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Foreword

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

This Inflation Report reproduces the main features of the presentations and discussions of inflation at the Executive Board meetings on 25 and 31 May 2000. The assessment of inflation presented here represents the Riksbank's overall appraisal of inflation prospects in the present situation. The Report constitutes the background to the Riksbank's monetary policy decision on 7 June 2000. Board members may differ in their opinions about how inflation's main determinants will develop and the resultant impact on future inflation. Any divergent opinions of inflation prospects are recorded in the separate minutes of the Board meeting on 7 June 2000, to be published on 28 June 2000.

The Inflation Report aims to provide a basis for monetary policy decisions and 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.

This Report presents the Riksbank's appraisal of the path of inflation up to the end of 2002 Q2. In order to bring out the consequences for monetary policy, the analysis assumes that the repo rate is kept unchanged in this period.

Chapter 1 presents recent consumer price tendencies in relation to the assessments in the March Report. The account in Chapter 2 concerns the most probable development of inflation's determinants. The chapter is structured to follow a simple inflation model and thereby provide a clear picture of the factors that are most relevant 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.

Stockholm, June 2000

Urban Bäckström
Governor of Sveriges Riksbank




Summary

Both CPI and UND1X inflation have been weaker than expected in the period since the March Inflation Report. In April the 12-month rate of CPI inflation was 1.1 per cent and UND1X inflation was 1.2 per cent. It is mainly prices for imported goods that have risen less than expected. Domestic price pressure has also been somewhat weaker than foreseen earlier.

International economic activity and inflation. The favourable prospects for international economic activity have been confirmed and the situation in the United States continues to exceed expectations. In the period 2000–02, annual growth in the OECD area is expected to average almost 3 per cent. Some slowdown in international growth is foreseen, however, towards the end of the period, mainly in connection with a fall-off in the U.S. economy. The price of oil is judged to be higher than expected at the time of the March Report but the profile still holds, with a successive lowering of crude oil prices during the forecast period. International consumer prices are also expected to rise marginally faster than foreseen in March; the higher oil price and somewhat more favourable economic prospects both contribute to this. But international prices for manufactured exports are judged to be somewhat weaker than assumed earlier, mainly in view of the unexpectedly weak price trend last year and signs of growing competitive pressure. The path of the *effective exchange rate* in the coming years matches the March assessment; in other words, the krona is expected, as before, to appreciate gradually. All in all, Swedish *import prices* to consumers are now judged to rise somewhat more slowly throughout the forecast period.

Domestic demand relative to supply. Growth prospects for the Swedish economy have not changed substantially since the time of the March Report but conditions for the growth of domestic demand have improved in certain respects. Factors that should lead to somewhat higher private consumption are a favourable development of income and wealth, and very high optimism about the future. Investment activity is stimulated in turn by, for example, good profitability and strong demand. Net exports, on the other hand, are expected to generate a somewhat smaller contribution to growth, partly due to higher import growth. All in all, GDP growth is expected to be 4.3 per cent this year, 3.5 per cent in 2001 and 2.9 per cent in 2002; this is a total of over 0.5 percentage points more than foreseen in the March Report. The comparatively high growth suggests that the economy's unutilised resources will be brought into production during the forecast period. With an expected increase in labour supply and somewhat



more favourable productivity growth, however, the risk of more widespread capacity restrictions is judged to be relatively limited. There are also signs that the unutilised resources have been underestimated earlier to some extent. Nominal wage increases, for example, were weaker than expected during 1999 and the early part of this year. But although resource utilisation in 1999 is now judged to have been somewhat lower, the upward adjustment of the growth forecast means that the shortage of resources in the coming years is expected to be much the same as foreseen in March.

The impression that various *deregulations* will subdue inflation has been strengthened to some extent since the March Report. As before, this is mainly due to stronger price pressure in the telecom market. The aggregate effect of deregulations in this market are now judged to subdue prices this year by an additional 0.1 percentage point.

Inflation expectations for the short as well as the long term remain in line with the inflation target. The comparatively low and stable expectations are judged to contribute to subdued inflationary pressure from the ongoing economic upswing.

Changes in *house mortgage interest expenditure* are judged to have some downward effect on CPI inflation this year, followed by a marginal effect in the rest of the forecast period. As there is no new information about *changes to indirect taxes and subsidies*, the contribution from this source is unchanged. The proposed maximum day nursery charge has been specified, however, and the introduction of the charge is scheduled for 2002. In the March Report it was assumed that the ceiling on this charge would lower CPI inflation by 0.1 percentage point in both 2001 and 2002. With the new proposal, the downward effect would not occur until 2002, when it is judged to amount to 0.3 percentage points. It is expected that the effect will be the same on UND1X inflation as on CPI inflation.

With the successively rising activity, domestic price pressure, measured as UNDINHX, will grow comparatively rapidly in the forecast period. Mainly as a result of the new maximum day nursery charge, however, the increase is somewhat smaller than forecast earlier. A somewhat more subdued development of import prices also contributes to lower UND1X inflation. All in all, UND1X inflation in the main scenario is judged to be 1.5 per cent one year ahead and 1.9 per cent after two years. A special aspect of the present inflation assessment is the introduction of a maximum day nursery charge. This has the effect of lowering inflation relatively markedly in 2002 but not after that.



The risk spectrum also has a bearing on the formation of monetary policy. Somewhat higher inflation than in the main scenario might result from a stronger development of domestic demand. Experience from the United States shows that production can grow for a series of years without any slackening tendencies. Moreover, the Government's Spring Bill indicates that fiscal policy may become more expansionary than is now assumed, even though it is judged that the major part of the effect on inflation would probably not arise in the present two-year forecast period. Another risk for inflation lies in wages. A wage outcome for 2001 and 2002 that is either higher or lower than the present forecast cannot yet be ruled out. There is, however, a small probability of a wage outcome that is appreciably above the forecast. Somewhat lower inflation is a possibility, as it was at the time of the March Report, if international growth is weaker on account of the imbalances that have accumulated in the U.S. economy in the form of low household saving, massive current-account deficits and high share prices. Another downside risk lies in the possibility that the relationship between growth and inflation will again turn out to be somewhat more favourable. Support for this is to be found, for example, in signs of some further improvement in productivity growth. All in all, the risk spectrum one year ahead is judged to be balanced, while two years ahead there is some predominance of upside risk, mainly in the greater probability of domestic demand being stronger. An upside risk means that when the risk spectrum is taken into account, forecast inflation is higher than the assessment in the main scenario.

The conclusion from the reported assessments is that, excluding transitory effects from indirect taxes and subsidies and taking the risk spectrum into account, inflation one year ahead will be below 2 per cent and on the target after two years.

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 the overall development of prices, followed by an analysis of price movements for the goods and services that are included in underlying inflation as measured by UND1X. Finally there is a discussion of consumer price effects from indirect taxes, subsidies and house mortgage interest expenditure.

The 12-month change rates for the consumer price index (CPI) and for underlying or core inflation as measured by UND1X have moved down in recent months and were 1.1 and 1.2 per cent, respectively, in April, which is lower than foreseen in the March Report. Domestic underlying inflation, measured by UNDINH, has also been weaker than expected earlier and was 0.8 per cent in April (Fig. 1).¹

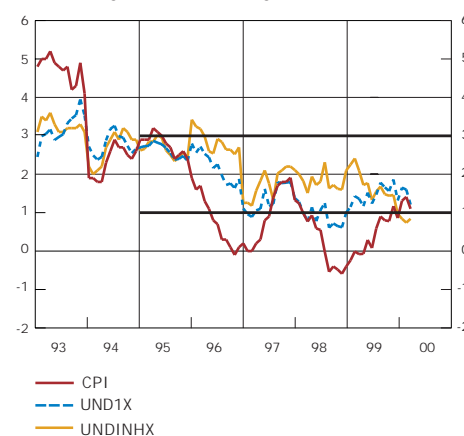
Inflation has been weaker than expected earlier.

The main explanation for the weaker consumer price tendency in recent months is that prices have fallen somewhat more than expected for petrol and domestic heating oil, which has to do with an unexpectedly marked drop in the world market price for crude oil. Moreover, in March and April the krona was somewhat stronger than foreseen earlier. A weaker price tendency for electricity and telecom products has also contributed to a subdued increase in consumer prices.

Although the latest business tendency survey indicates that more and more manufacturers are planning price increases, the recent development of producer prices suggests that in the coming months consumer prices may be somewhat lower than calculated earlier. On the other hand, oil prices have risen sharply in the past month and are currently higher than foreseen in the March assessment. Moreover, the oil price is judged to remain at a higher level in the coming months. At the same time, the assumption that price effects of increased competition in the telecom market will be somewhat larger than allowed for earlier represents a downward effect on inflation. All in all, the underlying price tendency in the short run is expected to be weaker than in the main scenario in the March Report. The weak overall price tendency conceals differences between components. The rate of price increases has slackened in recent months for goods as well as services, accompanied by a marginal acceleration for housing (Fig. 2).

1 UND1X is defined as the CPI excluding interest expenditure and direct effects of altered indirect taxes and subsidies; UNDINH is the CPI excluding interest expenditure, goods that are mainly imported and direct effects of altered domestic indirect taxes and subsidies.

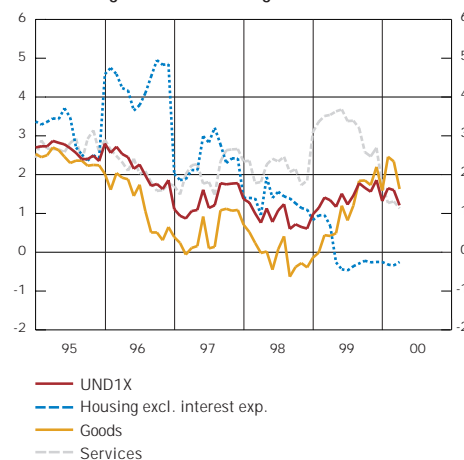
Figure 1. CPI and underlying inflation.
Percentage 12-month change



Note. The horizontal lines from 1995 onwards represent the Riksbank's tolerance interval for the change in the CPI.

Source: Statistics Sweden.

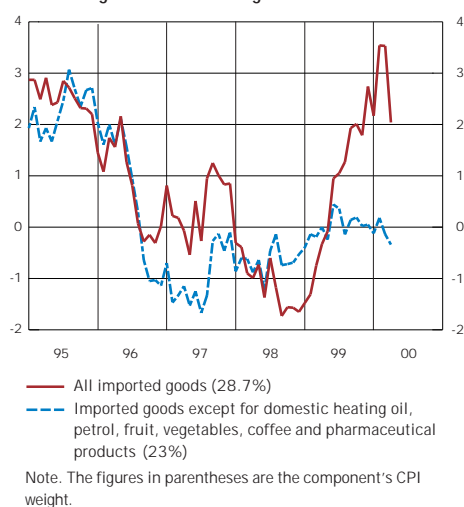
Figure 2. UND1X components: goods, services and housing.
Percentage 12-month change



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.

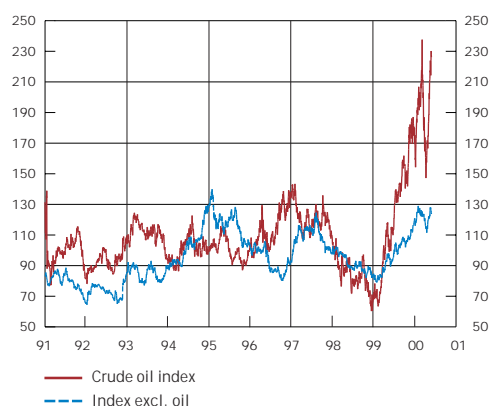
Source: Statistics Sweden.

Figure 3. CPI component: imported goods excluding indirect 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 29 May 2000.

Sources: Statistics Sweden and the Riksbank.

WEAK IMPORT PRICE TENDENCY

Consumer prices for goods that are mainly imported rose rapidly in the course of 1999 and the early part of this year. This development is mainly explained by sharp price increases for petrol and domestic heating oil in connection with rising crude oil prices (Figs. 3 and 4). In recent months, however, the rate of price increases for imported goods has slackened, mainly because the crude oil price dropped steeply during March and April. The unexpectedly strong development of the krona in this period was also of some importance.

The price tendency for imported goods has been weaker than expected, mainly due to falling oil prices and a stronger exchange rate.

Import prices to producers have also been weaker than expected in recent months. This is also partly a result of the price fall for crude oil in March and April but it also includes a weak price tendency for more manufactured products. Against this background, in the coming months consumer prices for imported goods are expected to remain somewhat weaker than assumed earlier.

SOME PRICE RISE FOR SWEDISH GOODS

Prices to consumers for more manufactured Swedish goods have been rising more rapidly in recent months and so have prices to producers for intermediate goods (Fig. 5). The latter indicates that consumer prices for Swedish manufactured products may tend to accelerate in the future; it is also in line with the latest business tendency survey from the National Institute of Economic Research, showing that price increases are planned by a growing proportion of manufacturing firms. As the planned price increases mainly refer to intermediate goods, the effect on consumer prices is judged to be slighter and more lagged than the impact of rising producer prices in later stages of processing, for example for consumer goods. And as home market producer prices have been broadly unchanged in recent months, in the short run the price tendency for Swedish goods is judged to be approximately in line with the assessment in March.

SERVICES PRICES HAVE BEEN WEAK

Prices for services usually rise faster than for goods (Fig. 2). This is partly because productivity gains in the production of services tend to be smaller than in the production of goods, while the development of wages is usually fairly similar. Moreover, the production of goods is more exposed to international competition. In addition, when the krona is appreciating there is a downward price effect for goods in that they have a considerably larger import content than services. In recent months, however, the opposite has applied: the 12-month price rise for goods has been higher than for services. The main

explanation is the rapid price rise for oil early in the year.

The 12-month change rate for services prices has been slackening gradually since the middle of 1999 and the rate in April this year was the lowest since 1993. The rate dropped markedly at the beginning of 2000 when it ceased to be affected by the increase in dental fees a year earlier. Otherwise it is successively lower prices for telecom services, for example, that have tended to subdue the price rise for services. This has more than countered an accelerating rise for prices that are set administratively (Fig. 6).

The slower price rise for services is largely a consequence of price reductions for telecom services.

The continued slowdown in the rate of price increases for services in recent months has come mainly from further price reductions for telecom products. The downward price pressure on telecom products is expected to continue this year and be somewhat stronger in the coming months than assumed earlier. The short-run price tendency in the services sector is therefore judged to be somewhat weaker than foreseen in the March Report.

HIGHER HOUSING COSTS

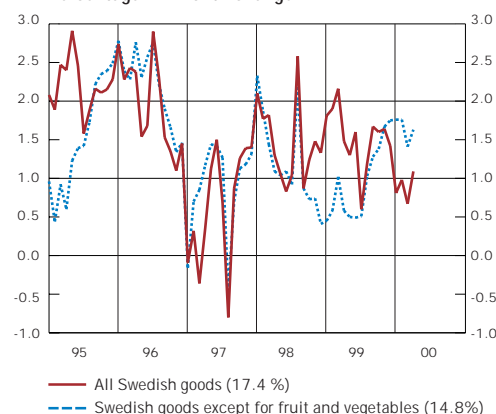
A considerable proportion of household expenditure on housing is subject to price controls and administrative decisions. Rents have recently risen slightly and show an upward 12-month tendency for the first time since the beginning of 1999 (Fig. 7). However, the impact of rising rents on aggregate housing costs was countered by lower electricity prices. Although housing costs have become somewhat higher in recent months, they remain lower than a year earlier. Part of the explanation is that Statistics Sweden has changed the way depreciation is measured for owner-occupied dwellings and this has resulted in a substantial reduction of the price change.

WEAK TENDENCY IN UNDERLYING INFLATION

One way of measuring underlying or core inflation involves excluding certain CPI components; examples are UND1X and UNDINHX. In March and April the 12-month change in UND1X in particular but also in UNDINHX was weaker than expected. In the short run the changes in both indexes are expected to continue to be lower than forecast in the March Report, partly due to stronger price pressure in the telecom market. UND1X inflation will also be subdued by the somewhat weaker price tendency for imported goods.

Another way of measuring underlying inflation involves using an econometrically estimated model. The underlying inflation indicator in Fig. 8 has components for demand and inflation expectations, respectively.² The results show a slight increase in underlying inflation during the course of 1999 as a consequence

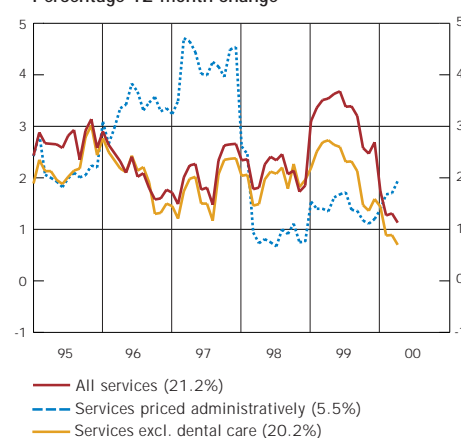
Figure 5. CPI component: Swedish goods excluding indirect taxes.
Percentage 12-month change



Note. The figures in parentheses are the component's CPI weight.

Source: Statistics Sweden.

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



Note. The figures in parentheses are the component's CPI weight.

Source: Statistics Sweden.

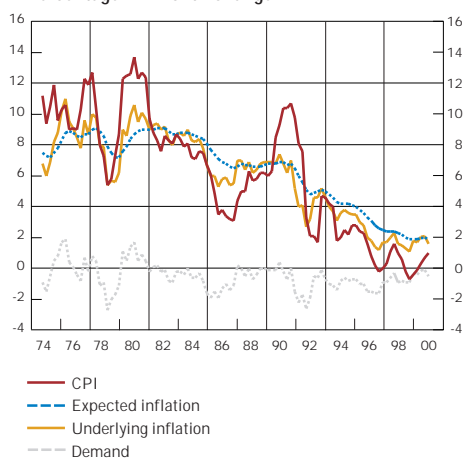
Figure 7. CPI component: housing excluding indirect taxes and interest expenditure.
Percentage 12-month change



Note. The figures in parentheses are the component's CPI weight.

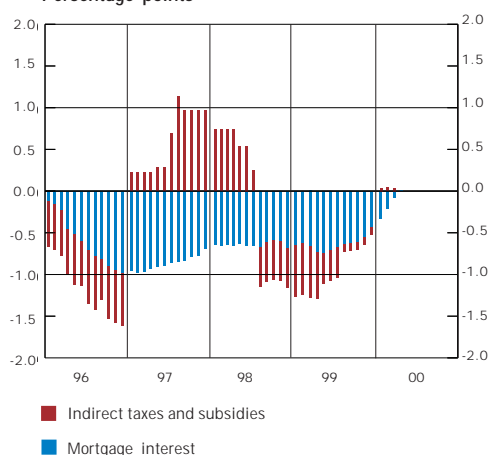
Source: Statistics Sweden.

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



Sources: Statistics Sweden and the Riksbank.

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



Source: Statistics Sweden.

of increased demand, while inflation expectations were largely unchanged around 2 per cent. Underlying inflation in 2000 Q1 is calculated to have been 1.8 per cent, which is somewhat less than in the previous quarter. The slowdown came mainly from a decreased contribution from the model's demand component. It should be noted, however, that as the estimations are based on forecasts of both GDP and the number of hours worked, the element of uncertainty is unusually great.

In recent years the model-based indicator of underlying inflation has followed much the same path as UNDINHX inflation. Recently, however, the change rate for UNDINHX has been about 1 percentage point lower than the model-based indicator because the former has been affected to a large extent by factors that the model does not catch, for example price effects from the deregulation of dental fees and the electricity and telecom markets.

HOUSEHOLD INTEREST

EXPENDITURE DAMPING INFLATION

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. The contribution to the 12-month change in the CPI from indirect taxes and subsidies has been marginal in recent months (Fig. 9). House mortgage interest expenditure has tended to hold back CPI inflation in the past year but the downward effect has been dwindling and in April it was negligible.

