

Contents

■ Foreword	3
■ Summary	5
■ Chapter 1 Consumer prices	7
■ Chapter 2 Determinants of inflation	11
International activity and inflation	11
Interest rates and exchange rate	16
Import prices	19
Demand and supply	25
Price effects of deregulations and trade liberalisation	51
Effects of political decisions and interest expenditure	59
Inflation expectations	60
■ Chapter 3 Inflation assessment	62
The prospects in the main scenario	62
The risk spectrum	65
■ Boxes	
Oil price and inflation in Sweden, with a selection of oil price forecasts	21
Asset prices	30
Current labour market duality and regional imbalances	37
Determinants of growth	41
Wage formation and the inflation target	48
Prices and competition in Sweden's food sector	53
An illustration of inflation forecasting with a rising repo rate	69



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 starts from the presentations and discussions of inflation at the Executive Board meetings on 25 November and 1 December 1999. The assessment of inflation presented here represents the Riksbank's overall appraisal of inflation prospects in the present situation. The Report formed the background to the Riksbank's monetary policy decision on 8 December 1999. 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 8 December 1999, to be published on 11 January 2000.

The purpose of the Inflation Report is 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 2001 Q4. In order to bring out the consequences for monetary policy, the analysis assumes that the repo rate is kept unchanged.

Chapter 1 presents recent consumer price tendencies in relation to the assessments in the October Inflation Report. The account in Chapter 2 concerns inflation's most probable path. The chapter is structured to follow a simple inflation model and thereby provide a clear picture of the factors that are important for future inflation. Chapter 3 summarises the Riksbank's assessment of inflation prospects. The Report also contains a number of boxed texts, the purpose of which is to provide more detailed insights into matters of importance for inflation assessments and the formation of monetary policy.

Stockholm, December 1999

Urban Bäckström
Governor of Sveriges Riksbank



Summary

■ Since the October Inflation Report both *CPI and underlying inflation* have broadly followed the expected path. In October the 12-month rate of CPI inflation was 0.8 per cent and underlying inflation, measured by UND1X, was 1.7 per cent.

International economic activity and inflation. International economic prospects have continued to improve since the October Report. Annual growth in the OECD area in the period 1999–2001 is judged to average over 2.5 per cent, which is somewhat higher than assumed earlier. With the better global activity and rising commodity prices, the increase in international export prices is judged to be somewhat higher than foreseen in October. The *Swedish krona* is judged to appreciate, though somewhat more slowly than anticipated in October. Together with higher prices for oil and other commodities, this is expected to lead to a somewhat stronger increase in Swedish *import prices*. But the import price trend still looks weak and is judged to hold inflation's upward tendency back.

Domestic demand supply. The picture of a stable, broad economic upswing in Sweden is unchanged. Even if the November repo rate increase does have some dampening effect on activity, there are grounds for counting on a rapid increase in domestic demand. At the same time, the brighter international prospects contribute to a somewhat more favourable development of net exports. All in all, the GDP growth rate is judged to be 3.4 per cent in 1999, 3.7 per cent in 2000 and 3.3 per cent in 2001. With the comparatively rapid expansion of total demand, the economy's unutilised resources will be brought into production successively. In time, capacity restrictions may begin to take hold and influence price formation. At present, however, there is nothing which suggests that more marked shortages will arise in the forecast period.

Deregulations, particularly in the telecommunications market, seem to have exerted a downward price effect during 1999 that is greater than expected earlier. Otherwise the effects are assumed to be the same as foreseen in the October Report. The combination of various deregulations and an increased liberalisation of trade is judged to have an aggregate downward effect on prices of 0.4 percentage points in 1999, 0.3 percentage points in 2000 and 0.2 percentage points in 2001.



Inflation expectations show some further increase for the short run but the level is still low. Inflation one year ahead is expected to be below 2 per cent and expectations for the longer run are in line with the target. The latter should help to moderate inflationary impulses from the rising activity.

Changes in indirect taxes, subsidies and house mortgage interest rates are judged to hold back the CPI increase by 0.2 percentage points in 2000 and then add 0.3 percentage points to CPI inflation in 2001. Under present circumstances the Riksbank disregards these factors in the formulation of monetary policy because they are judged to have no permanent effect on inflation or inflation expectations. This means that in practice monetary policy is currently based on an assessment of inflation as measured by UND1X.

■ To sum up, the picture in the October Report is essentially unchanged. Domestic demand growth is strong and international activity shows signs of improving. With higher international prices, particularly for commodities, and a slower appreciation of the krona, the development of import prices is not expected to counter growing domestic inflationary pressure to the extent that was assumed earlier. Even with the November repo rate increase, UND1X inflation is therefore judged to be marginally higher than envisaged in the October Report. In the main scenario, which assumes an unchanged repo rate, underlying inflation, measured as UND1X, is now judged to be 1.8 per cent one year ahead and 2.2 per cent in two years' time.

■ The risk spectrum also has a bearing on the formulation of monetary policy. International activity could be weaker than foreseen in the main scenario and the price effects of deregulations in Sweden may be greater than estimated. This might bring inflation below the path in the main scenario. There is also a risk of more marked labour shortages, so that wages and prices rise more strongly than foreseen in the main scenario. Moreover, higher prices for oil and other commodities or a weaker krona could lead to a stronger development of import prices, in which case rising domestic activity's impact on the general price level would not be countered to the extent envisaged in the main scenario. All in all, the balance of risks in the inflation forecast is judged to be somewhat on the upside. Taking the risk spectrum into account, the assessment of UND1X inflation two years ahead is approximately 0.1 percentage point above the rate in the main scenario and is thus 2.3 per cent.

■ The conclusion from the reported assessments is that, excluding transitory effects from changes in indirect taxes, subsidies and interest rates, and given that the repo rate remains unchanged at 3.25 per cent, inflation will rise slowly and be somewhat above the target two years ahead.

Consumer prices

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

In the two most recent months, consumer prices have risen almost one per cent, which is normal for the season and in line with the main scenario in the October Report. In October the 12-month change in the consumer price index (CPI) was 0.8 per cent. The underlying price level, measured by UND1X, has also risen during the autumn. The 12-month change in UND1X was 1.7 per cent in October and domestic underlying inflation, measured by UNDINHX, was 1.5 per cent (Fig. 1).¹ The underlying domestic price tendency was accordingly somewhat lower than the Riksbank envisaged in the October Report.

The recent rapid increase in producer prices for both commodities and manufactured products is assumed to make the contribution to inflation somewhat larger than expected earlier. This tendency is countered, however, by price effects from deregulations in the electricity and telecommunications sectors that are assumed to be stronger than expected earlier. In the short run the latter effects are expected to predominate, so that the path of underlying inflation will be weaker than foreseen in the October Report.

Inflation has followed the expected path.

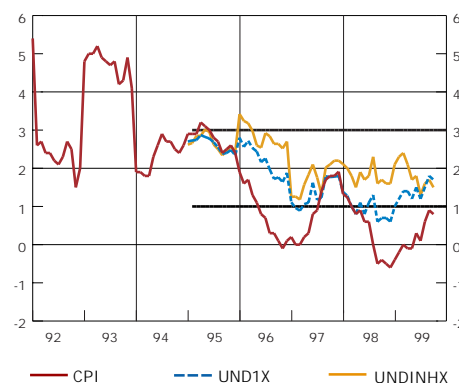
The overall price tendency conceals considerable differences between components. The price rise for services has been subdued, while prices for goods have risen increasingly rapidly and housing costs have gone on falling (Fig. 2).

IMPORT PRICES RISING RAPIDLY

Prices for goods that are mainly imported have risen rapidly in recent months (Fig. 3). This was largely expected and it primarily reflects rising prices for petroleum-related goods (Fig. 4), though higher prices have also been noted for other categories, for example clothing. Although the price of crude oil has risen more markedly than foreseen in the October Report, the increase in petrol prices

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

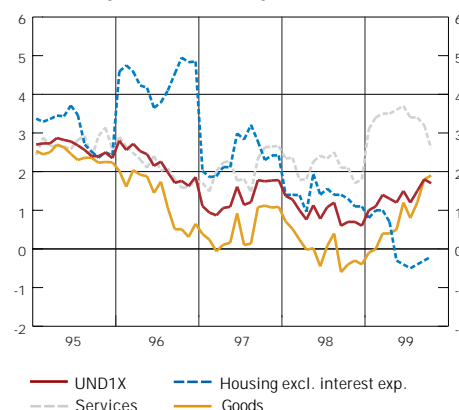
Figure 1. CPI and underlying inflation. Percentage 12-month change



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

Source: Statistics Sweden.

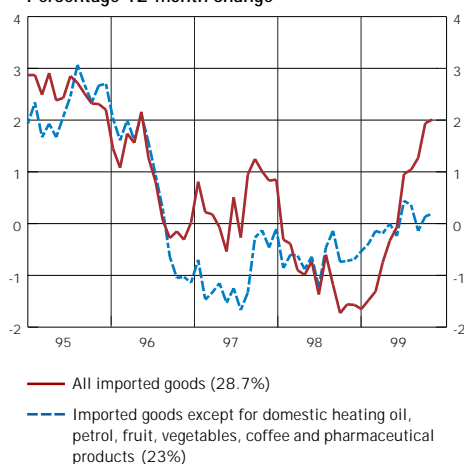
Figure 2. UND1X components: goods, services and housing. Percentage 12-month change



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

Source: Statistics Sweden.

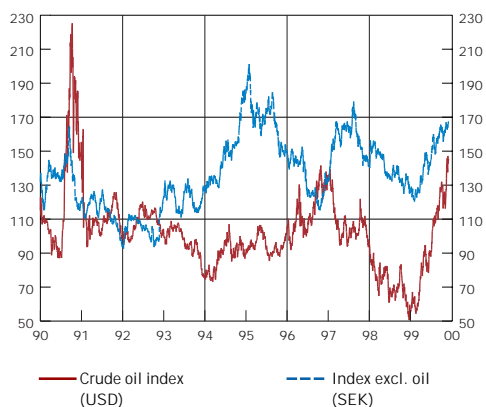
Figure 3. CPI component: imported goods excluding taxes
Percentage 12-month change



Note. The figures in parentheses are the component's CPI weight in 1999.

Source: Statistics Sweden.

Figure 4. Crude oil price index and import-weighted commodity price index excl. crude oil. Daily quotations, January 1992=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 4 November 1999.

Sources: Ecwin, Statistics Sweden and the Riksbank.

has been comparatively small. The recent tendency in import prices to producers has been somewhat stronger than expected earlier, for commodities as well as more manufactured goods. All in all, in the short run the upward pressure on consumer prices from imported goods is judged to be somewhat stronger than assumed in the October Report.

ACCELERATING PRICE RISE FOR SWEDISH GOODS

Prices for Swedish goods have risen in recent months at an accelerating rate, which indicates that with the economic upswing, the declining rate of price increases in recent years has been broken (Fig. 5). Moreover, the increase in home market prices to producers to date this year has been underestimated. The September business tendency survey from the National Institute of Economic Research shows that further price increases are planned by a growing proportion of firms. Together with rising commodity prices and strong consumer demand, this could mean that in some months' time, prices for Swedish goods will rise somewhat faster than estimated in the October Report's main scenario.

Table 1. Price indexes for manufacturing
Percentage change

	Dec. '98-Oct. '99	Aug. '98-Aug. '99	Oct. '98-Oct. '99
Export prices	0.3	-0.6	0.0
Home market prices	1.8	0.3	1.5
Import prices	3.2	3.7	3.5
Domestic supply	2.4	1.9	2.4
Producer prices	0.9	-0.1	0.7

Source: Statistics Sweden.

PRICE FALL FOR SERVICES UNEXPECTEDLY MARKED

The price trend for services is normally stronger than for goods (Fig. 2). This is a natural phenomenon, for several reasons. For one thing, productivity gains in the production of services are usually smaller than in the production of goods, while the development of wages is usually fairly similar. For another, goods in general are more exposed to international competition. Moreover, in periods when the krona appreciates there is an effect from goods having a considerably larger import content than services, so that a strengthening of the krona tends to subdue prices for imported intermediate products.

The price tendency for services in recent months has been somewhat weaker than expected.

Both the strong price rise for services at the beginning of 1999 and the fall in the second half-year are largely explained by various deregulations. Dental charges rose rapidly when they were deregulated at the beginning of 1999. In the past six months the upward price trend has slackened, above all in connection with telecommunication services; the price fall for the latter accounts

for more than 1 percentage point of the overall deceleration of services prices since March 1999 (Figs. 6 and 40). A major factor behind the slower price rise is the deregulation of the telecommunications market this September, in that it gave consumers a free choice of operator. In the coming months the price rise for services is expected to go on slackening, mainly as a result of continued price pressure for electricity and telecommunication services. After the turn of the year, moreover, the 12-month rate of inflation will cease to be affected by the increase in dental charges in January 1999.

Services prices (apart from housing) that are set administratively have gone on rising at a moderate rate, though the trend since the beginning of 1998 is upward.² The only important new information since the October Report is the public transport decision to raise the price of a monthly season ticket for Greater Stockholm by as much as 12.5 per cent as of 2000.

HOUSING COSTS STILL FALLING

A considerable proportion of household expenditure on housing is subject to price controls and administrative decisions. The present aggregate level of these costs is lower than a year ago (Fig. 7). This expected development has several explanations. One is that falling interest rates and the reduction of property tax have contributed to lower costs for property owners. Another is the deregulation of the electricity market. A third explanation is that Statistics Sweden has altered the way in which the depreciation item in costs for owner-occupied housing is calculated and this entails a marked retardation of the item's price change.

The marked increases in long-term interest rates and oil prices in the past six months are raising property owners' costs. Together with recent demands for large rent increases, this is judged to result in a rent tendency that is somewhat stronger than expected earlier.

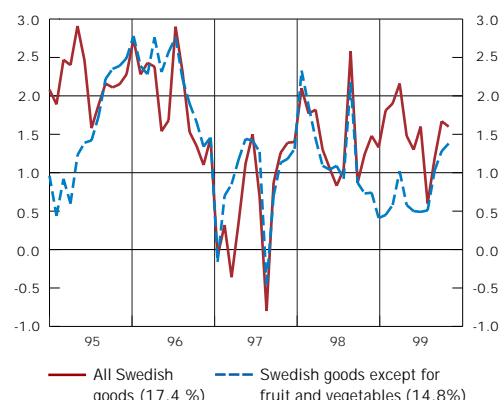
UNDERLYING INFLATION AS EXPECTED

There are various ways of measuring underlying or core inflation. One involves using an econometrically estimated model.³ According to this approach, which is most akin to Statistics Sweden's index of underlying domestic inflation, UNDINH, the underlying rate of inflation moved up slightly and in 1999 Q2 was about 2 per cent.

Another way of measuring underlying inflation involves excluding certain CPI components. One example is UND1X, which represents the sum of price movements for the goods and services discussed above. In recent months the rate of UND1X inflation has tended to move up, in line with the assessment in the October Report.

2. Leasehold rent, water, sewage, refuse collection, chimney sweeping, vehicle safety testing, driving lessons, postal services, television licence, lotteries etc. and medical care.
 3. See *Inflation Report 1999:2*, box on pp. 51-52.

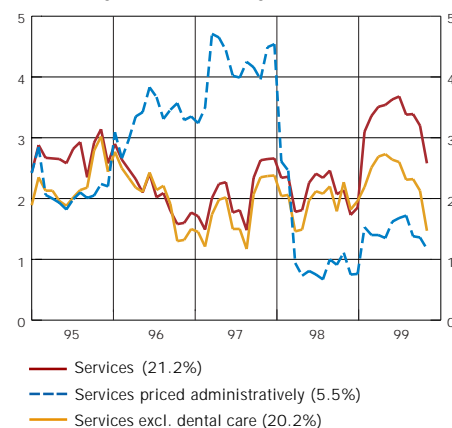
Figure 5. CPI component: Swedish goods excluding indirect taxes. Percentage 12-month change



Note. The figures in parentheses are the component's CPI weight in 1999.

Source: Statistics Sweden.

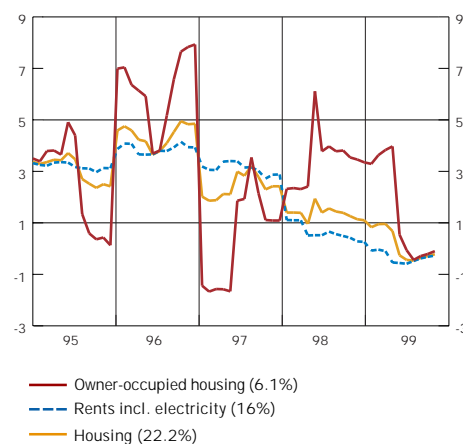
Figure 6. CPI component: services excluding indirect taxes. Percentage 12-month change



Note. The figures in parentheses are the component's CPI weight in 1999.

Source: Statistics Sweden.

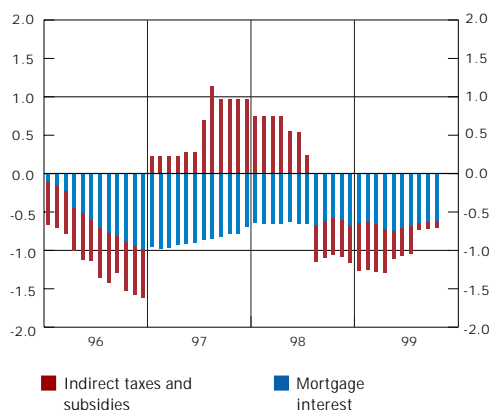
Figure 7. CPI component: housing excluding indirect taxes and interest expenditure. Percentage 12-month change



Note. The figures in parentheses are the component's CPI weight in 1999.

Source: Statistics Sweden.

Figure 8. CPI effects of changes in indirect taxes, subsidies and house mortgage interest expenditure.
Percentage points



Sources: Statistics Sweden and the Riksbank.

The tendency for underlying domestic inflation, as measured by UNDINH_X, has been somewhat weaker than expected earlier, mainly because the downward price effect from the deregulation of telecommunications has been greater than anticipated. A further dampening of UNDINH_X is foreseen in the short run because the price fall for electricity and telecommunications is now assumed to be somewhat greater than was allowed for in the October Report.

For imported goods, the price tendency has been unexpectedly strong even though price increases for petrol have been small in relation to crude oil prices. But as petrol prices are judged to rise in future in line with crude oil prices, the price rise for imported goods in the coming months is assumed to be somewhat stronger than foreseen in the October Report.

HOUSEHOLD INTEREST

EXPENDITURE STILL DAMPING THE CPI

The difference between underlying inflation, measured as UND1_X, 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 is marginal at present, while interest expenditure had a downward effect in October of as much as 0.6 percentage points (Fig. 8). With the increase in long-term house mortgage rates in the past six months and the Riksbank's repo rate increase as of 17 November 1999, household interest expenditure will move up more quickly.

To sum up, since the October Report consumer prices have risen, as expected, by almost 1 per cent. With the recent price increases for commodities and manufactured goods, the contribution to inflation some months ahead is judged to be somewhat larger than allowed for in the October Report's main scenario. On the other hand, the downward price effects from deregulations in the telecommunication and electricity sectors are also assumed to be greater than envisaged earlier. In the short run the latter factors are judged to predominate, so that the underlying price tendency will be weaker than foreseen in the October Report. With the Riksbank's repo rate increase, however, the CPI increase in the coming months is judged to be in line with the previous Report's main scenario.

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

The upward tendency in Sweden's main export and import markets has become increasingly clear since the October Report. Export growth and rising industrial production have strengthened the recovery in the euro area. This is accompanied by the prospect of a mild slowdown in the United States, where external demand is contributing to a continuation of good growth. Moreover, the recovery in Japan has proved to be unexpectedly robust and the same applies to the emerging markets, which are returning to high rates of growth. This prompts some upward revision of the growth forecast for the OECD area, to 2.6 per cent in 1999, 2.8 per cent in 2000 and 2.6 per cent in 2001 (Fig. 9). The profile for export market growth is similar; an upward revision of 0.4–0.5 percentage points has been made for each of the coming two years (Table 2).

The economic upswing in Sweden's main export markets has become increasingly clear.

The stronger activity, with continued price hikes for commodities and oil after the earlier fall during the Asian crisis, is generating somewhat stronger inflationary pressure than expected earlier in the main export markets (Fig. 10). A distinct upward shift in producer prices has already been noted (Fig. 11).

