). For much of the 1990s the economy has been split into an export sector based primarily on manufacturing, where a weak exchange rate has stimulated production, and a domestic market sector that faced restrained demand. This is mirrored in the combination of high industrial capacity utilisation and a continuously negative output gap (representing capacity utilisation in the total economy). The apparent disruption of the relationship between industrial capacity utilisation and inflation may accordingly be due to a weakening of the relationship between capacity utilisation in manufacturing and in the total economy.

This clearly illustrates the importance of using indicators of many different types. In recent years, the inflationary pressure signalled by industrial capacity utilisation, which previously seems to have been an acceptable indicator in this respect, has been higher than it turned out to be. If this indicator had been used as the sole measure of resource utilisation in the economy, there would have been a risk of monetary policy being considerably more restrictive than was actually the case and was called for.

Another conceivable explanation for the combination of such high industrial capacity utilisation and such low inflation is illustrated by the National Institute's survey data on 'bottlenecks', that is, factors that hamper

<sup>26</sup> See, for example, *Inflation Report 1999:2*, box on pp. 51–52.

<sup>27</sup> There are also some indications that the relationship between the output gap and inflation may have changed in the 1990s, though it will be seen from Fig. B3 that the shift is considerably less evident for the output gap than for industrial capacity utilisation. The output gap's relationship with inflation is discussed in more detail in the box on pp. 52–55.



or prevent increased production. Capacity utilisation should tally with the extent to which bottlenecks are reported in machinery and plant and in labour: the higher the level of capacity utilisation, the less it is possible to go on expanding production without additional inputs of physical capital and/or labour. The proportion of firms reporting machinery and plant, and labour, as their primary bottleneck is shown in Fig. B4.

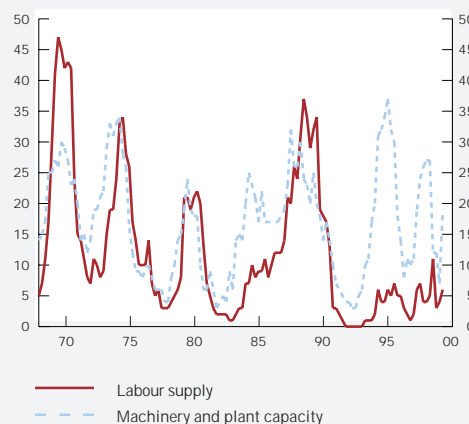
It will be seen that just after the recession in the early 1990s, problems with capacity were reported to be small for machinery and plant as well as for labour. Since then, the proportion of firms with labour as the primary bottleneck has remained low, while the level for machinery and plant has risen again and reached record levels in some periods. While the latter series has fluctuated up and down, it seems clear that the average level in recent years has been considerably higher than the series for labour shortages.

This may be a sign that the high industrial capacity utilisation in recent years has represented high utilisation of physical capital and to a lesser extent a shortage of labour. In that case, one explanation for the low inflation could be that a high utilisation of physical capital is less inflationary than labour shortages. However, this is primarily a hypothesis. A closer assessment is unfortunately hampered by the fact that the two series in Fig. B6 have followed a more or less parallel course historically and it is only in recent years that their paths have differed.

To sum up, two conceivable explanations have been discussed to account for the combination of high industrial capacity utilisation and very low inflation. One is the heavily restrained demand in the non-industrial part of the economy and the other is the more hypothetical argument that the high capacity utilisation mainly mirrors a high utilisation of physical capital, accompanied by a labour market situation that is not strained.<sup>28</sup> Regardless of the weight of these two explanations, it can be noted that in the coming years monetary policy has to consider that the effects on which they are grounded are likely to be reversed.

<sup>28</sup> Additional explanations are, of course, conceivable but more speculative. For instance, for many firms the recession in the early 1990s may have served to initiate a process of modernisation and structural changes in production. This in turn can have consequences both for the measure of capacity utilisation and for its relationship with inflation. It is possible, for example, that firms may have had difficulty in accurately estimating the potential capacity of a production apparatus that is based on technologies that are rather different from those used earlier. Capacity utilisation could then have been lower in reality than the reported level. Another possibility is that, for various reasons, at a given level of measured utilisation a modernised production apparatus might generate less inflationary pressure than would have been the case with an apparatus based on earlier technology.

Figure B4. Manufacturing firms with the primary bottleneck in machinery and plant and in labour. Per cent



Source: National Institute of Economic Research.

## Price effects of deregulations and liberalisation of trade

Market deregulation and the liberalisation of trade have effects on inflation in both the short and the long run but estimating the magnitude of such effects is very difficult.

The electricity market has undergone a series of deregulations. The price reductions by electricity producers that followed changes made in 1996 did not begin to affect electricity prices to households until 1999. What is known as the time metre requirement is to be abolished from 1 November 1999, with price effects that are uncertain, partly on account of the way in which the measurement methods for the CPI are currently applied. In the forecast period the price reductions for electricity are calculated to have a total downward CPI effect of up to 0.3 percentage points (Table 6).

The price effects of the telephone reforms – involving number portability (keeping the same number when changing operators) and equal access to the network – that became effective in September this year are likewise difficult to assess. Price cuts have already been made for certain types of telephone calls. The increased competition that has been registered between operators will probably exert further downward pressure on prices. In a submission to the Riksdag (Sweden's parliament), the National Post & Telecom Agency has proposed that as of 1 July 2000 Telia's access net (the final section of the telephone network to the customer's socket) is to be open for competitors, accompanied by an end to the price ceiling on subscriptions. If the proposals are approved, subscription rates may go up because at present the receipts probably do not cover the costs of running the access network.

A new round of WTO negotiations is to begin in December and is scheduled to continue for three years. The agenda has not been finalised but is likely to be broad. Items proposed by the EU Commission are agricultural products (including export and internal support as well as support for the environment and rural areas), services, the introduction of competition laws, public procurement and customs tariffs on non-agricultural products. The Commission's proposals imply a considerable reduction of existing tariffs (20–30 per cent).<sup>29</sup> A further liberalisation of trade can be expected to add to pressure on prices but probably not until later. With controversial proposals for the agenda, such as labour laws, and divergent initial positions on a number of matters, the negotiations may be protracted.

The Agenda 2000 decision by the European Union includes reforms of price subsidies to farmers (the guaranteed price level to farmers). Compared with the present system, the decision involves a reduction of the intervention prices for farm crops, milk and beef. The reforms concern an early stage in the food production chain and their effects on later stages are difficult to assess. It is estimated that the agricultural reform will have a downward effect on consumer prices of about 0.4 per cent spread over about ten years.