The main scenario's assumption of an unchanged repo rate entails some lowering of house mortgage rates from the current levels. The contribution from house mortgage interest expenditure would then be more or less negligible in the coming months.

To sum up, the change rates for the CPI and UND1X have been weaker than foreseen in the March Report, mainly due to lower prices for crude oil and telecom services. During the past month the price of crude oil has risen and the business tendency survey indicates that more and more manufacturing firms are planning price increases for intermediate goods. Lower price pressure is indicated, on the other hand, by the tendency for producer prices, particularly for imports, to be weaker than expected in recent months. All in all, the path of underlying prices in the coming months is judged to be weaker than foreseen in the March Report.

2 See *Inflation Report 1999:2*, box on pp. 51–52, or Apel, M. & Jansson, P. (1999), *A parametric approach for estimating core inflation and interpreting the inflation process*, Sveriges Riksbank Working Paper 80.

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 developments in the Swedish economy.

International activity and inflation

High growth is expected to characterise the global economy in the coming years. Of the major international markets, it is only Japan that has weak prospects. With the strong early months in the United States, international growth during 2000 is even expected to be somewhat higher than predicted earlier. Meanwhile, the recovery in the euro area has given levels of growth that are high, stable and expected to continue in the years ahead. All in all, growth in Sweden's markets abroad is expected to be somewhat stronger in 2000 but as there is still the prospect of a slowdown in the United States, the forecasts for 2001 and 2002 are largely unchanged. The recent global stock-market unrest is judged to act as just a slight damper on the U.S. economy and the earlier forecast had already allowed for that.

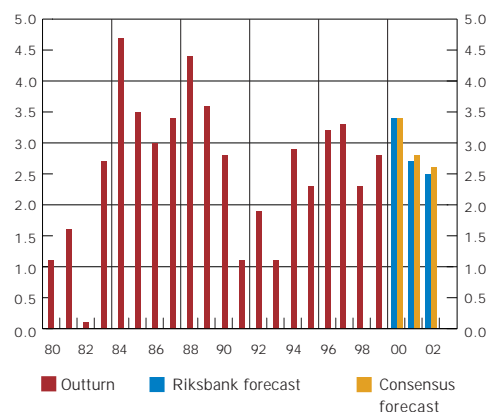
Table 1. International conditions.
Percentage annual change or annual level

	GDP			CPI		
	2000	2001	2002	2000	2001	2002
United States	4.5 (3.7)	2.9 (2.8)	2.4 (2.5)	2.8 (2.5)	2.5 (2.4)	2.5 (2.5)
Japan	1.1 (1.1)	1.5 (1.5)	2.0 (2.0)	0.0 (0.0)	0.6 (0.6)	1.0 (1.0)
Euro11	3.3 (3.3)	3.1 (3.1)	2.8 (2.8)	1.8 (1.6)	1.8 (1.7)	1.8 (1.8)
EU15	3.2 (3.2)	3.1 (3.1)	2.8 (2.0)	1.8 (1.7)	1.9 (1.8)	2.0 (2.0)
Sweden's TCW export markets	3.1 (3.0)	2.9 (2.9)	2.6 (2.6)	2.0 (1.8)	1.9 (1.9)	1.9 (1.9)
OECD 19	3.4 (3.4)	2.7 (2.6)	2.5 (2.5)	2.0 (1.8)	2.0 (2.0)	2.0 (2.0)
			2000	2001	2002	
Market growth for Swedish exports			7.3 (7.2)	7.1 (7.1)	6.2 (6.2)	
OECD area manuf. export price in national currency			1.3 (1.6)	1.5 (1.8)	1.6 (1.8)	
Crude oil price (USD/barrel Brent Blend)			25.8 (25.0)	22.1 (20.9)	20.6 (20.6)	

Note. The figures in parentheses are the change from the March Inflation Report.

Source: The Riksbank.

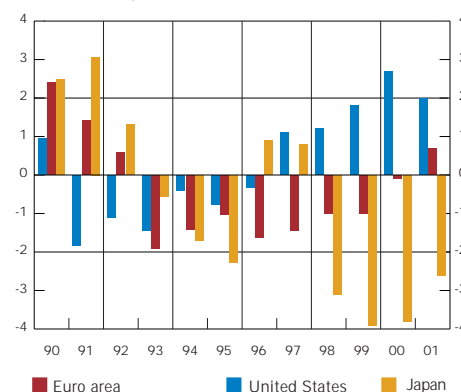
Figure 10. GDP growth in OECD area.
Per cent



Note. Consensus Forecast represents an average based on a survey of around 200 international forecasters; the forecast for 2002 is a weighted average of GDP forecasts for Canada, France, Germany, Italy, Japan, Netherlands, Norway, Spain, United Kingdom, United States.

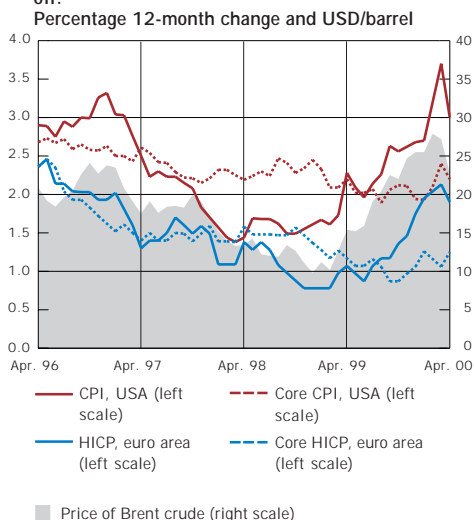
Sources: Consensus Forecast and the Riksbank.

Figure 11. Output gap.
Per cent of potential GDP



Source: OECD.

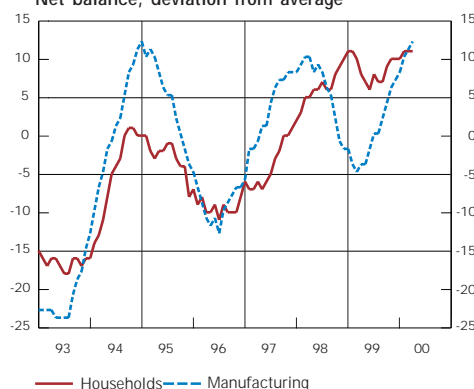
Figure 12. CPI and core inflation in the United States and the euro area and the price of crude oil.



Note. Core CPI defined in the euro area as the HICP excluding seasonally dependent food products and energy, and in the United States as the CPI less all food products and energy; the two are therefore not entirely comparable.

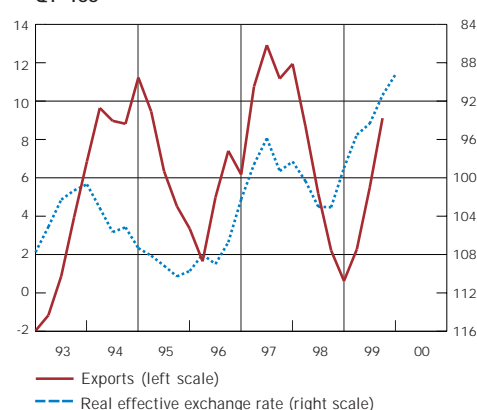
Sources: U.S. Bureau of Labor Statistics, Eurostat and Hanson and Partners AB.

Figure 13. EMU confidence indicators.
Net balance, deviation from average



Source: Eurostat.

Figure 14. Euro area: effective exchange rate and exports.
Percentage annual change and index: 1999 Q1=100



Note. The real effective exchange rate is the trade-weighted price level of the euro area's main trading partners, measured in euro, relative to the price level of the euro area.

Sources: ECB and Eurostat.

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International growth is expected to be somewhat higher in 2000.

Inflation in the major industrialised countries is still being driven upwards by the oil price rise but as the oil price is expected to fall back in the coming years, the rate of inflation should be subdued again. Excluding energy prices, inflation has remained low in the euro area notwithstanding the weak euro, whereas underlying inflation in the United States shows an increasingly clear upward trend (Fig. 12). Fears that the strong growth will lead to greater price pressure in the future have been countered with interest rate hikes in Europe as well as the United States. All in all, therefore, the international forecast for consumer prices has been adjusted only marginally upwards for 2000 and is unchanged for the coming years.

International inflation is marginally higher this year.

It is not just the price of oil but also prices for other commodities and intermediate goods that have risen rapidly in recent years. However, international export prices for manufactured goods have remained low in national currencies, a major underlying factor here being increased international competition. And as inflation abroad, excluding oil prices, is expected to remain low (with a faster price rise for services than for manufactured goods), some downward revision of international export prices has been made for the entire period 2000–02. But the price rise for exports is still expected to accelerate as global resource utilisation rises and the higher prices for commodities and intermediate goods leave their mark (Table 1).

Lower prices for manufactured exports due to increased competition.

ACTIVITY IN EUROPE HIGH AND STABLE

Economic prospects in the euro area are currently better than for a number of years. Activity is continuing to strengthen in line with the earlier forecast and the forward indicators are characterised by positive expectations among households as well as firms (Fig. 13). Moreover, the optimism has now spread to sectors, such as retail trade, that were previously weak. At the same time, the GDP contribution from net exports is judged to be positive both this year and next now that European exports are benefiting from the strong international activity and the depreciating euro (Fig. 14). The economic upswing has also contributed to an increasingly strong labour market, with declining unemployment, and this in turn is supporting the positive mood among households. In the period 2000–02 GDP growth in the euro area is judged to remain at an annual rate around 3 per cent.

Strong exports and high consumer confidence are consolidating the recovery in the euro area.

Both consumer and producer prices in the euro area have gone on rising at an accelerating rate. This was expected but is still

almost entirely a result of rising oil prices. Excluding the oil price rise, the inflationary tendencies are very moderate and even expectations of inflation in coming years remain low. Only minor price increases are discernible after the weakening of the euro had contributed higher import prices.

In keeping with earlier forecasts, however, in the coming years it is envisaged that the high growth and rising resource utilisation will result in gradually rising inflationary pressure in the euro area. But inflation should be subdued by a number of factors: higher productivity growth, growing price competition, new moderate wage agreements (in Germany, for instance), and tighter monetary conditions in the form of interest rate hikes as well as an appreciation of the euro. All in all, therefore, the annual rate of inflation in the euro area is judged to be below 2 per cent even towards the end of the forecast period.

Underlying inflation in the euro area will remain low.

In the United Kingdom, growth is continuing at a good rate but the dual situation is becoming more pronounced. Private consumption is still rising strongly, underpinned by good employment and high asset prices, whereas exports are being held back by the strong pound. It looks as though the weak exports have checked the recovery in manufacturing and this is judged to result in somewhat lower future growth, with weaker investment and labour demand, in keeping with the earlier forecast. At the same time, the strong pound continues to hold inflation down.

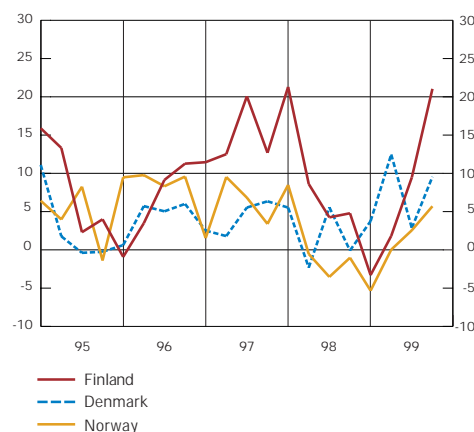
The Nordic economies are again exceeding expectations.

The growth tendencies in the Nordic area are continuing to exceed expectations and it looks as though inflation will also be higher than foreseen earlier. In Finland, export industries are continuing their successful performance (Fig. 15) but GDP growth is being increasingly generated by household consumption as a result of higher employment, tax cuts and high house and share prices. Consumer prices have been rising faster in recent months on account of the weak euro, the price of oil and rising prices for services, but inflation is expected to fall back again in 2001–02. Some recovery in Norway is apparent for exports as well as the domestic market. The main cause for concern is effects of the high private sector wage increases after the major strike in May, which led in turn to corresponding wage increases in the public sector. In Denmark the dual situation is becoming increasingly pronounced, with a strong export sector and a persistently weak domestic market. But consumer confidence is picking up and should stimulate the domestic market in the coming years. Denmark also stands out among the Nordic countries for the very marked pass-through from higher oil prices to consumer prices.

STRONGER GROWTH IN U.S.A. BEFORE A SOFT LANDING

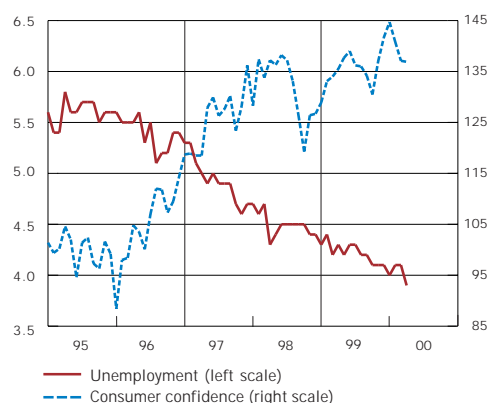
In view of the strong outcome in the latter part of 1999 and the beginning of 2000, this year's growth in the United State again looks like being considerably higher than was forecast earlier.

Figure 15. Exports from Nordic countries. Percentage annual change



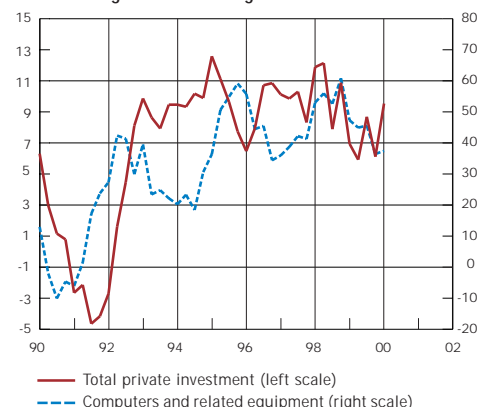
Sources: Danmarks Statistik, Statistikcentralen Finland and Statistisk Sentralbyrå Norge.

Figure 16. United States: unemployment and consumer confidence. Per cent of labour force and index



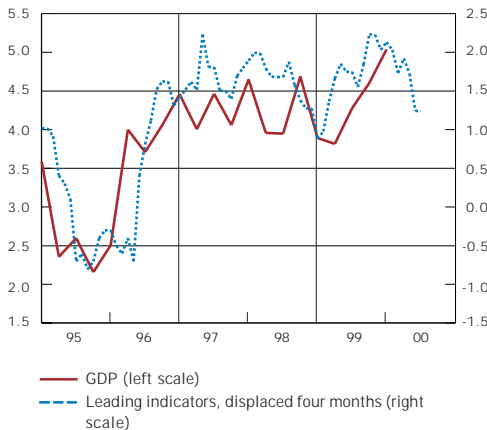
Sources: U.S. Bureau of Labour Statistics and Conference Board.

Figure 17. United States: investment. Percentage annual change



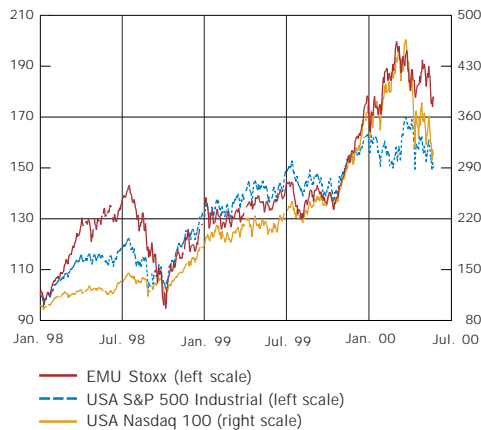
Source: U.S. Department of Commerce.

Figure 18. United States: leading indicators and GDP. Percentage annual change



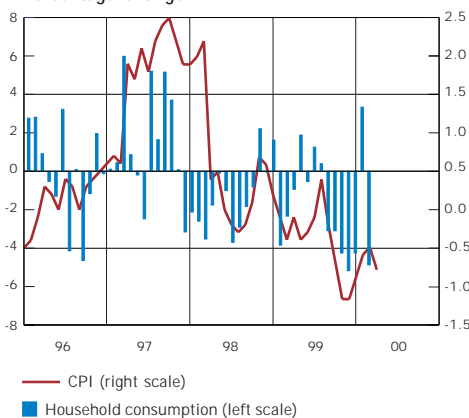
Source: U.S. Department of Commerce.

Figure 19. Major stock exchange indexes. Index



Source: Hanson & Partners AB.

Figure 20. Japan: household consumption and CPI. Percentage change



Source: Management & Coordination Agency.

The growth is being driven, as before, mainly by a high household consumption propensity, underpinned by comparatively high productivity growth and exceedingly low unemployment (Fig. 16). Private investment has also risen rapidly, not least in the IT sector (Fig. 17), and this has contributed to the good productivity growth. Although this year's trend is strong, it still seems likely that growth will slacken in the coming two years; leading growth indicators, for example, point in that direction (Fig. 18).

Considerably stronger growth in the United States in 2000.

There are more and more signs that the U.S. economy can no longer maintain the high growth in recent years without generating inflationary tendencies. While it is true that the mounting inflationary pressure in the last few months is largely a consequence of the oil price rise, inflation has picked up even excluding oil. Part of the reason is price increases for services on account of, for example, the increasingly strained labour market. As expectations of higher inflation and increased labour costs are liable to result in a further acceleration of inflation, some upward adjustment has been made to the forecast for 2000.

Some signs of overheating in the United States.

It is partly the risk of overheating that has prompted the Federal Reserve to raise the instrumental rate six times since last summer, by a total of 1.75 percentage points to 6.50 per cent. The higher interest rates are likely to subdue household consumption and so is the recent stock market fall, which in turn is considered to be connected to some extent with concern about interest rate hikes (Fig. 19). At the same time, rising costs for labour as well as financing will no doubt contribute to impaired profitability and weaker investment growth.

PROSPECTS IN JAPAN COLOURED BY UNCERTAINTY

After a very weak end to 1999, the outlook in Japan now shows some positive signs, with stronger tendencies for manufacturing and exports. But household consumption will remain weak and even with the oil price rise, prices tendencies are characterised by deflation (Fig. 20). The modest recovery has been dependent on massive government spending programmes that have entailed rapidly growing government debt and can therefore hardly be repeated in the years ahead.

The recovery in Japan is expected to be slow and hesitant.

The emerging markets are making a growing contribution to the renewed rapid expansion of international trade. The economies that were hit by the Asian crisis have now recovered and the high growth rates from the mid 1990s have been restored in a number of key Asian countries. A quick recovery in Central and Eastern Europe, with a persistently strong trend in Russia, is being led by manufactured exports. The broad recovery in Latin America is supported by more stable fiscal and monetary policies in the major countries: Brazil, Mexico and Argentina.

Interest rates and exchange rate

SOMEWHAT LOWER SWEDISH BOND RATES

European bond rates are much the same as at the time of the March Inflation Report, while rates in the United States have tended to move up, so that the gap between the two has widened still more (Fig. 21).³

Narrower difference between Swedish and German bond rates.

The Swedish ten-year T-bond rate has fallen, on the other hand, by about 0.2 percentage points to about 5.3 per cent. The comparatively strong government finances and subdued inflation prospects have paved the way for this and the repayment of government bond debt, occasioned in part by the sale of Telia shares, has been an additional factor. The ten-year interest rate differential between Sweden and Germany has accordingly gone on narrowing and has even been negative recently (Fig. 22).

The forward ten-year bond rate differential with Germany has moved in the same direction and is currently about -0.4 percentage points or somewhat more negative than at the time of the March Report. This suggests that confidence in Swedish economic policy remains strong.

EXPECTATIONS OF FUTURE MONETARY POLICY TIGHTENING

The repo rate is unchanged since the March Report at 3.75 per cent. Survey data as well as money market pricing indicate expectations of future monetary policy tightening, though the repo rate increase is now predicted to be somewhat more gradual (Table 2, Fig. 23). In the latest survey from Statistics Sweden market players expect the repo rate will be raised to 4.0 per cent in the coming three months, to 4.65 per cent one year ahead and to 4.95 per cent after two years.

