Sveriges Riksbank Inflation Report September 1998

Contents

Foreword	3
Summary	4
Chapter 1 Developments since the June Report	7
Prices	7
Interest rates, exchange rate and money supply	13
Chapter 2 Inflation assessment	21
International activity and inflation	23
Interest rates and exchange rate	26
Import prices	30
Demand and supply	31
Transitory effects	38
Inflation expectations	39
Inflation forecast: main scenario	40
Uncertainties in the inflation assessment	42
Chapter 3 Monetary policy conclusions	47
Annex	53
Boxes	
Underlying inflation	9
Monetary policy expectations	15
Raw materials prices and exchange rates	17
How is the Swedish economy affected by increasing international competition	24
The krona's long-term path	27
Implied distributions of the OMX index	33
Inflation rates close to lower tolerance limit	48
Inflation assessments and monetary policy	50

Foreword

Monetary policy is targeted on keeping the annual change in the consumer price index (CPI) at 2 per cent, with a tolerance interval of ± 1 percentage point.

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

The arrangement of this Report is the same as previously. Chapter 1 is devoted to a discussion of what has happened to prices and in financial markets, with particular reference to the period since the previous Report. The assessment of inflation two years ahead is presented in Chapter 2, which is structured so as to clarify which factors are of greatest importance for future inflation. The Report concludes with the monetary policy assessment in Chapter 3. An annex contains the underlying statistical material.

The *Inflation Report* served as a basis for the Governing Board's discussion of monetary policy on 17th September 1998. The conclusions from that discussion are presented in Chapter 3.

Stockholm, September 1998

Urban Bäckström Governor of Sveriges Riksbank

Summary

In August the 12-month rate of CPI inflation was 0.0 per cent. The price tendency during the summer has been well in line with what the Riksbank foresaw. The rate of domestic inflation, however, has been somewhat higher than expected, while the price rise for imported goods has been more subdued. An unexpectedly strong price trend in the construction sector and a continued price fall for raw materials have contributed to this.

This Report presents the Riksbank's appraisal of inflation up to and including the third quarter of 2000, together with the ensuing conclusions for monetary policy. In order to demonstrate the consequences for the construction of monetary policy, the analysis presupposes that the repo rate is left unchanged. This technical assumption underlies the main scenario for the path of inflation, accompanied by an assessment of uncertainties.

■ The main factors that condition inflation are:

International activity and inflation. The international economic outlook now appears to be somewhat weaker, partly on account of the widespread financial unrest. International inflation is therefore likely to be somewhat lower than envisaged earlier. For Sweden, however, this effect is countered by the krona's weaker exchange rate. All in all, inflationary pressure from the rest of the world is judged to remain low.

Demand relative to supply. The main scenario assumes that the krona appreciates in the years ahead. Even so, the overall monetary conditions are working in an expansionary direction and contributing to a gradual increase in domestic demand. This counters the real effects of the Asian crisis. GDP growth in the main scenario is expected to be good, almost 3 per cent a year. Inflationary pressure still seems to be moderate, partly on account of strong productivity growth and the prospect of the total economy continuing to have some surplus capacity in two years time. The annual rate of wage increases is assumed to be 3.5-4 per cent, which is not considered to conflict with the Riksbank's inflation target.

Transitory effects. The overall impact of transitory effects—from tax changes and interest rate movements, for example—is substantial during 1998. During 1999, only a few indirect taxes will be changed; this is accompanied by a fall in households' interest expenditure. A starting point for 2000 is a return to the regular procedure for indexing the taxable value of residential property, using the change in house prices from July 1996 to June 1999 as the basis for this indexing. This is judged to add 0.5 percentage points to the rate of CPI inflation but it is expected that the effect will be largely offset by a continued fall in households' interest expenditure. All in all, the transitory effects during 1999 and 2000 are expected to be marginal.

Inflation expectations, as manifested in financial markets and survey data, point to low inflation in the coming twelve months. In the longer run the expectations indicate persistently strong confidence in monetary policy and a rate of inflation in line with the Riksbank's target.

■ The underlying rate of inflation, as represented by UND1, is judged to pick up in the main scenario from 1.1 per cent in August 1998 to 1.6 per cent in December 1999 and 2.0 per cent in the third quarter of 2000. At the time horizon of twelve to twenty-four months that is most relevant for the construction of monetary policy, the 12-month rate of CPI inflation is expected to be somewhat below the targeted rate. At the end of the period, however, the rate is judged to be approximately 2 per cent. All in all, this implies that at the end of the surveyed period, inflation will be relatively well in line with the Riksbank's target.

■ As things now stand, there are mainly two—contrary—factors on which inflation prospects and the future construction of monetary policy will hinge. One is an international economic development that is weaker than assumed in the main scenario, which might lead to lower inflation, and the other is the increased uncertainty about the exchange rate, for instance. A more permanently weak exchange rate that does not mirror a weaker real economic trend could lead to increased inflationary pressure. Then there is the financial turbulence in the global economy, with sudden shifts, which complicates assessments. Against this background the Riksbank is continuing to analyse the course of events and appraising the construction of monetary policy on an ongoing basis in the light of new information. CHAPTER I

Developments since the June Report

Economic developments since the previous report are discussed in this chapter, starting with the picture of inflation in recent months and concluding with an account of recent movements in interest rates and the exchange rate.