<sup>29</sup> The earlier Uruguay Round gave cuts of 30–40 per cent.



*Taken as a whole, the approved deregulations concern about 10 per cent of household consumption. Electricity and telecommunications add up to about 5 per cent of the CPI basket and the food prices that are affected by the Agenda 2000 reform constitute much the same proportion. These effects are calculated to lower CPI inflation by a total of about 0.2–0.3 percentage points during 1999 and 2000 and by somewhat less in 2001.*

## Effects of political decisions and interest expenditure

The Budget Bill for 2000 includes a number of proposed changes to indirect taxes but the estimated effects on the CPI are generally small. The contribution from indirect taxes is therefore broadly the same as forecast in the June Report.

A tax on waste materials is to be introduced from the turn of this year but its expected contribution to CPI inflation is marginal, less than 0.05 percentage points. Other proposals in the Budget Bill include increased indirect taxes on diesel fuel and electricity, as well as an increased tax on the production of nuclear power. A temporary reduction of the property tax on multi-family housing, from 1.3 to 1.2 per cent, is also proposed; for 1999 this tax was temporarily lowered from 1.5 to 1.3 per cent. The present inflation assessment assumes that for 2001 the tax rate is restored to 1.5 per cent. As price changes occasioned by the property tax on multi-family housing are defined by Statistics Sweden as an indirect price effect of an indirect tax, they are not excluded from the calculation of UND1X. Finally, the Budget Bill proposes decreased energy taxes for farmers and a tax increase for heavy buses in 2000. The existing rules call for a return to the indexing of the assessed values of residential property as of 2001. The taxable values of owner-occupied and multi-family housing will then be adjusted upwards for the increase in property prices in the whole of the period since indexing was suspended. Calculations from the Ministry of Finance indicate that in 2001 the contribution to CPI inflation from property tax on housing will total more than 0.5 per cent. As before, however, the main scenario assumes that the reassessment of property values will again be deferred.

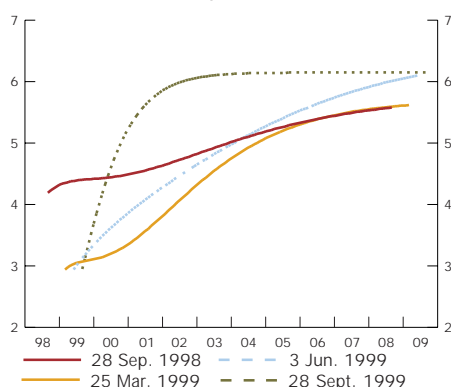
During the forecast period the combined effect from altered indirect taxes is expected to be small. It is only the freeze on the taxable value of owner-occupied houses that has a visible effect on the change in the CPI (Table 7).

The recent increase in the level of interest rates means that the CPI effect of house mortgage interest expenditure is calculated to be higher than assumed earlier. Even so, the contribution is still expected to be negative during most of the forecast period; it is not until the autumn of 2001 that a change to an upward effect is expected.

As at the time of the June Report, there are a number of political proposals – a maximum charge for day nurseries, for example – that, if they are approved, will affect both CPI and underlying inflation. However, the total contribution to date from political decisions that affect UND1X is small (Table 8).

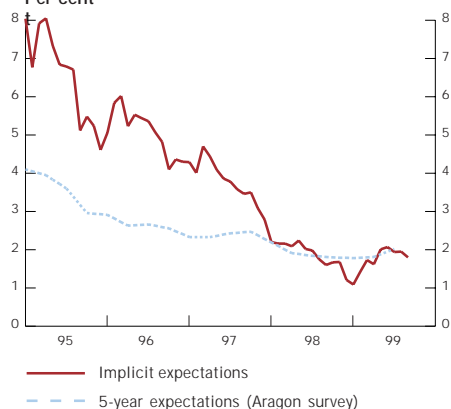
## Inflation expectations

Figure 45. Implied forward interest rates.  
Effective annual rate, per cent



Source: The Riksbank.

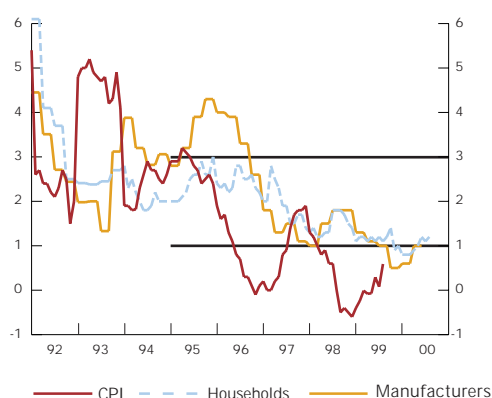
Figure 46. Inflation expectations.  
Per cent



Note. Implicit inflation expectations are derived from the difference between implied 5–15-year real and nominal bond rates.

Source: Aragon Fondkommission and the Riksbank.

Figure 47. CPI and inflation expectations of households and manufacturers.  
Percentage 12-month change



Note. The curves for expectations have been shifted twelve months into the future so that they coincide with the period to which the expectations refer. As of 1996, households' ten most extreme responses at either end are excluded; prior to 1996 the curve shows the responses in the range 0–15 per cent. The horizontal lines from 1995 onwards represent the Riksbank's tolerance interval for the annual change in the CPI.

Sources: Statistics Sweden and National Institute of Economic Research.

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Expectations about the future path of short-term interest rates can normally be derived from estimates of implied forward interest rates. For the short as well as the medium term, the forward rate tendency largely reflects market expectations of future monetary policy and inflation. The longer-term forward rates mainly provide information about confidence in general economic policy's commitment to price stability and the global real long-term interest rate.

Since the June Report, the forward short-term interest rates have moved up (Fig. 45) but survey data indicate that the short-term inflation expectations of money market agents have not risen to the same extent. This indicates that money market players now have somewhat higher inflation expectations and anticipate that growing inflationary pressure will lead to a monetary policy adjustment in a less expansionary direction in the coming years. It should be noted, however, that a part of the increase in forward interest rates probably represents a higher risk premium on the real interest rate to cover greater uncertainty about the future path of inflation and interest rates.

Expected long-term inflation is mirrored in the difference between real and nominal forward long bond rates (5–15 years).<sup>30</sup> Since the June Report this difference has increased somewhat to approximately 2.0 per cent. The level suggests that long-term inflation expectations are in line with the inflation target (Fig. 46).