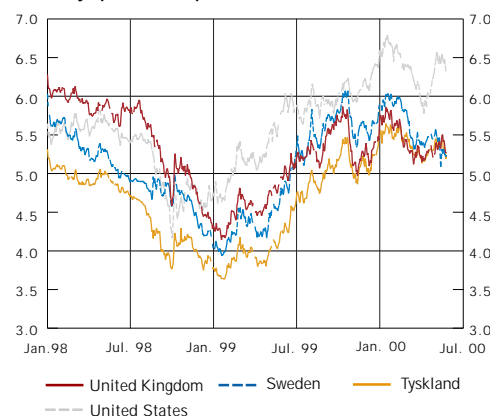
Table 2. Interest and exchange rate expectations of money market agents in May 2000.
Median, percent and index: 18 November 1992=100

	3 months	1 year	2 years
Repo rate	4.00 (4.25)	4.65 (4.75)	4.95 (5.00)
TCW index	121.0 (123.0)	120.0 (120.0)	120.0 (120.0)
SEK/EUR	8.25 (8.45)	8.32 (8.40)	8.35 (8.40)

Note. The surveys were done on 15 May and 9 March 2000; the March figures are in parentheses.

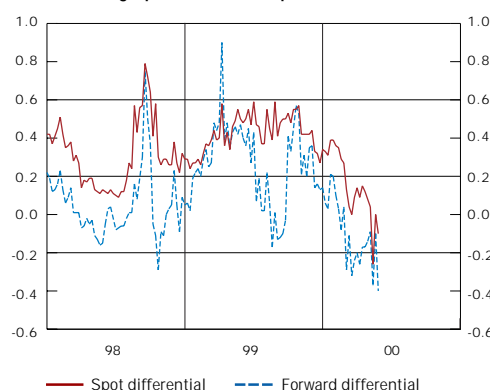
Source: Statistics Sweden.

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



Source: The Riksbank.

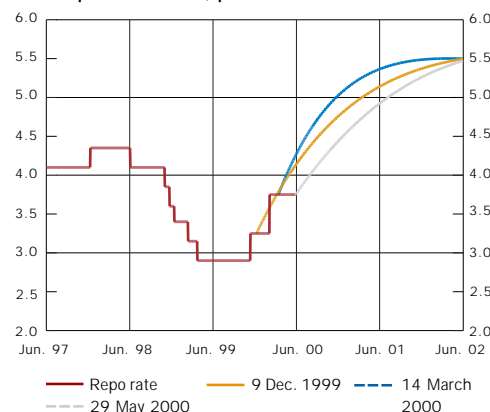
Figure 22. Ten-year spot and forward rate differentials with Germany.
Percentage points, zero coupon



Note. Interest rates estimated with the extended Nelson & Siegel method.

Source: The Riksbank.

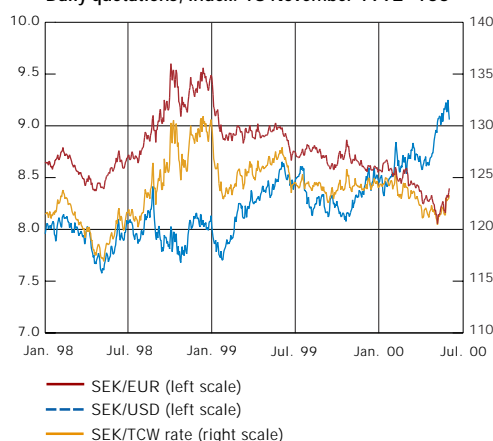
Figure 23. Repo rate and expected rate implied by forward interest rates.
Simple annual rate, per cent



Source: The Riksbank.

3 The cut-off date for all interest and exchange rates in 29 May 2000.

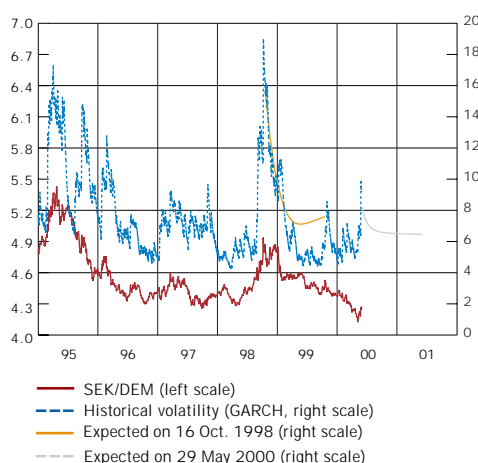
Figure 24. Nominal effective TCW exchange rate for SEK, SEK/USD rate and SEK/EUR rate. Daily quotations, index: 18 November 1992=100



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.

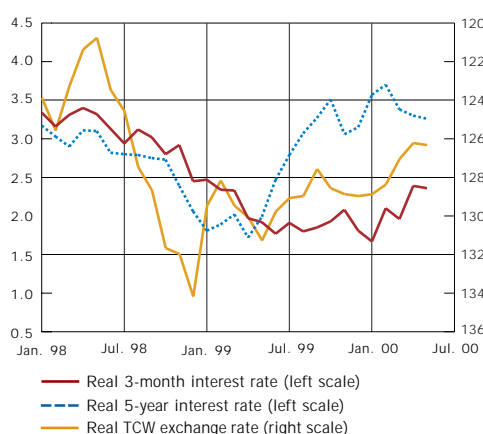
Source: The Riksbank.

Figure 25. SEK/DEM rate and its historical and expected volatility. Per cent



Source: The Riksbank.

Figure 26. Real interest and exchange rates. Per cent and index: 18 November 1992=100



Source: The Riksbank.

Exchange rate broadly unchanged since the March report.

In recent months the krona's TCW index has fluctuated in the interval 120–124 and the level is approximately the same as at the time of the March Report. The krona is broadly unchanged against the euro, about 1 per cent stronger against sterling and about 4 per cent weaker against the U.S. dollar (Fig. 24).

Since the middle of March the SEK/EUR rate has become more volatile (Fig. 25). This could be a sign that the krona will weaken against the euro in connection with an appreciation of the euro against both the U.S. dollar and sterling. Option prices suggest, however, that SEK/EUR volatility is expected to become somewhat less marked in the near future.

The real short-term interest rate has risen about 0.1 percentage point, to about 2.4 per cent, since the March Report as a consequence of the lower inflation expectations.⁴ The real long-term interest rate has fallen about 0.2 percentage points in this period to about 3.3 per cent because the nominal long-term interest rate has moved down. The real exchange rate has hardly changed (Fig. 26).⁵ Thus, the combined effect on demand from interest rates and the exchange rate is broadly unchanged.

ASSESSMENT OF INTEREST RATES AND EXCHANGE RATE

As the repo rate has not been adjusted since the March Report, the forecast is based on a broadly unchanged level of nominal short-term interest rates.⁶ The forecast long-term interest rate is adjusted marginally downwards for the first year of the forecast period but two years ahead it is unchanged at around 5.7 per cent.

The path of the krona is judged to be broadly the same as foreseen in the March Report. In the main scenario the TCW index is judged to be about 121 one year from now and just over 118 after two years. In keeping with earlier assessments, the appreciation is expected to come mainly in relation to the U.S. dollar and sterling, while the krona remains comparatively stable against the euro.

The combined economic impact of interest rates and the exchange rate in the forecast period is judged to be much the same as foreseen in the March Report. It is envisaged that the appreciating krona and somewhat higher long-term interest rates will successively reduce the expansionary effect on demand.

- 4 The monthly average of the nominal three-month T-bill rate adjusted for the CPI change that households expect in the coming twelve months (HPI data). The average T-bill rate for May is based on the period through 29 May.
- 5 The average monthly level of the five-year T-bond rate adjusted for the rate of inflation in the coming five years that financial investors expect according to Aragon's latest survey. The T-bond rate for May is based on the period through 29 May. The series for the real exchange rate has been updated with the change in the average nominal TCW exchange rate between April and May (1–29).
- 6 The assumption of an unchanged repo rate applies up to the end of 2002 Q2, after which the repo rate is assumed to return to the path indicated by market expectations.

Import prices

The development of import prices to producers as well as consumers is largely dependent on the krona's exchange rate and the level of international prices.

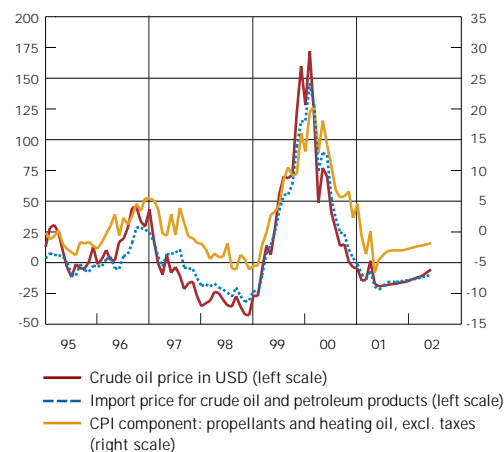
In the March Report it was assumed that the average barrel price of crude oil would rise to USD 25 during 2000 and then fall back successively to USD 20.9 in 2001 and USD 20.6 in 2002. Since then the oil price has first fallen steeply and then risen again. The price fall occurred in connection with the March OPEC meeting's decision to raise production quotas. The meeting also resolved that quotas would be raised/lowered automatically if the barrel price moves above/below the interval USD 22–28. At present there is great uncertainty as to whether OPEC will implement further increases in production, increases that many observers consider will be needed to meet growing demand at the end of the year. Prices have therefore started to rise again and are currently around USD 29 a barrel. All in all, it is now judged that the barrel price of oil will fall back gradually to just over USD 24 at the end of 2000 and to just under USD 21 at the end of the forecast period (Fig. 27). Compared with the March Report, the forecast average oil price has been adjusted upwards about USD 1 for both 2000 and 2001 but the price at the end of the forecast period is much the same as foreseen in March (Table 1). For other commodities it is considered that the marked price rise in the past year will tend to slacken so that it is marginally weaker than forecast in the March Report.

Even with higher oil prices, import prices to consumers are expected to show a weaker tendency.

With the new oil price forecast and compared with the assumption in the March Report, prices to producers as well as consumers for petroleum-related imports rise somewhat more in the early part of the forecast period and fall somewhat more later on. But the higher oil price is offset by the weaker development of international prices for manufactured exports. For CPI prices for imported goods it is also necessary to assess the pass-through from producer prices. During the past year, the extent to which rising producer prices have led to increased consumer prices has been less than expected, which is probably due in part to stronger competition. In view of the growing price competition and the weaker trend for international export prices, import prices to consumers have been revised downwards to some extent throughout the forecast period (Fig. 28).

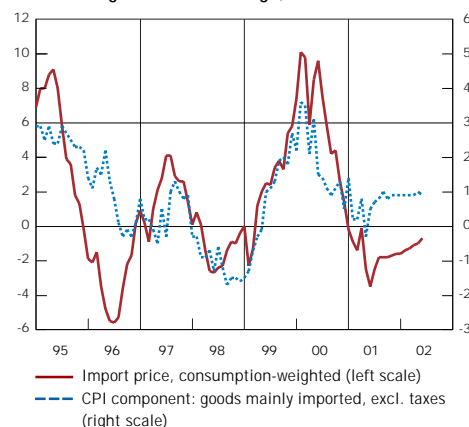
To sum up, a subdued price trend for international exports in national currencies, together with increased competition, means that, compared with the assessment in the March Report, the path of import prices to consumers is somewhat weaker in the years ahead. The consumer price level for imported goods is judged to rise 0.7 per cent in 2000, 0.8 per cent in 2001 and 0.9 per cent in 2002. Compared with the March Report, for each year this is a downward adjustment of about 0.5 percentage points.

Figure 27. Crude oil and petroleum product prices.
Percentage 12-month change, 2000–02 forecast



Sources: International Petroleum Exchange, Statistics Sweden and the Riksbank.

Figure 28. Import prices to producers and consumers.
Percentage 12-month change, 2000–02 forecast

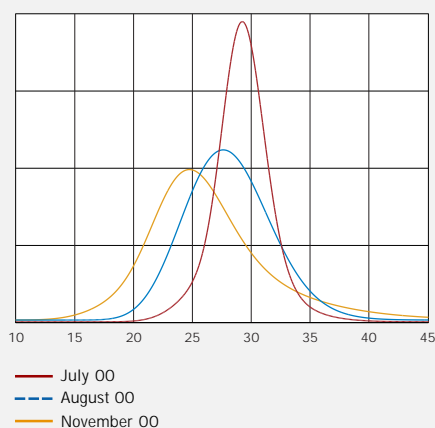


Note. CPI goods that are mainly imported include a considerable proportion of services, for example transportation and retail trade.

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

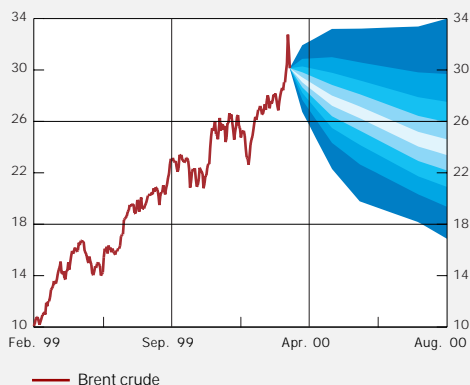
THE OIL MARKET'S PRICE EXPECTATIONS

Figure B1. Implied oil price distributions on 26 May 2000 for selected maturities.



Sources: IPE and the Riksbank.

Figure B2. Crude oil price (Brent crude), with uncertainty interval on 10 March 2000.



Note. The darkest band denotes the price range that is expected to apply at the given date and covers 10 per cent of the probability; each successive pair of bands covers an additional 20 per cent of the probability, so that the outermost pair encloses 90 per cent.

Sources: IPE and the Riksbank.

The sharp price increase for crude oil in the past year has brought the petroleum market back into the limelight. An illustration of how market expectations of future prices can be derived from option pricing is presented here.

A picture of market expectations can also be extracted from crude oil futures but only in terms of the future price level. Futures do not yield information about either the degree of future price uncertainty or whether the perceived risk is predominantly upside or downside.

Prices for derivative instruments, on the other hand, can be used to obtain information about market assessments of both the degree of uncertainty and any asymmetries in risk assessments.⁷ Implied probability distributions can be estimated on the basis of these option prices.⁸ Estimated probability distributions for three maturities on 26 May 2000 are shown in Fig. B1. The curves represent the market's appraisal of the probability distribution of the crude oil price when the options mature.

Fig. B1 clearly shows that the dispersion of the distribution increases with the time to maturity, which is natural in that a more distant horizon normally entails greater uncertainty. The spot barrel price when the distributions were estimated was USD 29.94. The distributions for August and November are centred on a lower price level, which indicates market expectations of a future price fall. Moreover, the implied distributions for August and November are both positively skewed (more probability mass in the right-hand tail than the left-hand). This can be taken to represent market perceptions of a predominantly upside risk; in other words, a price above the most probable level is considered more likely than a lower price.

An alternative way of illustrating market expectations extracted from option prices is shown in Fig. B2. The curve describes the path of the oil price

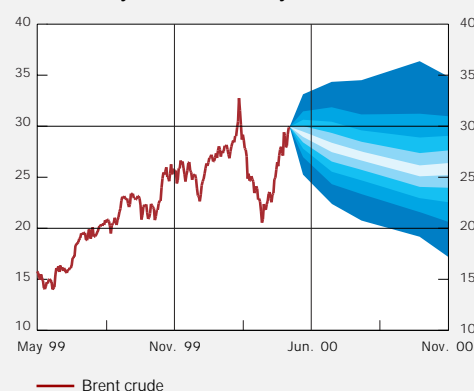
7 Crude oil futures and options with Brent crude futures as the underlying asset are traded on the International Petroleum Exchange, one of the world's leading bourses for petroleum derivatives.

8 The distributions are estimated as an average of two lognormal distributions. See Aguilar, J. & Hördahl, P. (1999), Option prices and market expectations, *Quarterly Review* 1, Sveriges Riksbank.

from February 1999 up to 10 March 2000, followed by the confidence interval for the future price (from 10 March onwards). At the beginning of March 2000 the spot oil price was above USD 30 a barrel. There was concern that the OPEC meeting on 27 March would not result in a sufficiently large increase in production and thereby lower oil prices. Even so, it is evident that the market expected a steep price fall. The risk spectrum, however, seems to have been perceived as somewhat asymmetric, with a greater risk of a higher price; the asymmetry is represented by the upper confidence bands being wider than the lower.

After the OPEC meeting in March the oil price dropped steeply but later it turned upwards again and is currently around USD 30 a barrel. From Fig. B3 it will be seen that on 26 May, market players expected the barrel price of oil to fall in the coming six months to just over USD 25. But the risk spectrum still seems to be asymmetric, with a greater risk of a higher price; this is probably because OPEC has signalled its intention of not deciding on a production hike at the June meeting.

Figure B3. Crude oil price (Brent crude), with uncertainty interval on 26 May 2000.



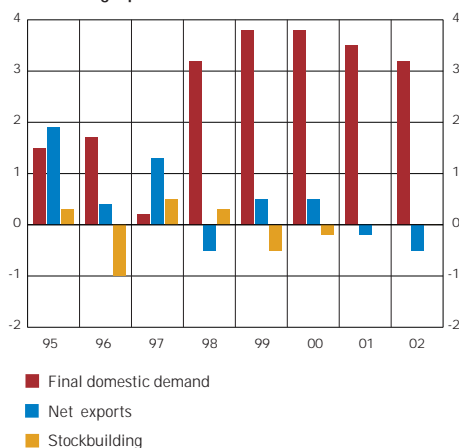
Note. The darkest band denotes the price range that is expected to apply at the given date and covers 10 per cent of the probability; each successive pair of bands covers an additional 20 per cent of the probability, so that the outermost pair encloses 90 per cent.

Sources: IPE and the Riksbank.

Demand and supply

SUMMARY OF GDP GROWTH 2000-02

Figure 29. Contributions to GDP growth.
Percentage points



Note. 2000-02 forecast.

Sources: Statistics Sweden and the Riksbank.

Developments in recent months do not call for any appreciable revision of growth prospects in the Swedish economy. The picture of a strong, stable economic upswing, marked in particular by rising domestic demand, is essentially unchanged from the March Report.

This year the somewhat stronger international activity is expected to contribute to a marginally higher demand for Swedish exports. On the other hand, a somewhat slower price rise is foreseen for international exports. All in all, the growth of total exports in the forecast period is expected to be marginally weaker, while import growth is somewhat stronger. The revisions imply a somewhat smaller GDP contribution from net exports in 2001 and 2002.

The forecast for domestic demand growth has changed in some respects. Private consumption is now expected to rise somewhat faster in the forecast period as a result of a favourable trend for income and wealth, together with widespread household optimism. Investment in turn should be stimulated by good profitability and strong demand. This is accompanied by the prospect of a somewhat slower increase in employment this year and somewhat higher productivity growth. But towards the end of the forecast period the higher growth should contribute to a somewhat stronger expansion of employment.

Against this background and assuming an unchanged repo rate, GDP growth is expected to be 4.3 per cent in 2000, 3.5 per cent in 2001 and 2.9 per cent in 2002 (Fig. 29, Table 3).

Table 3. Demand and supply in the main scenario.

Percentage annual change

	1999	2000	2001	2002
Household consumption	4.1	4.3 (4.1)	3.8 (3.6)	3.6 (3.1)
Public authorities consumption	1.8	1.6 (1.4)	1.4 (1.4)	1.0 (1.0)
Gross fixed capital formation	8.1	8.6 (8.0)	8.0 (6.9)	7.0 (5.6)
Stockbuilding*	-0.5	-0.2 (-0.2)	0.0 (0.0)	0.0 (0.0)
Exports	5.2	7.2 (7.1)	6.1 (6.2)	4.8 (4.9)
Imports	5.0	7.0 (6.9)	7.4 (6.8)	6.6 (6.2)
GDP	3.8	4.3 (4.0)	3.5 (3.5)	2.9 (2.6)

*Contribution to GDP growth in percentage points.