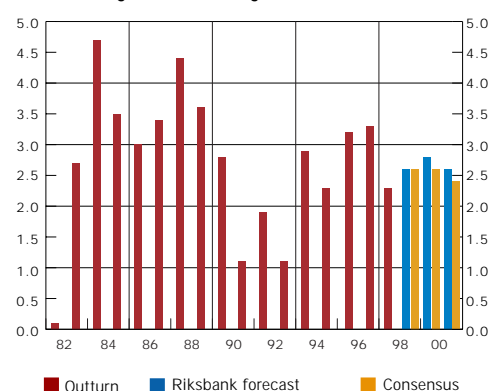
Table 2. Main scenario assessments of international growth and inflation.
Percentage annual change and annual level

	1999	2000	2001
OECD area growth (19 countries)	2.6 (2.4)	2.8 (2.4)	2.6 (2.3)
Market growth for Swedish exports	4.9 (4.6)	6.6 (6.2)	6.9 (6.4)
OECD area inflation (19 countries)	1.4 (1.4)	1.8 (1.7)	2.0 (2.0)
OECD area export prices in national currency	-1.0 (-0.6)	1.8 (1.6)	2.0 (1.8)
Crude oil price (USD/barrel Brent Blend)	17.7 (16.8)	20.9 (18.5)	19.2 (17.2)

Note. The October Report assessment is given in parentheses.

Source: The Riksbank.

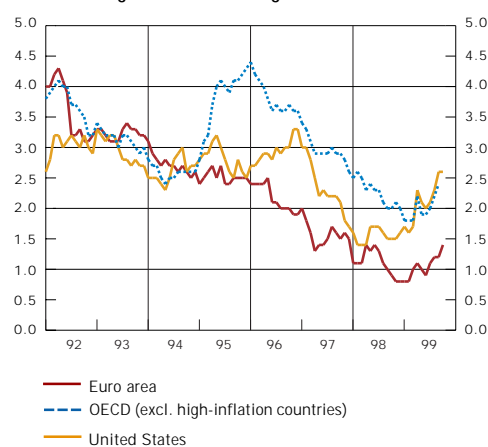
Figure 9. GDP growth in OECD area, forecasts for 1999–2001.
Percentage annual change



Note. Consensus forecast is an average based on a survey of around 200 international forecasters; for 2001 the forecast is a weighted average of GDP forecasts for Canada, France, Germany, Italy, Japan, Netherlands, Norway, Spain, United Kingdom, United States.

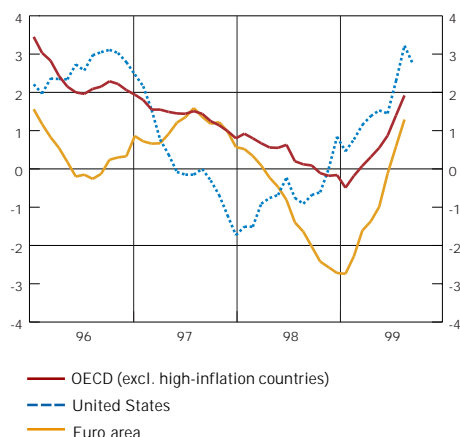
Sources: Consensus and the Riksbank.

Figure 10. International consumer prices.
Percentage 12-month change



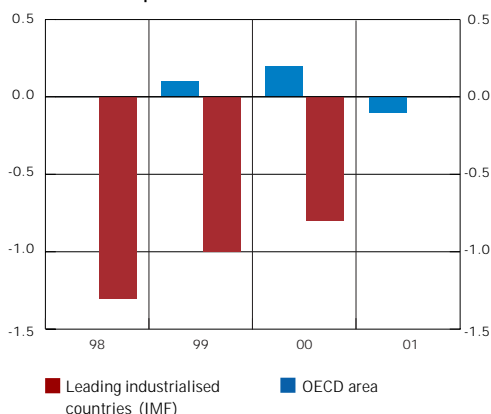
Source: Ecwin.

Figure 11. International producer prices. Percentage 12-month change



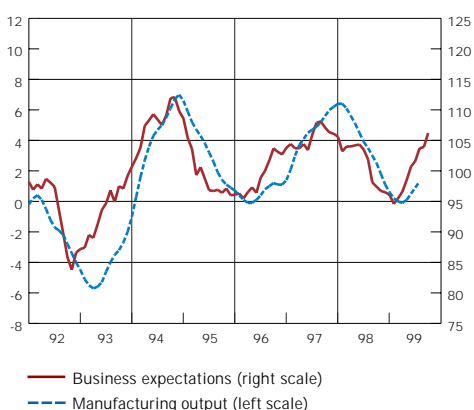
Source: Ecowin.

Figure 12. International output gap. Per cent of potential GDP



Sources: IMF och OECD.

Figure 13. German business expectations (IFO) and euro area manufacturing output. Percentage annual change and index: 1991=100



Note. IFO indicates future prospects among firms in the euro area's largest economy.

Source: Ecowin.

The strong international activity, with an upward shift in commodity prices, is generating stronger inflationary pressure than expected earlier but other factors are countering this.

Other factors are, however, countering the price pressure. Both the US Federal Reserve and the European Central Bank have initiated a monetary tightening aimed at forestalling a rapid acceleration of inflation. At a more fundamental level, the path of inflation in recent years suggests that the relationship between growth and inflation in the major export markets is weaker than used to be the case. One explanation may be stronger international price competition, particularly in the euro area as a consequence of deregulations and EMU.

In the euro area, moreover, there will still be unutilised resources throughout the forecast period, with a damping effect on wages from persistently high unemployment (Fig. 12). The appraisal of global resource utilisation is, however, particularly contingent on the assessment of potential growth in the United States. Several observers have revised their estimates upwards but as growth prospects there have improved, increasingly strained resources may generate more inflationary pressure in the United States before activity slows.⁴

So all in all, the forecast for OECD area inflation is unchanged for 1999, revised upwards to 1.8 per cent for 2000 and unchanged at 2.0 per cent for 2001. But in view of the commodity price rise and the economic upswing, some upward revision is made to the price forecast for manufactured exports in national currencies for major competitor countries in the OECD area during 2000–2001. Lower outcome data suggest that for 1999 the price trend is somewhat weaker than expected earlier.

CLEAR UPSWING IN EUROPE

The recovery in the euro area is now looking increasingly stable. The upswing in manufacturing, previously discernible only in survey data, has been confirmed in that manufacturing output has risen this autumn. Business surveys point to a continuation of the strong increase, accompanied by diminishing stocks. This is expected to result in rising capacity utilisation in manufacturing and generate increased investment demand (Fig. 13). Meanwhile, the level of consumer confidence remains historically high and unemployment is falling (Fig. 14), which implies that the situation for domestic demand will remain favourable. It therefore looks as though the upswing in the coming years will be somewhat stronger than was foreseen in the October Report.

The recovery in the euro area, previously discernible only in survey data, is now confirmed by increased industrial production.

4. In its latest forecast the IMF has raised its assessment of the potential growth rate for the United States from 2.25 to 2.75 per cent, which indicates that the high growth there in the coming years need not be inflationary.

The stronger activity in the euro area has led to expectations that in time the upswing may generate increased inflationary pressure; this was the primary reason why the ECB raised its instrumental rate on 4 November from 2.5 to 3 per cent. Price competition is still growing, however, following the introduction of the single currency and the deregulation of certain product markets in many countries. The upward tendency in HICP inflation⁵ in the euro area is mainly due to the higher price of oil, while underlying inflation has fallen to date this year.

This is accompanied by various tendencies in Sweden's major non-euro export markets in Western Europe. Activity in the United Kingdom has picked up again and it looks as though the downturn at the beginning of 1999 was temporary. Domestic demand has strengthened and export production, previously hampered by the appreciation of sterling, now seems to be benefiting from increased global demand.

Activity in the United Kingdom has picked up again after the downturn at the beginning of the year.

In Denmark and Norway the economic situation is somewhat worse than at the time of the October Report. Activity in Denmark slowed in the first half of 1999, partly due to budget restrictions and higher bond rates. At the same time, low unemployment (5.6 per cent in September) is contributing to wage increases and a rate of HICP inflation that considerably exceeds the euro area average. Even so, Denmark is still expected to follow the euro area's upswing in the coming years. In Norway, most signs suggest it will be some time before activity turns up again; the oil price is boosting total GDP but the mainland economy remains weak.

PROLONGED BOOM IN THE UNITED STATES

Activity in the United States is still strong. During Q3 there were no signs that the record upward phase was slackening; GDP growth from Q3 the year before was 4.2 per cent and exports turned upwards again.⁶ The imbalances in the economy have also continued to grow; the surge in imports has weakened the balance of trade still more and the household saving ratio has gone on falling.

Still, there are signs that a moderate slowdown in the US economy is on the way. Manufacturing sentiment remains strong but consumer confidence shows some further fall, albeit from a very high level (Fig. 15). Moreover, residential investment has decreased. The next step is expected to be a slowdown in consumption, with a gradual correction of the financial imbalances. But thanks to the unexpectedly strong external

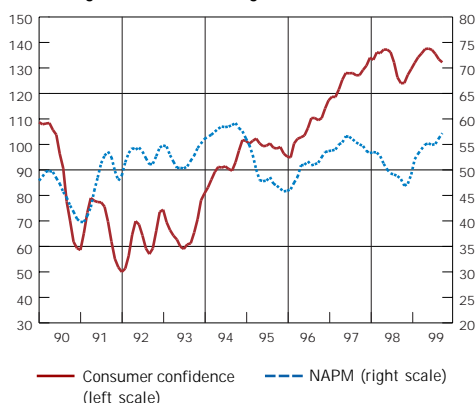
Figure 14. Euro area: consumer confidence and unemployment.
Net level and per cent



Source: Ecwin.

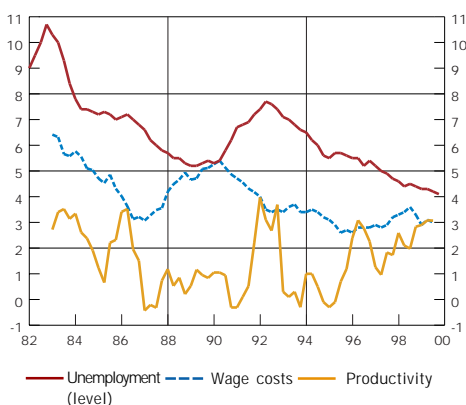
5. Harmonised Index of Consumer Prices in the European Community.

Figure 15. USA: consumer confidence and purchasing managers index (NAPM).
Moving three-month average, index: 1987=100



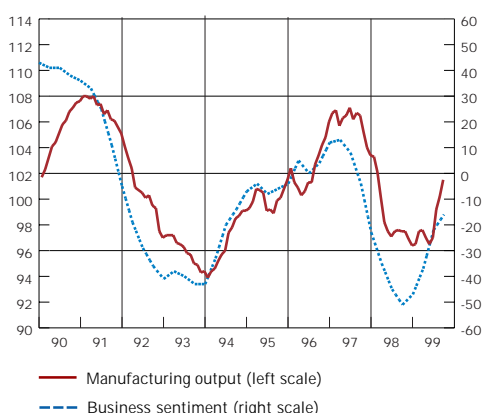
Note. NAPM is a confidence indicator for manufacturing.
Source: Ecwin.

Figure 16. USA: unemployment, wage costs and productivity.
Percentage annual change



Source: Ecwin.

Figure 17. Japan: manufacturing output and business sentiment.
Index (1996=100) and net percentage level



Note. Business sentiment is represented by the Bank of Japan's Tankan survey.

Source: Ecwin.

demand for American goods and services, growth will probably slacken less markedly than envisaged earlier.

Thanks to strong export growth, the expected slowdown in the US economy looks like being less marked than envisaged earlier.

There is still concern that the low unemployment in the United States (4.1 per cent in October) will lead to inflationary wage increases. With strong productivity growth in the past four years, unit labour costs have risen very slowly to date (Fig. 16). Inflation has tended to accelerate since the October Report, mainly as a result of higher oil prices.

ROBUST RECOVERY DESPITE QUESTIONS IN JAPAN

The situation has improved most markedly in Japan, where the recovery is now looking increasingly robust. Industrial output has been a positive surprise and the Tankan business survey by the Bank of Japan shows a marked upturn in business confidence (Fig. 17). Meanwhile, the Japanese Government has presented another budget with very sizeable stimulatory measures for 2000. Moreover, the Bank of Japan has agreed that, if necessary, the zero interest rate policy will be supplemented with open market operations in treasury paper in order to provide additional liquidity. This is intended to stimulate demand and break the deflation in recent years. Prices do in fact seem to be turning cautiously upwards.

Conditions are now in place for the definitely expansionary economic policy to strengthen this year's cautious upturn in domestic demand (Fig. 18).

The expansionary economic policy in Japan is in a position to strengthen the upswing.

At the same time, the major rationalisation that Japanese companies are undertaking is liable to have a dual effect in that it strengthens long-term confidence in Japanese business but may weaken consumer confidence in the short run now that a number of major companies are announcing drastic personnel cuts and reducing bonus wages. On top of this, the rapid appreciation of the yen has begun to dampen exports. The situation is likely to be most critical in a year or two when effects of the new stimulatory package fade and the scope for additional stimuli is restricted by the steep increase in government debt. In 2001 the

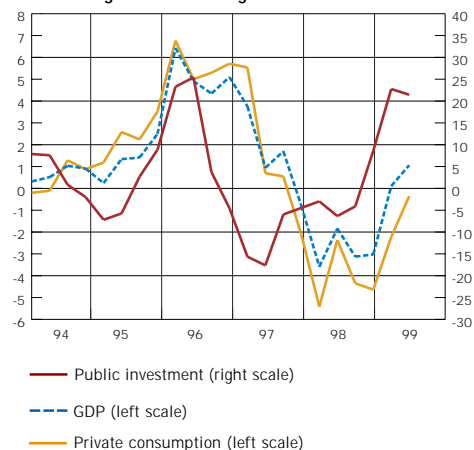
6. Following a revision in October of the US national accounts, corporate expenditure on computer software is now classified as investment and pension contributions for public sector employees are included in household saving; the changes have led to an upward adjustment of the average GDP growth rate for 1991-98, from 3.1 to 3.5 per cent, and a higher saving ratio. But even the revised saving ratio shows a sharp downward trend that amounts to around one percentage point annually in the three most recent years.

debt-to-GDP ratio is judged to reach 120 per cent, the highest in the OECD area. All in all, therefore, the recovery in Japan in the forecast period is expected to be rather moderate.

Growth in the rest of Asia is continuing to pick up after the crisis in 1997–98. A capital reflux and expanding trade appear to have definitely turned the tide for almost every country in the region.

Developments in other emerging markets also point to a return to higher growth. In Latin America the problems in Argentina are subordinated by a more stable situation in Brazil. Industrial output is rising rapidly again in Central and Eastern Europe, while in Russia the level is already back to what it was before the crisis in 1998.

Figure 18. Japan: growth, consumption and public investment.
Percentage annual change



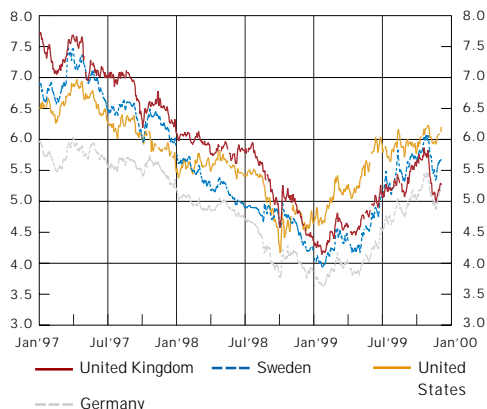
Source: Ecwin.

Interest rates and exchange rate

BOND RATES BROADLY UNCHANGED

Figure 19. Ten-year bond rates in selected countries.

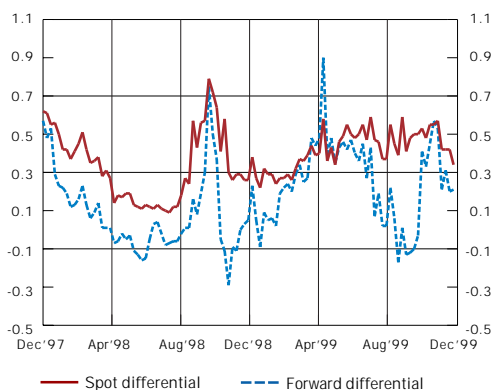
Daily quotations, per cent



Source: The Riksbank

Figure 20. Ten-year spot and forward rate differentials with Germany.

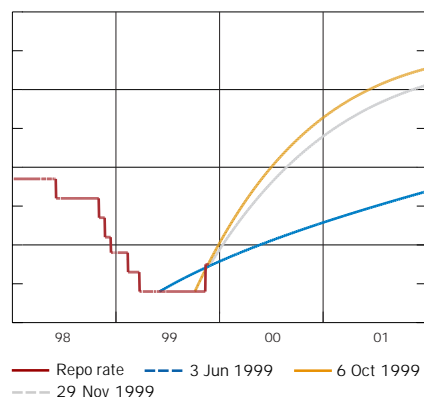
Percentage points, zero coupon



Source: The Riksbank.

Figure 21. Repo rate and expected rate implied by forward interest rates.

Simple annual rate, per cent



Source: The Riksbank.

Notwithstanding the improvement in international economic prospects, the level of bond rates in the euro area and the United States is much the same as at the time of the October Report. Bond rates in Sweden have largely followed those in the euro area, with comparatively large fluctuations in this period. At present the Swedish ten-year rate is about 0.1 percentage point lower than at the time of the previous Report (Fig. 19).

The differential between Swedish and German bond rates is broadly unchanged.

In this period the differential between Swedish and German bond rates has narrowed rather more than 0.1 percentage point to about 0.4 percentage points. The level of forward ten-year rates is approximately the same as in Germany, which indicates that confidence in Sweden's low-inflation policy largely matches confidence in the EMU (Fig. 20). It can also signify that to market players it is highly probable that in ten years' time Sweden will have adopted the single currency.

It is worth noting that most credit spreads (the difference between government borrowing rates and interest rates to the private sector) are now somewhat narrower than at the time of the October Report and considerably narrower than during this summer's international interest rate unrest.

EXPECTATIONS OF FURTHER REPO RATE INCREASES

In the October Inflation Report it was noted that market players expected a repo rate increase before the turn of the year. These expectations were fulfilled in that the Riksbank raised the repo rate in November by 0.35 percentage points to 3.25 per cent. Survey data as well as money market pricing indicate that players foresee further repo rate increases in the coming year. This is also the message the Riksbank has conveyed in market communications. In the most recent survey from Statistics Sweden, market players expect a repo rate increase to 3.50 per cent in up to three months and to 4.0 per cent in up to twelve months (Table 3). Money market pricing points to increases of much the same magnitude in the coming six months (Fig. 21).

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

Median, percent and index: 18 November 1992=100

	In 3 months	In 1 years	In 2 years
Repo rate	3.50 (3.15)	4.00 (3.80)	4.50 (4.25)
TCW-index	122.0 (122.0)	120.5 (120.0)	120.0 (118.0)
SEK/EUR	8.60 (8.60)	8.54 (8.50)	8.54 (8.50)

Note. The surveys were done on 13 September and 15 November 1999.

Source: Statistics Sweden.

Surveys and money market prices both indicate expectations of a tighter monetary stance.

SEK/EUR EXCHANGE RATE STABLE

In the October Report it was foreseen that the average level of the nominal TCW exchange rate would strengthen to just over 122 during 2000 and to just under 118 during 2001. In recent months the TCW exchange rate has been virtually unchanged (Fig. 22). The absence of an appreciation may have to do with the international economic improvement and higher potential growth in the rest of the world, as well as with expectations of tighter monetary policies elsewhere. Against the US dollar the krona has weakened about 5 per cent, while its rate with the euro has become about 2 per cent stronger. Both the actual and the expected volatility of the krona against the euro have remained low and indicate expectations that exchange rate movements in the short run will be small.