The general impression from the surveys that have been published since the June Report is that short-term inflation expectations are moving up. This is not surprising. On the contrary, it tallies with the Riksbank's earlier assessment of a future increase in inflationary pressure. Moreover, the short-term expectations are still below 2 per cent by a wide margin. On the other hand, both the expectations for the period twelve to twenty-four months ahead and those for the longer run are in line with the target (Table 9, Figs. 47 and 48).

### MEDIUM AND LONG-TERM INFLATION

#### EXPECTATIONS ARE IN LINE WITH THE TARGET.

The September survey by Statistics Sweden adds to the picture of an increase in short-term inflation expectations. For the somewhat longer run the surveys indicate inflation expectations that are broadly unchanged. For all the interviewed groups, the expectations, except for the short run, do not deviate very much from the 2 per cent inflation target.

<sup>30</sup> These rates are the nominal and real ten-year rates in today's five-year contracts. Some observers consider that changes in this indicator of expected inflation should be interpreted somewhat cautiously because the market in real interest rates is not sufficiently liquid to provide a reliable picture of long-term inflation expectations.

In August the rate of inflation expected by households in the coming twelve months was 1.2 per cent, an increase of 0.2 percentage points from June. Inflation expectations have also risen among other economic agents. In manufacturing, the twelve-month expectations in June were at 1.0 per cent, or 0.4 percentage points higher than in March. In the services sector the expected rate was 1.0 per cent, which is likewise higher than earlier.<sup>31</sup>

A matter of major importance for the development of inflation and inflation expectations is the level of economic activity. The medium and long-term inflation expectations have been stable for some time at around 2 per cent, as is relatively clear from Fig. 48. Provided confidence in monetary policy's commitment to price stability is maintained, the medium and long-term inflation expectations should no doubt be comparatively stable over the business cycle. This in turn should imply a more stable path for underlying inflation relative to the cyclical position, as well as milder inflationary impulses in an upward phase.

*To sum up, both money market pricing and survey data show an increase in short-term inflation expectations. For the short run (less than twelve months) the expectations are relatively far below the inflation target. For the longer run, the inflation target seems to serve as an anchor for expectations, which are thereby close to 2 per cent.*

Table 9. CPI inflation expectations in September 1999.

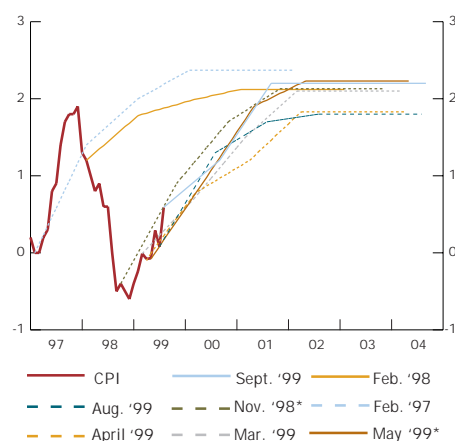
Annual rate, per cent.

Expected inflation 1 year ahead		
Money market agents	1.2	(0.3)
Employer organisations	1.3	(0.3)
Employee organisations	1.3	(0.1)
Purchasing managers, trade	1.4	(0.1)
Purchasing managers, industry	1.6	(0.2)
Households (HIP)	1.2	
Manufact. firms (tend. surveys)	1.0	
Services firms (tend. surveys)	1.0	
Implicit expectatoins for 1-2 year ahead		
Money market agents	2.2	(0.3)
Employer organisations	1.9	(0.3)
Employee organisations	1.9	(0.1)
Purchasing managers, trade	2.0	(0.1)
Purchasing managers, industry	2.2	(0.2)
Implicit expectatoins for 3-5 years ahead		
Money market agents	2.2	(-0.0)
Employer organisations	1.9	(-0.0)
Employee organisations	1.9	(-0.1)
Purchasing managers, trade	2.0	(-0.1)
Purchasing managers, industry	2.2	(0.2)

Note. The figures in parentheses are the changes in percentage points from Statistics Sweden's May 1999 survey.

Sources: Statistics Sweden and National Institute of Economic Research.

Figure 48. Money market agents' inflation expectations.  
Per cent



Note. \*From Statistics Sweden (otherwise Prospera Research AB).

Sources: Prospera Research AB and Statistics Sweden.

31 Inflation expectations in the services sector are represented here by an unweighted average of expectations in the sub-sectors.



# Inflation assessment

*This chapter summarises the Riksbank's assessment of inflation prospects up to the end of 2001 Q3, given that the repo rate is left unchanged at 2.90 per cent. The principal features of the main scenario (the price trend in the coming twenty-four months that is considered most probable) are described, followed by the Riksbank's appraisal of the uncertainties and risks in the inflation prospects.*

## Inflation prospects in the main scenario

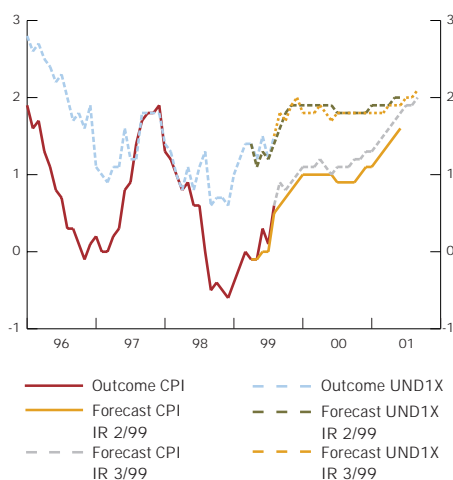
International economic prospects have improved since the June Report. Activity in the emerging markets has picked up after the Asian crisis. Economic growth this year in Japan is also stronger than expected and prospects in the United Kingdom have improved. Moreover, activity in the US economy does not seem to be slowing as rapidly as was foreseen in June. To this can be added a somewhat improved outlook in the euro area, mainly because growth is expected to be higher in both Germany and France but also due to stronger GDP growth than expected in Sweden's neighbour, Finland. Even so, the upturn in international activity is not dramatic. The global economy also has unutilised capacity that can be utilised without an unduly strong increase in inflationary pressure.

The Swedish krona has strengthened largely as assumed in the June Report. In recent months, moreover, nominal interest rates, bond rates in particular, have risen considerably more than expected. The recent appreciation of the krona is presumably due in part to growing expectations that the Riksbank will raise the repo rate in the near future. For this inflation assessment, however, the starting point is an unchanged repo rate in the coming twenty-four months. Early on, therefore, the krona is assumed to be somewhat weaker than at present but, in keeping with earlier assessments, it is envisaged that after that the krona appreciates during the forecast period. Some further increase is foreseen in long-term interest rates. The combined effect on demand from interest rates and the exchange rate is accordingly less expansionary than was assumed in the June Report.