Note. 2000-02 forecast; the figures in parentheses are the assessment in the March Report.

Sources: Statistics Sweden and the Riksbank.

FOREIGN TRADE

According to the foreign trade statistics for the first four months of 2000, the volume increase from the corresponding period a year earlier was about 8 per cent for exports of goods and just under 7 per cent for imports, which is in line with the assessment in the March Report.

The appraisal of future exports has not changed appreciably since the March Report. Growth in the forecast period is still expected to be comparatively high. A persistently good level of

export orders is evident both from data from Statistics Sweden and from the National Institute's business tendency surveys. Moreover, the growth of industrial production has been comparatively high.

The assessment of export market growth is much the same as at the time of the March Report. The stronger U.S. economy admittedly favours market growth this year but the overall effect of this is only marginal. This points to growth above 7 per cent in this and the coming year, followed by over 6 per cent in 2002 (Table 1).

The international competitive position of Swedish manufacturing is expected to develop somewhat less favourably than forecast in March. This is mainly due to the prospect of a somewhat slower international price rise for exports. The negative effects on competitiveness are judged to be only partly offset by restrained price increases for Swedish exports.

A marginally smaller GDP contribution is expected from net exports, above all towards the end of the forecast period.

All in all, exports are expected to rise 7 per cent in 2000, 6 per cent in 2001 and just under 5 per cent in 2002. This is a marginal upward adjustment of the forecast for 2000 and some downward revision for both 2001 and 2002.

Domestic demand is judged to be somewhat stronger than forecast earlier, accompanied by a somewhat slower price rise for imports. In addition to these favourable factors for imports, there is the prospect of generally higher demand for services in technology-intensive export industries. Against this background, import growth is expected to be 7 per cent in 2000, just over 7 per cent in 2001 and just over 6.5 per cent in 2002.

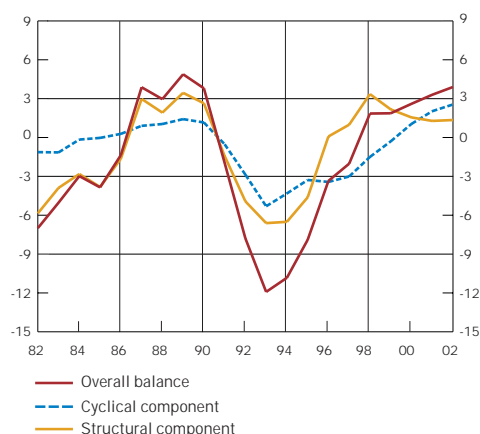
All in all, compared with the assessment in the March Report, the contribution to GDP growth from net exports is now judged to be somewhat smaller.

FISCAL POLICY

The public sector's finances have been strengthened appreciably in recent years. The financial balance, measured as public sector revenues net of expenditures, has improved, mainly due to a necessary consolidation of the public finances but also in connection with the successive economic recovery. Two goals have guided fiscal policy in recent years: a nominal ceiling on central government spending excluding debt interest and a target for the annual public sector surplus, which is to average 2 per cent of GDP over the business cycle.

The Spring Bill, presented recently, does not represent any crucial change in the general direction of fiscal policy. The budget policy goals still apply. However, the spending ceiling has been revised upwards by a total of SEK 5 billion for 2001 and 2002, accompanied by the re-classification of certain expenditures as decreased revenue, which is something of a departure from the principles behind the spending ceiling.

Figure 30. Consolidated public sector financial balance, cyclical and structural components. Per cent of GDP



Note. Riksbank forecast for 2000-02. The structural balance is calculated as the difference between the consolidated public sector's total and cyclical financial balances; the calculation of the cyclical balance starts in turn from output gap estimates obtained with the Unobserved Components method.

Sources: Statistics Sweden and the Riksbank.

The favourable economic situation, with a growing tax base in the local government sector, has led to some upward adjustment of public consumption's growth this year. Otherwise the public consumption forecast is the same as at the time of the March Report. Public consumption expenditure is expected to rise in real terms but to go on falling relative to GDP.⁹

Last autumn's Budget Bill included proposals that weaken the balance for 2000 by a total of SEK 16 billion, of which SEK 12 billion in the form of tax cuts to households. Including the proposals in the Spring Bill, the balance for 2001 is calculated to be weakened by a further SEK 13 billion, of which SEK 4 billion in the form of tax relief for households.

Table 4. Proposals that weaken the budget (1999 Budget Bill and 2000 Spring Bill). SEK billion

	2000	2001	2002
Budget Bill	16.5	24.7	19.2
Spring Bill		4.5	9.2
Total	16.5	29.2	28.4
Change from previous year	16.5	12.7	-0.8

Source: Ministry of Finance.

In the Spring Bill it was also calculated that for 2003 the so-called technical transfer (the surplus in excess of the targeted surplus of 2 per cent of GDP) would amount to SEK 59 billion, which is equivalent to 3 per cent of GDP. However, in view of the uncertainty about the economic future, the economy's underlying potential growth rate and wage formation, the Government decided to wait until next autumn's budget bill before deciding the timing and size of any further transfers to households, for instance in the form of additional tax cuts.

The public sector financial surplus in the forecast period is now expected to be somewhat larger, mainly as a result of cyclical factors.

In the main scenario the Riksbank incorporates the decisions that have been made in accordance with the Government's proposals (Table 4). Thus, the scenario does not allow for any additional transfers to households that arise from the surplus exceeding 2 per cent of GDP. Under these conditions, the public sector's financial surplus is calculated to be equivalent to 2.6 per cent of GDP in 2000, 3.3 per cent in 2001 and 3.9 per cent in 2002. The effects of a more expansionary fiscal policy on growth and inflation are considered in Chapter 3.

The Riksbank's calculations of the public sector's cyclical and structural financial balances point to some weakening of the structural balance in the forecast period. According to these figures,

⁹ As the Church of Sweden has been separated from the State as of 2000, in the national accounts it is no longer included in the public sector. This reduces public consumption this year by SEK 10 billion or 1.9 per cent. In future the finances of the Church of Sweden are assigned to the household sector and accordingly raise the level of private consumption by about 1 per cent. The calculations in the Report disregard this sectoral transfer.

tax cuts of the magnitude outlined in the Spring Bill would weaken the long-term structural surplus even more (Fig. 30).¹⁰

HOUSEHOLD CONSUMPTION

Household expenditure on consumption rose in 1999, according to the national accounts, by 4.1 per cent from the year before, which is the highest annual rate since 1987. The growth came mainly from purchases of durables, cars in particular (Fig. 31), and it accelerated during the second half-year, partly due to temporary tax relief connected with car purchases. An indicator of consumer demand in the short run is the narrow money supply (M0), which rose 8.4 per cent in April this year (Fig. 35). The broad money aggregate (M3) also rose almost 10 per cent. This suggests that the strong consumption trend has continued in the early part of this year.

A number of factors have contributed to consumption's recent favourable trend. Household real disposable income has benefited from increased real wages as well as rising employment at the same time as fiscal policy has become less restrictive. This trend is expected to continue in the years ahead.

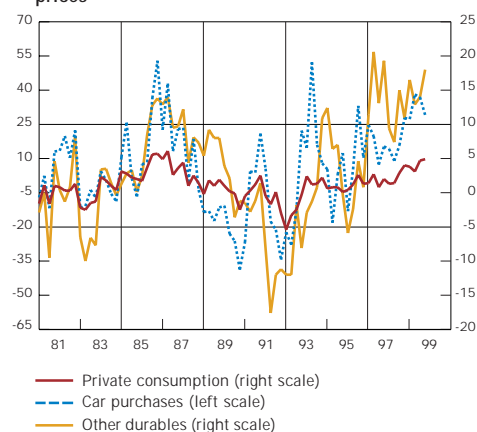
Consumption is also influenced by the development of household wealth. To date in 2000 the Stockholm Stock Exchange has risen about 6 per cent in terms of *Affärsvärlden's* general index (AFGX). Since the time of the March Inflation Report, however, this index has fallen about 15 per cent and is now at approximately the same level as at the end of February. In this period, shares in the IT/telecom sector (*Affärsvärlden's* IT index) have dropped about 45 per cent and accordingly accounted for the greater part of the decline in recent months.

The recent share price fall is expected to check the household consumption propensity only marginally. There are several reasons for this. Both the real and the nominal value of shares and other assets has risen substantially in recent years. In 1999 alone, the value of households' share holdings rose more than 60 per cent and total net wealth increased almost 20 per cent. A wealth variable that is presumably of particular importance for household consumption expenditure is house prices. Last year the average level of house prices rose about 8 per cent from the year before and the strong trend has continued in the early part of 2000; the increase in the first four months from the corresponding period last year also averaged about 8 per cent.

Some shift in the composition of consumption is foreseen in the forecast period, with a comparatively rapid increase for non-durable goods and services and some slowdown for purchases of durables, cars in particular. As the stock of household capital goods is renewed, some fall-off is foreseen in the need for further purchases.

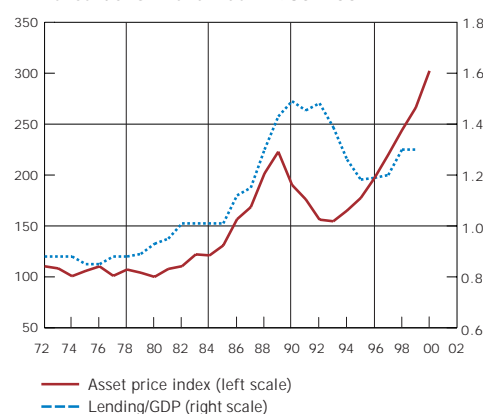
Rising employment coupled with a favourable development

Figure 31. Household expenditure on total consumption, car purchases and other durables. Percentage annual change, constant (1995) prices



Source: Statistics Sweden.

Figure 32. Lending relative to GDP and real asset prices. Per cent of GDP and index: 1980=100

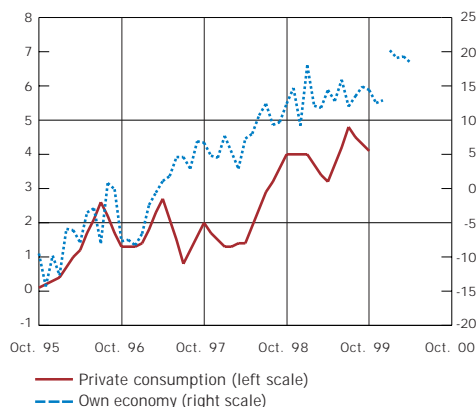


Note. Lending to the Swedish non-bank public (household, corporate and local government sectors). The asset price index is a weighted average of prices for shares, houses and commercial property. Data before 1998 compiled by BIS, projected for 1998 and 1999 by the Riksbank.

Sources: Bank for International Settlements and the Riksbank.

10 As the structural balance is obtained residually as the difference between the overall balance and an estimate of cyclical effects on revenues and expenditures, it is liable to be affected by certain other transitory effects.

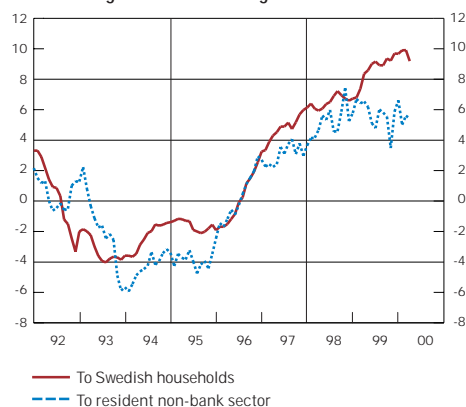
Figure 33. Private consumption and households' own-economy expectations.
Percentage 12-month change and net figure



Note. The procedure for collecting household purchasing plans (HIP) was changed as of January 2000.

Source: Statistics Sweden.

Figure 34. Lending by credit institutions.
Percentage 12-month change



Note. Credit institutions comprise banks, house mortgage institutions and other credit market companies. The non-bank sector is defined as households, firms and local authorities. Banks' repos with the non-bank sector are included from 1995 onwards. Lending by house mortgage institutions has been adjusted for the transfer of state housing loans to this category in July 1995.

Source: The Riksbank.

of income and wealth has contributed to a very optimistic mood among consumers. Interview data from Statistics Sweden about how households appraise their own economy one year ahead show that optimism remains high, though this year's statistical rearrangement does complicate the interpretation of this indicator (Fig. 33).

The high optimism among households is probably a major explanation for the recent fall in household saving as a percentage of disposable income. It is presumably also an important factor behind the strong demand for household credit (Fig. 34). Lending is expected to go on rising rapidly in the forecast period; it is natural that this indicator of liabilities rises when asset appreciation increases household wealth.

Private consumption is expected to be somewhat stronger than assumed earlier, mainly due to a good trend for income and wealth and high household optimism.

All in all, household consumption is judged to rise 4.3 per cent this year, 3.8 per cent in 2001 and 3.6 per cent in 2002. The somewhat stronger trend compared with earlier assessments mainly has to do with a good trend for income and wealth and high household optimism.

FIXED INVESTMENT AND STOCKBUILDING

Strong economic growth, above all in domestic demand, is judged, as in the March Report, to bring more and more unutilised capacity into production and thereby increase the need to invest in new machinery and plant. The ratio of corporate sector value added to the capital stock can be seen as a measure of the sector's capital productivity and hence of the return on capital. This ratio is historically high at present, which indicates that investment is profitable and that there may be grounds for expanding capacity in order to meet the strong demand (Fig. 36).

Long bond rates have fallen since March and their level this year is therefore judged to be somewhat lower than assumed at that time. Moreover, profitability in Swedish manufacturing appears to have improved in the first quarter this year.

According to *Q* theory, the volume of investment is determined by the relationship between capital's stock-market value and the cost of replacing capital goods. Estimates at the Riksbank suggest that a permanent 10 per cent increase in stock-market values can raise the long-run level of investment in manufacturing by over 1 per cent.¹¹ The fact that even after the recent fall, share prices are still 60 per cent higher than a year ago, should have a favourable effect on investment. An increase in demand is also calculated to raise investment via multiplier effects.

The National Institute's latest quarterly business tendency

11 Assarsson, B., Berg, C. & Jansson P. (1999), *Investment in Swedish manufacturing: analysis and forecasts*, Sveriges Riksbank Working Paper Series 95.

survey, from April, and the monthly survey in May indicate that the upswing in manufacturing has been strong and that firms' own expectations have been exceeded in several respects. The proportion of manufacturing firms reporting machinery and plant as the primary obstacle to increased production has risen and its level is now relatively high historically (Fig. 37).

A high return on capital, high share prices and strong demand are expected to stimulate investment demand in the forecast period.

In the services sectors, too, the survey data give a bright picture of demand, which supports the assessment that investment prospects are also good in other segments of the corporate sector.

New housing construction seems to be on the way to recovering. According to data on housing starts from Statistics Sweden, the increase in 2000 Q1 from a year earlier was 40 per cent, which exceeded expectations.¹²

All in all, gross fixed investment is expected to rise almost 9 per cent in 2000, 8 per cent in 2001 and 7 per cent in 2002. Compared with the March Report, this is an upward adjustment that totals around 3 percentage points in the forecast period. It is primarily a high return on capital, high share prices and strong demand that are judged to stimulate investment demand in this period.

The assessment of stock movements has not changed since the March Report. The GDP contribution from stockbuilding is expected to be slightly negative this year, followed by neutral effects in 2001 and 2002.

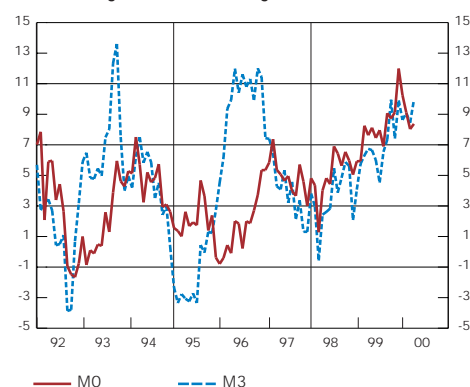
EMPLOYMENT AND PRODUCTIVITY

Employment has gone on rising in the first four months of this year. Compared with the corresponding period in 1999, the total number in employment has increased by about 67,000 persons, which is somewhat less than expected. As this has been accompanied by a decreased number in job-creation measures, it is estimated that regular employment (total employment excluding job-creation measures) rose more than the total level.

It is mainly in private and public services that employment is rising, along with some increase in construction. As a result of rising investment in construction, for example, employment in this sector is assumed to strengthen during the year. In manufacturing, on the other hand, employment continues to fall. But even in this sector, rising production and the increased number of new job vacancies in engineering suggest that an upturn is to be expected during the year.

The number of new jobs reported to employment agencies is still rising, particularly in engineering and business services. The

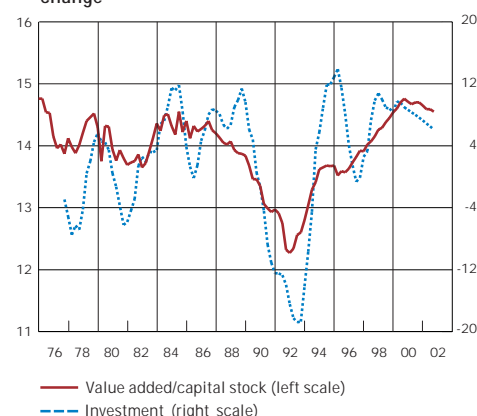
Figure 35. Money supply.
Percentage 12-month change



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.

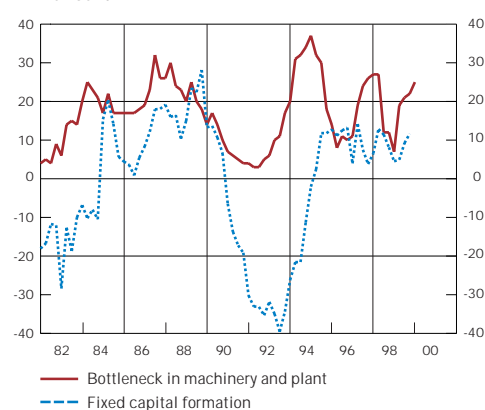
Figure 36. Corporate sector: Value added relative to capital stock, and investment.
Percentage points and percentage annual change



Note. 2000–02 Riksbank forecasts.

Sources: Statistics Sweden and the Riksbank.

Figure 37. Gross fixed capital formation in manufacturing and firms with machinery and plant capacity as the primary bottleneck.
Per cent

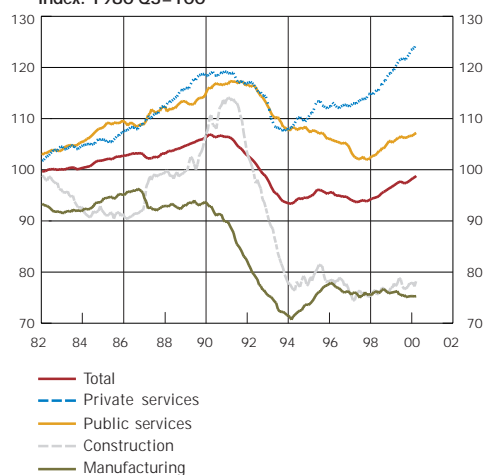


Note. Series seasonally and trend adjusted; the series for fixed capital formation at constant 1995 prices in accordance with SNA 93 has been linked to the earlier series at 1991 prices.

Sources: National Institute of Economic Research and Statistics Sweden.