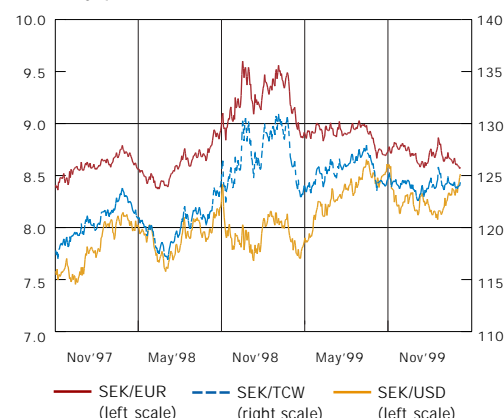
The combined effect on demand from interest rates and the exchange rate is calculated to be much the same as at the time of the October Report (Fig. 24). The real short-term interest rate⁷ has risen about 0.3 percentage points to about 2.1 per cent because the nominal short-term rates moved up when the repo rate was raised by 0.35 percentage points. The real long-term interest rate⁸ has fallen from September to November by about 0.2 percentage points to around 3.1 per cent. In the same period there has been a marginal weakening of the real exchange rate.⁹

ASSESSMENT OF INTEREST RATES AND EXCHANGE RATE

The repo rate was raised 0.35 percentage points in the middle of November. In accordance with the technical assumption of an unchanged repo rate, the forecast level of short-term interest rates has therefore been adjusted upwards by the same amount. Interest rates for longer maturities are judged to move up slightly. All in all, the Riksbank's repo rate increase means that the general level of interest rates appears somewhat more restrictive than at the time of the October Report.

Even with the repo rate increase, the combined effect on demand from interest rates and the exchange rate is judged to be expansionary.

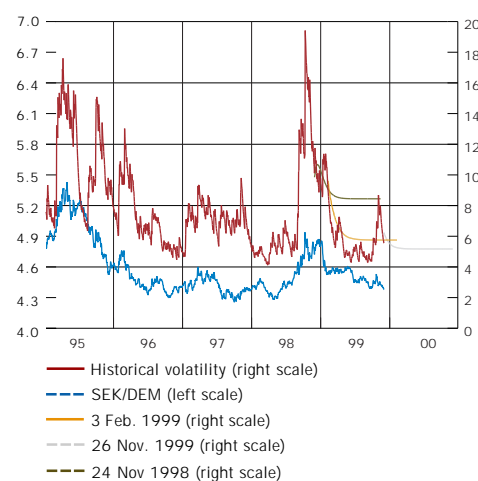
Figure 22. Nominal effective TCW exchange rate for SEK, SEK/USD rate and SEK/EUR rate. Daily quotations, index: 18 November 1992=100



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.

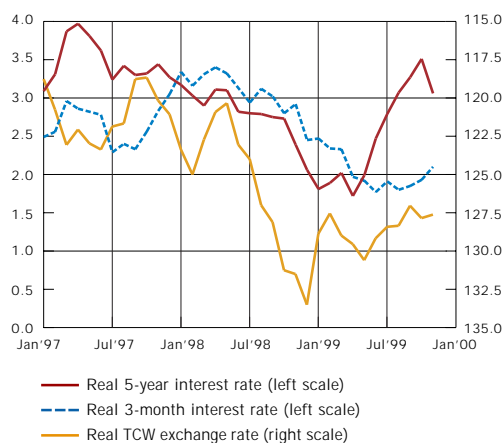
Figure 23. SEK/DEM rate and its historical and expected volatility. Per cent



Source: The Riksbank.

7. The nominal three-month T-bill rate adjusted for the CPI change that households expect in the coming twelve months (HIP data).
8. 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.
9. The series for the real exchange rate has been updated with the change in the average nominal TCW exchange rate from October to November.

Figure 24. Real interest and exchange rates.
Per cent and index: 18 November 1992=100



Source: The Riksbank.

An appreciation of the krona is foreseen in the forecast period, in keeping with the earlier forecast, but it is now calculated to occur somewhat more slowly. This is partly because international growth prospects are now somewhat brighter and monetary policies in the rest of the world are judged to be somewhat tighter than was expected in the October Report. The average level of the TCW index is judged to be about 123 during 2000 and just over 118 during 2001. Considering the strength of sterling and the dollar in recent years, it seems reasonable to count on the krona's appreciation in terms of the TCW index being more marked than against the euro. The rate against the euro is assumed to be comparatively stable.

Even with the repo rate increase, the combined effect on demand from interest rates and the exchange rate is judged to be expansionary. An appreciating krona and rising medium-term interest rates are assumed to contribute to a successive reduction of the expansionary effect in the coming two years.

Import prices

The path of the exchange rate, which was discussed in the previous section, is important for the development of prices to Swedish producers and consumers. The slower assumed appreciation of the krona compared with the October assessment is judged to contribute to a somewhat stronger price trend for imported goods.

Crude oil price forecast adjusted upwards.

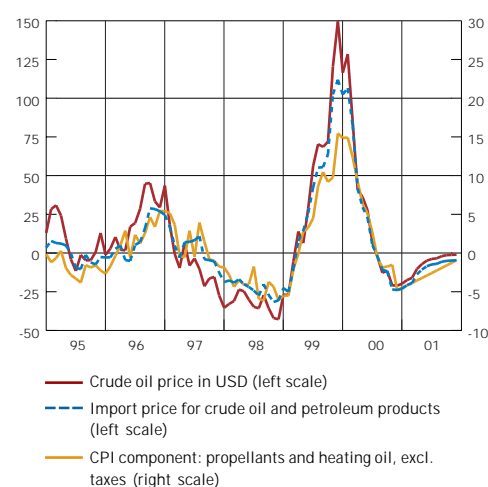
Prices for crude oil and other commodities have risen unexpectedly rapidly in recent months. As in the October Report, the barrel price of crude oil is assumed to peak during Q4 this year, followed by a gradual fall to USD 19.4 at the end of 2000 and to USD 19.2 at the end of 2001. This is an upward adjustment of about USD 2 for the final quarters of 2000 and 2001. Other commodity prices are also judged to rise somewhat more quickly in the future. In the short run the upward revisions are motivated by the fact that price increases for oil and other commodities have been unexpectedly strong in recent months and that oil futures for delivery one year ahead have risen. In the longer run the reason for the upward revisions is the probability that OPEC's target for the price of oil (about USD 20 a barrel) will be achieved by restricting production (see the box on pp. 21–24). Moreover, the stronger international economic trend is judged to entail somewhat larger demand for commodities.

To date this year, international prices for manufactured exports have been somewhat weaker than expected. With the stronger international economic prospects, however, the price rise in the coming two years is judged to be somewhat greater than assumed in October. Rising prices for oil and other commodities act in the same direction.

The contribution to CPI inflation from import prices is judged to be limited but larger than foreseen in the October report.

The impact of international prices on prices in Sweden varies over time as well as in its magnitude for different types of goods. Simplifying somewhat, the pass-through is more immediate and complete to the extent that the goods are homogeneous, resemble commodities and are exposed to competition.¹⁰ Oil price increases affect Swedish consumer prices comparatively quickly; approximately half of the effect occurs within a couple of months, above all in the form of higher petrol prices. However, the rest of the effect, in the form of increased costs for intermediate goods, transportation and so on, is judged to show up in consumer prices only after one to two years. The same is considered to apply to more manufactured imports.

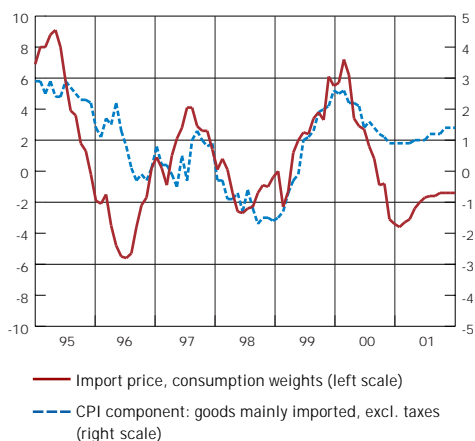
Figure 25. Crude oil and petroleum product prices. Percentage 12-month change, 1999–2001 forecast



Sources: Ecowin, Statistics Sweden and the Riksbank.

10. See *Inflation Report 1998:4*, box on pp. 27–28.

Figure 26. Import prices to producers and consumers.
Percentage 12-month change, 1999–2001 forecast



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

In addition to international prices and the exchange rate, Swedish consumer prices for imported goods are influenced by the domestic economic situation. With the strong consumer demand, prices to Swedish consumers are judged to rise more quickly than importers' prices (Fig. 26). This is natural in that to some extent consumer prices for imported goods are also influenced by the development of costs in the domestic services sector.

To sum up, with higher commodity prices, somewhat faster international price increases for other imported goods and a somewhat weaker exchange rate, the development of import prices to producers in the forecast period will be stronger than foreseen in the October Report. Prices to consumers for imported goods are judged to rise 1 per cent in 2000 and 1.5 per cent in 2001. The contribution to CPI inflation is judged to be limited but larger than envisaged in October, amounting to about 0.2 percentage points in 2000 and almost 0.4 percentage points in 2001.

OIL PRICE AND INFLATION IN SWEDEN, WITH A SELECTION OF OILPRICE FORECASTS

IMPORTANCE OF THE OIL PRICE FOR INFLATION

Changes in the price of oil affect inflation both directly and indirectly. The *direct* impact is on changes in prices for petrol and heating oil, which account between them for about 4 per cent of the CPI. The pass-through from a change in the oil price to these consumer price components is comparatively immediate and complete. To date this year the price of crude oil has risen 135 per cent. Petrol and heating oil prices have risen in turn by around 12 per cent, which represents a contribution to CPI and UND1X inflation of 0.5 percentage points.

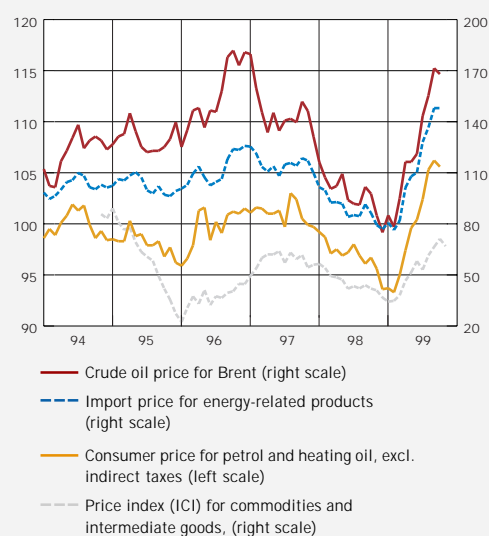
CPI and UND1X inflation are also affected *indirectly* through price changes for intermediate goods and manufactured products that are imported to or made in Sweden. The purchasing managers index (ICI) shows that since January this year, prices for commodities and intermediate goods have doubled and seem to be affected by oil price movements with a lag of a couple of months (Fig. B1). The pattern is similar for prices of energy-related products in the import price index (IMPI). The pass-through to consumer prices, however, is incomplete and can be spread over several years.

Since the October Inflation Report the Riksbank's path for the barrel price of oil has been revised upwards by about USD 2, or approximately ten per cent, for both 2000 and 2001 (Table B1). The *direct* effect on CPI and UND1X inflation, in the form of higher petrol and fuel oil prices, is judged to be about 0.1 percentage point. The indirect effect is judged to be the same, about 0.1 percentage point, but not until one to two years ahead.

OIL PRICE AND DOMESTIC ACTIVITY

An upward revision of the oil price's path of the magnitude that applies since the October Report has effects on employment and production that are comparatively small. Several factors account for this. One is the relatively small scale of net imports (imports less exports) of petroleum products, only about SEK 10 billion in 1998. Another is the small short-run effect that a change in income exerts on household consumption.

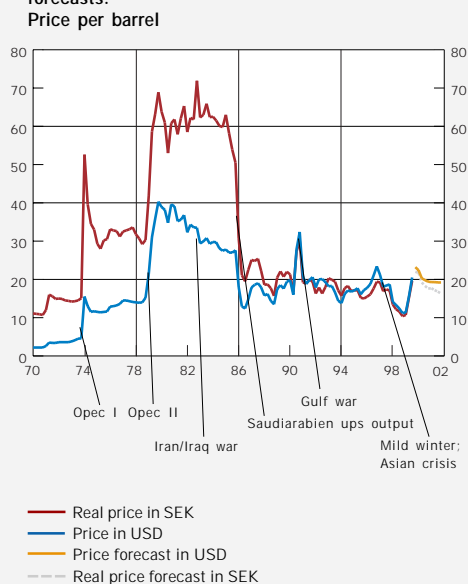
Figure B1. Producer and consumer prices for crude oil and petroleum-related products.
Index: 1993=100



Note. ICI is a diffusion index, which means that values above 50 represent perceived price increases and vice versa.

Sources: Ecwin, FöreningsSparbanken and Statistics Sweden.

Figure B2. Crude oil prices and the Riksbank's forecasts.



Note. The real price has been obtained by deflating with OECD area CPI inflation, using the Riksbank's inflation forecast for the forecast period.

Sources: Ecwin and the Riksbank.

Finally, the effect on corporate profitability is judged to be marginal; together with rigidities in adjusting to alternative sources of energy and uncertainty about the future price of oil, this means that the effects on investment activity are limited.

DEMAND, SUPPLY AND SPECULATION

Although the oil price tends to fluctuate widely and there have been a number of oil price shocks in the past (Fig. B2), last February hardly anyone foresaw that in the next nine months the oil price would more than double, from under USD 11 to over USD 25/barrel.

Speculation as well as real factors drive the price of crude. In recent years the oil market has been relatively balanced. The Asian crisis contributed to a drastic fall in demand but global activity is now recovering. At the same time, strict compliance with the one-year production ceiling that OPEC introduced last March has contributed to greatly decreased supply. The production ceiling of 27.6 million barrels a day has been observed to 88 per cent, which represents an average cut of 3.6 million barrels a day, as against 71 per cent compliance with the earlier ceiling, set in April 1998. The price effect of the restriction on supply seems to tally well with a study where, all else equal, a production cut of 1 million barrels a day was calculated to raise the oil price by about USD 4/barrel.¹¹ There is currently a possibility that OPEC extends the production ceiling at least until December 2000 to ensure that three criteria are established: before raising output, OPEC wants to observe a longer period with the barrel price of oil around USD 20, a global recovery in oil demand and decreased stocks.¹² The statistics on stocks are an important factor and recently they have indicated that supply no longer exceeds demand. There is a considerable time lag, however, before the statistics become available and they are liable to be revised; moreover, they tend to vary from source to source.

A large part of the recent oil price rise can be attributed to forward speculation by non-commercial players.¹³ With the growing frequency of speculative buying for future delivery, with quick shifts in players' positions in the light of information about physical

11. See Helkie, W.L. (1991), The impact of oil market disruption on the price of oil: a sensitivity analysis, *The Energy Journal*, 12:4.

12. See Center for Energy and Environmental Studies (CEES), Boston University, autumn 1999.

13. Speculation lay behind as much as two-thirds of the recent price rise, according to *Monthly Oil Market Report*, November 1999, International Energy Agency.

conditions in the market, price movements are accentuated and this may have made spot prices more volatile. As futures trading in 6–12 month contracts is relatively liquid, it can serve as a price indicator. The fact that the price for 1–year futures has not risen as much as the spot price points to lower oil prices in the future.

OIL PRICE FORECASTS BY
THE RIKSBANK AND OTHER OBSERVERS

Forecasting oil prices is complicated and, compared with many other forecasts, it requires a greater degree of political as well as economic analyses. The prices are so volatile that forecasts done at different times are liable to start from very different price levels. The selection of forecasts in Table B1 differs in the rate of price changes, their profile over the period and the end level. Allowing for the fact that Dubai prices are normally about USD 1/barrel below Brent prices, the NIER forecast is closest to the Riksbank's assessment.

Table B1. Selected oil price forecasts by the Riksbank and other observers.

Annual level, USD/barrel	1998	1999	2000	2001
CEES (1)	10.4	16.3	19.0	20.5
EIA (2)	12.2	17.2	21.9	-
EIU (3)	-	17.5	20.5	18.4
Energy Administration (4)	-	23.3	18.8	18.0
Goldman Sachs (5)	13.2	17.8	23.2	-
Handelsbanken (6)	12.8	17.0	17.0	15.0
NIER (7)	12.4	17.2	20.6	18.6
OECD (8)	-	17.5	22.2	22.4
Salomon Smith Barney (9)	14.4	18.5	19.0	20.0
Riksbank IR 99:3 (10)	12.8	16.8	18.5	17.2
Riksbank IR 99:4	12.8	17.7	20.9	19.2

Note. Differences in the 1998 outcome have to do with how the average has been calculated as well as with the type of oil referred to (Brent, Dubai or West Texas Intermediate, WTI); the type is Brent unless indicated otherwise under sources.

Sources: (1) Center for Energy and Environmental Studies, Boston University, autumn 1999; price of WTI in 1992 dollars. (2) Energy Information Administration, Dept. of Energy, USA, November 1999; price of Brent and Dubai. (3) Economic Intelligence Unit, Financial Times, 5 November 1999; price derived from percentage change figures. (4) Swedish National Energy Administration, November 1999; the figure for 1999 is for Q4. (5) *Global Economics Weekly*, November 1999. (6) *Handelsbanken Markets*, autumn 1999. (7) Swedish National Institute of Economic Research, November 1999; price of Brent and Dubai. (8) November 1999; price of Dubai and Brent. (9) *Oil Services and Drilling Monthly*, October 1999; price of WTI. (10) Sveriges Riksbank.

FACTORS BEHIND THE FORECASTS

Many observers explicitly analyse oil supply and demand, starting from an assumed increase in global demand led by emerging markets in Asia. CEES attaches major importance to the diminishing stocks, the apparent increase in OPEC's influence and the marked growth of global demand. EIA notes that the turn of the millennium may have some effect on Q4 oil prices this year in connection with precautionary stocking; in the longer run, however, a possible increase in OPEC output will be more than countered by growing demand. The main factor behind EIU's forecast is the recovery in Asian emerging markets. Starting from the IEA's market forecast, the Swedish Energy Administration judges that supply and demand are balanced in the short run but underscores that production capacity exceeds demand; in the longer run, it is foreseen that prices will be pushed down by low and declining production costs together with uncertainty about compliance with OPEC's production cuts. Handelsbanken constructs four risk scenarios in the barrel price range USD 8–28 for 2000, depending on future OPEC output, global demand and growth in the United States. Salomon Smith Barney's forecast starts from the observation that their price predictions agree with the path required by OPEC, so there is little incentive to step up non-OPEC production; the price is also considered to be consistent with the long-term historical trend and a given development of profits for non-OPEC producers.

The primary risk factor at present, in the Riksbank's opinion, is on the supply side. Future compliance with OPEC's restrictions on production will be crucial for prices in the short run, not least the outcome of the next OPEC meeting on 27 March 2000. In the longer run, however, structural changes in international supply and demand suggest that the oil price will fall back from the present high levels.

Demand and supply

SUMMARY OF GDP GROWTH 1999-2001

Developments in recent months do not occasion any far-reaching reassessment of growth prospects for the coming years. Essentially, therefore, the picture on which the October Inflation Report was based still holds. The repo rate increase in November has a limited effect on demand. Perhaps the most notable new information is the outcome data for manufacturing in particular but also for employment, with a picture that is somewhat more varied and difficult to interpret than before and not as uniformly positive. Together with the fact that the preliminary national accounts probably somewhat overestimated GDP growth in the first half-year, partly due to erroneous reporting of heavy vehicle exports, this could be a sign that growth in the short run will be somewhat lower than forecast earlier. But as it is difficult to find any underlying reasons why the Swedish economy should slacken and there do not seem to be any other signs of weaker activity, the most reasonable interpretation is that the phenomenon is mainly temporary and does not basically alter the overall picture of a stable and broad economic upswing. This interpretation is supported by the latest manufacturing statistics, which point in a more positive direction. Moreover, the impression of a strong trend in household consumption has been reinforced and at present it looks as though the increase could be somewhat higher than assessed earlier.

The improvement in international activity has continued and is now judged to be marginally stronger than assumed in October. This is expected to occasion a somewhat tighter monetary stance elsewhere that successively plays down the Riksbank's repo rate increase and contributes to an appreciation of the krona that is slower than foreseen in October. All in all, this points to a somewhat stronger development of net exports towards the end of the period, with a contribution to growth in 2001 that is somewhat higher than expected in October. Given an unchanged repo rate, GDP growth is therefore judged to be 3.4 per cent in 1999, 3.7 per cent in 2000 and 3.3 per cent in 2001 (Fig. 27 and Table 4).