International prices for manufactured goods are judged to remain weak, partly in view of the unutilised capacity that exists at present in the global economy. Together with the krona's expected appreciation, this implies diminishing price pressure from abroad. Due to higher commodity prices, for oil in particular, Swedish import prices are expected to rise somewhat more this year than was assumed in the June Report. During 2000 and 2001 import prices are then estimated to rise somewhat more slowly than envisaged earlier, partly because some fall in the price of oil is assumed from the comparatively high level at present.

The somewhat brighter international economic prospects can be expected to stimulate Swedish exports as well as parts of the economy that are connected with exports. Domestic demand in

Figure 49. CPI and UND1X. Outcome and the main scenario in this and the previous Report. Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

turn is assumed to be considerably stronger than foreseen in the June Report. Households and firms are both optimistic about the future; real wages and employment are rising rapidly and public finances are being strengthened. The Government target for the public sector's financial surplus means that the general direction of fiscal policy is restrictive. In the coming years, however, the restrictive effect on demand is judged to decrease and compared with our June prediction, the fiscal stance in 2000 and 2001 is now assumed to be more expansionary. All in all, the GDP growth rate is judged to be 3.6 per cent in 1999, 3.8 per cent in 2000 and 3.0 per cent in 2001.

It is considered that the economy has unutilised resources at present but they will be utilised more quickly than was foreseen in June. As a result, wages, for example, are judged to rise 4–4.5 per cent a year in 2000 and 2001, which is some higher than was assumed in the June Report. As productivity also appears to be somewhat weaker, the increase in labour costs is judged to be somewhat more marked than foreseen in the June Report.

Short-term inflation expectations have tended to rise but their level is still low. Inflation in twelve months' time is expected to be below 2 per cent. Further ahead, expectations are in line with the target. Expectations for the medium and longer run have been anchored for some time around 2 per cent. One consequence of this is that inflationary impulses from the rising activity may be modified.

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**In the main scenario, the trade-off between growth and inflation is judged to be somewhat lower than envisaged in the June Report.**

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Recent developments, with rapid price increases for oil and other commodities, are judged to cause underlying inflation to move up somewhat faster than expected in the short run. The improved economic prospects also imply growing and stronger inflationary pressure in the economy. However, the trade-off between growth and inflation is judged to be somewhat lower envisaged in the June Report. Several factors contribute to this assessment. According to various international observers, the trade-off between growth and inflation has become somewhat more favourable in the OECD area. Stable inflation expectations, as well as increased competition in the Swedish economy in connection with deregulations and EU membership, suggest that the same applies to Sweden. Another indication in this direction is the comparatively weak development of underlying inflation. Further support is provided by the empirical results that are presented in the box on the relationship between the output gap and inflation (see pp. 35–38). The upward tendency in underlying domestic inflation is therefore assumed to be comparatively restrained. Moreover, import prices are judged to dampen inflation and to rise somewhat more slowly in 2000 and 2001 than was foreseen in the June Report. All in all, in the main scenario the rate of underlying inflation, measured by UND1X, is judged to be 1.8 per cent twelve months ahead and 2.1 per cent after twenty-four months; this is broadly the same as the

assessment of UND1X in the June Report (Fig. 49). The rate of CPI inflation is judged to be 1.1 per cent in twelve months' time and well in line with the target after twenty-four months; this is something of an upward revision of the earlier assessment, the reason being that this summer's increase in house mortgage rates is judged to result in a faster rise in household interest expenditure.

**Underlying inflation, measured by UND1X, is judged to be 1.8 per cent twelve months ahead and 2.1 per cent after twenty-four months.**

The difference between the CPI and UND1X consists of household interest expenditure, indirect taxes and subsidies. The combined effect of these transitory factors on the CPI is calculated to be -0.5 percentage points after twelve months and 0.1 percentage point in twenty-four months' time. Under present circumstances the Riksbank disregards these factors in the formulation of monetary policy because they are judged to have no permanent effect on inflation or inflation expectations. Consumer prices are also susceptible to other types of factor that it may be inappropriate to allow for in the formulation of monetary policy, for example large shifts in commodity prices. However, monetary policy is currently based on an assessment of inflation as measured by UND1X.

Table 10. Inflation forecasts.  
Percentage change

	Annual rate 1999	Annual rate 2000	12-month rate Sept. 2000	12-month rate Sept. 2001
CPI	0.3	1.1	1.1	2.0
UND1X	1.5	1.8	1.8	2.1
UNDINHx	1.8	2.0	2.2	2.7
HICP	0.7	1.8	1.9	2.0

Source: The Riksbank.



## AN ILLUSTRATION OF INFLATION FORECASTING WITH A RISING REPO RATE

**Table B2. Modified inflation forecasts incorporating expected interest rates in Statistics Sweden's survey in September 1999. Percentage change**

	Annual rate 1999	Annual rate 2000	12-month rate Sept. 2000	12-month rate Sept. 2001
<b>CPI</b>	0.4(+0.1)	1.4(+0.3)	1.5(+0.4)	1.7(-0.3)
<b>UND1X</b>	1.5(0.0)	1.7(-0.1)	1.7(-0.1)	1.9(-0.2)

Note. The figures in parentheses are the difference from inflation according to the main scenario with an unchanged repo rate.

Sources: Statistics Sweden and the Riksbank.

Market pricing and survey data indicate expectations at present of a successive increase in the repo rate in the coming two years. The inflation forecasts of many external observers likewise presuppose a rising repo rate. In the Riksbank's inflation forecast, however, the repo rate is assumed to be unchanged (in order to bring out the forecast's consequences for the formation of monetary policy). An illustrative calculation is therefore presented here, based on repo rate increases in line with the expectations of money market players as reported in Statistics Sweden's survey in September 1999. This illustrative assessment is compared with the main scenario, which is based on the repo rate remaining unchanged.

The survey data show expectations of repo rate increases to 3.15 per cent in three months' time, 3.80 per cent twelve months ahead and 4.25 per cent after twenty-four months.<sup>32</sup> Here it is assumed that the short-term market interest rates broadly follow the repo rate, while the pass-through to the longer rates is judged to be only partial. Compared with the main scenario, the average level of short rates is judged to be almost one percentage point higher in the forecast period, while the effect on the long rates stops at approximately 0.3 percentage points. Higher interest rates relative to the rest of the world are assumed to lead to a stronger exchange rate: the average level of the TCW index in the forecast period is judged to appreciate approximately one per cent more than in the main scenario.