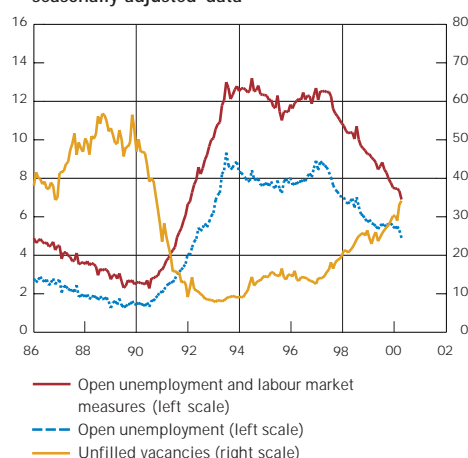
¹² The figure is uncertain because a large standardised upward adjustment had to be made for under-reporting

Figure 38. Employment (persons).
Seasonally-adjusted moving 3-month average;
index: 1980 Q3=100



Source: Statistics Sweden.

Figure 39. Unemployment and job vacancies.
Per cent and thousands, respectively;
seasonally-adjusted data



Sources: National Labour Market Board and Statistics Sweden.

number of unfilled vacancies is also growing, which may indicate that filling vacancies is taking somewhat longer than before. The risk of labour shortages varies geographically. Approximately one in three of the new vacancies is in the Stockholm region, where the unemployment rate in 2000 Q1 was only 3.2 per cent, as against over 7 per cent in northern Sweden.

Even with the high GDP growth, this year's increase in total employment is calculated to be somewhat weaker than assumed in the March Report, mainly in view of the comparatively low outcome this spring. Employment is expected to go on rising throughout the forecast period, albeit at a diminishing rate. In the entire period the number in employment is expected to rise almost 5 per cent. The better situation in the labour market also contributes to an increased labour force and this checks the reduction of unemployment.

Another factor behind the labour market situation this year is the Government's ambition to bring open unemployment down to 4 per cent. It is envisaged that this target will be achieved at the end of the year with the aid of enlarged labour market programmes. Open unemployment is calculated to average 4.7 per cent in 2000, 4.1 per cent in 2001 and 3.6 per cent in 2002. Compared with the March Report, this means that open unemployment is now expected to be somewhat higher both this year and next. In 2002, however, a somewhat lower level is foreseen as a result of the stronger GDP growth.

Table 5. Labour market forecast in the main scenario.
Per cent, percentage annual change

	1999	2000	2001	2002
Hourly wage	3.2	3.7 (4.0)	4.3 (4.3)	4.3 (4.3)
Labour Productivity	1.0	1.9 (1.7)	2.1 (2.1)	1.6 (1.5)
Wage share	66.3	67.2	67.2	67.5
Hours worked	2.7	2.4 (2.4)	1.4 (1.4)	1.3 (1.1)
Open unemployment rate	5.6	4.7 (4.5)	4.1 (3.9)	3.6 (3.7)

Note. The figures in parentheses are the assessment in the March Report. The wage share is calculated as wages, including collective contributions, as a percentage of GDP at factor values.

Source: The Riksbank.

The GDP forecast has been adjusted upwards by a total of 0.5 percentage points in the forecast period, while the annual number of hours worked has been adjusted only marginally upwards at the end of the period. This means that labour productivity is expected to be somewhat higher than assumed in the March Report. A more optimistic picture of productivity is warranted on several counts.

Labour productivity can be decomposed under certain conditions into capital intensity and total factor productivity. The former component mirrors effects on productivity from shifts in the relative inputs of labour and capital, while the latter is usually described as representing underlying technology (Fig. 40).

The growth of total factor productivity (technology's contribution to productivity) has shown a rising trend since 1993 according to the simple calculation behind Fig. 40. While it is

hazardous to draw unduly far-reaching conclusions from calculations of this type, this may be a sign of some improvement in the Swedish economy's potential growth rate. In the forecast period the strong investment trend should also favour productivity growth both by raising capital intensity and by speeding up the introduction of new technology. All in all, the growth of labour productivity is expected to accelerate in the course of this year and next, followed by some slowdown again towards the end of the forecast period for cyclical reasons such as increased strains on capacity.

The positive picture of productivity in the years ahead has been reinforced since the March Report. Productivity growth is now calculated to be 1.9 per cent in 2000, 2.1 per cent in 2001 and 1.6 per cent in 2002. Compared with the March Report, this implies somewhat higher productivity growth this year as well as in 2002.

RESOURCE UTILISATION

Resource utilisation is a central factor for the path of inflation. One of several indicators of total resource utilisation is the output gap, which aims to quantify the difference between actual output and the potential level. As the potential level is not observable, the output gap has to be estimated indirectly with econometric methods. The element of uncertainty in the results is therefore considerable.

With somewhat lower resource utilisation at the beginning of the forecast period, the time when capacity restrictions begin to apply is postponed to some extent. But in view of the stronger growth, the assessment of capacity utilisation at the end of the period is broadly unchanged from the March Report.

As no new statistics from the national accounts have been published since the March Report, the output gap estimates are the same as before (Fig. 41). There are indications, however, that the economy had more unutilised resources last year (the output gap was somewhat more negative) than was assumed earlier. The wage trend, for example, is somewhat lower than expected. There is also survey evidence that certain industries and regions still have a comparatively good supply of unutilised capacity (see the box on pp. 35–38). Labour shortages, for example, seem to be comparatively pronounced in certain segments of the services sector, whereas capacity utilisation in manufacturing and construction is still reported to be moderate.

With somewhat lower resource utilisation at the beginning of the forecast period, the time when serious capacity restrictions begin to apply is postponed to some extent. But in view of the stronger growth, the assessment of capacity utilisation at the end of the period is broadly unchanged from the March Report. It should be underscored that the assessment of unutilised resources has been revised only marginally. With the present picture of growth, it is still judged that the unutilised resources in the economy will be brought into production successively during the

Figure 40. Corporate sector labour 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.

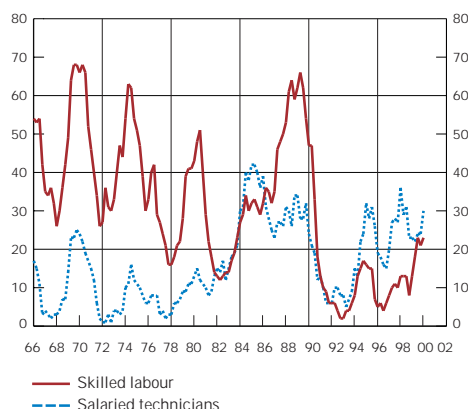
Figure 41. Output gap. Per cent



Note. Data presented as moving four-quarter average. 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.

Figure 42. Manufacturing shortages of skilled labour and salaried technicians. Per cent



Source: National Institute of Economic Research.

forecast period, so that capacity restrictions gradually make themselves felt and influence price formation.

Another factor of major importance for the path of resource utilisation is the level of potential growth. For some time now the Riksbank has used the working assumption that the annual rate of potential growth is in the interval 2–2.5 per cent, which is somewhat higher than the average growth rate since the 1970s but closer to the average over a somewhat longer period. As pointed out earlier, it is conceivable that the Swedish economy's potential growth rate has risen in the 1990s. There have been considerable changes in many fields, such as reforms of systems for taxation, social security and pensions, as well as the promotion of conditions for increased competition by amending laws and joining the European Community. In recent years, moreover, fiscal and monetary policy has focused on macro-economic stability. Some allowance for all this has been made in the assumptions about potential growth. In this context it is changes that may have affected the trends for labour supply and productivity that are particularly relevant.¹³

WAGES AND UNIT LABOUR COSTS

The nominal wage level rose 3.2 per cent in 1999, which is in line with the assessment in the March Report.¹⁴ The outcome is lower, however, than the Riksbank counted on last year.

Nominal wages were assumed in the March Report to rise 4.0 per cent this year and 4.3 per cent in both 2001 and 2002. Wages are now judged to rise somewhat more slowly this year and the forecast has been revised downwards to 3.7 per cent; an important reason for this is that the outcome to date has been lower than expected. The forecasts for 2001 and 2002 are unchanged; there are factors, however, that suggest that the rate may be either higher or lower.

One factor that may indicate a higher rate of wage increases in the coming years is that wages agreements for large groups are to be negotiated at a time when economic activity is expected to be very strong. Increased labour demand and steadily falling unemployment can be expected to affect wage formation. Such a cyclical phase can lead to more appreciable labour shortages, which in turn may generate wage drift and demands for compensation for other groups in the labour market.

A factor which suggests that a more moderate rate of wage increases compared with the forecast might be feasible is the development of wage negotiations. A number of the agreements that have been concluded at union level contain either small or no individual wage guarantees, which means that wages are set locally to a greater extent. This should lead to a development of

13 Conceivable effects of improved trends for labour supply and productivity are illustrated in the box on pp. 32–34.

14 The outcome for the total economy in 1999 is preliminary because some statistics have not yet been adjusted for retroactive wages and no complete statistics for municipal wages in 1999 have been published that are comparable with the statistics for county councils and the private and central government sectors.

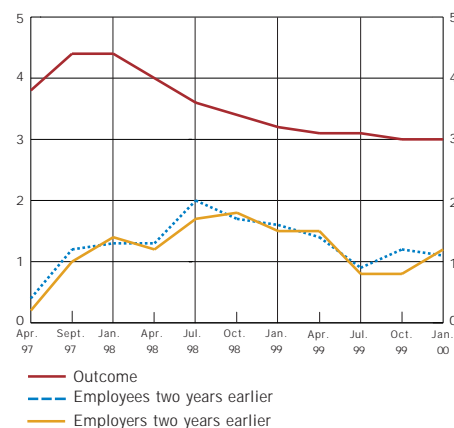
wages that is more in tune with productivity growth at each workplace.

The manufacturing agreement, which includes rules for negotiations and mediation, for example, probably reduces the risk of labour disputes and this, too, should be good for wage development. Since the March Report, other parties in the labour market have drafted proposals for similar inter-industry agreements on negotiating procedures. Parliament has decided that sectors which do not conclude agreements of this type shall abide by the Mediation Institute's rules for compulsory mediation.

The real rate of wage increases, which has been high in relation to the expectations of labour market organisations (Fig. 43), as well as to productivity growth, may also act as a restraint in wage formation. Earlier agreements were concluded on the basis of inflation expectations that were above the subsequent outcome. To some extent this has had to do with the time it took to achieve full credibility for the low-inflation policy. Now that the low-inflation policy has been established, there is reason to count on nominal wage increases also being adapted downwards to a level that is commensurate with the price stability target. Developments in recent years have shown, moreover, that relatively low nominal wage increases can be associated with a considerable improvement in real wages.

Notwithstanding the somewhat more favourable productivity growth and lower wage increases, the forecast of unit labour costs is unchanged at 2.2 per cent for 2000 because certain negotiated employer contributions have been increased. The forecast for 2001 is also unchanged at 2.2 per cent. In 2002 unit labour costs are judged to rise an average of 2.7 per cent; this is somewhat lower than the forecast in March because productivity is now assumed to grow marginally faster. All in all, unit labour costs are still judged to rise more strongly than domestic prices in the coming years, which means, for example, that there will be some reduction of the profit share (Fig. 44).

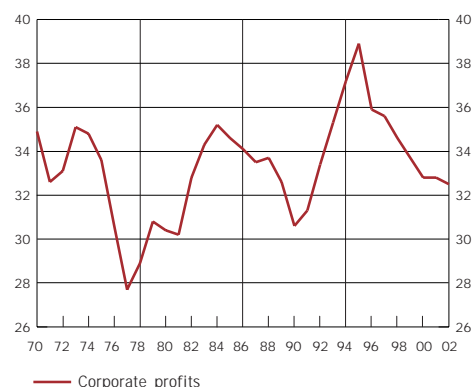
Figure 43. Average real wage increase and expectations of employer and employee organisations two years earlier. Per cent



Note. Expectations calculated as the expected nominal wage rise less expected CPI inflation; wage rise defined as the percentage wage increase for all sectors combined excluding social security contributions but including carry-over effects and wage drift.

Sources: Prospera Research AB and Statistics Sweden.

Figure 44. Corporate profits. Per cent of GDP at factor values



Note. Series based on the earlier system of national accounts (SNA 68) as well as the new system (ESA 95). 2000-02 forecast.

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

POTENTIAL GROWTH AND INFLATION, AN ILLUSTRATIVE EXAMPLE

The size of the output gap is a summary indicator of the level of economic activity or resource utilisation in the economy as a whole and therefore a central consideration when assessing the degree of inflationary pressure. A good picture of the output gap and its trend is also essential, for instance, when assessing cyclical effects on the public finances.

The gap is usually defined as the percentage difference between the actual and the potential or trend level of production. Potential output is the level of production that can be sustained in the long run without generating higher or lower inflation. It denotes, not production's upper limit but the average level around which production tends to vary over the business cycle.

Potential output can also be defined from the supply side, using assumptions about capital formation, demographic trends, rates of employment, average hours worked and technological developments. It is these variables that determine the supply of factors of production and the level of total factor productivity (TFP). The level of potential output can then be estimated with a production function, which describes the relationship between production factor inputs, production technology and the level of production in an economy.

In practice, however, calculating the size of the output gap is rather difficult, particularly in a forward-looking perspective but also in real time and even historically. As potential output and thereby the output gap are not directly observable, they have to be estimated indirectly. In order to form a picture of the size of the gap, the Riksbank uses several different econometric approaches as well as a number of indicators.

The production function approach (PF) is used here to present an illustrative example of how, for example, variations in trend labour supply and productivity are likely to affect the future path of inflation. The calculations are not intended to forecast expected effects but should still point in the direction of their approximate magnitude.

The calculations require a base scenario. This scenario is not directly linked to the Inflation Report's main scenario but certain features are similar because

the PF approach is one of the methods on which the Riksbank bases the overall assessment. The base scenario for the PF approach envisages that the output gap closes during 2000 and then rises to a positive level of about 1.5 per cent towards the end of the forecast period. The rate of inflation is somewhat higher than in the main scenario for the Inflation Report. The estimation of potential growth in the PF approach is very sensitive to the assumptions that are made about trend productivity growth and potential labour supply and forecasting these variables as such is also difficult. Unlike average labour productivity, which is the usual measure of productivity, TFP is not affected by changes in capital intensity (the relative inputs of capital and labour).

During 1999, calculations by the Riksbank suggest that TFP rose more slowly than in the previous five years.

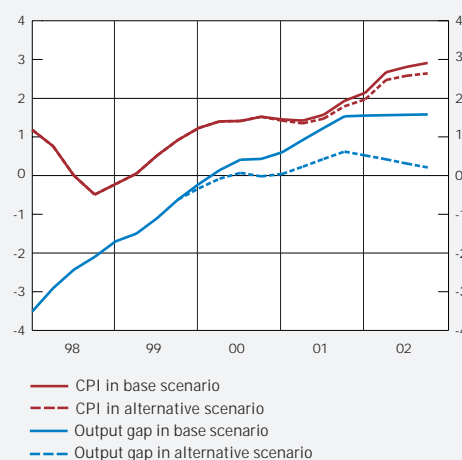
It is conceivable that the slowing of TFP growth in 1999 was only temporary and that the trend for the Swedish economy is now higher than in the 1970s and '80s. Given a 2 per cent trend for TFP (the average for 1993–98) and the same economic growth, the annual increase in employment (hours worked) would be limited to 0.4 per cent and unemployment accordingly falls more slowly than in the base scenario. The output gap closes during 2000 but remains close to zero in both 2001 and 2002. At the end of the forecast period the gap in this example is around 1.5 percentage points lower than in the base scenario and the rate of inflation is accordingly estimated to be about 0.3 percentage points lower.

Another possibility is that potential labour supply's underlying trend is somewhat stronger. From 1990 to 1994 the labour force as defined in the labour force surveys (AKU) shrank from 84 to 78 per cent of the active population (16–64 years), while regular employment declined from 83 to 70 per cent. Registered unemployment accordingly rose sharply, accompanied by a very marked drop in labour force participation. The low labour demand is considered to be an important reason why many people left or never joined the labour force.

In recent years the labour market situation has tended to recover. In 1999 around 72 per cent of the active population were in regular employment.

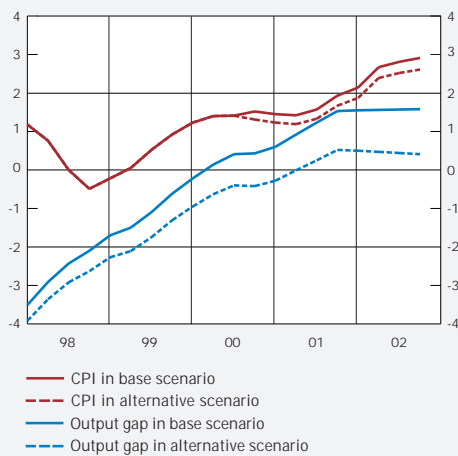
It is conceivable that the increased labour demand in the past year will generate a reflux to the labour force that is somewhat larger than many observers, including the Riksbank, assume. It is also possible that this reflux represents a potential increase in labour

Figure B4. Effects of higher trend productivity. Per cent and percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

Figure B5. Effects of higher potential labour supply.
Per cent and percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

supply, partly in that the various educational inputs have improved the employability and productive potential of the labour force in the longer run. In order to study the likely consequences of such a development it is assumed that throughout the period 1994–2002 the annual increase in potential labour supply is 0.3 percentage points higher than in the base scenario. Given the same GDP growth as in the base scenario, the output gap then does not close until 2001 and is only slightly positive at the end of the forecast period (about 1.2 percentage points lower than in the base scenario). The rate of inflation at the end of the forecast period is around 0.3 percentage points lower than in the base scenario.

The conclusion from these two examples is that moderate variations in the assumptions about potential labour supply or trend productivity growth can have appreciable effects on inflationary pressure. This underscores the need to scrutinise the conditions for potential production continuously in the light of new information about the workings of the economy.

THE CYCLICAL POSITION AND FACTORS OF PRODUCTION

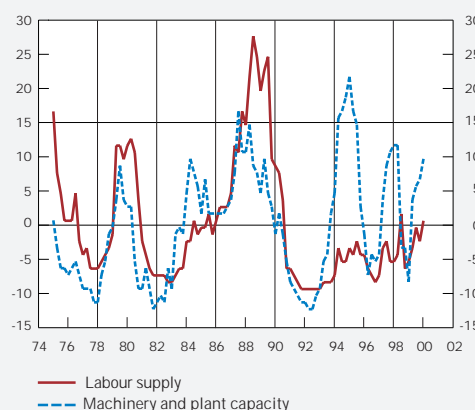
The future path of inflation will depend in part on the extent to which firms are able to cope with demand for their goods and services. If demand exceeds the capacity of firms in the longer run, inflationary pressure in the economy will be liable to grow. Aggregate capacity utilisation can be described in terms of the output gap.

In addition to output gap estimates, many other indicators are used to assess resource utilisation in the economy. Unlike the output gap, most of the indicators mirror the level of activity, not at total level but in particular industries or segments of the economy. The extent to which these indicators agree with the econometric estimates of the output gap is analysed here.¹⁵

The quarterly business tendency surveys from the National Institute of Economic Research include a number of variables with direct as well as indirect information about capacity utilisation in the corporate sector. The time series for *manufacturing* and construction go back a comparatively long way, in some cases to 1964. However, the direct question to manufacturers about capacity utilisation was first included in its present form in 1996.¹⁶ Use has therefore been made instead of the percentage of firms reporting that the primary obstacle to increased production is either labour supply or machinery and plant (Fig. B6).

The time series follow a fairly similar path up to the beginning of the 1990s, when the perceived shortages were relatively small for both factors of production. After that the percentage of firms with labour as the primary restriction remained at a low level for a relatively long time, while the percentage restricted by machinery and plant rose relatively rapidly and then fluctuated markedly, downwards as well as upwards, reaching notably high levels at times. Late in the period the percentage

Figure B6. Manufacturing's primary restriction:
in labour and in plant and machinery.
Per cent



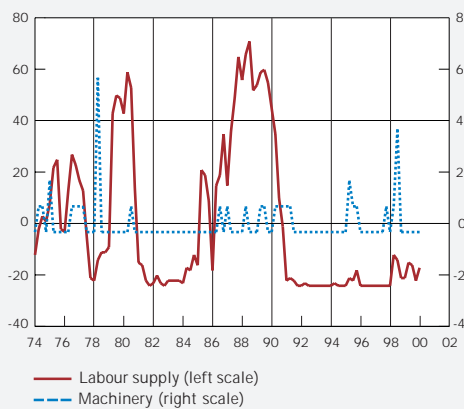
Note. Percentage deviation from the average for the period 1975 Q1 to 2000 Q1; the historical average is not quite 10 per cent for labour and about 15 per cent for machinery and plant capacity.