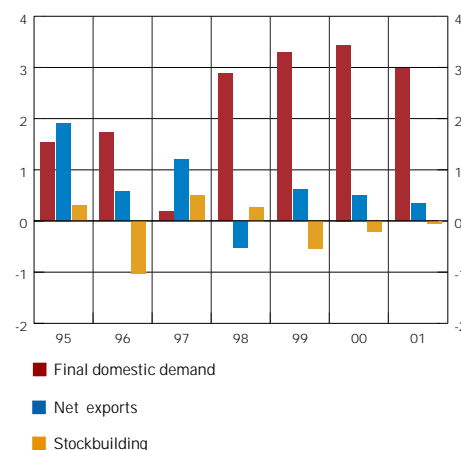
Table 4. Demand and supply in the main scenario.

Percentage annual change

	1998 outcome	1999 forecast	2000 forecast	2001 forecast
Household consumption	2.4	3.6	3.6	3.1
Public authorities consumption	1.0	1.1	1.4	1.4
Gross fixed capital formation	9.2	7.5	8.0	6.3
Stockbuilding	0.3	-0.5	-0.2	0.0
Exports	6.9	5.4	6.8	6.1
Imports	9.7	4.7	6.6	6.2
GDP at market values	2.6	3.4	3.7	3.3
GDP forecast in October Report		(3.6)	(3.8)	(3.0)

Source: The Riksbank.

Figure 27. Contributions to GDP growth.
Percentage points



Note. Forecasts for 1999-2001.

Sources: Statistics Sweden and the Riksbank.

FOREIGN TRADE

Preliminary foreign trade figures from Statistics Sweden indicate that between the first ten months of 1998 and 1999 exports of goods rose almost 5 per cent as against an increase for imports of only around 1.5 per cent.¹⁴ Considering the strength of domestic demand, the import growth is surprisingly weak. One explanation probably lies in the expansion of private services, for which the import content is generally low. Another factor is that stock investment has decreased between these periods. There is also the possibility that some new establishments of domestic suppliers have helped to subdue imports.

The export order figures from Statistics Sweden are also comparatively difficult to interpret. The outcome for the three months from June to August shows a fall for export orders as well as manufacturing output. This differs from the relatively strong increase that is indicated both by the National Institute's business tendency survey and by the purchasing managers index (ICI). While outcome data for the summer months generally tend to be rather uncertain, partly due to wide variations in holiday effects, the picture does suggest that manufacturing activity has been somewhat weaker than assumed in the October Report. But the summer slowdown is judged to be temporary; export orders and manufacturing output both rose comparatively strongly from August to September.

A favourable factor for exports is that export market growth is now expected to be somewhat stronger throughout the forecast period than was assumed in the October Report (Table 2). Competitiveness with the rest of the world is affected in turn by the revised forecast for the exchange rate; the krona is still assumed to appreciate but somewhat more slowly than foreseen in the October Report.

The forecast for exports of goods has been revised downwards to some extent for 1999 but the contribution to GDP growth from net exports is expected to be clearly positive throughout the forecast period.

All in all, this gives some downward revision of the forecast for exports of goods in 1999 and an upward revision for the coming two years. Volume growth is expected to be around 5.5 per cent in 1999, not quite 7 per cent in 2000 and over 6 per cent in 2001. The forecast for exports of services is unchanged.¹⁵ The forecast for imports of goods has not been revised for 1999 but some upward adjustment has been made for 2000. Good

14 An earlier reporting error for exports of heavy vehicles was adjusted in the September issue of preliminary export statistics; the revision lowered the volume growth of exports from January to September.

15 Services exports in the period from January 1992 to July 1999 have been revised upwards in the light of new information about merchanting (goods purchased from and sold to nonresidents without entering or leaving Sweden). Statistics Sweden is expected to incorporate this revision in the national accounts as of 1999 Q3.

domestic demand and an appreciating krona will both contribute to an acceleration from 4 per cent this year to almost 7 per cent in 2000 and around 6.5 per cent in 2001. Some downward revision has been made to imports of services throughout the forecast period on account of somewhat weaker increases in transportation and travel.

Growing domestic demand and an appreciating krona contribute to rising import growth.

The contribution to GDP growth from net exports is expected to be clearly positive but diminishing.

FISCAL POLICY

The financial position of the public sector has been strengthened appreciably in recent years. The financial balance, measured as public sector revenues net of expenditures, has improved, mainly as a result of a necessary consolidation of public finances. The successive economic recovery has also contributed to the favourable trend for government finances. A public sector financial surplus was achieved in 1998, for the first time since 1990.

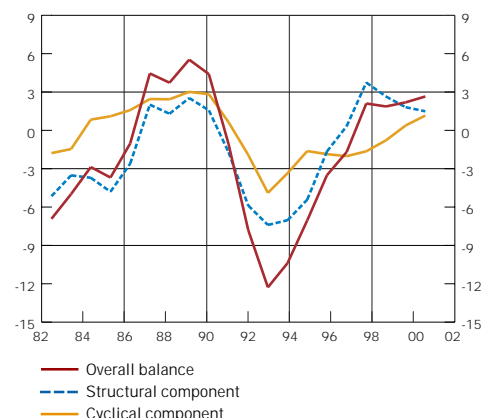
The central government budget process has been changed in recent years in order to tighten controls on expenditure. In the new budget process, expenditure is regulated with a ceiling. Moreover, the Government and Parliament have established the long-term target of achieving a public sector financial surplus that averages 2 per cent of GDP over the business cycle. In this and the coming years the aim is to bring the surplus up to 0.5 per cent of GDP this year and 2.0 per cent in both 2000 and 2001.

A public sector financial surplus equivalent to 2 per cent of GDP over the business cycle is to be achieved.

A continued improvement of public finances is foreseen in the forecast period, mainly as a consequence of higher resource utilisation in the economy. To some extent, however, the improvement is countered by a less restrictive fiscal stance. Proposals in this autumn's Budget Bill represent fiscal relief of around SEK 15 billion in 2000 and SEK 23 billion in 2001. The relief is expected to be mainly in the form of tax cuts, above all on low and medium incomes.

All in all, the annual public sector surplus, allowing for approved tax relief, is expected to approach 3 per cent of GDP during the forecast period. However, a growing proportion of the surplus is coming from cyclical factors, accompanied by a successive weakening of the structural surplus (Fig. 28).

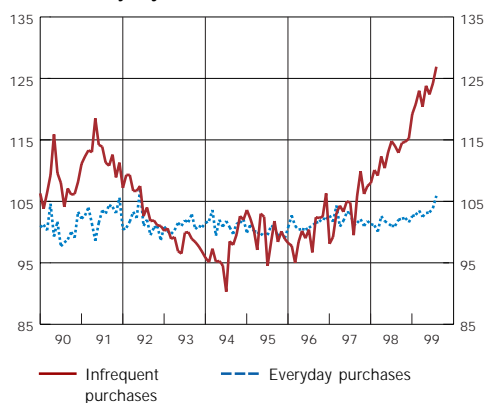
Figure 28. Consolidated public sector financial balance, cyclical and structural components. Per cent of GDP



Note. Riksbank forecast for 1999-2001. 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 (cf. Fig. 38).

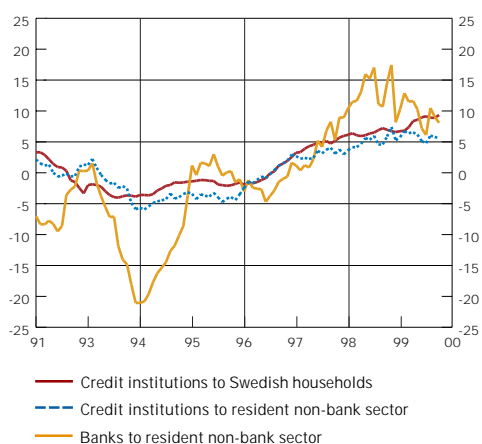
Source: The Riksbank.

Figure 29. Retail turnover.
Seasonally-adjusted series, index: 1995=100



Source: Statistics Sweden.

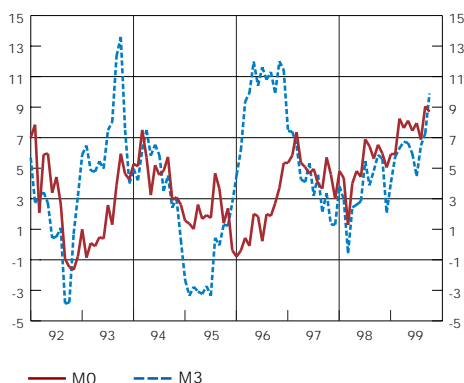
Figure 30. Credit aggregates.
Percentage 12-month change



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

Source: The Riksbank.

Figure 31. 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.

The appraisal of public consumption has not changed at all decisively since the October Report. There is, however, some downward revision of the forecast for 1999, mainly in the light of a somewhat weaker Q3 development of public sector employment. Public consumption expenditure is expected to rise in real terms throughout the forecast period but to go on falling relative to GDP.

HOUSEHOLD CONSUMPTION

Households increased their total expenditure on consumption by 3.4 per cent in the first half of 1999 from the first half of 1998. In regular retail trade the increase came mainly from infrequent purchases (Fig. 29). Purchases of radio and television sets, for example, rose more than 20 per cent and computer-related equipment around 70 per cent.

New statistics show that the strong growth of household consumption is continuing in the second half of 1999. In the first three quarters, total retail turnover rose more than 5 per cent and new car registrations in the household sector about 20 per cent. Rising house prices and the strong tendency in credit and the money supply also indicate a continued increase in household consumption expenditure (Figs. 30 and 31).¹⁶ The October increase in M3 was 10 per cent and M0 grew by almost 9 per cent. The main explanation for the increased money supply is that business liquidity is comparatively high at present, partly in connection with the strong sales trend, and that lending to households is rising.

Since the mid 1990s the overall growth of household consumption has been comparatively strong relative to real income. The saved share of disposable income has therefore decreased and household debt has risen. Even so, the ratio of gross debt to disposable income is considerably lower than in the late 1980s (Fig. B4 on p. 31). After some years of restrictions from tax increases and lower replacement levels in the transfer system, household income rose last year and a continued increase is foreseen, mainly in connection with certain tax cuts and an increase in employment with rising wages.

A number of favourable factors have contributed to the growth of consumption in recent years. The appreciation of shares and owner-occupied houses has considerably strengthened household wealth. This has been accompanied by rising employment. Moreover, low interest rates have facilitated the financing of capital goods and helped to strengthen households' confidence in their own economic situation as well as in the national economy (Fig. 32). The optimism of households provides a good basis for a further strong increase in consumption.

It is likely, however, that the recent repo rate increase will act as something of a damper on household consumption. It is

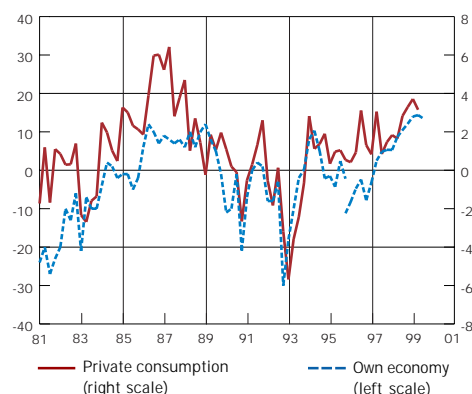
16 Prices for houses actually sold did in fact tend to fall in September as well as October but that often happens in the autumn.

primarily the real interest rate after tax that is relevant for consumption decisions. Moreover, as a growing proportion of households are choosing mortgage loans with short maturities, the short-term real rate has probably become more significant during the year. Real rates of interest after tax have been falling since 1992–93 (Fig. 33).

The household consumption forecast is revised upwards to some extent for 1999 but is unchanged for 2000 and 2001.

All in all, the new information since the October Inflation Report is judged to call for a minor upward revision of the consumption forecast for 1999 but the forecasts for 2000 and 2001 are unchanged. Total household consumption is expected to rise rather more than 3.5 per cent both this year and next, followed by a slowdown to just over 3 per cent in 2001, partly because the need to upgrade major capital goods should then have been largely met.

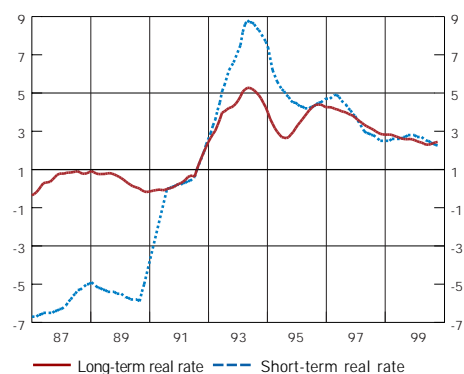
Figure 32. Households' own-economy expectations and private consumption. Net figure and percentage 12-month change



Note. The HIP statistics on household expectations were revised in October 1995.

Source: Statistics Sweden.

Figure 33. Real post-tax interest rates to households. Moving 12-month average

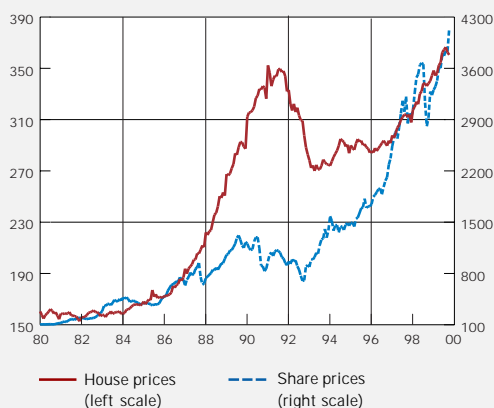


Note. The real interest rate after tax is the difference between the nominal post-tax rate and households' expectations of inflation. Short rate = annual house mortgage rate after tax less one-year inflation expectations from Statistics Sweden; long rate = five-year house mortgage rate after tax less one-year inflation expectations from Statistics Sweden for the period 1986–1990 and five-year inflation expectations from Aragon for the period 1991–1999.

Sources: Stadshypotek and Statistics Sweden.

ASSET PRICES

Figure B3. Price index for owner-occupied housing (1976=100) and Stockholm Stock Exchange share price index (end 1979=100).



Note. Month-end share prices.

Sources: Statistics Sweden and Stockholm Stock Exchange.

What is the relevance of asset prices for a central bank? The prevailing but not unanimous view today is that an increase in asset prices can lead to higher aggregate demand for goods and services and thereby contribute to stronger inflationary pressure. Three mechanisms are involved: the wealth effect, Tobin's q and the financial accelerator.

Wealth effects arise in that, to fulfil a given savings target, consumers do not have to save as large a proportion of income because the capital gains add to their wealth; this leaves more income than before for consumption.

Tobin's q is the ratio of an asset's market price to its replacement cost. If an increase in asset prices brings their market value above the replacement cost, it will be profitable to invest in real capital because each invested unit has a higher value in the market. When assessing the effects on inflation it must be borne in mind that besides adding to demand, investment in real capital raises total production capacity.

Higher asset prices reinforce the balance sheets of firms as well as households. Borrowing is facilitated in that assets which can be used as loan collateral for investment or consumption are worth more. This is usually referred to as the *financial accelerator*. An upward economic phase gets an extra driving force in that credit is easier to obtain.

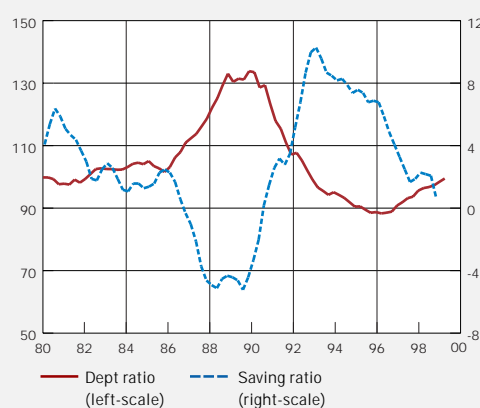
So how have asset prices moved in recent years? Since the mid 1990s, share as well as house prices have risen strongly (Fig. B3). The level of house prices is now higher than before the drop in the early 1990s. The stock market correction in connection with the international turbulence in financial markets in the autumn of 1998 has been followed by a strong recovery.

To what extent can rising asset prices influence general economic development? Many observers consider that the strong stock market trend in the United States has been an important factor behind the consumption-driven activity in the US economy. The exceptionally low saving by American households in recent years may be an indication that wealth effects are considerable. In Sweden, too, the strong path of asset prices may have led to decreased saving and higher consumption via wealth effects. The saving and debt ratios (the latter represented by total liabilities relative

to disposable income) for Swedish households are shown in Fig B4.¹⁷ The increase in asset prices in recent years has been accompanied by a marked decline in the saving ratio, which could be a sign of wealth effects. However, the saving ratio is not as low as before the crisis in the early 1990s, when the price bubble in the property market was sustained by a massive accumulation of debt, as can be seen from the path of the debt ratio in the late 1980s. The debt ratio peaked at about 135 per cent of disposable income. The debt ratio has been moving up since the mid 1990s but the accumulation of debt has not been as dramatic. Neither is total lending to households rising as rapidly as in the late 1980s. Important forces behind the growth of lending at that time were no doubt an accumulated borrowing requirement after many years with a regulated credit market, advantageous tax allowances for interest expenditure and unsophisticated credit assessments by Swedish banks and house mortgage institutions. The combination of high inflation and the tax system at that time also meant that debt was rapidly eroded as its real value decreased. Tax effects were such that in practice the real rate of interest was often even negative (Fig. 33).

The real effects of an increase in wealth are difficult to assess. Research suggests that the effect of an increase in stock market wealth may be greater in the United States than in a number of European countries. For the United States, a wealth increment of one dollar is estimated to raise consumption one year ahead by between 3 and 7 cents.¹⁸ Calculations at the Riksbank indicate that a stable relationship between changes in wealth (financial as well as real) and consumption is difficult to find in Swedish data. The impact of rising share prices on consumption is presumably smaller in a country where shares make up a smaller proportion of total wealth. But the relationship may have become

Figure B4. Swedish households' debt and saving ratios. Per cent



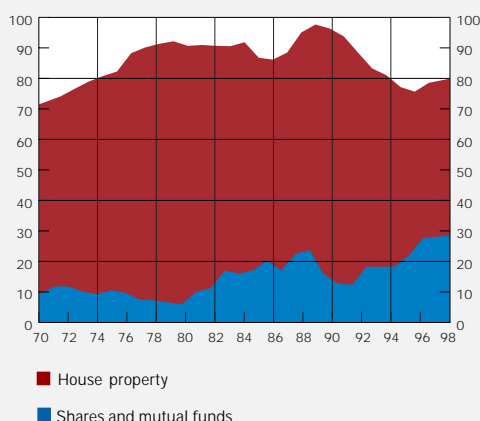
Note. The definition of saving is taken from the earlier national accounts.

Sources: Ecowin and the Riksbank.

17 If labour market insurance is included, the level of the saving ratio in Sweden is about 3 percentage points higher; see Berg, L. (1999), *Sparande, investeringar och förmögenhet—en analys med inriktning på sammansättning och förändring av hushållens sparande och förmögenhet* (Saving, investment and wealth—an analysis focused on composition and changes in the household sector), study on behalf of the Financial Markets Inquiry.

18 Starr-McCluer, M. (1998), Stock market wealth and consumer spending (mimeo), Federal Reserve Board of Governors, and Boone, L., Giorno, C., & Richardson, P. (1998), *Stock market fluctuations and consumption behaviour*, OECD Economics Department Working Paper 208. Approximately the same magnitude of wealth effects from capital gains has been found in Swedish data for 1954–86 by Berg, L. (1988), *Hushållens sparande och konsumtion* (Household saving and consumption), Allmänna Förlaget, Stockholm.

Figure B5. Owner-occupied and cooperative housing and holdings of shares and mutual funds as proportions of total household assets. Per cent



Note. There are no complete statistics on the components of household wealth; the basis here is Spring Bill estimates by the Ministry of Finance.

Sources: Ministry of Finance, National Institute of Economic Research and Statistics Sweden.

successively stronger in that this proportion has risen in Sweden (Fig. B5). But shares still make up a proportion of total wealth that is considerably smaller than housing assets.