This example accordingly gives a higher level of interest rates and a stronger exchange rate in the forecast period than foreseen in the main scenario. The higher interest rates are judged to lead to somewhat more restrained growth of private consumption and some slackening of investment. At the same time, the stronger exchange rate tends to dampen export growth and activity in export-related parts of the Swedish economy. The overall effect is judged to be that annual GDP growth would be about 0.2–0.3 percentage points lower in 2000 and 2001.

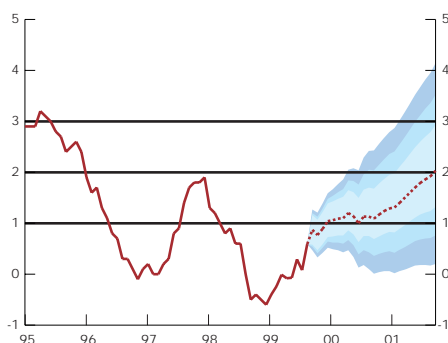
The CPI increase in this alternative in 1999 and 2000 is judged to be somewhat higher than in the main scenario (Table B2). This is because the higher interest rates entail increased house mortgage expenditure,

<sup>32</sup> The median value of the expectations.

which gives higher CPI inflation initially. The restrictive effects on demand and import prices do not have an appreciable impact on CPI inflation until late in the forecast period, by which time the direct CPI effects from house mortgage costs are diminishing. The aggregate effect on CPI inflation in twenty-four months time is judged to be  $-0.3$  percentage points. The impact on underlying inflation occurs already in 2000, when UND1X inflation is judged to be approximately  $0.1$  percentage point lower than in the main scenario with an unchanged repo rate. The successive repo rate increases would be likely to go on lowering UND1X inflation during 2001; the effect in that year is calculated to be approximately  $-0.2$  percentage points.

## Risk spectrum

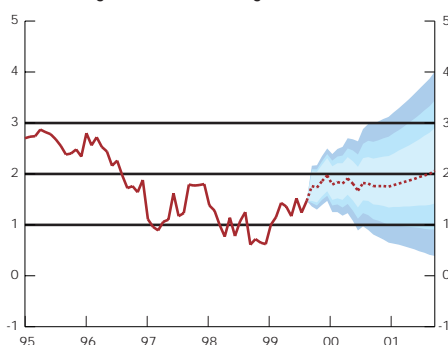
Figure 50. CPI with uncertainty intervals.  
Percentage 12-month change



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.

Figure 51. 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.

Sources: Statistics Sweden and the Riksbank.

The inflation assessment in the main scenario is the path the Riksbank considers most probable. However, the forecasts for economic activity and inflation include elements of uncertainty and the risk spectrum is also relevant in the formation of monetary policy.

The picture of international economic activity seems to be less difficult to assess than at the time of the June Report. The earlier risks of the Asian crisis leading to an unexpected fall in global activity have virtually disappeared. The chief threat to world economic growth continues to be a steep stock market fall and the financial imbalances in recent years in the United States. Via effects on international activity, for example, a stock market collapse there would ultimately tend to subdue inflation in Sweden, too. Moreover, oil prices may not fall as much as assumed in the main scenario.

The path of the krona is uncertain; it may be weaker, or stronger, than the appreciating tendency in the main scenario. The risk of a weaker development than in the main scenario has to do, in part, with the market unrest that would result from a major correction of share prices in the United States. In the past, financial turbulence and the attendant flight to quality and liquidity have tended to weaken the krona temporarily. A stronger exchange rate compared with the main scenario can come, for example, from a development of domestic activity that exceeds expectations.

The assessment of future price tendencies is highly dependent on the relationship between growth and inflation. The Riksbank has revised its view of this relationship on several occasions in recent years. The main scenario currently presupposes that the trade-off between growth and inflation is somewhat lower than assumed in the June Report. Thus, the trade-off is now judged to be lower than is indicated by historical relationships before the 1990s. Partly as a consequence of the pronounced reduction of inflation expectations during much of the 1990s, the relationship between resource utilisation and inflation has been difficult to analyse in recent years. Another complication has been the uncertainty about the level of the potential growth rate, the size of the output gap and how the labour market is functioning. The risks that should primarily be discussed in connection with the inflation propensity have to do with the Swedish labour market.

The favourable economic prospects imply a rapid increase in demand so that the unutilised resources at present will be utilised in the coming two years. Up to the time horizon that is relevant here, however, this is not expected to lead to more widespread labour market shortages with an attendant development of wages that is unsustainable in relation to the Riksbank's inflation target. Labour shortages are still confined to a few occupational categories and the wage statistics to date this year show increases that are lower, if anything, than expected. However, more marked labour market shortages and, consequently, stronger wage increases than are foreseen in the main scenario are possibilities that cannot be ruled out.

More marked labour market shortages and stronger wage increases than are foreseen in the main scenario are possibilities that cannot be ruled out.

On balance, there is judged to be some upside risk in the inflation forecast. This has to do with the possibility of wages increases being higher than calculated and inflation reacting more quickly and distinctly to the marked economic improvement. In other words, inflation above the level in the main scenario seems to be more probable than inflation below that level. This is evident from Fig. 50, which presents the assessment of uncertainties surrounding the CPI inflation forecast in the main scenario.<sup>33</sup> The somewhat wider uncertainty interval above than below the forecast path in the main scenario represents the judgement that upside risks predominate. There is also some overall upside risk as regards underlying inflation, measured as the annual change in UND1X (Fig. 51). At the same time, with the clearer picture of international economic activity, it seems that inflation prospects are somewhat less difficult to assess than at the time of the June Report; this is represented by a somewhat narrower uncertainty interval.

As monetary policy is formulated primarily on the basis of an assessment of price tendencies twelve to twenty-four months ahead, the inflation prospects with this time horizon are of particular interest. In the main scenario, the 12-month rate of UND1X inflation is expected to be 1.8 per cent in September 2000 and 2.1 per cent in September 2001. Due to the predominant upside risk in the assessment, the mean and the median are approximately 0.1 percentage point above the forecast path in the main scenario.

The probabilities of CPI inflation twelve to twenty-four months ahead being inside certain intervals are presented in Table 11. The probability of a rate outside the lower tolerance interval in twelve months' time is still comparatively large. With the rising interest expenditure, however, CPI inflation is judged to move up and approach inflation's underlying rate. In twenty-four months' time, CPI inflation above the 2 per cent target is therefore more probable than a rate below the target.