Source: National Institute of Economic Research.

15 The relationship between the output gap and various indicators in the late 1990s was also discussed in *Inflation Report 1999:3*, box on pp. 37–39. There it was concluded that manufacturers' perception of labour supply as the primary obstacle to increased production co-varied with the output gap to a greater extent than did industrial capacity utilisation.

16 Industrial capacity utilisation was also surveyed by Statistics Sweden in the period 1980–98. Chaining the two series is hardly advisable, however, because for the years that overlapped, the differences between the data from Statistics Sweden and the National Institute, respectively, were fairly considerable in level as well as in the quarterly changes.

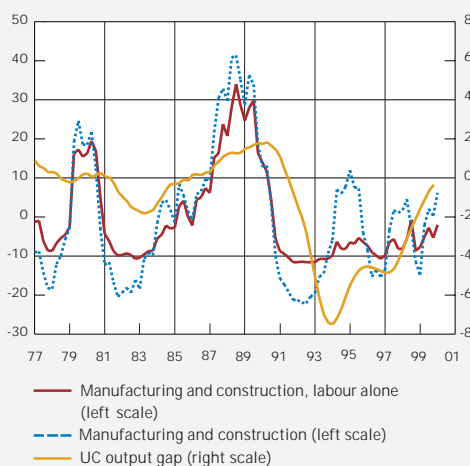
Figure B7. Construction's primary restriction: in labour and in machinery.
Per cent



Note. Percentage deviation from the average for the period 1974 Q1 to 2000 Q1; the historical average is 24 per cent for labour and 0.5 per cent for machinery capacity.

Source: National Institute of Economic Research.

Figure B8. Primary restriction in factors of production and the output gap estimated with the UC method.
Per cent



Note. The proportion with restrictions is shown as the percentage deviation from the historical average.

Sources: National Institute of Economic Research and the Riksbank.

restricted by labour shortages also rose and in the latest survey it was somewhat above the historical average.

Production in *construction* is usually restricted in the first place by labour supply. From Fig. B7 it will be seen that the percentage of firms reporting machinery and plant as the primary restriction was small virtually throughout the observation period, while the proportion with labour shortages was considerably higher and more variable. In construction, too, labour has not been a restriction since 1991. The percentages here also tended to move up towards the end of the period but even in the latest survey they are below the historical average.

A comparison of a weighted combination of manufacturing and construction with the output gap estimated with the UC method shows correlations that are fairly good, particularly between the UC gap and reported labour shortages in manufacturing (Fig. B8).¹⁷ Moreover, at the end of the period the level of this indicator of capacity utilisation is fairly close to its historical average at the same time as the UC gap has virtually closed. A corresponding agreement was also noted in the mid 1980s. At the beginning of the 1990s, on the other hand, when the UC gap last closed, the percentage of firms reporting labour restrictions was below the historical average, while the opposite applied when the gap closed at the beginning of the 1980s.

The business tendency surveys also measure capacity utilisation in *computer firms*, *business services* and *road haulage firms*. In these segments of the corporate sector, capacity restrictions mainly take the form of labour shortages. During the relatively short period since these surveys began in the early 1990s, a consistent theme in the National Institute's results has been that computer consultants and other types of consultant have reported major shortages of personnel with the requisite competence. However, the relatively short period makes it difficult to draw definite conclusions about the actual level of capacity utilisation in services industries. The series show that capacity utilisation rose in all three industries up to the mid 1990s and then tended to level out (Fig. B9). At the end of the period, capacity

17 The weights are each segment's percentage of 1999 value added.

utilisation fell for computer consultants.

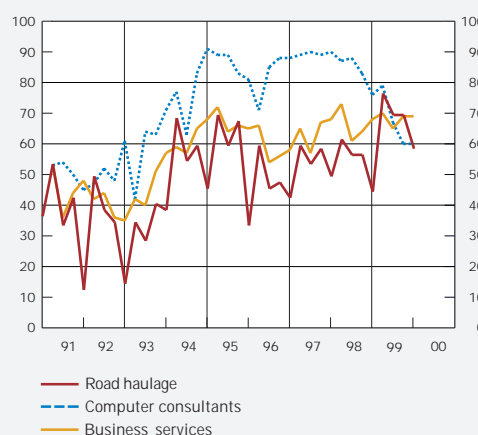
In *wholesale and retail trade*, which constitutes about 10 per cent of the economy, the business tendency surveys include labour shortage data but the time series for retailing goes back only to 1996. With such a short period for comparisons, these figures are therefore also difficult to assess in a historical perspective. Since 1996 the percentage of firms with labour shortages has risen in all segments of trade. In the latest survey, labour shortages are reported by 32 per cent of wholesale firms, 20 per cent of outlets for infrequent purchases and 8 per cent of retailers of everyday goods.

The labour force surveys from Statistics Sweden show a fairly weak trend for employment in trade. Since the low a couple of years ago, the number employed has risen only about 3 per cent. The increase in hours worked has been somewhat stronger (Fig. B11). It is conceivable that with the improved situation in the labour market, wholesale and retail firms are finding it increasingly difficult to recruit for part-time jobs and work at inconvenient hours.

The labour market statistics can also add to the picture of recruitment difficulties in the total economy. The number of unfilled job vacancies can be a useful indicator for this. In Fig. B12, this number is related to the population in active age groups as well as to the number of persons who are either unemployed, participating in labour market programmes or latent job-seekers. It will be seen that as a percentage of the active population, the number of unfilled vacancies is now close to the historical average. In relation to the number unemployed, which is still fairly high, the number of vacancies is below the historical average. The feasibility of high growth without an exacerbation of restrictions in supply is accordingly dependent on the extent and rate at which unemployed persons can gain access to the regular labour market.

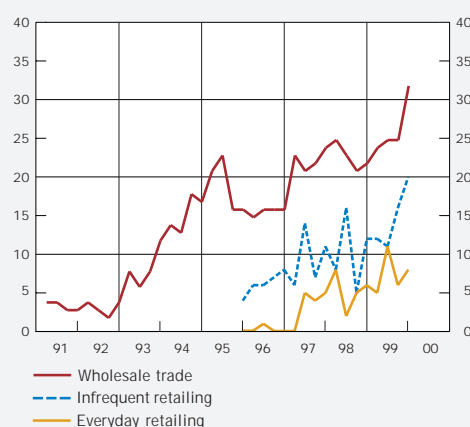
To sum up, the labour market situation appears to vary with the segment of the corporate sector that is studied. But the overall situation does not yet seem to be particularly strained. The picture provided by the

Figure B9. Proportion of firms reporting full capacity utilisation.
Per cent



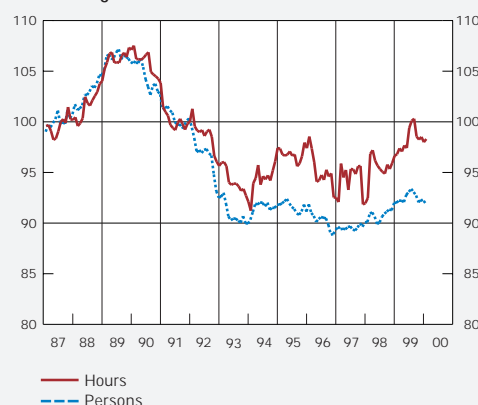
Source: National Institute of Economic Research.

Figure B10. Proportion of firms reporting labour shortages.
Per cent



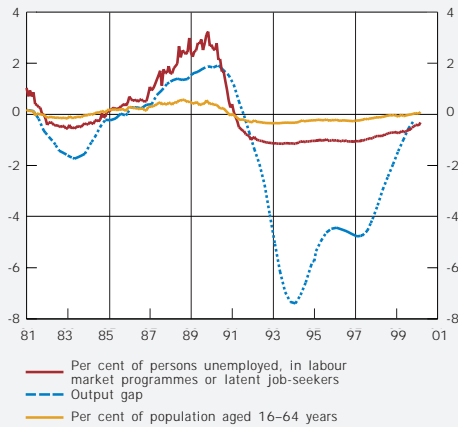
Source: National Institute of Economic Research.

Figure B11. Hours worked and number employed in wholesale and retail trade and firms repairing vehicles and household appliances.
Moving 3-month average of seasonally-adjusted index figures: 1987=100



Source: Statistics Sweden.

Figure B12. Unfilled job vacancies in relation to number unemployed (widely defined) and to active population; output gap estimated with UC method. Per cent



Note. Proportions shown as the seasonally-adjusted percentage deviation from the average for the period since 1981.

Sources: National Labour Market Board and the Riksbank.

indicators reviewed here can be said to be commensurate with an output gap that is currently comparatively close to its equilibrium level. A historical comparison reveals, however, that the labour market situation in manufacturing has not always been balanced when the estimated output gap has been closed. There may be grounds for supposing, moreover, that a potential exists in the considerable number of persons who are unemployed in a wide sense. The extent to which persons who are currently unemployed, participating in labour market programmes, latent job-seekers or under-employed turn out to meet future labour demand is a key question when assessing the feasibility of maintaining high economic growth accompanied by low and stable inflation.

Price effects of deregulation and trade liberalisation

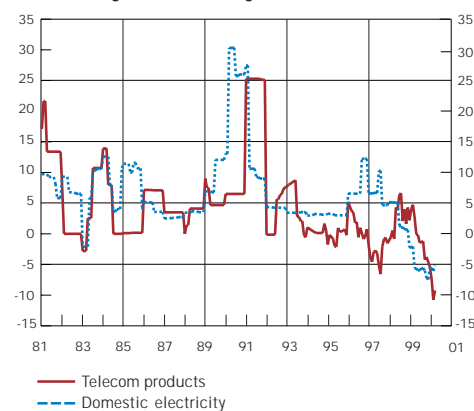
Market deregulation and the liberalisation of trade have effects on inflation in both the short and the somewhat longer run but estimating the magnitude and timing of such effects on consumer prices is difficult. In the past year the discussion has mainly concerned effects of deregulating electricity and telecom markets and the Agenda 2000 reform of agriculture, which between them affect about 10 per cent of household consumption. Moreover, increased competition and thereby downward price pressure can be generated by changes in market conditions, such as extended markets for international corporations and stricter requirements for public procurement. There are other sectors of the Swedish economy where deficient pricing and competitive conditions have attracted attention and where any measures can also be expected to have consequences for the future development of prices.¹⁸ Some examples are construction, the food sector, transportation, and health and medical care. The price level in Sweden relative to other EU countries has fallen since the beginning of the 1990s but is still about 20 per cent above the EU average.¹⁹ This shows that a considerable potential exists for increased competition to go on pressing prices downwards. Contrary effects are liable to come, however, from such factors as the recent trend towards increased concentration in business and the EU ban on parallel imports.

Since the Swedish electricity market was deregulated at the end of 1999, prices have fallen successively, though this tendency has been slowing in recent months. The level of electricity prices in April was about 5 per cent lower than a year earlier (Fig. 45). The assessment of future price trends is hampered by uncertainty about the fixed tariffs and the feasibility of network operators achieving a further rationalisation of costs. The abolition of the time metre requirement has increased their costs and rationalisation has been used to date to offset this. As in the March Report, falling electricity prices are judged to restrain CPI inflation in 2000 by 0.1 percentage point.

Electricity and telecom prices are judged to go on subduing inflation.

The new Telecommunications Act from the early 1990s has led to a stepwise deregulation of the telecom market, with increased competition and lower prices. A further step was taken last September when consumers were given a free choice of call operator. Once this reform had been decided, prices began to

Figure 45. Electricity and telecom prices. Percentage annual change



Source: Statistics Sweden.

18 See Konkurrensverket (2000), *Konkurrensen i Sverige under 90-talet – problem och förslag*. Report series 1. (Swedish Competition Authority, 'Competition in Sweden in the 1990s – problems and proposals'.)

19 See Statistics Sweden (1999), *Konsumentprisnivåer i Sverige jämfört med övriga medlemsstater i EU: rapport utförd av SCB på uppdrag av regeringen* ('Consumer price levels in Sweden compared with other EU member states: Government-commissioned report').

decline even before the measures came into force.

Telecom prices have now fallen about 5 per cent, which is more than expected. There have been a number of price cuts during the spring for fixed as well as mobile phone calls. Measures for a further enhancement of competition in the mobile telecom market have been decided. As of 1 May, net operators that own a mobile net are obliged to make any free capacity available to service operators that do not own a mobile net. This can give more players access to the market. As of 1 July, Telia is to cut the tariff that mobile operators charge for transmitting calls to their subscribers from other operators; this tariff is a considerable item in the price of a mobile phone call. Number portability (not having to change a telephone number when changing operators) has already been introduced for fixed telephony and will begin to apply to mobile phones from 1 September 2001; this is expected to increase mobility between existing operators. Later this year a Government proposal is expected whereby the free choice of call operator will also apply to net operators. These measures should lead to a further increase in competition, so that prices are subdued somewhat more than assumed earlier, at least in 2000. All in all, the contribution to CPI and UNDI^X inflation from telecom prices in 2000 is judged to be -0.2 percentage points.

As regards trade liberalisation, the EU reform of agriculture, Agenda 2000, is still judged to have a downward consumer price effect of about 0.4 percentage points, spread over about ten years.

Taken as a whole, the various deregulations and liberalisation of trade are judged to have a downward price effect in the forecast period of 0.1–0.4 percentage points a year (Table 6).

Table 6. CPI effects of deregulations.

Percentage points

	1999	2000	2001	2002
Dental charges	0.2	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Electricity prices	-0.2	-0.1 (-0.1)	0.0 (0.0)	0.0 (0.0)
Telecom prices	-0.1	-0.2 (-0.1)	0.0 (0.0)	0.0 (0.0)
Agricultural prices	0.0	-0.1 (-0.1)	-0.1 (-0.1)	-0.1 (-0.1)
Total CPI effect	-0.1	-0.4 (-0.3)	-0.1 (-0.1)	-0.1 (-0.1)

Note. The figures in parentheses are the assessments in the March Report.

Sources: Statistics Sweden and the Riksbank.

Effects of political decisions and interest expenditure

No new proposals to change indirect taxes and subsidies have been put forward since the March Report and the contributions to inflation are calculated to be small throughout the forecast period. Many indirect taxes are indexed, leading to annual adjustments in January for price movements in the previous year. In the coming two years this is judged to add almost 0.1 percentage point to CPI inflation (Table 7).

Table 7. Direct CPI effects from indirect taxes, subsidies and interest expenditure.

Percentage points

	Dec. 2000	June 2001	Dec. 2001	June 2002
Indirect taxes and subsidies	0.1 (0.1)	0.0 (0.0)	0.0 (0.0)	0.1 (0.1)
Temporary freeze on taxable value of residential property	-0.1 (-0.1)	-0.1 (-0.1)	-0.1 (-0.1)	-0.1 (-0.1)
House mortgage interest expenditure	0.0 (0.0)	0.0 (0.0)	0.1 (0.2)	0.2 (0.2)
Total CPI effect	0.0 (0.0)	-0.1 (-0.1)	0.0 (0.1)	0.1 (0.2)

Note. The figures in parentheses are the forecasts in the March Report; for June the forecasts from the March Report refer to March.

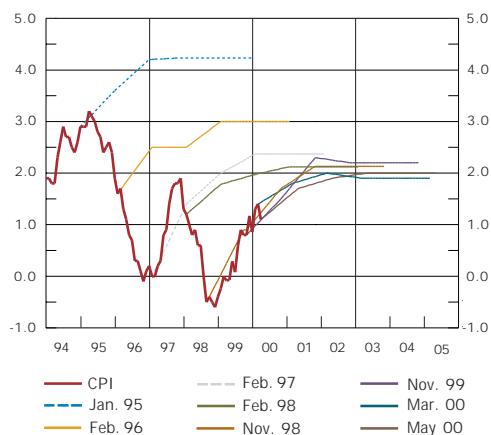
Sources: Statistics Sweden and the Riksbank.

A return to the indexing of property taxes as of 2001 is currently proposed, together with an end to the temporary reduction of the property tax on rented housing. In the Spring Bill the Government announced that measures to limit the property tax increase in 2001 would be presented in the Budget Bill next autumn; the construction of the measures is still uncertain. As changes in the property tax on rented housing are included in the calculation of underlying inflation as represented by UND1X, the construction of the tax proposal may affect this index as well as the CPI. Changes to the rules for the annual re-assessment of owner-occupied houses may likewise affect UND1X. In the March Report it was assumed that taxable property values would continue to be frozen in 2001 and 2002; in view of the uncertainty about the future construction of property taxes, this assumption is retained. As previously, it is assumed that the temporary reduction of the property tax on rented housing will cease as planned; with a full pass-through to rents, this is calculated to add 0.2 percentage points to CPI and UND1X inflation during 2001 (Table 8).

House mortgage interest expenditure in April this year was broadly unchanged from a year earlier. The main scenario's assumption of an unchanged repo rate entails some initial fall in house mortgage rates from the current levels. The contribution to inflation from mortgage interest expenditure is then negligible in both 2000 and 2001, followed by the prospect of a positive CPI effect in 2002.

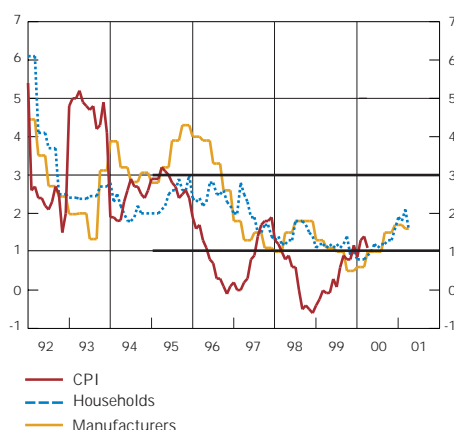
In addition to the property tax on multi-family housing, there are a number of political proposals that will very probably affect both CPI and UND1X inflation. The maximum day nursery charge that the Government intends to introduce in 2002 is calculated to have a CPI effect that year of -0.3 percentage

Figure 46. Money market agents' inflation expectations.
Per cent



Sources: Prospera Research AB and Statistics Sweden.

Figure 47. CPI and one-year 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 change in the CPI.

Sources: National Institute of Economic Research and Statistics Sweden.

points. The proposed maximum charge has been amended in relation to the information that was available at the time of the March Report, when the effect on CPI inflation was assumed to be –0.1 percentage point in both 2001 and 2002. Day nursery charges are not included in the CPI at present; the assessment presupposes their inclusion as of 2001.

Table 8. UND1X effects from political decisions.

Percentage points

	Dec. 2000	Dec. 2001	June 2002
Maximum day nursery charge	0.0 (0.0)	0.0 (-0.1)	-0.3 (-0.1)
Property tax on rented housing	0.0 (0.0)	0.2 (0.2)	0.0 (0.0)
Total UND1X effect	0.0 (0.0)	0.2 (0.1)	-0.3 (-0.1)
Total UNDINH effect	0.0 (0.0)	0.2 (0.2)	-0.5 (-0.2)

Note. The figures in parentheses are the forecasts in the March Report; for June the forecasts from the March Report refer to March.

Source: The Riksbank.

Inflation expectations

The general impression from surveys published since the March Report is of some fall in short-run inflation expectations and little change in expectations more than one year ahead. The short-run as well as the medium- and long-run expectations are in line with the inflation target (Fig. 46, Table 9). The one-year inflation expectations of households, manufacturers and services firms have been revised downwards (Fig. 47). The May survey from Statistics Sweden showed no sizeable changes in the inflation expectations of the groups interviewed but the spread between the groups has widened somewhat again (Table 9). The May survey from Aragon shows largely unchanged expectations around 2 per cent both two and five years ahead (Fig. 48).²⁰

Both short- and longer-term expectations continue to be in line with the inflation target.