Estimates at the Riksbank suggest that wealth effects from property values are stronger than from financial assets. There is a risk, however, that much of this result is explained by one-off effects from the deregulation of the Swedish credit market, which makes it difficult to draw far-reaching conclusions. Earlier studies on the relative importance of real and financial wealth for consumption have reached various conclusions.¹⁹

Tobin's q (the relationship between market price and replacement cost) seems to be of some importance for manufacturing investment, according to another Riksbank study.²⁰ This implies that the recent stock market trend should have positive effects for investment as well as consumption.

The financial accelerator, which acts via the credit market and the balance sheets of firms and households, has been studied empirically to date, in Sweden as well as elsewhere, to a considerably smaller extent than the other two mechanisms. But this accelerator could turn out to be at least as important, not least for explaining dramatic developments when asset markets collapse. A steep fall in asset prices can have serious consequences not only for economic activity but also for financial system stability. In addition to their responsibility for monetary policy, which tends to attract most attention, central banks have the function of safeguarding financial stability, directly or indirectly. For the Riksbank, an expression of this function is the Financial Stability Report, in which the Riksbank's assessment of risks in the banking sector and the payment system are presented twice a year.

Even if monetary policy chooses to regard asset prices, in the context of the inflation target, primarily as a driving force behind aggregate demand and thereby ultimately behind inflation, there are problems that have to be faced. As we have seen, determining the average impact of asset prices on demand and thereby on forecast inflation is not a trivial matter. Moreover, the effects of asset price movements on

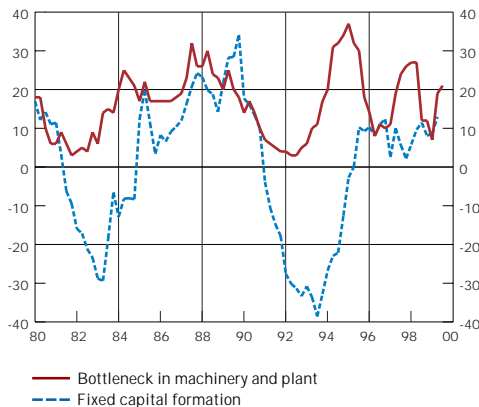
19 See e.g. Kanis, A. & Barot, B. (1993), *On determinants of private consumption in Sweden*, National Institute of Economic Research Working Paper 34, and Markowski, A. (1994), *Private consumption expenditure in the econometric model Kosmos*, *ibid.* No. 44.

20 See Assarsson, B., Berg, C. & Jansson, P. (forthcoming), *Investment in Swedish manufacturing: analysis and forecast*, Sveriges Riksbank Working Paper series.

demand and inflation may vary over time. So increased asset prices need not necessarily contribute to stronger inflationary pressure in every case. The decisive factor is what the asset price increase has been caused by. For example, if the fundamental factor behind the price rise is higher expected profits on account of an improvement in productivity, this need not lead to higher inflation. On the contrary, it may contribute to a future price trend that is more subdued because potential growth has been enhanced.

FIXED INVESTMENT AND STOCKBUILDING

Figure 34. 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.

The prospects for a strong investment trend in the coming years are judged to be favourable. However, new figures from Statistics Sweden on orders and output in manufacturing in the period June–August indicate that manufacturing activity to date in 1999 may have been somewhat weaker than was expected in the October Report. Moreover, the October investment survey from Statistics Sweden suggests that manufacturing investment during 1999 may have been subdued compared with 1998. It seems, however, that the slackening is temporary. Manufacturing output rose almost 7 per cent from August to September and the Q3 business tendency survey from the National Institute shows that the upswing in manufacturing as well as in other parts of the corporate sector is comparatively strong. Expectations for Q4 are also generally optimistic.

The tendency in residential investment is as positive as at the time of the October Report.

Housing starts in the first three quarters of 1999 totalled more than 10,000 new dwelling units, an increase of over 40 per cent from the same period a year earlier. Although these preliminary figures from Statistics Sweden are comparatively uncertain in that certain adjustments have to be made because reporting is usually on the low side, they do suggest that the recovery in residential construction is stable. Investment is rising at national level in owner-occupied as well as multi-family housing but there are marked geographical differences.

Stock investment in the first half of 1999 was lower than a year earlier; the negative effect on GDP growth amounted to 0.9 percentage points. Q3 business tendency data show that firms in manufacturing as well as wholesaling have become less dissatisfied with the level of stocks, which probably means that stocks have decreased in relation to the expected development of sales. As in the October Report, the annual GDP contribution from changes in stockbuilding is judged to be negative for 1999. A slightly negative contribution is also expected in 2000.

It is difficult to tell to what extent investment activity and stockbuilding will be affected by the turn of the millennium and this is a special source of uncertainty. Manufacturing firms' assessments of such effects were included in the National Institute's business tendency surveys in June and September; the results suggest that the firms' uncertainty about the turn of the millennium decreased from Q2 to Q3. This is a sign that effects of the millennium changeover on stockbuilding will be moderate.

Gross fixed capital formation is expected to rise 7.5 per cent this year, followed by 8 per cent in 2000 and over 6 per cent in 2001.

Compared with the October Report, the forecast for gross fixed capital formation is revised downwards to some extent for this and next year. The revisions are small and mainly occasioned by the signs of weaker manufacturing activity that have been received this autumn. It is also the case that a somewhat higher level of interest rates tends to dampen investment activity in general. The revision mainly applies to investment in manufacturing and, to some extent, in other parts of the corporate sector. All in all, total fixed capital formation is judged to rise 7.5 per cent this year, followed by 8.0 per cent in 2000 and 6.3 per cent in 2001.

EMPLOYMENT AND PRODUCTIVITY

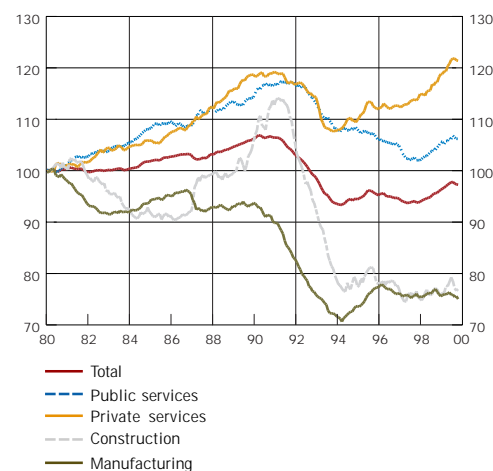
Employment has been developing favourably since the beginning of 1998 and it looks as though the annual increase in 1999 will be greater than during the boom years in the late 1980s, for example. The expansion has occurred mainly in private services, where the number in employment now exceeds the level in 1990 (Fig. 35); the number has risen above all in financial operations and business services. In the past year employment has also continued to rise in public services, where the increase is equivalent to approximately 25 per cent of the decline here earlier in the 1990s. Although the development of employment is still weak in construction and manufacturing in particular, the overall trend is a sign that the upswing is stable.

Employment is expected to go on rising throughout the forecast period, though at a slackening rate. Compared with the October Report, however, a minor downward revision for 1999 is called for because employment this autumn has been somewhat weaker than expected earlier. In the coming two years, total employment is calculated to rise by about 140,000 persons. The unemployment rate is judged to be 4.9 per cent in 2000 and 4.3 per cent in 2001, which is somewhat higher than foreseen in October.

The upswing may lead to some labour shortages towards the end of the forecast period. This risk varies between occupational groups as well as geographical regions. Unemployment has fallen most in the metropolitan regions, while it remains high in the forest counties. Among occupational groups, the risk of labour shortages is judged to be greatest where qualifications include higher education (see box on pp. 37–40).

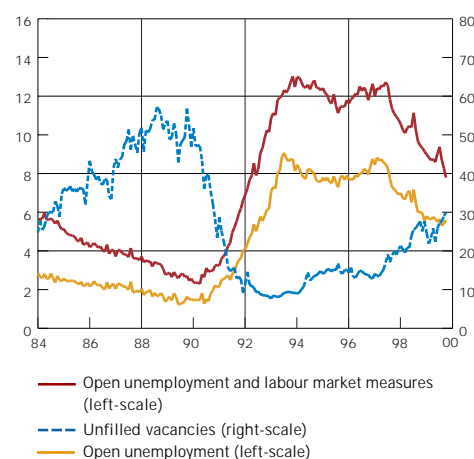
Measurements of average labour productivity indicate that the level in much of the 1990s has been fairly high compared with the preceding decades. Productivity is of central importance for economic growth and inflation; in the present situation it is presumably affected by a variety of short-term as well as long-run forces (see box on pp. 41–44). A number of structural changes in the Swedish economy should have improved conditions for a better productivity trend than in recent decades. They include the deregulation of various markets as well as more long-term frames for both fiscal and monetary policy. More global factors, such as increased international competition and the development and spread of information technology, are probably working in

Figure 35. Employment (persons).
Seasonally-adjusted moving 3-month average;
index: 1980=100



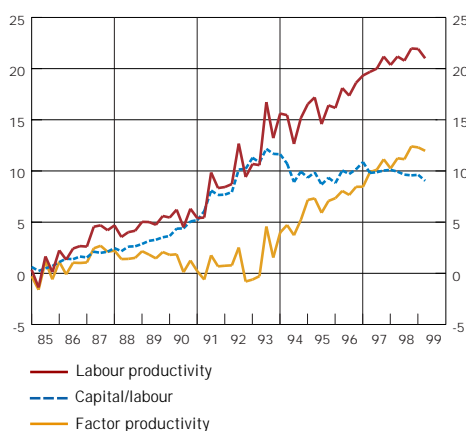
Source: Statistics Sweden.

Figure 36. Unemployment and job vacancies.
Per cent, thousands of vacancies; seasonally
adjusted data



Sources: National Labour Market Board and Statistics Sweden.

Figure 37. 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.

the same direction. In the shorter run, labour productivity is also affected by more occasional factors. The marked improvement in labour productivity in the early 1990s, for example, can probably be explained in part by the recession eliminating comparatively unproductive units in the first place and by labour shedding leading to a relative increase in capital inputs (Fig. 37).

A number of structural changes in the Swedish economy should have improved conditions for a better productivity trend than in recent decades.

There may be grounds for supposing that effects of a similar type can occur when activity is moving in the opposite direction, for instance when comparatively large groups of new employees are incorporated in the production process at short notice. This may help to explain productivity's recent weaker tendency. In that case, this tendency may also be transitory. During the forecast period labour productivity is assumed to return successively to a somewhat higher level and thereby approach the economy's long-term trend. Productivity growth in 2000 and 2001 is expected to be 1.5 per cent or somewhat higher.

Table 5. Labour market forecast in the main scenario.
Percentage annual change or per cent

	1999	2000	2001
Hourly wage	3.2	4.2	4.5
Labour productivity	0.7	1.5	1.7
Unit labour costs	2.8	2.6	2.8
Hours worked	2.7	2.3	1.6
Open unemployment rate	5.6	4.9	4.3

Source: The Riksbank.

CURRENT LABOUR MARKET DUALITY AND REGIONAL IMBALANCES

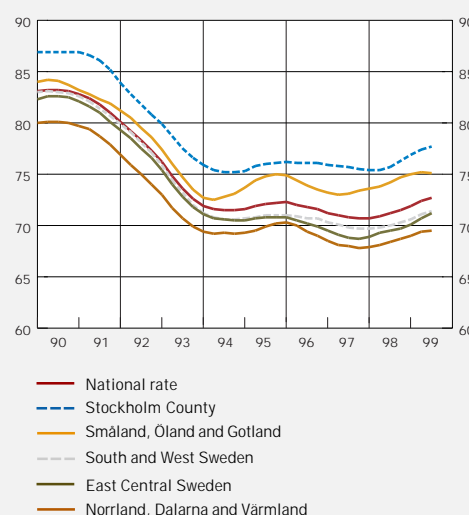
Economic growth in Sweden is high at present and employment is rising. An important question is where any difficulties in labour recruitment lie—in which regions, industries and occupational groups. In the event of substantial bottlenecks and labour demand that cannot be met in, for example, regions where activity is expanding, effects may be seen in wage formation and inflationary pressure. Employment has been rising since the beginning of 1998, in terms of persons as well as the proportion of the active population, but the regional increases differ (Figs. 35 and B6).

Employment has risen most notably in the metropolitan regions and East Central Sweden. In Stockholm the employment rate in 1999 Q3 was over 78 per cent. Another region where the rate is above the national average is Småland, Gotland and Öland. The rate in the northern parts of Sweden has also turned upwards in recent years and was about 70 per cent in Q3 this year; the increases there, however, have been smaller than elsewhere and the rising rate is partly explained by outward migration.

Labour shortages are most marked in what are known as growth regions (the metropolitan regions and university cities elsewhere), according to the October survey published by the National Labour Market Board.²¹ The Board estimates that next year 65 per cent of job opportunities will be created in the metropolitan counties, where the share of the national population totals 51 per cent. Almost another 30 per cent of the increase in employment is foreseen in Östergötland, Jönköping and Halland. New jobs in the forest counties are estimated to total no more than about 4,000.²²

It is mainly in financial activities and business services that the number in employment has grown since the deep recession in the early 1990s. Demand for personal and cultural services has also been rising

Figure B6. Regional employment rates.
Four-quarter moving average, per cent



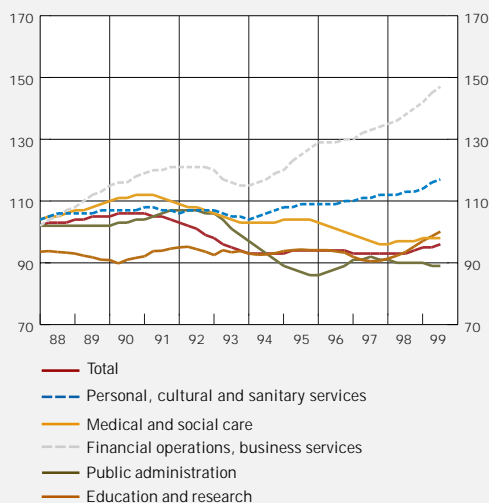
Note. Employment expressed as the proportion of the population aged 16–64 years. East Central Sweden comprises the counties of Uppsala, Södermanland, Östergötland, Örebro and Västmanland.

Source: Statistics Sweden.

21 Capacity shortages and training requirements are mapped twice a year by the county labour boards, together with the employment offices; about 10,000 companies are surveyed with interviews and questionnaires and the results are compiled by the National Labour Market Board.

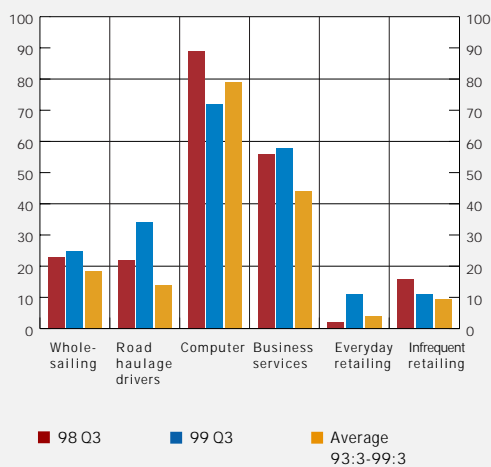
22 The latest forecast from the National Labour Market Board points to an increase in the number employed next year of about 52,000 persons (Ura 1999:15).

Figure B7. Employment decomposed by type of activity.
Four-quarter moving average, index: 1987 Q1=100



Source: Statistics Sweden.

Figure B8. Proportion of firms reporting labour shortages.
Per cent



Note. For everyday as well as infrequent retailing the period is 1996 Q3–1999 Q3.

Source: National Institute of Economic Research.

steadily, while labour demand in medical and social care has been more subdued. In recent years the educational sector has also expanded (Fig. B7).

The acceleration of employment in private services has been accompanied by increased labour shortages. Shortages in business services and the computer industry have been pronounced ever since the recovery in employment began. The Q3 business tendency survey from the National Institute of Economic Research indicates that the proportion of firms in business services that lack personnel is much the same as a year earlier. In the computer sector, where the shortage is most marked, the level has, however, fallen from 1998 Q3 and is now below the average for 1993–99. Recruitment problems have grown in everyday retailing and road haulage, albeit from low levels (Fig. B8).

In manufacturing, the proportion of firms reporting labour shortages as the primary bottleneck has tended to fall, while in construction the Q3 level was much the same as a year earlier. The levels here are also low. In the various manufacturing industries, problems in recruiting salaried technicians had not changed much from Q3 last year; the proportion of firms reporting such problems had fallen markedly only in the chemical industry, where the level is now the same as the average for 1993–99 (Fig. B9).

Reports from the National Labour Market Board indicate that labour shortages have not grown in the past year.²³ Of the firms interviewed in October 1999, shortages of skilled labour and experienced personnel were reported by 26 and 30 per cent, respectively. These figures are much the same as in the October survey last year. Furthermore, of the firms with recruitment problems, 40 per cent classified these as an obstacle to increased production or sales, which is equivalent to one in ten of the workplaces in Sweden; the figure is much the same as a year earlier.

In certain regions, however, recruitment problems are growing and spreading to more occupational groups than before. Labour shortages are high in all computer occupations, though they have fallen somewhat in occupations that require fairly short IT training. The shortages constitute serious bottlenecks in 30 municipalities. Difficulties in recruiting technicians and engineers are calculated to grow as the economic situation improves. The difficulties in finding skilled workers are mainly located in expanding firms, above all in engineering, and they apply in particular to highly

23 Based on reports from the National Labour Market Board: Ura 1999:4, 6, 7 and 15.

qualified posts. This picture is confirmed by the Employers Association's survey this autumn almost 70 per cent of the responding firms had experienced 'large' or 'some' recruitment problems.²⁴ The most frequent problems, reported by 60 per cent of the firms, are a lack of personnel with sufficient experience or training. Of the firms with problems, 30 per cent classified them as obstructing a planned expansion.

In construction, recruitment problems are growing in an increasing number of regions. Demand for new housing is strong in the metropolitan regions and other university cities, while the level of residential construction in the forest counties is minimal. Shortages are expected in about 40 per cent of municipalities as regards concrete workers, woodworkers, masons and the category known as other construction workers (BÖTM), while a surplus next year is foreseen in about 15 per cent of municipalities.

Demand for teachers is rising throughout Sweden. Between 70 and 75 per cent of municipalities count on not being able to fulfil requirements one year from now. Shortages of care personnel are rising rapidly; difficulties in the coming year in recruiting nurses and assistant nurses are expected by about 90 and 60 per cent of municipalities, respectively, while the shortage of doctors is calculated to become increasingly marked up to around 2010.

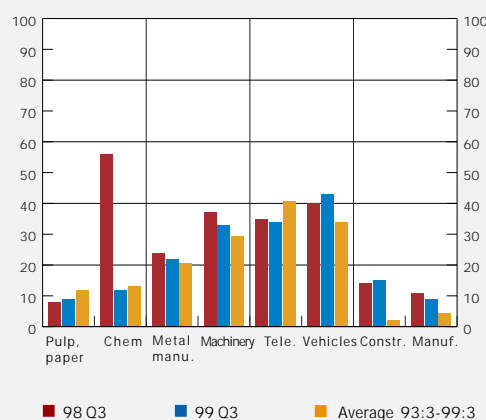
IMBALANCES AND WAGE FORMATION

The overall path of manufacturing wages follows economic activity relatively closely. Historically, wage drift in particular has varied with the demand situation, while negotiated wage increases have not been quite as sensitive to cyclical factors. The co-variation between the shortage of skilled workers and wage drift for industrial workers is shown in Fig. B10.

However, the regional imbalances make certain demands on wage formation and the workings of the labour market. In occupations where demand exceeds supply throughout the country, the effect on wages is likely to be clearly upwards. If supply does not grow sufficiently rapidly to meet the increased demand, wages will be pushed up. At present this may apply to, for example, teachers, nurses and doctors, groups for which shortages are uniformly spread over Sweden. There is a risk of growing inflationary pressure if other

24 In the course of a year the Swedish Employers Association has arranged three major recruitment surveys; replies to the most recent, in October and November, were received from 2,550 affiliated companies.