Inflation measured as UND1X, which excludes transitory effects from changes in indirect taxes, subsidies and interest rates, will presumably be inside the tolerance interval for the development of consumer prices up to the end of the forecast period. The probability of UND1X inflation being above 2 per cent in twenty-four months' time is judged to be somewhat greater than the probability of a rate below that level (Table 12).

*The conclusion from the reported assessments is that, excluding transitory effects from changes in indirect taxes, subsidies and interest rates, and given an unchanged repo rate of 2.90 per cent, in the coming years inflation will tend to move up and be marginally above the target in twenty-four months' time.*

<sup>33</sup> 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 no. 65.

Table 11. CPI inflation.  
Percentage probability, 12-month figures

	CPI<1	1<CPI<2	2<CPI<3	CPI>3	Total
2000 (Sept.-Sept.)	41	45	13	1	100
2001 (Sept.-Sept.)	17	29	31	23	100

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

Source: The Riksbank.

Table 12. UND1X inflation.  
Percentage probability

	UND1X<1	1<UND1X<2	2<UND1X<3	UND1X>3	Total
2000 (Sept.-Sept.)	9	50	36	5	100
2001 (Sept.-Sept.)	14	31	33	22	100

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

Source: The Riksbank.

## HAS THE RELATIONSHIP BETWEEN THE OUTPUT GAP AND INFLATION CHANGED?

In recent years the Riksbank has revised its appraisal of the trade-off between growth and inflation a number of times. Reassessments of the size of the output gap and the level of potential growth have contributed to this. Another reason is an increasingly clear tendency for the low and stable inflation expectations to dampen the price trend. A further factor of importance for the trade-off between growth and inflation is the relationship between inflation and the output gap.

The positive relationship that can be observed empirically between resource utilisation and inflation is usually referred to as the Phillips curve, since it was A.W. Phillips who first drew attention to this relationship in the late 1950s. In the following decade, however, the underlying theory, which originally implied a stable relationship between inflation and the real economy even in the long run, was thoroughly criticised. Theoretical work, for example by M. Friedman and E.S. Phelps, laid the foundation for a modified version, the expectations augmented Phillips curve. According to this theory, inflation is a function of expected inflation as well as demand. A stable relationship between inflation and demand can therefore be expected only for as long as the future inflation expectations of households and firms are unchanged. Today there is fairly broad agreement about this very general formulation, though opinions differ as to what generates the positive relationship and under which circumstances the relationship can be expected to be stable.

The *neo-classical model of inflation* envisages that households and firms cannot distinguish price shifts between different goods and services from changes in the general price level (inflation). They sometimes perceive a general increase in the price level as a favourable relative shift in the price of their own product and therefore increase the supply of that product. According to this theory, the higher and more variable the rate of inflation, the weaker will be the relationship between general price increases and demand because it is assumed that fewer agents then interpret observed price movements incorrectly as relative price shifts.

*Neo-Keynesian models* focus instead on price rigidities when explaining the Phillips curve. Seen from this angle, the existence of multi-period nominal contracts or adjustment costs associated with price changes hamper price adjustments to shocks, thereby leading to

variations in production and employment. Due to these models the stability in the relationship depends mainly on the functioning of the labour market.

The central message of the expectations augmented Phillips curve is that in the long run there can be no stable trade-off between the rate of inflation and aggregate demand. One implication of this is that increased inflation is not a practical instrument for long-term stimulation of the real economy. Sooner or later, higher inflation leads to rising inflation expectations, so all that is achieved in the longer run is a permanent effect on inflation without real benefits in the form of lower unemployment and increased production.

Inflation in Sweden has decreased markedly in the 1990s. In the 1970s and '80s the annual rate of CPI inflation averaged around 8 per cent. Since 1992 the average rate has been around 2 per cent.

In the early 1990s Swedish economic policy was directed at achieving low inflation; in the autumn of 1992 it proved necessary to abandon the fixed exchange rate in favour of a monetary policy regime with a flexible exchange rate, followed later by the introduction of an explicit inflation target. The budget process was also reformed, together with a target for the public sector financial surplus and a ceiling on central government spending. Other characteristics of the 1990s are a deep and lengthy economic recession and the reduction of external inflation. Work on integrating Sweden in Europe was stepped up and in 1995 Sweden became a member of the European Union. Deciding which factors have been most important for the decreased inflation can therefore be hazardous. One way of structuring the issue and the discussion is to start from a model in the form of a simple standard short-run Phillips curve:

$$\pi_t = \alpha + \beta_1 y_{t-1} + \pi_t^e + \beta_3 \pi_t^* + \varepsilon_t.$$

Inflation is in this model a function of demand  $y$ , expected inflation  $\pi^e$  and other factors (external inflation, for example)  $\pi^*$ .

One of the major explanations for inflation's downward shift is, of course, the reduction of inflation expectations. Many of the changes mentioned above, not least the direction of economic policy, have probably contributed in turn to this shift.

After some very bleak years in the early 1990s, the Swedish economy seems to be moving into a period of high growth and rising demand. A central question is whether the developments during the 1990s have altered the slope of the Philips curve ( $\beta_1$  in the simple model above) so that a given demand pressure now results in

lower inflationary impulses than before.

In terms of the neo-classical model, the decreased inflation as such could be an explanation for the occurrence of such a change. According to the neo-Keynesian approach, which emphasises the functioning of the labour market, an explanation for a flatter slope of the Phillips curve could be instead that various changes may have led to moderating effects on the development of wages (at a given level of unemployment).

An empirical equivalent of the model presented above can be formulated as follows:

$$\pi_t = \alpha + \beta_1 y_{t-4} + \beta_3 \pi_t^{sur} + (1 - \beta_3) \pi_{t-4} + \beta_4 \pi_t^* + \beta_5 r_t.$$

Here the annual rate of CPI inflation is determined by an intercept, a demand variable, expected inflation derived from survey data, registered inflation a year earlier  $\pi_t^e = \beta_3 \pi_t^{sur} + (1 - \beta_3) \pi_{t-4}$ , external inflation expressed in Swedish prices and changes in oil prices,  $r$ .

This model has been estimated on quarterly data from 1980 Q1 to 1999 Q2. Demand is measured in terms of the output gap determined with the production function approach. The equation was also estimated with other measurements of the demand situation, such as the output gap calculated with either a Whittaker-Henderson filter or the Unobserved Components method (UC), and unemployment and its deviations from the NAIRU (estimated with UC). The estimations with those measurements of activity and similar models gave essentially the same results.