Inflation expectations can also be derived from market interest rates, though caution should be observed because these rates are also sensitive to other factors, for instance risk premium. Since the March Report, real market rates of interest have generally fallen somewhat more than the corresponding nominal rates.²¹

20 Aragon Fondkommission publishes quarterly surveys of two- and five-year inflation expectations among agents in the Swedish interest-rate market.

21 In view of the low market liquidity of real interest bonds, the quoted real interest rates should be interpreted cautiously.

Table 9. CPI inflation expectations in May 2000.
Annual rate, per cent

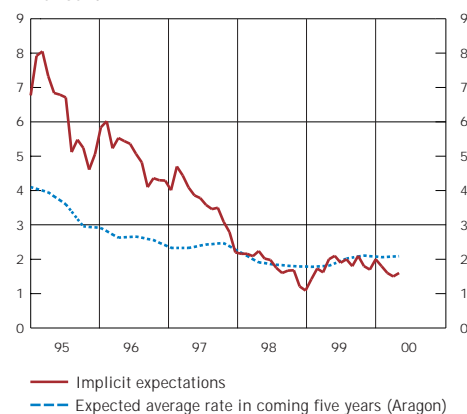
Expected inflation 1 year ahead		
Money market agents	1.7	(-0.1)
Employer organisations	1.9	(0.0)
Employee organisations	1.8	(-0.1)
Purchasing managers, trade	1.9	(0.0)
Purchasing managers, manufacturing	2.2	(0.1)
Households (HIP)	1.6	(-0.5)
Manufacturing firms (tendency surveys)	1.6	(-0.1)
Service firms (tendency surveys)	1.4	(-0.1)
Expected inflation 2 years ahead		
Money market agents	1.9	(-0.1)
Employer organisations	2.0	(-0.2)
Employee organisations	2.0	(-0.2)
Purchasing managers, trade	2.1	(0.1)
Purchasing managers, manufacturing	2.4	(0.3)
Expected inflation 5 years ahead		
Money market agents	2.0	(0.1)
Employer organisations	2.2	(-0.1)
Employee organisations	2.2	(-0.1)
Purchasing managers, trade	2.4	(0.1)
Purchasing managers, manufacturing	2.4	(0.1)

Note. The figures in parentheses are the change in percentage points from the previous survey.

Sources: National Institute of Economic Research and Statistics Sweden.

The difference between these rates has accordingly widened, which could indicate some increase in inflation expectations. Expectations of inflation in the long term can be derived from the difference between nominal and real forward long-term interest rates. For forward rates between 4 and 14 years this difference has fallen somewhat since the time of the March Report and is now some tenths of a percentage point below the inflation target (Fig. 49).²²

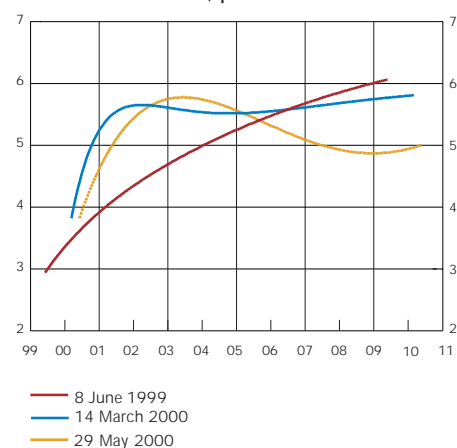
Figure 48. Inflation expectations.
Per cent



Note. Implicit inflation expectations are derived from the difference between implied 4–14-year real and nominal bond rates.

Sources: Aragon Fondkommission and the Riksbank.

Figure 49. Implied forward interest rates.
Effective annual rate, per cent



Source: The Riksbank.

²² As the forward long-term nominal interest rates are affected to a greater extent than the spot rates by the downward interest rate tendency in connection with the repayment of T-bond debt, the interpretation in terms of inflation expectations should be treated cautiously.

Inflation assessment

This chapter summarises the Riksbank's assessment of inflation prospects up to 2002 Q2, given that the repo rate is left unchanged at 3.75 per cent. The principal features of the main scenario (the developments in the coming twenty-four months that are 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

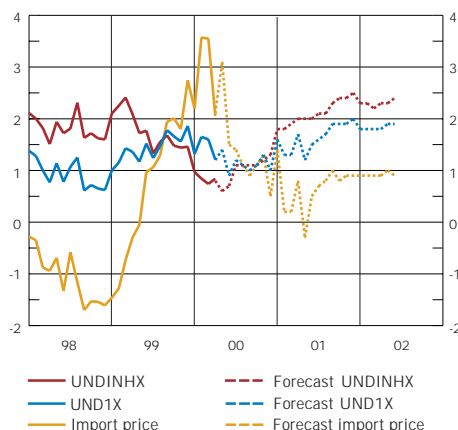
International economic prospects are good. Growth in the U.S. economy has continued at a rapid rate and is judged to be higher this year than assumed earlier. Even if activity there does slacken in the future, in the coming two years annual GDP growth is expected to average about 2.5 per cent. In the euro area, moreover, prospects have stabilised, with a favourable development of exports as well as domestic demand. Japan is still the only major industrialised country where a recovery looks uncertain. Economic activity has admittedly turned upwards as expected in recent months but the element of uncertainty is still great, above all about the future development of private consumption. All in all, annual growth this year in the OECD area is judged to be somewhat higher than foreseen in the March Report, while the forecast for the coming two years is unchanged.

The price of crude oil is judged, as in the March Report, to fall gradually in the coming two years. The forecast average oil price has been adjusted somewhat upwards for this year but is unchanged in the latter part of the forecast period. This gives a barrel price for oil that falls gradually from an average of almost USD 26 this year to just under USD 21 at the end of the period. This is accompanied by the prospect of a somewhat slower price rise for other commodities.

International export prices in national currencies have been weak in recent years, partly as a result of stronger international competition. In view of this and the weak price trend excluding oil, some downward adjustment of the forecast for international export prices has been made throughout the period. But the rate of increase is still judged to accelerate continuously.

Inflation in the major industrialised countries has moved up as a result of higher oil prices but is expected to be subdued in the future in that the oil price is judged to decline. Underlying inflation remains low in the euro area, accompanied by some increase in the United States. Still, fears of higher international price pressure have been met with higher interest rates in Europe as well as the United States and this is judged to reduce the risk of a more marked acceleration. All in all, the forecast for international consumer prices has been adjusted marginally

Figure 50. UND1X, UNDINHX and import price for goods: outcome and main scenario. Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

upwards for 2000 but is unchanged for 2001 and 2002.

In terms of the TCW index the level of the krona is much the same as at the time of the March Report. The path of the exchange rate is expected to be in line with the March assessment. Thus, it is foreseen that in effective terms the krona will appreciate gradually in the coming years, from about 123 at present to just over 118 in June 2002.

The weaker trend for international export prices tends to subdue import prices throughout the forecast period. In the past year, moreover, import price changes to producers have led to consumer price movements to a smaller extent than expected; this has been taken into account in the assessment. All in all, throughout the forecast period consumer prices for imported goods are judged to be weaker than forecast earlier. This means that import prices will continue to subdue the rising domestic activity's impact on the general price level (Fig. 50).

The assessment of inflation starts, as previously, from the technical assumption that in the coming two years the repo rate is unchanged. As the repo rate has not been adjusted since the previous Report, the present forecast is based on much the same level of nominal short-term interest rates. The forecast for longer rates has been revised somewhat downwards, however, for the first year but is unchanged two years ahead.

GDP growth is judged to be 4.3 per cent this year, 3.5 per cent in 2001 and 2.9 per cent in 2002.

Developments in recent months do not warrant any substantial reassessment of growth prospects for the Swedish economy. The picture on which the March Report was based, with a stable and strong upswing, marked in particular by rising domestic demand, is still essentially valid. However, the forecast of domestic demand growth has changed in some respects. A favourable development of income and wealth, together with very high optimism about the future, is expected to contribute to higher private consumption, particularly towards the end of the forecast period. Investment growth is also judged to be somewhat stronger than assumed earlier, mainly in view of good profitability and strong demand. All in all, compared with the March forecast, domestic demand growth is now judged to be somewhat higher throughout the forecast period. Even with the better growth prospects, this year's employment trend is expected to be marginally weaker, mainly in that outcome figures in the spring have been unexpectedly low. Towards the end of the period, however, employment is expected to rise somewhat faster than assumed earlier. The contribution to growth from net exports is expected to be somewhat smaller than forecast earlier, partly as a consequence of stronger import growth. All in all, GDP growth is judged to be 4.3 per cent this year, 3.5 per cent in 2001 and 2.9 per cent in 2002.

As no new statistics from the national accounts have been published since the March Report, the output gap estimates have not been changed. There are indications, however, that resource

utilisation in 1999 may have been somewhat lower than assumed earlier. The wage trend, for example, seems to have been somewhat weaker. This is supported by surveys of firms and industries, which show comparatively good reserves of unutilised capacity in certain industries and regions. But although resource utilisation in 1999 is now judged to have been somewhat lower, the upward adjustment of the growth forecast means that the shortage of resources in the coming years is expected to be much the same as forecast in March. The growth assessment implies that the economy's unutilised resources will be gradually brought into production, so that in time, capacity restrictions may begin to bite and influence prices.

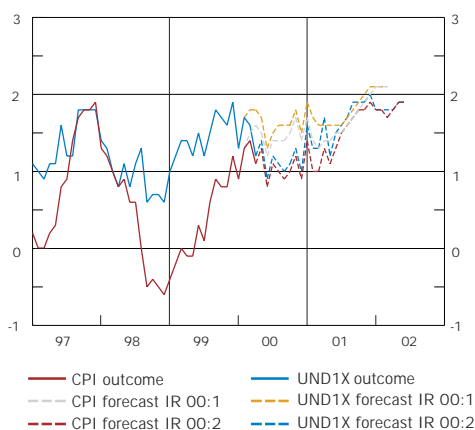
The assessment of resource utilisation is complicated by the uncertainty about the Swedish economy's potential growth rate. It is conceivable, for example, that the fairly extensive changes that were made in the course of the 1990s have altered the sustainable level of production. This lies behind the assessment that potential growth is now somewhat higher than in the 1970s and '80s, a view that is supported by the path of productivity in the last seven or eight years. It is primarily changes that may have altered the trends for labour supply and productivity that are relevant here. Experience from the United States in particular shows that with rising productivity, strong growth can be combined with low inflationary pressure for a series of years. At present it is not possible to draw any far-reaching conclusions to this effect as regards the Swedish economy.

Rising resource utilisation implies that wages may rise somewhat faster in the coming years. This is also suggested by the fact that wages for large groups will be re-negotiated next year, when labour demand is judged to be high. One restraining factor may, however, be that expectations of inflation and wage increases among labour market organisations are comparatively low. Another positive factor is the changes in recent years in the way the labour market functions. Wage agreements that incorporate local wage formation are now more prevalent, for example, and may increase the chances of wage increases in line with productivity and reduce the risk of compensatory wage demands. Moreover, the real wage trend has been strong and clearly demonstrated that low nominal wage increases can go hand in hand with an appreciable improvement in real earnings. But it is also important that real wages are adapted to the room provided by productivity growth. All in all, wage increases are now expected to be somewhat lower this year, while the forecast for the coming two years is unchanged.

Even with a weaker wage trend this year and better productivity, the increase in labour costs is unchanged from the March Report. For 2000 this is because certain negotiated employers' contributions have been increased. The unit labour cost forecast is also unchanged for 2001, while the increase in 2002 is now expected to be somewhat lower on account of slightly stronger productivity.

The Spring Bill contains proposals that will probably affect

Figure 51. CPI and UND1X: outcome and the main scenario in this and the previous Report. Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

consumer prices in the coming years. Among other things, the Government now intends to introduce the maximum day nursery charge in 2002 instead of 2001. In the March Report it was assumed that the ceiling on this charge would lower CPI inflation by 0.1 percentage point in both 2001 and 2002; with the new proposal, the maximum charge is expected to have a downward CPI effect of -0.3 percentage points in 2002. It is also expected that UND1X inflation will be affected to the same extent as CPI inflation.

Inflation expectations for the short as well as the long term remain in line with the inflation target. The low and stable expectations are judged to contribute to subdued inflationary pressure from the ongoing economic upswing.

Underlying inflation in the main scenario, measured by UND1X, is judged to be 1.5 per cent one year ahead and 1.9 per cent after two years.

In the light of the above, in the main scenario with an unchanged repo rate, underlying inflation, measured by UND1X, is judged to be 1.5 per cent one year ahead and 1.9 per cent after two years. These figures are somewhat lower than in the main scenario in March. In the short run the forecast has been affected mainly by the weaker price trends for telecom products and for goods that are mainly imported. The downward revision two years ahead is somewhat larger, mainly because the introduction of the maximum day nursery charge has been deferred until 2002 (Fig. 51). These factors also contribute to annual levels of UND1X and CPI inflation that, compared with the March Report, are judged to be somewhat lower for 2000 as well as 2001 (Table 10).

Table 10. Inflation forecasts in the main scenario. Percentage change

	Annual rate		12-month rate	
	2000	2001	June 2001	June 2002
CPI	1.1 (1.4)	1.4 (1.6)	1.3	1.9
UND1X	1.2 (1.6)	1.6 (1.8)	1.5	1.9
UNDINHX	1.0 (1.2)	2.1 (2.1)	2.0	2.4
HICP	1.1 (1.5)	1.5 (1.6)	1.3	1.8

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

Source: The Riksbank.

The difference between the CPI and UND1X consists of house mortgage interest expenditure, indirect taxes and subsidies. These transitory factors' combined effect on CPI inflation is calculated to be -0.1 percentage point one year ahead and 0.1 percentage point after two years. In the present situation the Riksbank disregards these factors in the formation of monetary policy because they are judged to have no permanent effect on inflation or inflation expectations.

A major factor behind UND1X inflation to date this year has been the price of crude oil. In the March Report it was considered that the crude oil price is influenced by aspects of supply as well as demand but that it is not possible to distinguish the different effects. The formation of monetary policy was therefore based on an assessment of UND1X inflation. Since then there has been no new information that alters the appraisal of how the development of oil prices should influence monetary policy.

When formulating monetary policy it is also necessary to consider how the expected effects of the maximum day nursery charge are to be handled. In recent years there have been a number of government measures – changes in public expenditure systems, privatisation and market deregulation – that, taken singly, could have been seen as more or less transient consumer price shocks. These changes have helped to keep inflation down and presumably also contributed to a lower level of inflation expectations than would otherwise have been the case. Disregarding measures of this kind in the formation of monetary policy would amount to ignoring an important element of the inflation process in recent years, in the same way as disregarding the inflationary effects of growing public intervention would have been in the 1970s and '80s. At the same time, changes in day nursery charges clearly do not affect underlying, more cyclical inflationary pressure, at least not directly, and it is this cyclically determined inflation that is primarily influenced by monetary policy.

Against this background, monetary policy is currently based on an assessment of UND1X inflation.

The risk spectrum

The inflation forecast in the main scenario is the path the Riksbank considers most probable, given the assumption of an unchanged repo rate in the coming two years. However, inflation forecasts are uncertain and the Riksbank's assessments of other conceivable outcomes are therefore also relevant in the formation of monetary policy. And while the main focus is on developments one to two years ahead, it is also necessary to consider the situation beyond that horizon.

In the March Report the risk spectrum was judged to be balanced, that is, starting from the somewhat higher inflation forecast, upside and downside risks were considered to be more or less equal. The main upside risks were perceived to be stronger economic activity in Sweden than assumed in the main scenario, particularly towards the end of the forecast period, and a steeper price fall than expected for oil and other commodities. The main downside risks for inflation prospects were weaker international activity, mainly in the event of a stock market fall and increased household saving in the United States, and larger price effects than expected from deregulations.

The main scenario presupposes, as in the March Report, that after several years of comparatively high growth, both

international and Swedish economic activity slacken towards the end of the forecast period. Such a growth profile cannot be taken for granted. The synergism inherent in concurrent international growth may have been underestimated and growth in Sweden may also be stronger than expected. For example, experience from the United States in particular shows that, with a favourable development of asset prices and a highly optimistic mood, consumption can rise strongly for a series of years without showing signs of a slowdown. So even with the upward revision of growth in the main scenario, there is still also an upside risk of a higher growth trend in Sweden. Such a trend would lead to higher resource utilisation at the end of the forecast period, with consequences for price tendencies in the following years.

Fiscal policy has a part in the risk of stronger growth than in the main scenario. The Government has made it clear that a part of the surplus that may be generated in excess of the 2 per cent target may be transferred to households. Illustrative calculations by the Riksbank show that measures of this type lead to somewhat higher inflation. This can have consequences for monetary policy. The major part of the effect occurs beyond the present two-year horizon and therefore does not affect the current assessment.

Another inflation risk lies in wages: a wage outcome for 2001 and 2002 that is either higher or lower than the present forecast cannot yet be ruled out. Still, the development of wages must be said to entail a greater risk of higher inflation because while there is a slight risk of appreciably higher wage outcomes, no equivalent risk exists of outcomes that are appreciably lower. A particular decision-making problem lies in the difficulty of forecasting wages, which are of central importance for prices. As a number of agreements covering a large segment of the labour market are to be concluded and game situations are a feature of wage negotiations, forecasting is difficult before the settlements have been made. The difficulties have been especially marked in recent years in that new conditions for wage formation are being tried out. These difficulties are now compounded by high economic activity.

The relationship between growth and inflation continues to be difficult to analyse. When the trade-off turned out earlier to be more favourable than expected, the conceivable explanations were a faulty assessment of resource utilisation, an underestimation of potential growth or a reaction to a given situation that was less inflationary than expected. On the one hand there are signs of a further improvement in productivity growth, which points to an existing or future increase in potential growth. That could mean that higher growth is feasible without generating effects on inflation. It is also possible that there are more unutilised resources at present than the Riksbank is counting on. On the other hand, for some time now the Riksbank has assumed that the Swedish economy is characterised by a relatively favourable relationship between growth and inflation, for instance in the form of an inflation propensity that is lower than the

historical average. So in this respect there is rather a risk of negative surprises. It is naturally not easy to summarise the effects of all the factors that might influence the relationship between growth and inflation. But all in all there are arguments for inflation being subdued to some extent compared with the main scenario.

Yet another downside inflation risk has to do with the U.S. economy. The imbalances there – as a result of low household saving, massive current-account deficits and high share prices – still constitute a threat to global economic growth. Via effects on international economic activity, an even more dramatic price fall on the American stock markets could lead to lower growth and inflation in Sweden as well. It should be noted, however, that the strength of the U.S. economy has been repeatedly underestimated.

The price of oil and the krona's exchange rate are important variables for inflation at the same time as they are difficult to forecast. At present the risks of higher and lower outcomes are judged to be symmetric around the assumptions in the main scenario.

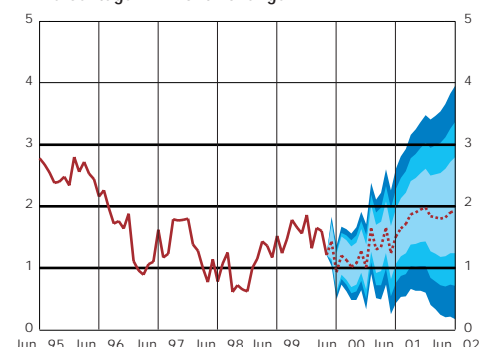
Inflation prospects are judged to have some upside risk.