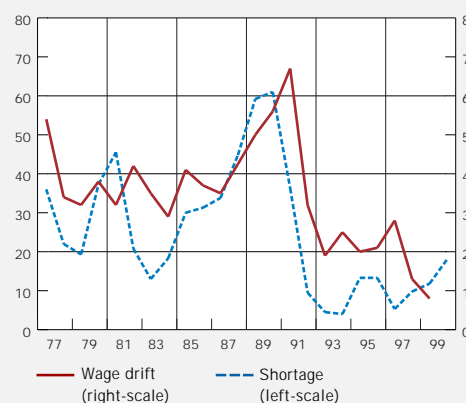
Figure B9. Proportion of firms reporting shortages of salaried technicians. Per cent



Note. For construction and manufacturing the data refer to workers.

Source: National Institute of Economic Research.

Figure B10. Shortage rate for skilled workers and wage drift for workers in manufacturing. Net figure and per cent



Note. For 1999 the shortage indicator covers the first three quarters.

Source: National Institute of Economic Research.

occupational groups also demand wage increases that are not matched by the development of their productivity.

In occupations with a supply surplus in some regions and shortages in others, high wage increases in overheated regions can be countered by high geographical mobility. Provided that matching of job vacancies and job seekers functions properly, the shortages can be alleviated so that wage pressure is not troublesome. Today, high geographical mobility is needed among construction workers as well as for industrial technicians and skilled workers, groups for which shortages are marked in certain regions.

Geographical mobility has increased and is now at the level from the early 1970s, according to the National Labour Market Board. On the other hand, many people move for other reasons than work; one third do so in order to study and another third for family reasons. This may mean that the proportion of work-related moves is still below the level in the early 1970s.

DETERMINANTS OF GROWTH

Economic growth is of central importance for a country's development. If they continue for a considerable period, even small differences in annual growth can lead to some countries being wealthy and others poor. One of the factors behind long-term growth is productivity (the relationship between output and the volume of inputs in the production process). A number of studies have shown that in the period 1970–90, productivity growth in Sweden has been weaker than in other developed countries.²⁵ In recent years, however, there have been indications that productivity in Sweden is now developing somewhat more favourably.

Real GDP growth can be decomposed in general terms into one component that represents the change in traditional production factors and another that stands for advances in technology. The main production factors are capital and labour; the part of total growth that cannot be explained by changes in these factors is attributed to production technologies. Assume that total production can be described as a production function:

$$Y=F(A,K,L) \quad (1)$$

where A is the level of production technology, K is the total capital stock and L is the total labour force. The level of production technology is often referred to as *total factor productivity* (the component of growth that cannot be explained by changes in the capital stock or the labour force). One difficulty when it comes to measuring the capital stock and labour is that, with the available measurement methods, variations in these production inputs over time may not be detected. When activity is high, for example, both labour and capital are probably utilised more intensively than when business is slack. In this way, the statistics imply that a given labour input is capable of producing a larger volume when activity is rising rapidly than when growth is slow. The path of production over time can be studied by rewriting the production function in dynamic terms:

$$\frac{\Delta Y}{Y} = g + \alpha_K \frac{\Delta K}{K} + \alpha_L \frac{\Delta L}{L} \quad (2)$$

The growth of production that can be derived from the technology factor (the contribution from the change

25 See e.g. the survey of productivity by Assar Lindbeck in Calmfors & Persson (eds.) (1999), *Tillväxt och ekonomisk politik* (Growth and economic policy).

in total factor productivity) is represented here by g and the percentage changes in Y , K and L are written as DY/Y , DK/K and DL/L ; a_K is total capital's share of the value of production and a_L is labour's share.

Equation (2) can be used to study the time path of total factor productivity. Starting with observed data on GDP growth, the capital stock and the labour force, together with data on labour costs as a share of value added, the change in total factor productivity can be obtained as the difference between the growth of production and a weighted average of the growth of the production factors.²⁶

An alternative measure of production efficiency and one that is used more frequently in practice is *labour productivity*, defined as the ratio of the total volume of production to the labour input. One explanation for the popularity of this measure is that it is simpler to calculate than total factor productivity. Another is that labour productivity is a component of the expression for total labour costs' share of value added:

$$\alpha_L = \frac{WL}{PY} = \frac{W/P}{Y/L} \quad (3)$$

where W stands for wage costs including payroll charges and P is the price of production (value added). From (3) it follows that if wage costs' share is constant, which is assumed to be the case in the longer run, the relationship W/P is entirely determined by labour productivity Y/L . Thus, the path of productivity is crucial for the real wage trend.

But even this indicator of productivity involves measurement problems. Besides the difficulty in obtaining a complete picture of fluctuations in the degree of utilisation, it is conceivable that declining demand in a downward phase eliminates relatively unproductive firms to a greater extent than firms which are more efficient. If so, the proportion of firms with high productivity may grow in a downturn and fall in an upswing. This could, for example, help to explain the strong productivity growth in the early 1990s (Fig. B11).

Given constant returns to scale²⁷ and rewriting equation (2), the relationship between total factor

26 Note that this decomposition of production growth does not really provide a theoretical account of economic growth because the simple calculation underlying (2) does not explain why productivity, the capital stock or the labour force change over time.

productivity and labour productivity can be derived from:

$$\frac{\Delta y}{y} = g + \alpha_k \frac{\Delta k}{k} \quad (4)$$

where $y=Y/L$ and $k=K/L$. Equation (4) states that the change in labour productivity is given by the sum of the changes in total factor productivity and the capital share multiplied by the change in capital intensity (the ratio of K to L).²⁸ Thus, an increased capital input per unit labour contributes to increased labour productivity.

A picture of labour productivity in Sweden since 1980 is presented in Fig. B11.²⁹ Paths are shown for the total economy, manufacturing and the production of goods and services, respectively, in the corporate sector. The figure shows that the average growth of total productivity in the 1990s has been over half of a percentage point higher than in the '80s. Productivity has risen particularly strongly in manufacturing. To the extent that the higher rate represents a trend break, this means that the Swedish economy should now be capable of achieving somewhat higher sustained growth than in the 1980s. This conclusion follows from a simple rewriting of the long-term volume of production \bar{Y} as the product of long-term labour productivity \bar{y} and the volume of labour \bar{L} :

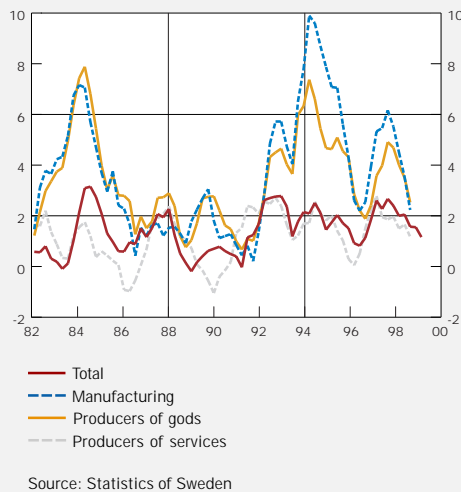
$$\bar{Y} = \bar{y} \bar{L} \quad (5)$$

Equation (5) states that the percentage change in potential GDP is given by the sum of the long-term change in labour productivity and the long-term change in the labour force. A potential GDP growth rate around 2.2 per cent is equivalent to, for example, a rate of change in labour productivity of 1.7–1.9 per cent, given a long-term labour force increase of 0.3–0.5 per cent.³⁰

When assessing the future path of productivity there are some potential influences that should be considered. One is that some recent structural changes should have some positive effect, for example deregulations in

27. A constant return to scale exists when output rises one unit for every additional unit of each production factor.
28. The time path of these components is shown in Fig. 37 on p. 36. Note also that as the tax burden is normally a consideration in capital formation, it, too, affects labour productivity according to (4).
29. Volume output and the labour force are measured here as real GDP and total hours worked, respectively.
30. Estimating the long-term path of the labour force is, of course, very difficult. It can be noted that in the 1980s and '90s the average annual rate of increase in total hours worked averaged approximately 0.4 per cent.

Figure B11. Labour productivity decomposed by sectors. Percentage annual change, moving four-quarter average



various markets, a credible low-inflation policy, stable public finances and EU membership. It is also conceivable that productivity is stimulated by the international integration of markets for goods and labour. Another factor with effects in the same direction is the rapid development of information technology, including the related transfer of knowledge between firms and individuals. The third factor that may affect productivity's path is the cyclical picture. As mentioned earlier, there are grounds for presuming that the high productivity growth in the early 1990s was to some extent a temporary phenomenon that partly had to do with changes in the mixture of firms. Some support for this interpretation is provided by the course in recent years (Fig. B11); with rising economic activity, a growing proportion of production units with comparatively low productivity are probably being utilised.

The difficulties in measuring productivity are such that definite empirical evidence is still lacking to show that productivity – and thereby potential long-term growth – has undergone a lasting change. Caution should therefore be exercised when making qualitative as well as quantitative conclusions about the paths of trend productivity and potential growth in the 1990s.

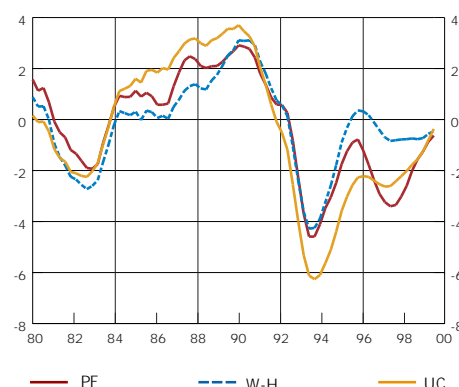
RESOURCE UTILISATION

Resource utilisation is a valuable indicator of inflationary pressure in the economy because prices and wages tend to rise more rapidly when a high proportion of resources is required for production, just as low resource utilisation is usually associated with more moderate pricing. One indicator of resource utilisation is the output gap, which aims to quantify the difference between actual output and the level that is sustainable without total resources being over- or under-utilised. As this potential output is not observable, the output gap is estimated econometrically, which entails uncertainty about the results. In the absence of any new GDP statistics since the October Report, the same calculations have been used on this occasion (Fig. 38).

Neither are there any grounds for major changes in the earlier picture, which is that in the forecast period the comparatively rapid growth of total demand will probably bring production up to levels where inflationary tendencies may begin to show up successively. With the downward revision of GDP growth in 1999, however, the appearance of such tendencies is judged to be marginally deferred. There is nothing inherently dramatic about output above the potential level; over a long period it is reasonable to suppose that the economy is above this level as frequently as it is below. So in that context the comparatively long period of total resource underutilisation since the early 1990s seems to be exceptional.

In manufacturing, capacity utilisation rose marginally from June to September according to the National Institute's business tendency survey. The proportion of firms reporting machinery and plant as the primary bottleneck moved up from 19 to 21 per cent and the proportion with labour shortages as the main obstacle to increased production rose from 6 to 9 per cent. In these terms, it cannot therefore be said that capacity utilisation in manufacturing is remarkably high. It should be noted, however, that the proportion of firms reporting shortages of skilled labour has risen to 23 per cent, the highest figure since 1990. According to the September survey, however, the level is still below the average since 1964. In the 1990s the shortage figures for salaried technicians have often been higher than those for skilled labour and have been on a par at times with the late 1980s; during 1999, however, the level has tended to fall. At the same time, both historical and group comparisons are complicated in that new technology and changes in organisational structures have probably made it more difficult to distinguish between blue-collar and white-collar workers.

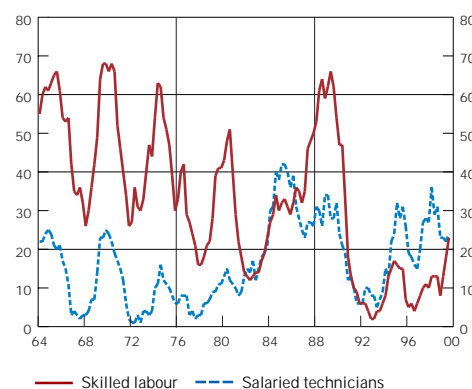
Figure 38. Output gap estimates.
Per cent



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 39. Manufacturing shortages of skilled labour and salaried technicians.
Per cent



Source: National Institute of Economic Research.

In construction, the proportion of firms reporting supply factors (labour, machinery and other supply factors) as the primary bottleneck has tended to rise during 1998 and 1999. The figure in the September business tendency survey was 23 per cent. However, the level is still modest compared with historical figures.

In the services sectors, where capacity is limited mainly by labour supply, the shortage of competent personnel is considerable. Among computer consultants and computer services, however, this shortage has clearly decreased, though that may be a temporary effect of firms coming to the end of preparations for the turn of the millennium and deferring new projects until the new year.

All in all, the business tendency data on capacity utilisation are judged to support the picture of a stable upswing with initial tendencies to labour shortages but still no distinct signs of overheating.

WAGES AND UNIT LABOUR COSTS

The picture of wage tendencies is essentially the same as in the October Report. To date this autumn, however, the wage statistics have been on the low side of earlier forecasts and this calls for some downward revision of the wage forecast for 1999. In the coming years the workings of the labour market will be tested in earnest in that, for the first time since the late 1980s, wages for large groups of employees are to be renegotiated in what looks like being a favourable economic situation. Wage agreements due for renegotiation in 2000 cover about 420,000 employees, including large groups in the public sector where labour demand is strong. The relatively strong real wage trend in recent years, which has to do with low inflation and a less restrictive fiscal effect on household income, may have a positive influence on wage negotiations. Innovative types of wage settlements may act in the same direction. Relative wage shifts can be justified economically in many instances and cannot be said to threaten price stability as long as they are achieved without adverse effects in general on the process of wage formation. But it is difficult to disregard the historical experience of high wage demands from certain groups tending to elicit reactions from other groups in the labour market. If they were to set a norm for the rest of the labour market, the wage demands that have been presented to date are higher than would ultimately be commensurate with price stability.

In the coming years the workings of the labour market will be tested in earnest in that, for the first time since the late 1980s, wages for large groups of employees are to be renegotiated in what looks like being a favourable economic situation.

Even without an accentuated wage-wage spiral, the much improved demand situation is likely to affect wage settlements as well as wage drift in the coming years. All in all, the rate of wage increases is assumed, as in the October Report, to be 4–4.5 per cent in 2000 and 2001. This implies that the rate of real wage increases remains historically high, which in turn would help to maintain the growth of private consumption. The forecast for unit labour costs in the total economy is likewise broadly unchanged from the October Report, with increases of 2.5–3 per cent in 2000 and 2001.

WAGE FORMATION AND THE INFLATION TARGET

WAGE FORMATION IN THE LONG RUN

Total production (value added) in the economy can be said to consist of two components: compensation to labour (including payroll charges) and gross profits. The wage share of production in the total corporate sector was about 67 per cent in 1998 and the profit share was about 33 per cent. The wage share varies considerably, however, between industries, mainly because it is bound up with the capital input that production requires per man-hour: the higher the level of capital intensity, the lower the wage share. In production that is exposed to international competition, moreover, the wage share is influenced by conditions abroad. Structural factors in the Swedish economy also affect the wage share; examples are the relative strength of the parties in the labour market, the extent to which wage negotiations are centralised, labour laws, the level of unemployment, tax pressure and the structure and financing of unemployment insurance.³¹

In the long run it is reasonable to assume that a stable relationship holds between the shares of value added that cover costs for labour and capital, respectively, though some trend shifts may be caused by structural changes in the economy. With a stable wage share, real wages follow the same path as long-term productivity growth (the potential productivity trend is discussed in the box on pp. 41–44). It follows that the sustainable long-term path for nominal wages is determined by the sum of productivity's growth rate and the rate of inflation targeted by the Riksbank. Monetary policy has an important function here. By implementing a consistent and credible monetary policy, the Riksbank can anchor inflation expectations in the vicinity of the inflation target and thereby help to reduce uncertainty about the development of prices. This in turn provides stable long-term conditions for the labour market organisations in wage negotiations. Given present insights into the Swedish economy's potential output per man-hour and the Riksbank's 2 per cent

31 See e.g. Calmfors, L. & Drifill, J. (1988), Centralization of wage bargaining and macroeconomic performance, *Economic Policy* 6, Layard, R. Nickell, S. & Jackman, R. (1991), *Unemployment and macroeconomic performance*, Oxford University Press, and Lindblad, H. (forthcoming), *Wage effects of mobility, unemployment benefits and benefit financing*, Sveriges Riksbank Working Paper series.

inflation target, a reasonable assessment is that an average increase in wage costs for the total economy of rather more than 3.5 per cent should be sustainable in the longer run. Note, however, that this presupposes a number of things. One is that the profit level must be adequate initially. Another is that the rate refers to the increase in total wage costs, including wage drift and payroll charges. The rate applies, moreover, to the average for the whole economy. Conditions differ between different economic activities, for instance as regards production technology and foreign competition. Another matter is that relative prices are liable to shift over time between different goods and services. The sustainable long-term path of productivity and prices therefore differs between activities and so, accordingly, do their potential to carry wage increases.

WAGE TENDENCIES IN THE SHORT RUN

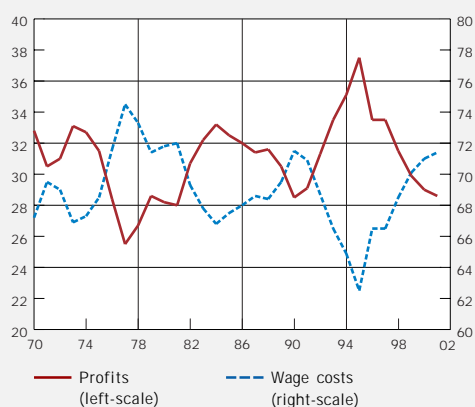
In the short run, nominal wage tendencies can deviate from the sustainable path. Conditions may be affected by structural changes and from time to time the economy may be in a state of disequilibrium.

Some features of the Riksbank's current assessment are an expected appreciation of the krona, the existence of unutilised resources (labour, for example) in the Swedish economy and a growth rate for labour productivity that is somewhat slower than the growth of potential output.

The Riksbank's inflation target is formulated in terms of the CPI, which covers prices for imported as well as domestic products. A substantial appreciation of the krona is foreseen in the forecast period. This in turn means that the price rise for goods and services produced in Sweden can exceed 2 per cent and that a temporary increase in wages above the sustainable rate is not a threat to the inflation target.

There are various ways of measuring the prices of domestic products. The broadest indicator is the GDP deflator, which measures the price level for the whole of the gross domestic product. Another indicator is the underlying domestic price level, represented by Statistics Sweden's index UNDINH. The GDP deflator is expected to rise almost 1.5 per cent in 2000 and rather more than 2 per cent in 2001. The corresponding rates for UNDINH are 1.9 and 2.5 per cent. In the forecast, the paths of the GDP deflator and UNDINH are both broadly commensurate with the inflation target in 2001 because the weak import price trend has a downward effect on CPI and UNDINH inflation. Annual

Figure B12. Total level of wage costs and profits.
Percentage of GDP at factor values



Note. The series are based on the earlier system for national accounts (SNA68).

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

productivity growth in the forecast period is judged to be just over 1.5 per cent. An increase in nominal hourly wage costs that equals the sum of the rates of change in domestic prices and productivity leaves the profit share unchanged. This means that a nominal wage rise of about 3–4 per cent is judged to be feasible at present without affecting the profit share.

As the economic situation improves in the coming years, unemployment is expected to fall. The growing labour demand will presumably lead to some increase in the wage share at the expense of the profit share. In this way, lower profit margins are assumed to provide room for a wage rise of more than about 3–4 per cent without jeopardising the inflation target. A slower wage rise, however, could provide for a more marked improvement in employment.

All in all, it is judged that in the coming years it will be feasible—partly because the krona is assumed to appreciate and there is currently a reserve of unutilised resources—for nominal wages to rise more than 4 per cent without entailing a risk of inflation rising all that much above the target two years ahead. But in the longer run such a wage trend is not commensurate with the inflation target because the downward effect from the krona's appreciation, as well as from the development of import prices in other respects, will come to an end. The Swedish economy is in a broad, strong upswing. Demand is rising rapidly and inflationary pressure will grow by degrees. Monetary policy must therefore be realigned successively in a less expansionary direction.

It should be underscored that the reasoning above refers to the average trend for the total economy and is not applicable to individual sectors. High wage increases in connection with high productivity growth in a particular sector or a particular company can facilitate the distribution of resources and promote economic efficiency. But this does call for considerable adaptability in the labour market, as regards training as well as mobility. Insofar as this flexibility is lacking, there is a risk of high wage increases in one sector leading to compensatory demands in other sectors and that in turn can affect the formation of monetary policy.