For the period 1980 Q1 to 1992 Q4, most of the explanatory variables are significant, with the predicted sign and reasonable numerical values:

$$\begin{aligned} \pi_t = & -0.167 + 0.559 y_{t-4} + 0.857 \pi_t^{sur} \\ & \quad \quad \quad (-0.22) \quad \quad (2.07) \quad \quad (5.19) \\ & + 0.143 \pi_{t-4} + 0.0375 \pi_t^* + 0.0288 r_t, \\ & \quad \quad \quad (-) \quad \quad (0.55) \quad \quad (3.89) \end{aligned}$$

$$R^2 = 0.64.^{34}$$

A 1 percentage point increase in the output gap leads, all else equal, to an increase in the rate of inflation one year ahead of about 0.56 percentage points. The estimation of the component  $\pi_t^e$  can be interpreted as a very high degree of forward-looking expectations among households.

One way of studying whether any structural shifts have occurred in the equation is to estimate the equation recursively, which involves estimating it up to a particular point in time and then re-estimating it after

<sup>34</sup> The figures in parentheses are the values for  $t$ .



each additional observation has been included. These estimates show that after 1992 the value of  $\beta_3$  tends to rise.

The value of the output gap parameter,  $\beta_1$ , is consistently above 0.5 before 1993 but after that year there is a tendency for it to fall to a lower level (Fig B5). However, the changes are not statistically significant for any of the variables.

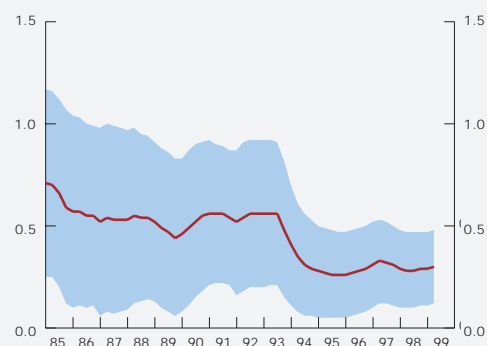
Another test for a shift in the output gap parameter can be made with a regime dummy variable. Such a test gives an estimated value of 0.62 for  $\beta_1$  in the period up to 1992:4 but a considerably lower value after 1993. As the shift is statistically significant in this test, this approach rejects the hypothesis that the trade-off between growth and inflation has been unchanged in the 1990s.

For several reasons, however, this result must be interpreted very cautiously. As the output gap (as currently estimated by the Riksbank) has been consistently negative since 1993, it may be hazardous to draw conclusions about how a *positive* gap will affect inflation in the future. Clearer indications will have to wait for data on a complete business cycle. There is also some empirical evidence that cyclical effects on inflation are asymmetric: the inflationary impulses from a positive output gap seem to be stronger than the deflationary effect of a negative gap. In that case the lower conjunctural effect in the estimates since 1992 would be occasioned, not by the occurrence of a parameter shift but because the Phillips curve is non-linear as regards effects of positive and negative output gaps.

There appears to be some evidence, moreover, that inflation expectations have become more forward-looking in the 1990s (Fig. B6). It is conceivable that a large part of the cyclical effect is expected and therefore included in the inflation expectations variable.

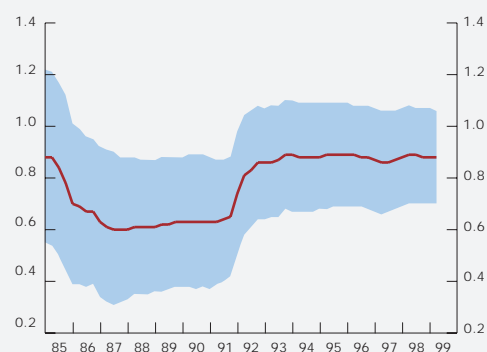
All in all, there seem to be some empirical grounds for the view that the impact of economic activity on inflation has in fact decreased in the 1990s. The magnitude of this reduction is highly uncertain, however, and the possibility that the impact is actually unchanged cannot be ruled out.<sup>35</sup>

Figure B5. Recursive estimates of the output gap parameter with a 95 per cent confidence interval.



Source: The Riksbank.

Figure B6. Recursive estimates of the inflation expectations parameter with a 95 per cent confidence interval.



Source: The Riksbank.

<sup>35</sup> A model that seems to give a good description of inflation's path in Sweden in the 1990s without assuming a parameter shift is used in Chapter 1 of this Report (see Fig. 10) and was discussed in *Inflation Report 1999:2*, pp. 51–52.

# Inflation assessments and monetary policy

*Monetary policy's target* is a 2 per cent annual change in the CPI, with a tolerance interval of  $\pm 1$  percentage point in the medium term.

## ECONOMIC IMPACT OF MONETARY POLICY

The Riksbank's main monetary policy instrument for exerting an effect on the development of consumer prices is the repo rate, which is the short-term rate for the private banks' deposits in and borrowing from the Riksbank. Simplifying somewhat, the Riksbank influences other interest rates in Sweden by altering the repo rate. Via these market interest rates an influence is exerted in turn on economic activity, for example business investment and household consumption, and thereby ultimately on price formation. However, the effect of the Riksbank's actions is not the same for every type of interest rate. The rates with the shortest maturities are controlled by the repo rate more or less directly, while those with longer maturities are also influenced by factors that the Riksbank does not control directly, for example the construction of fiscal policy, the development of international interest rates and the credibility of economic policy's overall commitment to price stability. It should also be noted that households and most firms finance their procurements and consumption mainly at interest rates above the quoted market rates. The loans are usually provided by banks and house mortgage institutions at rates that to some extent mirror credit risks and competition between different institutions.

Monetary policy also influences the course of inflation via the *exchange rate* because exchange rate movements have effects on demand and investment mainly in the internationally oriented sector of the economy. Under normal conditions a repo rate increase, or expectations of this, leads to a stronger exchange rate because the higher interest rates make Swedish assets more attractive than equivalent interest-bearing investments in other currencies; this draws foreign capital to Sweden, with an increased demand for Swedish kronor. All else equal, a relatively permanent weakening or strengthening of the exchange rate will affect demand via shifts in relative prices between Swedish and foreign goods. This in turn affects inflation. Inflation is also influenced directly by exchange rate movements in that these alter import prices.