All in all, against this background the risk spectrum one year ahead is judged to be balanced around the assessment in the main scenario, whereas two years ahead there seems to be some upside risk. The skewed distribution of risk mainly refers to the present assessment that domestic growth may be stronger. In a longer time perspective the upside risk is accentuated in that inflationary effects from this development are likely to be lagged. So higher inflation two years ahead compared with the main scenario appears more probable than lower inflation. This is evident from Fig. 52, which presents the uncertainty around the forecast of underlying inflation, measured as the 12-month change in UND1X.²³ As the upside risks are judged to be greater than the downside, the uncertainty interval is somewhat broader above than below the forecast path in the main scenario. A special aspect of the present inflation assessment is the introduction of a maximum day nursery charge; this has the effect of lowering inflation relatively markedly in 2002 but not after that.

The uncertainty in the forecast is roughly as great as in the March Report.

The CPI inflation forecast in the main scenario also has a balanced risk spectrum in the short run and a somewhat skewed spectrum in the longer run (Fig. 53). The degree of uncertainty in the assessment of future underlying inflation as well as CPI

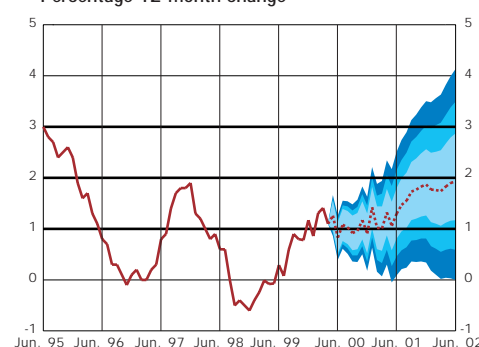
Figure 52. UND1X with uncertainty intervals.
Percentage 12-month change



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

Sources: Statistics Sweden and the Riksbank.

Figure 53. 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.

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

inflation is approximately the same as in the March Report, as is evident from the uncertainty intervals being as wide as before.

Monetary policy decisions are based primarily on an assessment of price tendencies one to two years ahead. The upside risk in the inflation assessment means that when the risk spectrum is taken into account, forecast inflation is somewhat higher than in the main scenario. The comprehensive assessment of UND1X inflation accordingly gives rates of 1.5 per cent one year ahead and 2.0 per cent after two years (Table 11).

Table 11. Inflation forecasts including the risk spectrum.
Percentage change

	Annual rate		12-month rate	
	2000	2001	June 2001	June 2002
CPI	1.1 (1.4)	1.4 (1.6)	1.3	2.0
UND1X	1.2 (1.6)	1.6 (1.8)	1.5	2.0

Note. The table gives the mean values of the inflation assessment's probability distributions (see Figs. 51 and 52). The figures in the March Report are given in parentheses.

Source: The Riksbank.

In the short run the probabilities of both underlying (UND1X) and CPI inflation being below 2 per cent are still considerably greater than the probabilities of rates above 2 per cent (Tables 12 and 13). Two years ahead, however, the probabilities of outcomes above and below the inflation target are the same.

Table 12. UND1X inflation.
Percentage probability, 12-month rate

	UND1X<1	1<UND1X<2	2<UND1X<3	UND1X>3	Total
2001 (June)	22	55	22	1	100
2002 (June)	19	31	30	20	100

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

Source: The Riksbank.

Table 13. CPI inflation.
Percentage probability, 12-month rate

	CPI<1	1<CPI<2	2<CPI<3	CPI>3	Total
2001 (June)	34	49	16	1	100
2002 (June)	21	29	28	22	100

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

Source: The Riksbank.

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 3.75 per cent, inflation will be somewhat below 2 per cent both one and two years ahead. When the risk spectrum is also taken into account, however, inflation is judged to be on the target at the end of the forecast period. The uncertainties in the assessments of both underlying and CPI inflation are assumed to be unchanged compared with the March Report.

AN ILLUSTRATION OF INFLATION FORECASTING WITH A RISING REPO RATE

Market pricing and survey data on analysts' opinions indicate expectations at present that the repo rate will be raised successively in the coming two years. The inflation forecasts of external observers likewise incorporate a rising repo rate. In the main scenario, however, inflation is forecast with the assumption that the repo rate will be unchanged; this serves to bring out the consequences for the formation of monetary policy. An illustrative calculation is therefore presented here that incorporates repo rate increases in line with market expectations as reported in Statistics Sweden's survey in May 2000.

The survey data show expectations of repo rate increases to 4.00 per cent three months from now, to 4.65 per cent after one year and to 4.95 per cent two years ahead.²⁴ 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 smaller. Compared with the main scenario, the short rates are judged to be 0.5–1.0 percentage point higher, while the effect on long rates stops at approximately 0.1 percentage point. The higher level of interest rates is considered to strengthen the krona: in the forecast period the effective (TCW) exchange rate is judged to appreciate about 1 per cent more than in the main scenario.

Compared with the main scenario, a path for the repo rate that follows the expectations in Statistics Sweden's survey accordingly gives a higher level of interest rates and a stronger exchange rate in the forecast period. This in turn means that the combined effect on demand from interest rates and the exchange rate is judged to be less expansionary than in the main scenario.

The higher interest rates compared with the main scenario are judged to have some downward effect on the growth of consumption and investment. Moreover, the stronger exchange rate curbs net exports. All in all, this is judged to reduce GDP growth by about 0.2 percentage points in both 2001 and 2002. The damping of activity is also assumed to result in a marginally weaker wage trend.

²⁴ The median value of the expectations.

Table B1. Modified inflation forecast, incorporating the interest rates expected in Statistics Sweden's survey in May 2000.

Percentage change and percentage points

	Annual rate 2000	Annual rate 2001	12-month rate June 2001	12-month rate June 2002
CPI	1.2 (0.1)	1.6 (0.2)	1.5 (0.2)	1.9 (0.0)
UND1X	1.2 (0.0)	1.5 (-0.1)	1.4 (-0.1)	1.8 (-0.1)

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

Source: The Riksbank.

The higher interest rates imply increased interest expenditure for households and this affects price tendencies already during 2000. Compared with the main scenario, CPI inflation is therefore judged to be an average of about 0.1 percentage point higher in 2000 and 0.2 percentage points higher in 2001. It is not until later in the forecast period that the weaker demand and the lower import prices associated with a stronger exchange rate begin to affect inflation more markedly. This has to do with the assumption that the repo rate increase is spread over the coming two years and that monetary policy's influence on prices is lagged. It is therefore not until 2001 that a downward effect on UND1X inflation shows up from weaker demand and lower import prices, when it averages approximately 0.1 percentage point.

THE RIKSBANK'S FORECAST 1993-98

For the successful implementation of a monetary policy that targets an explicitly quantified rate of inflation it is important to have access to good assessments and forecasts of the economy's likely future path. This is important primarily because effects elicited by monetary policy measures are lagged in time and spread over a number of years. In order to determine which measures are called for, it is therefore necessary to assess what is likely to happen during these years, starting from alternative assumptions, for instance that the Riksbank chooses to adjust the repo rate or leave it unchanged. A forward-looking monetary policy is also desirable because, like other central banks, the Riksbank endeavours to avoid large interest-rate fluctuations. In the event of an economic shock, bringing inflation back to the targeted rate as soon as possible may not be advisable because it might require large changes in interest rates and thereby also in production, employment, etc. That, moreover, is why monetary policy focuses, not on how inflation happens to be developing at present or in a single future month but on its trend in the longer run.

In recent years monetary policy in Sweden has been guided by a 'rule of thumb' whereby repo rate adjustments are motivated by the forecast rate of inflation one to two years ahead and its deviation from the targeted rate. This forecast represents the expected rate of inflation *given that the Riksbank holds the repo rate unchanged*. As there are generally grounds for supposing that the repo rate will be adjusted, it follows that the forecasts on which the Riksbank bases its policy do not constitute inflation's most realistic future path. The Riksbank nevertheless prefers to premise its economic assessments on an unchanged repo rate because the rule of thumb is easier to interpret if it refers to interest rate reactions to events that the Riksbank is not affecting by its own actions. If the forecasts were conditioned by a particular future policy stance, they could hardly serve as a foundation for monetary policy decisions that amount to a different stance. With the present arrangement, the forecasts can provide a starting point for discussing the formation of monetary policy that is appropriate *given* a particular forecast.

At the same time, forecasts based on an unchanged repo rate do have the drawback that they cannot be

compared in a simple, direct manner with other observers' forecasts, which normally represent the most likely outcome (and should therefore take probable repo rate adjustments into account). Moreover, the assumption makes it difficult to evaluate the accuracy of the forecasts and hence indirectly monetary policy, too, since to a high degree the latter is guided by the forecasts.

In the March 2000 Inflation Report the Riksbank published a scrutiny of its policy in the period 1997–99. A longer historical review, covering the forecasts from December 1992 to November 1998, is presented here.

It was in 1996 that figures for the forecast level of inflation in the coming years were first included in the Riksbank's Inflation Report. This meant that the forecasts were taken to be the Riksbank's official assessment. No such data had been published earlier. As of 1997 the Inflation Report contained forecasts of monthly inflation. More exact inflation forecasts (to one place of decimals) have been published since March 1998 and forecasts of annual GDP growth since March 1999. The present analysis is accordingly based in part on inflation and GDP growth forecasts that have not been published earlier; they were produced at the Riksbank but as they were not included in the Inflation Report, they have not been available outside the Bank.

A characteristic of inflation forecasts during the 1990s, by the Riksbank and other Swedish forecasters as well as by institutions elsewhere, is that the outcome has been lower than predicted. There are several conceivable reasons for this, although even with hindsight it is difficult to arrive at a clear explanation. One possibility is that the deep recession which hit Sweden and the global economy in the early 1990s resulted in much higher unemployment, as well as more unutilised capacity in other forms, than any slowdown in the preceding decades. Another is that the deregulation and privatisation that were undertaken in many countries may have led to lower price pressure through increased competition; this applies not least to the deregulations that led to freer trade and greater international integration. In Sweden, moreover, a major factor behind the low inflation may have been the monetary policy realignment, with a stronger emphasis on combating inflation. In principle, at least, such far-reaching economic changes may account for the difficulty that established forecasting models and

methods had in predicting that the rate of inflation in the 1990s would be so much lower than in earlier decades.

The Riksbank's forecasts for the change in the CPI *one year ahead* are presented in Fig. B13 together with assessments by other Swedish forecasters.²⁵ The Riksbank's forecast, the median of the forecasts by the other observers and the latter's spread (highest and lowest forecasts) are given for nineteen occasions, each of which is the month of the Riksbank's forecast (from December 1992 to November 1998); the other observers are represented by their most recent forecast at that time. The corresponding comparison of forecasts of inflation *two years ahead* is shown in Fig. B14. Note that as forecasts extending two years ahead were not presented regularly by all the institutions in the group of 'other observers', the comparison at this time horizon is more sensitive to the assessments of individual institutions than is the comparison of forecasts one year ahead.²⁶ The corresponding forecasts of real GDP growth are presented in Figs. B15 and B16.

The two-year inflation forecasts are presumably the most relevant series in the context of monetary policy. It will be seen from Fig. B14 that in most cases (thirteen of the nineteen occasions) the Riksbank's forecast was inside the spread across other observers. It should also be noted, however, that a majority of the Riksbank's forecasts (eleven out of nineteen) were somewhat on the high side of the median value for the other observers. Otherwise the Riksbank's forecast matched the median for the other observers on four occasions and was somewhat lower than this also on four occasions. Furthermore, there is a fairly large difference between the first and second halves of the period: in the years 1992–95 the Riksbank's forecasts were above the median for the other observers on over 85 per cent of the occasions (seven out of eight), whereas this was the case for little more than 35 per cent (four out of eleven) in the years 1996–98.

25 The analysis is based on a compilation by the National Institute of Economic Research of forecasts by the Ministry of Finance, the Wholesale & Retail Research Institute, the National Institute of Economic Research, the Federation of County Councils, the Trade Union Confederation, Handelsbanken, Nordbanken, SEB and Sparbanken.

26 The meaning of 'one year ahead' and 'two years ahead' is not self-evident. In the case of, for example, for forecasts in December 1992 and March 1993, the 'two years ahead' forecast refers to inflation in 1994, whereas the corresponding forecast in August 1993 refers to inflation in 1995. Space prohibits a detailed discussion of how the data have been constructed; interested readers can obtain the information from the Riksbank.

Figure B13. Forecasts of CPI one year ahead.
Percentage 12-month change

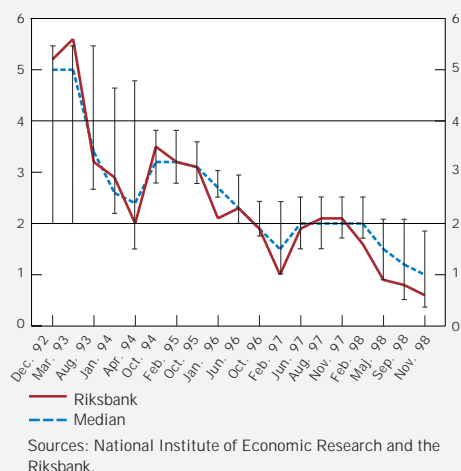
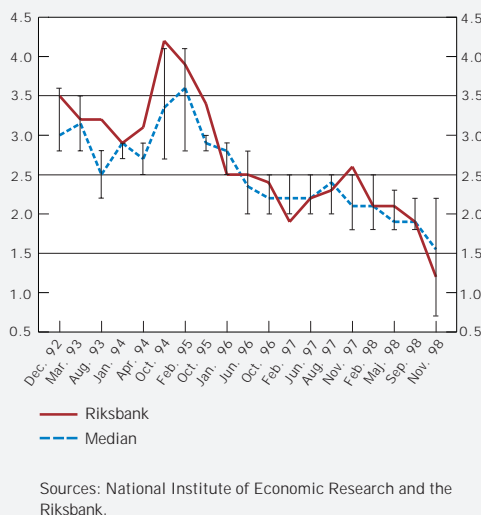


Figure B14. Forecasts of CPI two years ahead.
Percentage 12-month change



A conceivable explanation for the frequent discrepancies between the Riksbank's forecasts of inflation two years ahead and the forecasts from other institutions could be that the latter incorporate expected repo rate adjustments, whereas the Riksbank's aim, as mentioned above, is to describe inflation's probable path given that the repo rate remains unchanged. From this it follows that, on average, the Riksbank's forecasts should turn out to be less accurate than those of other observers provided the latter's expectations of the future repo rate are more or less correct.

Another point worth noting is that, notwithstanding the different underlying assumptions, the extent to which the Riksbank's inflation forecast agrees with those of the other observers seems to have increased over time. In the first half of the observation period, four of the Riksbank's two-year inflation forecasts were outside the spread of the other observers, whereas in the second half this happened only twice. In 1997 and 1998 there was no systematic discrepancy between the Riksbank's forecasts and the median of the other observers' forecasts.

As regards real GDP growth, a comparison of the forecasts gives much the same picture as for the two-year inflation forecasts in the latter part of the period; that is to say, there is relatively good agreement between the Riksbank and other observers (Figs. B15 and B16). Unlike the inflation forecasts, however, there is no systematic forecasting error in the GDP assessments (by either the Riksbank or other observers); on average, GDP outcomes were overestimated roughly as frequently as they were underestimated.

Besides the fact that the Riksbank assumes an unchanged repo rate, whereas other observers incorporate the expected path in their forecasts, the differences between the inflation forecasts may of course stem from many other causes. For example, the forecasting models that are used may differ in structure, in the specification of parameters and in assumptions about exogenous variables.

The relationship between the alternative repo rate assumptions and the differences between the inflation forecasts can be studied by estimating a regression equation that explains interest rate movements in terms of earlier discrepancies between the Riksbank's inflation forecasts and, for example, the median of the forecasts by other observers. Provided all the forecasters approximately share what is, on average, a correct picture of how the economy functions, interest rate

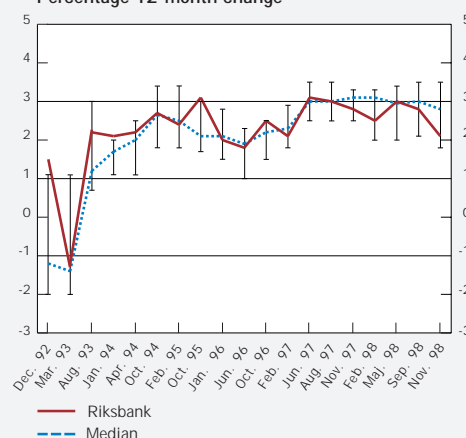
hikes/cuts should be preceded by the Riksbank forecasting higher/lower inflation than the 'market'. One such regression analysis (there are, of course, many alternatives) yielded the following results:

$$\Delta i_t + \Delta i_{t-1} = -0,38 + 2,71(\pi_{t-1}^{RB} - \pi_{t-1}^M) + 1,23(\pi_{t-2}^{RB} - \pi_{t-2}^M) \\ (0,98) \quad (3,09) \quad (1,51) \\ -1,50(\pi_{t-3}^{RB} - \pi_{t-3}^M) - 2,23(\pi_{t-4}^{RB} - \pi_{t-4}^M). R^2 = 0,64 \\ (1,86) \quad (2,76) \quad t = 5, \dots, 19$$

Here the Riksbank's forecast (at time t) of inflation two years ahead is denoted π_t^{RB} and the median of the other corresponding forecasts π_t^M (i.e., the series presented in Fig. B14), while Δi_t is the change in the repo rate between the forecasts at times t and $t-1$.²⁷ The figures in parentheses (t values) indicate the probability of the estimated coefficients differing from zero (values greater than +2 or less than -2 are often taken to be statistically significant). The regression shows that the forecasting discrepancies between the Riksbank and other observers play some part in explaining future interest rate movements: Riksbank inflation forecasts that are higher/lower than the market's are associated with future interest rate hikes/cuts.²⁸ This in turn may indicate that a part of the discrepancies between the inflation forecasts has to do with the Riksbank's assumption of an unchanged repo rate. It should be underscored, however, that the results must be interpreted very cautiously, partly because the available data are limited.

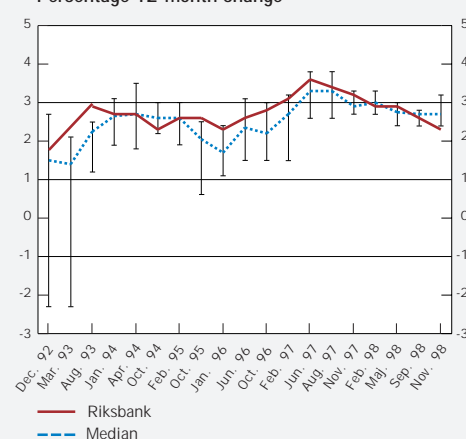
To sum up, while the Riksbank, like other forecasters, most frequently overestimated future inflation following the introduction of the inflation target, its assessments have also most frequently been inside the spread of other forecasts. From 1996 onwards, moreover, the

Figure B15. Forecasts of GDP one year ahead. Percentage 12-month change



Sources: National Institute of Economic Research and the Riksbank.

Figure B16. Forecasts of GDP two years ahead. Percentage 12-month change



Sources: National Institute of Economic Research and the Riksbank.

27 In other words, the repo rate change 'during period t or the aggregate change during a period of x weeks before the date of the forecast and x weeks afterwards. When comparing repo rate changes with inflation forecasts, this is considered to be a reasonable approach in that the timing of the forecasts has not been regular over the years (so that x varies over time) and that the Riksbank produces forecasts and adjusts the repo rate gradually; x is defined so that each repo rate adjustment is associated with the forecast that is closest in time.

28 The sum of the coefficients is positive even though the studied period is characterised by repo rate cuts rather than hikes. The interest rate trend is captured in the regression's negative intercept. There is no clear trend in the repo rate change and the forecasting discrepancies, that is, the series can be assumed to be stationary.

discrepancies between the Riksbank and other forecasters have been smaller than before. At least a partial explanation of the fact that the Riksbank's forecasts of inflation two years ahead differ from the median of other forecasts could be that the Riksbank assumes an unchanged repo rate. More definite conclusions will have to await more detailed studies.