Price effects of deregulations and trade liberalisation

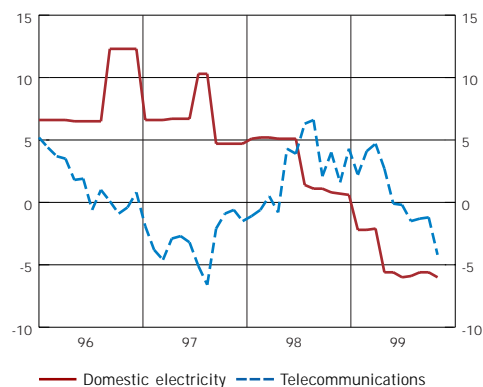
Market deregulations and the liberalisation of trade have effects on inflation in both the short and the long run but estimating the magnitude and timing of such effects on consumer prices is very difficult. The discussion has focused recently on effects of deregulations in markets for electricity and telecommunications, the Agenda 2000 reforms for agriculture and the new round of WTO negotiations but of course there are other deregulated sectors of the Swedish economy that have affected prices and can be expected to do so in the future. One example is the food sector (see box on pp. 53–58). Between them, the deregulations mentioned here involve about 10 per cent of household consumption. Electricity and telecommunications add up to about 5 per cent of the CPI basket and the share for food prices affected by Agenda 2000 is much the same.

As expected, electricity prices have continued to fall after the series of reforms that began in 1996. The downward effect on the CPI to date is almost 0.2 percentage points (Fig. 40). The total price effect of abolishing the time metre requirement as of 1 November this year is difficult to assess, partly because of the way in which the measurement methods are currently applied but also because a methodological change by Statistics Sweden as of January this year alters the seasonal pattern of electricity prices. The latter means that the CPI is now affected by planned, seasonally-determined changes in electricity prices (time tariffs), which was not the case before. Moreover, the National Energy Administration judges that the abolition of the time metre requirement will lead to increased costs for grid companies and this may result in higher tariffs to consumers.

Prices for electricity and telecommunications will continue to subdue inflation.

The telecommunications sector was deregulated in September this year, giving operators equal access to the network. When the reform had been decided, prices began to decline even before any measures had been taken and this tendency has continued. In the past six months prices have dropped unexpectedly much, with a downward effect on both CPI and UNDI_X inflation of 0.1 percentage point. Some further downward pressure on prices can be expected from the deregulation. The effects are still difficult to assess, however, and may be countered to some extent if, as proposed by the National Post & Telecom Agency, the ceiling on subscriptions is abolished and Telia's access net (the final section of the telephone network to the customer's socket) is opened for competitors.³² As current income probably does not cover costs

Figure 40. Electricity and telecom prices.
Percentage 12-month change



Source: Statistics Sweden.

32. As a condition for approving Telia's merger with Telenor, however, the EU Commission has stated that Telia is to open its access net sooner than proposed by the Agency.

for operating the access net, if Parliament approves the proposal there may be a future increase in subscription charges.

No new information about trade liberalisation has appeared since the October Report. The agenda for the new WTO round will not be decided until the beginning of December. Further liberalisation is likely to add to pressure on prices but probably not until later. In the European Community there is support for a broad agenda.³³ The EC position includes cuts in existing tariffs of 20–30 per cent but it differs from the positions of other major players, for example the United States. With controversial proposals for the agenda, such as labour laws, and divergent initial positions on a number of matters, the negotiations may be protracted.

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

Taken as a whole, the various deregulations and trade liberalisation are judged to have a downward price effect in the forecast period of 0.1–0.4 percentage points a year. The downward effect in 1999 is somewhat larger than estimated in the October Report on account of this autumn's unexpectedly sharp price fall for telecommunications.

Table 6. CPI effects of deregulations.

Percentage points	1999	2000	2001
Electricity prices	-0.2	-0.1	0.0
Telecommunications prices	-0.2	-0.1	0.0
Agricultural prices	0.0	-0.1	-0.1
Total CPI effect	-0.4	-0.3	-0.1

Source: The Riksbank.

33. The agenda is expected to cover agricultural products (including export and internal support as well as support for the environment and rural areas), services, the introduction of competition laws, public procurement and customs tariffs on non-agricultural products.

PRICES AND COMPETITION IN SWEDEN S FOOD MARKET

The food industry in Sweden employs about 10 per cent of the total labour force in manufacturing. In terms of value added the food sector is the second largest in Sweden. Moreover, as food products make up a considerable item in the basket of consumer goods (about 14 per cent in 1998), the development of food prices is highly important for UN1X and CPI inflation.

EFFECTS OF EU MEMBERSHIP

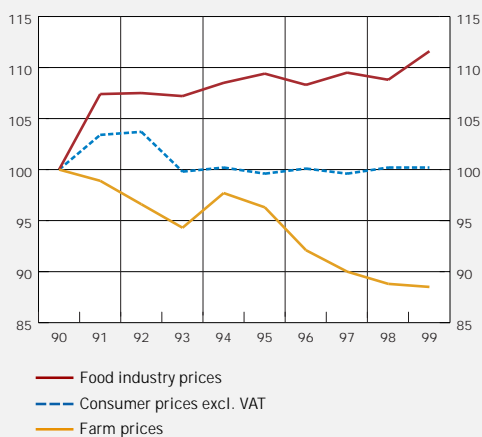
Food prices have fallen during the 1990s. Excluding VAT, however, the level rose by an average of 0.9 per cent a year from 1992 to 1999. Among EU countries, between 1990 and 1997 Sweden had the second slowest price trend for food. Even so, the level of food prices in Sweden is still about 19 per cent above the EU average. In the Nordic area, however, the price level is higher in Denmark and Norway than it is in Sweden.

EMU membership from January 1995 entailed considerable changes in the Swedish food industry's competitive situation and the development of food prices. It has been estimated that without the changes in agricultural policy when Sweden joined the EU, food prices in Sweden would be 6.3 per cent higher.³⁴ The price effects of EU membership differ markedly, however, between product groups. Prices of beef and beef products, for example, have fallen about 20 per cent, whereas EU's higher import tariffs on rice led to a 53 per cent increase in the price of rice during 1995. EU membership also implied free trade and competition in both the Swedish and the European market, which involves considerable changes in conditions for the Swedish food industry. With few exceptions, this sector had lacked access to markets abroad prior to EU membership.

34. HUI (1997), *Dagligvarupriser i de nordiska huvudstäderna efter Finlands och Sveriges EU-inträde* (Everyday goods prices in the Nordic capitals after Finland and Sweden joined the EU).

PRICES AND COMPETITION IN
AGRICULTURE, PRIMARY PRODUCTION

Figure B13. Agricultural and food product prices at different stages.
Index: 1990=100



Note. The farm price series does not include income-enhancing support such as direct subsidies for acreage and livestock. For 1999 the data are the average for the first three quarters.

Sources: National Agriculture Administration and Statistics Sweden.

The effects of agricultural policy on consumer prices are indirect because the controls mainly apply to early stages of production. The agricultural sector was deregulated in Sweden in 1990, accompanied by a five-year period of support for adjustments, including income support to facilitate the transition. In the process of adapting to EU agricultural policy, the income support was replaced by acreage subsidies and the system of guaranteed wind-up prices was prolonged. EU membership from 1995 meant a changeover to the EU support system, with new market regulations as well as some new structural and regional measures, for example.

In order to make European agriculture more competitive, in 1992 the EU had approved a reform that resembled what had been done in Sweden in 1990. The agricultural prices that are set politically were reduced, offset by direct compensation to farmers. Further steps in this direction are being discussed at present under Agenda 2000. The aim is to make EU agricultural products more competitive in world markets at the same time as compensation to farmers makes it possible to maintain production in Europe. The Riksbank estimates that the planned reform will have a downward effect on CPI and UND1X inflation in Sweden of 0.1 percentage point in both 2000 and 2001.

Prices for agricultural products have fallen almost continuously in the 1990s on account of increased competition in the domestic as well as international markets (Fig. B13). Total compensation per unit, which also includes support of various kinds, is currently on the same level as in 1990, which implies that support has increased. Farm profitability has improved in general in recent years as a result of cost cutting as well as increased support.

PRICES AND COMPETITION
IN FOOD PROCESSING INDUSTRIES

Farmers sell their products via wholesalers in the food sector. Food prices are therefore affected by costs for further processing, distribution, marketing and profit margins, as well as by competition from imports. Wholesale prices have been broadly unchanged in the 1990s even though the prices paid by wholesalers to farmers have fallen more than 10 per cent. This is probably one of several factors behind the positive development of profits in the food sector and it raises questions about competition there (Fig. B14).

Prices paid by producers for imported food products have risen in the 1990s at an annual rate of over 5 per cent; the trend is mainly explained by the depreciation of the krona after the move to a flexible exchange rate in November 1995. The rising import prices have not, however, spread to home market prices to any appreciable extent.

The food industry is labour-intensive but successive rationalisation has reduced the number of employees and thereby tended to hold total wage costs down. The move towards a less labour-intensive food industry is another explanation for the strong increase in profit shares.

The structure of food processing, like primary production, has changed substantially in recent years. The number of production units in the food industry was reduced by 40 per cent in the 1970s, mainly in connection with the introduction of new technology for processing and packaging. As this decline has continued, the sector has become more concentrated than before.

Agricultural cooperatives have a dominant position, with about 45 per cent of the food industry's total output in Sweden. Concentration is particularly high in certain activities. About 60 per cent of food industry turnover and employment (in persons) comes from operations such as slaughtering and meat processing, dairying, and milling and bakeries. In the largest of these groups, slaughtering and meat processing, Lantbrukskooperation (Association of Agricultural Cooperatives) had a market share of 78 per cent in 1996. The second largest group, dairying, was dominated by Arla and Skånemejerier, which are also agricultural cooperatives. In milling and bakeries, 45 per cent of grinding was owned by the Cereal Group through Nord Mills and Kungsörnen.

Figure B14. Food industry's gross operating surplus.
Percentage of value added at factor values



Source: Statistics Sweden.

Competition seems to have increased in recent years in the domestic market as well as in the EU and international markets. This is mirrored to some extent in the fact that about 30 per cent of the Swedish food industry is now in foreign hands. Still, the combination of a high degree of concentration throughout the industry and rising profit shares does raise the question of whether competition is adequate.

While tariffs on other manufactured products have been steadily reduced or abolished entirely in the postwar period, they are still relatively high for agricultural and food products. The WTO negotiations that are being initiated in December 1999 will probably cover agricultural products, which in time should lead to some downward pressure on agricultural and food prices.

COMPETITION IN SWEDISH EVERYDAY TRADE

The everyday food trade comprises wholesaling (selling to those who are not final consumers, i.e. retailers and caterers) and retailing. These two blocks are integrated in Sweden. In the 1990s retailing efficiency has been improved by reducing stocks and extending transportation (which is cheaper than holding stocks), as well as through increased price pressure from abroad, for example. The gains in efficiency should have been sufficient to result in lower prices than has been the case.

The operators in everyday trade are two voluntary chains (ICA and Dagab), the Cooperative Union & Wholesale Society (KF), other retail chains and independent traders. The three largest distributors controlled 68 per cent of the market in 1998. Their dominant position has probably been aided by regulations on new establishments in the Planning & Building Act.³⁵ Future shifts between the blocks' market shares may occur from takeovers and mergers such as the coming combination of D&D Dagligvaror with Hemköp, which belong to the Axel Johnson Group.

As a result of structural changes, the number of enterprises in everyday trade has decreased successively, from 10,000 in 1976 to 7,000 in 1996, and distribution facilities have become larger. The number of relatively small everyday retailers has also declined, by more than half from 1976 to 1996, and the survivors have expanded and been relocated outside city centres. New service and traffic outlets have sprung up at the same time as hypermarkets are taking a growing share of total turnover. The latter's share rose from 57 per cent

35. OECD (1998) *Economic Survey*.

in 1976 to 78 per cent in 1996.³⁶ An important factor for retail pricing appears to be local competition.³⁷ Internet trade may also provide competition in the future. A study by the Wholesale & Retail Research Institute in 1999 found, however, that food prices in internet trading were not lower than in traditional retailing.

CONCLUDING COMMENTS:
WHY ARE PRICES SO HIGH?

Consumer prices for food have fallen in the 1990s as a result of decreased VAT but their level is still internationally high. Many of the factors that may previously have impeded an equalisation with the price level in other countries have now been removed. The food industry can no longer be said to be protected from international competition and competition from imports has grown. Employment in agriculture and the food industry has declined, accompanied by cost cutting and increased productivity. Under these circumstances it is surprising that prices have not fallen more.

The picture in terms of costs, prices and competition is not uniform. Farm prices have fallen in the 1990s and the means of production have become more costly. However, the EU support system has compensated farmers for the decline in their product prices and farm profitability has risen. Moreover, changes in the structure of the agricultural sector have contributed to the rationalisation of costs.

Prices for semi-processed food products have fallen and increased trade has accentuated competition. Notwithstanding the increased competition, the degree of concentration is high in all stages of processing. Prices have risen, moreover, in later stages of processing and this is reflected in increased profit margins, for instance. Everyday trade is concentrated to a few operators and downward price pressure is still only modest from alternative outlets in the form of internet trade and diversified ownership. Another factor, often overlooked, behind the price difference between Sweden and continental Europe is the relatively high wage level in the Swedish food industry and retailing. Finally, a part of the price difference comes from VAT, which is higher in Sweden than in most other EU countries (12 per cent for food in Sweden as against the EU average of about 7 per cent).

36. *När mat kommer på tal* (When talk of food crops up) (1998), Statistics Sweden.

37. Asplund, M. & Friberg, R. (1998), Links between competition and inflation, *Quarterly Review* 3, Sveriges Riksbank.

Growing price pressure can be expected in future as a result of internet trade, increased cross-border trade, the WTO negotiations on agricultural products and possibly a harmonisation of VAT rates. A countering factor is the limited competition, which may tend to delay an adjustment of prices to the European level.

Effects of political decisions and interest expenditure

No new proposals to change indirect taxes and subsidies have been put forward since the October Report and the net contribution in the forecast period is judged to be small (Table 7). As regards the indexing of energy and CO₂ taxes, however, an additional calculation gives a contribution to CPI inflation in 2000 that is 0.1 percentage point higher than estimated in the October Report.

The increase in house mortgage interest expenditure in the forecast period is judged to be somewhat stronger than assumed in October. This is mainly because the effect of the November repo rate increase on house mortgage rates is expected to apply mainly to maturities up to two years. Prospects for interest rates for longer maturities have not changed appreciably since the October forecast. The effect of household interest expenditure on CPI inflation is still judged to be downward for most of the forecast period; a positive contribution is not expected until early in 2001.

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

Percentage points

	1999	2000	2001
Indirect taxes and subsidies	0.0	0.1	0.0
Temporary freeze on taxable value of residential property	-0.1	-0.1	-0.1
House mortgage interest expenditure	-0.5	-0.3	0.3
Total CPI effect	-0.6	-0.2	0.3

Sources: Statistics Sweden and the Riksbank.

As at the time of the October Report, there are a number of political proposals that, if they are approved, will affect both CPI and underlying inflation (Table 8).

Table 8. UND1X effects from political decisions.

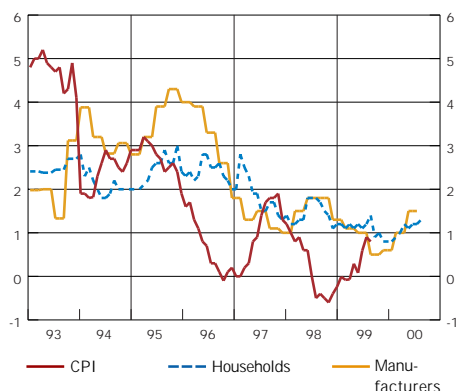
Percentage points

	Dec. 1999	Dec. 2000	Dec. 2001
Maximum day nursery charge	0.0	0.0	-0.1
Altered subsidy for medicines	0.2	0.0	0.0
Property tax on rented housing	-0.1	0.0	0.2
Total UND1X effect	0.1	0.0	0.1

Source: The Riksbank.

The combined CPI effect from changes in indirect taxes, subsidies and house mortgage interest expenditure is judged to be downwards in 1999 and 2000, followed by a marginal upward effect in 2001.

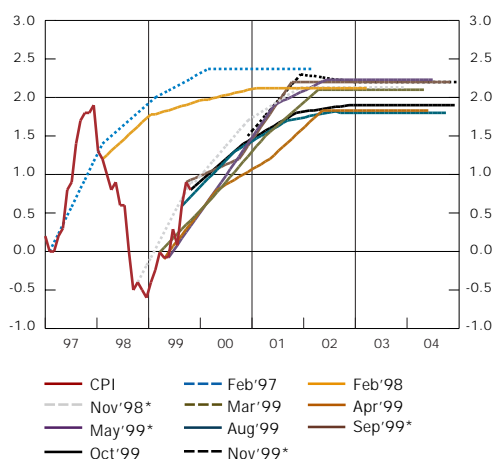
Figure 41. CPI and inflation expectations of households and manufacturers. Percentage 12-month change



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

Sources: National Institute of Economic Research and Statistics Sweden.

Figure 42. Money market agents' inflation expectations. Per cent



*From Statistics Sweden; otherwise Prospera Research AB.

Sources: Prospera Research AB and Statistics Sweden.

Inflation expectations

A number of surveys of inflation expectations have been published since the October Report. The results indicate that expectations are rising. The tendency is strongest for the short run and essentially in line with the Riksbank's assessment of some successive increase in inflationary pressure. Although the short-term expectations have risen, the margin to the inflation target is still comparatively wide. Inflation expectations for the medium and longer term remain in line with the inflation target (Table 9, Figs. 41 and 42).

In October, households expected inflation one year ahead would be 1.3 per cent, which was 0.1 percentage point higher than in the September survey by Statistics Sweden (Fig. 41). In manufacturing and the services sector, the corresponding expectations in September were 1.5 and 1.3 per cent, respectively, which is 0.5 and 0.3 percentage points higher, respectively, than in the June survey.

Inflation expectations for the medium and longer term remain in line with the inflation target.

The November survey from Statistics Sweden strengthens the picture of some increase in inflation expectations. Expectations have moved up for every time horizon. None of the interviewed groups report expectations that deviate appreciably from the 2 per cent target. For some time now the expectations for the medium and longer run have been stable around 2 per cent (Fig. 42).

Table 9. CPI inflation expectations in November 1999.

Annual rate, per cent

Expected inflation 1 year ahead

Money market agents	1.5	(0.3)
Employer organisations	1.6	(0.3)
Employee organisations	1.6	(0.3)
Purchasing managers, trade	1.7	(0.3)
Purchasing managers, manufacturing	2.0	(0.4)
Households (HIP)	1.3	(0.1)
Manufacturing firms (tendency surveys)	1.5	(0.5)
Services firms (tendency surveys)	1.3	(0.3)

Expected inflation 1–2 years ahead

Money market agents	2.3	(0.1)
Employer organisations	2.2	(0.3)
Employee organisations	2.2	(0.3)
Purchasing managers, trade	2.1	(0.1)
Purchasing managers, manufacturing	2.4	(0.2)

Expected inflation 3–5 years ahead

Money market agents	2.2	(0.0)
Employer organisations	2.2	(0.3)
Employee organisations	2.4	(0.5)
Purchasing managers, trade	2.4	(0.4)
Purchasing managers, manufacturing	2.4	(0.1)

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

Sources: National Institute of Economic Research and Statistics Sweden.

The November survey by Aragon of inflation expectations among bond market agents also shows a slight upward tendency. Investors expect that inflation in the coming two years will average 1.8 per cent, an increase of 0.2 percentage points since the previous survey. Inflation in the coming five years is expected to average 2.1 per cent, which is marginally higher than the previous survey (Fig. 43).

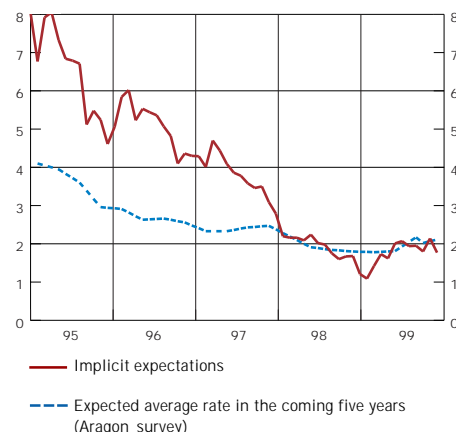
Market interest rates also provide information about inflation expectations. Rates for the short and medium term mainly reflect market expectations of future monetary policy and inflation, while the longer rates also mirror market assessments of economic policy, not least the commitment to price stability, as well as the global real long-term interest rate.