## FORMULATING MONETARY POLICY

In that there is a time lag before repo rate adjustments affect economic developments and inflation, monetary policy decisions are guided by a forecast of future inflation. In practice, policy is constructed mainly in the light of an *assessment of inflation in the coming twelve to twenty-four months*. In each Report the time perspective is shifted approximately one quarter into the future. This means that even if the Riksbank's appraisal of future economic activity and inflation is unchanged, different monetary policy conclusions may be called for because the period being assessed has shifted ahead.

The inflation assessment in the *main scenario* is the forecast that the Riksbank regards as most probable. But as the prediction of future inflation is not a straightforward matter, the Riksbank also assesses the uncertainties in inflation's future path. In practice, therefore, the overall picture of inflation prospects consists of an assessment of probabilities. Together with a main scenario – the most probable outcome – a number of *risk scenarios* are weighted into the final assessment on which the formation of monetary policy is based. The uncertainty surrounding the main scenario is not necessarily symmetric; upside risks predominate at times, while on other occasions there may be a greater probability of inflation being lower than in the main scenario. The assessment in the main scenario is accordingly supplemented by the appraisal of the risk spectrum, which can constitute an important argument for tightening or loosening the monetary stance.

Monetary policy is sometimes described with a simple rule of thumb: if the overall picture of inflation prospects (based on an unchanged repo rate) indicates that in twelve to twenty-four months' time inflation will deviate from the target, then the repo rate should normally be adjusted accordingly. In this context it may be worth mentioning, however, that the formation of monetary policy can be influenced by the inflation assessment's uncertainty as such. A high degree of uncertainty can be a reason for a more cautious attitude, thereby avoiding excessively large fluctuations in interest rates and the formation of expectations.

There are two grounds for refraining at times from directing monetary policy so that the CPI target is fulfilled in twelve to twenty-four months' time. One is that in the relevant time perspective consumer prices may be pressed up or down by a factor or *factors with an effect on inflation that is not expected to be permanent*. Examples of such factors are changes in interest expenditure and altered taxes and subsidies. The other ground for departing from the rule of thumb is that, after a major deviation, a rapid return to the targeted rate may be rather costly for the real economy. If either of these situations applies, the magnitude of the deviation from the CPI target that may be motivated twelve to twenty-four months ahead is clarified by the Riksbank in advance.

## FACTORS BEHIND INFLATION

The Riksbank's assessment of inflation starts from a repo rate that is unchanged in the coming twenty-four months. The primary purpose of this technical assumption is educational – to clarify whether a repo rate adjustment is called for and, if so, in which direction. The factors that are of particular importance for the path of inflation in the coming twelve to twenty-four months are as follows.

*1) International activity and inflation*

In that Sweden's economy is highly dependent on foreign trade, external economic developments are an important consideration in the assessment of inflation.

*Economic activity* in the rest of the world affects demand for Swedish exports and is therefore a major item in the assessment of total demand. *External inflation* affects the price of imported goods in foreign currency, while *exchange rate movements* condition the extent to which changes in world market prices pass through to *import prices* in Swedish kronor. An appreciation of the krona tends to reduce the impact on domestic inflation from a given external price rise. The effect on domestic inflation is also conditioned by the development of profit margins on imports. Moreover, changes in world market prices that are not countered by exchange rate movements affect the competitive position for Swedish exports and this can have repercussions on the rate of wage increases and other production costs in Sweden.

*2) Demand relative to supply*

Demand that exceeds long-term production capacity normally generates inflationary pressure. Monetary policy therefore has to be gauged so that demand is kept as close as possible to the development of production capacity. A variety of indicators can be used to obtain an overall picture of the inflationary pressure that is emanating from demand in relation to supply. One of these indicators is industrial *capacity utilisation*, as measured for example in the National Institute's business tendency. Another is the *labour market situation*, where, for example, comparatively high wage increases despite high unemployment may indicate a limited possibility of enlarging total demand without incurring wage inflation. A third type of indicator is the *output gap* – an econometric estimate of the difference between GDP's registered and potential long-term levels.

The higher the level of production relative to potential output, the greater the probability of capacity shortages arising in parts of the economy. The occurrence of bottlenecks can therefore be a sign that output is approaching its potential long-term level. A shortage of a particular category of labour may be such a sign. A complication here, however, is that high demand and high wage increases for a certain category of labour can also result from better productivity and profitability compared with other activities. In that case, such wage increases are not a direct

inflationary threat, though they do call for efficient wage formation and labour market flexibility. Assessments must also allow for the fact that, in time, high investment, an increased labour supply or improved technology lead to increased production capacity.

Changes in demand do not, however, exert an influence on all prices through market mechanisms. Some prices are set by administrative decisions, based above all on the cost side or with a sizeable element of subsidy. Examples of fully or partly administered prices in Sweden are housing rents and charges for medical care and certain municipal services. One consequence for monetary policy is that for certain prices, the impact of interest rate adjustments is subject to particularly long lags. Monetary policy can influence these prices only through effects on the general development of costs, e.g. wages.<sup>36</sup>

### *3) Other cost shocks, effects of political decisions and interest expenditure*

Altered inflationary impulses can also be generated by cost increases that are specific instead of stemming from a general increase in world market prices or strong domestic demand. A price movement for primary products as a consequence of supply-side shocks is one example. Similar impulses can come in the form of changes in indirect taxes and subsidies, or from deregulations. Such inflationary impulses are mostly transitory in the sense that they often entail an immediate one-off change in the general price level; but they may have a lasting impact on the inflation process, in which case they will affect inflation expectations. In order to gauge trend inflation (inflation excluding transitory impulses), the Riksbank uses various indicators of underlying inflation, for example.

### *4) Inflation expectations*

High demand prompts producers to raise prices and employees to bargain for higher wages. But inflationary price and wage increases can also stem from high inflation expectations as such, because economic agents strive to maintain or increase their real income level. In this way, if confidence in monetary policy is lacking, inflation expectations are liable to be self-fulfilling.

When assessing the significance of inflation expectations for monetary policy, it must be born in mind that the expectations often relate to the prospect of a particular policy. The fact that inflation expectations are in line with the target does not therefore necessarily show that the monetary stance is well balanced—the expectations themselves may rest on a presumption that the instrumental rate is going to be adjusted.

<sup>36</sup> For an account of CPI prices that are set administratively, see *Inflation Report 1997:3*, box on p. 8.

The factors outlined above are those, which, according to accepted economic theory as well as practical experience, affect inflation. An analysis of these factors is accordingly an important component of the foundation for monetary policy decisions.