Since the October Report the forward interest rate curve has shifted downwards, at least for long and medium-term rates (Fig. 44). Forward rates for maturities of 1–2 years have declined about 0.2 percentage points. This tendency seems to indicate some dampening of expectations about a medium-term tightening of monetary policy, rather than lower expectations of inflation. The most recent inflation surveys support this interpretation. There may also have been some reduction of uncertainty about the future path of inflation and interest rates and thus a decreased real interest rate premium.

The long-term forward rates, for 5–10 year maturities, have declined about as much as the medium-term rates. The expected rate of inflation in the long run can be derived from the difference between real and nominal forward long bond rates. For forward rates with maturities between 5 and 15 years this difference has become somewhat smaller since the October Report and is currently somewhat below the 2 per cent inflation target.³⁸

To sum up, inflation expectations have moved up to some extent since the October Report. The new surveys show rising inflation expectations for all time horizons but above all for the short run. The tendency is essentially in line with the Riksbank's assessment of a successive increase in inflationary pressure. The expectations of inflation in the medium and longer run remain in line with the inflation target.

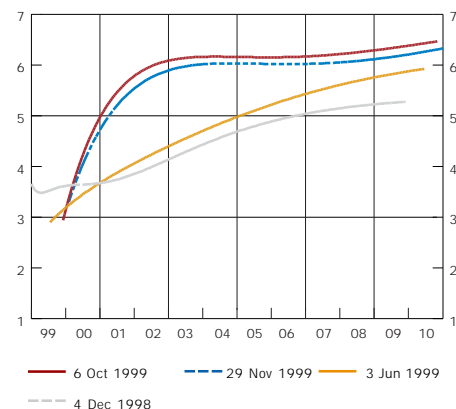
Figure 43. Inflation expectations. Per cent



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

Source: Aragon Fondkommission and the Riksbank.

Figure 44. Implied forward interest rates. Effective annual rate, per cent



Source: The Riksbank.

38. Some observers consider that changes in this indicator of expected inflation should be interpreted somewhat cautiously because market liquidity in real interest rates is too low to provide a reliable picture of long-term inflation expectations.

Inflation assessment

This chapter summarises the Riksbank's assessment of inflation prospects up to the end of 2001, given that the repo rate is left unchanged at 3.25 per cent. The principal features of the main scenario (the price trend in the coming twenty-four months that is considered most probable) are described, followed by the Riksbank's appraisal of the uncertainties and risks in the inflation prospects.

Inflation prospects in the main scenario

Since the October Inflation report there has been some further improvement in international economic prospects. It is increasingly clear that the consequences of the Asian crisis have been considerably less far-reaching than was feared in, for example, the autumn of 1998. Economic activity in the United States is being supported by a high rate of investment and better export prospects. Growth in Western Europe also looks like being somewhat higher than assumed earlier. The recovery in Japan is proceeding slowly but appears increasingly stable. The rising global activity is mirrored in growing inflationary pressure. Recently, a number of central banks that had eased their monetary stance earlier in response to actual and feared consequences of the Asian crisis, have therefore initiated a less expansionary realignment.

The Swedish krona is judged to appreciate in the coming years as the Swedish economy approaches a situation with external and internal equilibrium. Compared with the October Report, however, the appreciation is now calculated to be somewhat slower, partly because the improvement in international economic prospects is judged to result in somewhat tighter monetary policies in the rest of the world. The inflation assessment starts from the technical assumption that in the coming two years the repo rate is unchanged; together with higher forecast inflation, this implies a successive fall in real short-term interest rates. But in view of the economic upswing in Sweden and the rest of the world, interest rates for longer maturities are judged to rise slightly. Moreover, the repo rate increase of 0.35 percentage points to 3.25 per cent in the middle of November has raised the level of interest rates in Sweden.

In the October Report it was assumed that a weak international price trend and an increasingly strong krona would counter much of the inflationary effect from the domestic economic upswing. Recent developments call for some revision of this appraisal. Recent price increases for commodities, oil in particular, and intermediate goods have been larger than expected earlier and

the somewhat stronger global activity will support the higher prices in the longer run. Together with the prospect of the krona appreciating less rapidly than assumed earlier, external inflationary impulses are then somewhat greater than foreseen in October. This means that Swedish import prices are expected to rise somewhat more throughout the forecast period, though they will still counter a considerable part of the effect that the rising domestic activity exerts on the general price level (Fig. 45).

The picture of a stable, broad economic upswing in Sweden is unchanged. Even if the November repo rate increase does have some dampening effect on activity, there are grounds for counting on a large contribution to growth from strong domestic demand, supported in part by a favourable development of real wages. At the same time, the brighter international prospects and a weaker average exchange rate than foreseen in the October Report are expected to lead to a somewhat stronger path for net exports. In the short run, however, there are certain signs, particularly in Swedish manufacturing activity, that the assessment may be somewhat on the high side. Considering that more fundamental reasons for a slowdown at present are hard to find and the most recent manufacturing statistics paint a better picture, there are no grounds for more than a marginal reassessment of growth prospects in the coming years. All in all, the GDP growth rate is judged to be 3.4 per cent in 1999, 3.7 per cent in 2000 and 3.3 per cent in 2001.

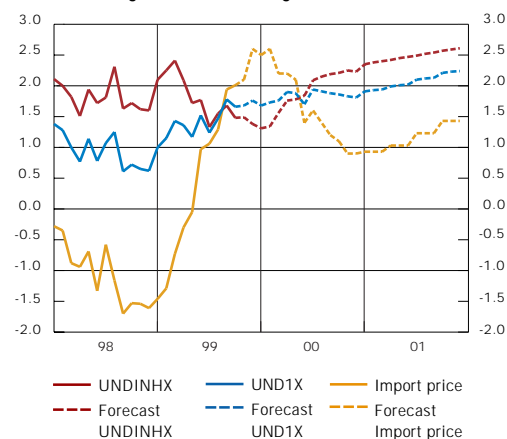
The present expansionary direction of monetary policy cannot be maintained over a complete business cycle.

With the comparatively rapid expansion of total demand, the economy's unutilised resources will be brought into production successively. In time, capacity restrictions begin to take hold and influence price formation. At present, however, there is nothing which suggests that more marked shortages will have time to arise in the forecast period.

It is considered that nominal wages can rise rather more than 4 per cent without a risk of the inflation target being exceeded one to two years ahead, partly because the krona is assumed to appreciate. In time, however, such a wage trend is not commensurate with the inflation target, for instance because the dampening effect from import prices will come to an end.

One reason for the assumption that, despite the strong economic upswing, the path of inflation will be comparatively subdued is that the relationship between growth and inflation is likely to be weaker than in the 1980s, partly because competitive pressure has grown and inflation expectations are low and stable.³⁹ Today, therefore, output above the potential level can be presumed to generate somewhat less inflationary pressure than before. At the same time, all experience suggests that over a complete business cycle, monetary policy cannot be as expansionary as it is at

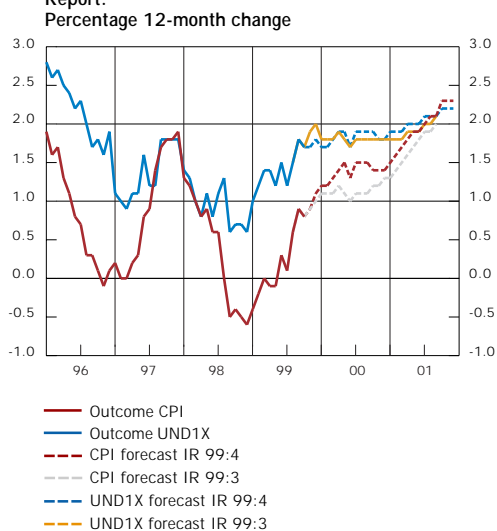
Figure 45. UND1X, UNDINHx and import price for goods. Outcome and main scenario. Percentage 12-month change



Sources: Statistics Sweden and the Riksbank.

39 See e.g. *Inflation Report 1999:3*, box on pp. 52–55.

Figure 46. CPI and UND1X. Outcome and the main scenario in this and the previous Report.



Sources: Statistics Sweden and the Riksbank.

present without entailing a risk of overheating in the economy. There has been some further increase in short-run inflation expectations but the level remains low. Inflation one year ahead is expected to be below 2 per cent and expectations for the longer run are in line with the target. The latter should help to moderate inflationary impulses from the rising activity. It should be borne in mind, however, that the long-term inflation expectations presumably anticipate that the Riksbank will play an active part in keeping inflation down by raising the repo rate.

Inflation's underlying rate, measured as UND1X, is judged in the main scenario to be 1.8 per cent one year ahead and 2.2 per cent after two years.

With higher international prices, particularly for commodities, and a weaker appreciation of the krona, the development of import prices is not expected to counter growing domestic inflationary pressure to the extent that was assumed earlier. All in all, inflation's underlying rate, measured as UND1X, is judged in the main scenario to be 1.8 per cent one year ahead and 2.2 per cent after two years. Even with the repo rate increase, UND1X inflation is accordingly judged to be marginally higher than envisaged in the October Report (Fig. 46). CPI inflation is judged to average 1.4 per cent in 2000 and 1.9 per cent in 2001; this is also some upward revision from the October Report, mainly as a consequence of higher interest expenditure. At the end of 2001, CPI inflation is judged to have moved up to 2.3 per cent.

The difference between the CPI and UND1X consists of house mortgage interest expenditure, indirect taxes and subsidies. The combined effect of these transitory factors on CPI inflation is judged to be -0.2 percentage points one year from now and 0.3 percentage points after two years. Under present circumstances the Riksbank disregards these factors in the formulation of monetary policy because they are judged to have no permanent effect on inflation or inflation expectations. This means that in practice monetary policy is currently based on an assessment of inflation as measured by UND1X.

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

	Annual rate		12-month rate December	
	2000	2001	2000	2001
CPI	1.4	1.9	1.4	2.3
UND1X	1.8	2.1	1.8	2.2
UNDINHx	1.9	2.5	2.2	2.6
HICP	1.9	2.0	1.9	2.2

Source: The Riksbank.

The risk spectrum

The inflation assessment in the main scenario is the path the Riksbank considers most probable, given the assumption of an unchanged repo rate. However, the economic analysis on which the inflation forecast rests contains elements of uncertainty and the risk spectrum is also relevant in the formation of monetary policy.

The principal threat to global economic growth is still the financial imbalances in the US economy; this is a factor that could result in lower inflation in Sweden, too. The long upward phase in the United States during the 1990s, with rising share prices, has meant that in recent years private consumption has risen considerably faster than household income. The household saving ratio has now fallen to levels that are historically low. This is accompanied by investment growth that exceeds total domestic saving, with the result that the US deficit on current account has risen to new record highs, accompanied by a capital inflow from the euro area, for example. Many observers consider, moreover, that US stock markets are over-valued, a view that is supported by traditional valuation models. Via effects on international prices and economic activity, a stock market fall, greatly increased saving in the United States, or a fall in the value of the dollar driven by concern about the US current account and an increased capital demand in the rest of the world, could dampen inflation in Sweden.

The effects of deregulations on prices in the coming years are difficult to assess. The downward price effects from deregulations in the markets for electricity and telecommunications, together with Agenda 2000, may be greater than allowed for in the main scenario.

Other factors could lead to higher inflation than in the main scenario. Experience has demonstrated the difficulty in estimating the forces in a broad international and domestic upswing and their effects on prices.

In the main scenario, the impact on the general price level from rising domestic activity is considerably dampened by falling import prices, for example, with the result that the increase in UNDI_X inflation in the coming years is judged to be comparatively moderate. A different development in this respect would lead to higher inflation. The path of prices for oil and other commodities is important in this context. The oil price need not fall quite as markedly as assumed in the main scenario and even a price rise does not seem unrealistic. It is conceivable, for example, that OPEC succeeds in limiting the supply of oil to a greater extent than allowed for in the main scenario. Another risk is that the krona is weaker than in the main scenario, for instance in connection with financial unrest. Higher prices for oil and other commodities, or a weaker exchange rate, would lead to a stronger import price trend. In that case, import prices would not dampen rising domestic activity's impact on the general

price level to the extent that the main scenario assumes. UND1X inflation would then be higher and more in line with domestic inflation.

The inflation assessment in the main scenario presupposes an inflation propensity in the Swedish economy that is lower than in earlier upward phases. The inflationary impulses from the strong, broad upswing are accordingly assumed to be comparatively moderate. The Riksbank's view of how inflation may be affected by the rising activity attracted some attention in connection with the October Inflation Report. The background was the Riksbank's assessment that the price pass-through in the main scenario would be somewhat lower than foreseen in the June Report. In earlier Inflation Reports this had been considered in the risk spectrum. In the October Report, a conceivable argument for a lower inflation propensity was increased competition, for instance in connection with deregulations and EU membership. The restraining effect on price and wage formation from the low and stable inflation expectations was also mentioned. Moreover, prices had in fact developed as forecast, in Sweden as well as internationally, even though growth was higher than had been expected. These arguments are still valid. The impact on prices from the growth of demand in the coming years is accordingly judged to be approximately the same as foreseen in the October Report, which means, for example, that the wage forecast is broadly unchanged.

Still, the relationship between growth and inflation is difficult to analyse and may be stronger than assumed in the main scenario. Assessing resource utilisation and the potential growth rate with sufficient precision is one of the problems, illustrated by the fact that in recent years the Riksbank has altered its assessment in these respects a number of times. So in the present situation it is conceivable that more marked labour shortages arise and lead to a wage trend that is stronger than foreseen in the main scenario. Labour demand is already strong in certain industries where new wage agreements are to be concluded in the coming year. There is a risk of the level in new settlements not being commensurate with the inflation target in the longer run, particularly if the agreements set the tone for other segments of the labour market.

Inflation's reaction to the strong growth may be more marked and swifter than foreseen in the main scenario.

All in all, the balance of risks in the inflation assessment is judged to be somewhat on the upside, primarily because inflation's reaction to the strong demand growth may be more marked and swifter than foreseen in the main scenario at the same time as a stronger import price trend cannot be ruled out. In other words, inflation above the level in the main scenario seems more

probable than inflation below that level. This is evident from Fig. 47, which presents the assessment of uncertainties around the CPI inflation forecast in the main scenario.⁴⁰ The broader uncertainty interval above than below the main scenario's path for inflation represents the judgement that upside risks predominate.

There is also some upside risk for underlying inflation, measured as the 12-month change in UND1X (Fig. 48). For CPI as well as UND1X inflation, the uncertainties about the future path are broadly unchanged since the October Report; the uncertainty intervals are accordingly still much the same.

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

	Annual rate		12-month rate December	
	2000	2001	2000	2001
CPI	1.5	2.0	1.5	2.4
UND1X	1.9	2.2	1.9	2.3

Note. The table gives the mean values of the inflation assessment's probability distributions (see Figs. 47 and 48).

Source: The Riksbank.

As monetary policy decisions are based primarily on an assessment of price tendencies one to two years ahead, the inflation prospects with this time horizon are of particular interest. In the main scenario, the 12-month rate of UND1X inflation is expected to be 1.8 per cent in December 2000 and 2.2 per cent in December 2001. Due to the predominant upside risk in the assessment, the mean value for the overall assessment of UND1X inflation, including the risk spectrum, is approximately 0.1 percentage point above the forecast path in the main scenario. That is to say, the mean value for the assessment of UND1X inflation two years ahead is a rate of 2.3 per cent (Table 11).

Table 12. UND1X inflation.

Percentage probability, 12-month rate

	UND1X<1	1<UND1X<2	2<UND1X<3	UND1X>3	Total
2000 (Dec.–Dec.)	7	48	39	6	100
2001 (Dec.–Dec.)	12	27	33	28	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

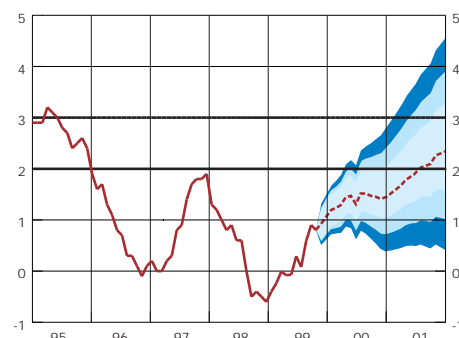
	CPI<1	1<CPI<2	2<CPI<3	CPI>3	Total
2000 (Dec.–Dec.)	23	50	24	3	100
2001 (Dec.–Dec.)	12	24	31	33	100

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

Source: The Riksbank.

40 For an account of how the uncertainty interval is derived, see Blix, M. & Sellin, P. (1999), Inflation forecasts with uncertainty intervals, *Quarterly Review 2*, Sveriges Riksbank; for a fuller analysis, more focused on models, see *idem* (1999), *Uncertainty bands for inflation forecasts*, Sveriges Riksbank Working Paper no. 65.

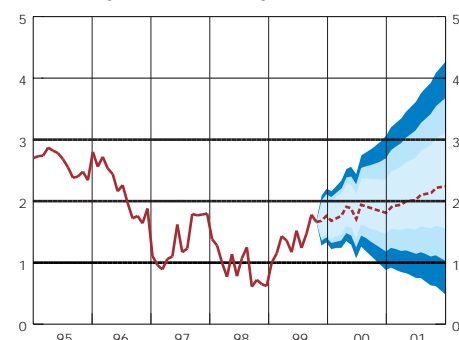
Figure 47. CPI with uncertainty intervals.
Percentage 12-month change



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

Sources: Statistics Sweden and the Riksbank.

Figure 48. 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.

The probabilities of UND1X inflation being inside certain intervals one to two years ahead are shown in Table 12. It is most likely that in the coming two years UND1X inflation will be inside the tolerance interval for the development of consumer prices. Compared with the October Report, the probability of UND1X inflation two years ahead being above 2 per cent has grown, mainly because the import price trend is now assumed to be stronger. The probability of CPI inflation being outside the lower tolerance limit one year ahead has decreased since the October Report and the probability of a rate above the 2 per cent target two years ahead has grown (Table 13). This is mainly a consequence of higher interest expenditure and the stronger import price trend compared with the October Report. All in all, it seems more probable that in two years' time both UND1X and CPI inflation will be above 2 per cent than that they will be below that level.

The conclusion from the reported assessments is that, excluding transitory effects from changes in indirect taxes, subsidies and interest rates, and given that the repo rate remains unchanged at 3.25 per cent, inflation will rise slowly and be somewhat above the target two years ahead.

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 increased 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 November 1999.

The survey data show expectations of repo rate increases to 3.5 per cent three months from now, to 4 per cent after one year and to 4.5 per cent after two years.⁴¹ Here it is assumed that the short-term market interest rates broadly follow the repo rate, while the pass-through to the longer rates is judged to be only partial. Compared with the main scenario, the 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 exchange rate is judged to appreciate about 1 per cent more on average 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. The stronger exchange rate curbs net exports. All in all, this is judged to lower GDP growth by about 0.2 percentage points in 2000 and almost 0.4 percentage points in 2001. The damping of activity is also assumed to result in a somewhat weaker wage trend.

41. The median value of the expectations.

Table B2. Modified inflation forecast, incorporating the interest rates expected in Statistics Sweden's survey in November 1999.
Percentage change

	Annual rate 2000	Annual rate 2001	12-month rate Dec 2000	12-month rate Dec 2001
CPI	1.7 (+0.3)	2.0 (0.0)	1.7 (+0.3)	2.2 (-0.1)
UND1X	1.8 (-0.1)	1.9 (-0.2)	1.7 (-0.1)	2.0 (-0.2)

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

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 about 0.3 percentage points higher in 2000. It is not until later in the forecast period that the weaker demand and lower import prices begin to affect inflation more substantially. 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. The downward effect on UND1X inflation from weaker demand and lower import prices is therefore only about 0.1 percentage point in 2000; the effect in 2001 is somewhat larger but the full impact of the repo rate increases does not occur until the year after that.