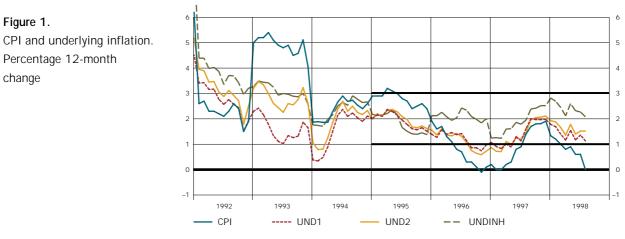
Prices

CONSUMER PRICES STILL SUBDUED The rate of inflation, measured as the 12-month change in the consumer price index (CPI), has fallen more or less continuously since January 1998; the rate in August was 0.0 per cent. The downward movement is mainly explained by falling prices for imported goods, lower housing costs and cuts in indirect taxes.

The overall development of consumer prices since the June Report has been broadly as expected.

However, import prices and households' interest expenditure have been somewhat weaker that envisaged then, while domestic prices have risen faster.

Some price rise for raw materials, crude oil in particular, was foreseen in the June Report but this has not happened. The international price trend for manufactured products has also been weaker than expected. Market interest rates in Sweden have tended to fall during the summer, leading to lower interest expenditure for households. Excluding interest expenditure, on the other hand, the rate of domestic inflation has been somewhat stronger than



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

Source: Statistics Sweden and the Riksbank.

INFLATION REPORT 3/1998

expected. This is partly attributable to rising depreciation costs for home-owners; for the CPI these costs are calculated with the Building Price Index (BPI), which measures the price of new houses and rose very sharply during 1997, thereby leading to a strong increase in write-offs during 1998.

The development of consumer prices since the June Report has been broadly as expected.

Inflation measured by the internationally harmonised index of consumer prices (HICP) has also been weak; the 12-month rate has been falling since May and it was 0.6 per cent in August. The difference between the CPI and the HICP figures is mainly explained by the exclusion of house mortgage interest payments from the latter. Since the June Report the 12-month rate of HICP inflation in Sweden has been somewhat below the average for the future euro area.

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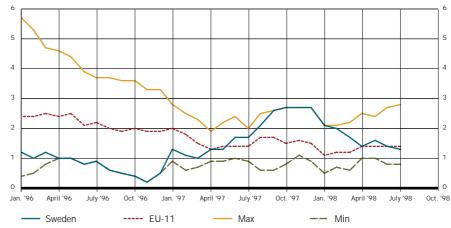
The downward trend in underlying inflation, which started early in 1998, has ceased. Since the June Report, underlying inflation measured as UND1 and UND2 has been between 1.1 and 1.5 per cent (Fig. 1).¹ This is more or less in line with the outlook in the June Report.

The downward trend in underlying inflation, which started early in 1998, has ceased.

The underlying rate of domestic inflation (UND-INH) has been somewhat higher than expected. This is explained by rising depreciation costs for homeowners, increased local government tariffs and higher telephone charges, for example.

UNDINH has lain above UND1 in recent years but this is hardly surprising. For one thing, it is generally the case, in Sweden as well as in other countries, that the export sector has higher productivity growth than the protected sector. Given a stable exchange rate and a similar development of costs in Sweden and the rest of the world, this results in a slower price rise for imports compared with domestic products. For another thing, the gap between UNDINH and UND1 is an expected feature of the Swedish economy's adaptation to low, stable inflation, full capacity utilisation and balanced foreign trade. Sweden currently has unutilised resources and a sizeable current-account surplus, a situation that normally does not last. An adjustment is therefore

Figure 2. HICP for Sweden and EU area. Percentage 12-month change



Note. Max. and min. show the highest and lowest current national figure, respectively, among the EU countries apart from Greece.

Sources: Statistics Sweden and Eurostat.

likely to occur through an appreciation of the real exchange rate. This in turn can arise from a strengthening of the nominal exchange rate, as discussed more fully in a box on p. 27—29. That, at least, is what one would expect if the development of domestic prices and wages is being steered by the inflation target. Under these circumstances the domestic price rise will exceed the rate of imported inflation, which is affected by the exchange rate's appreciation. With an adjustment of this kind, households' real earnings (wage increases relative to the consumer price rise) would grow faster than real wage costs (wage increases relative to the prise rise for domestic output) and this would favour production and employment.² A further explanation for the weak tendency in import prices and UND1 may be increased international competition in markets for goods. This is discussed in box "How is the Swedish economy affected by increasing international competition" on pp. 24–26.

2 For a fuller discussion see Bean, C. (1994), European unemployment: a survey, *J. of Economic Literature, Vol. XXXII (June)*, pp. 573-619.

UNDERLYING INFLATION

Figures for underlying inflation, starting from the Riksbank's definitions of UND1 and UNDINH, have been calculated on behalf of the Bank by Statistics Sweden.

The Riksbank's calculations of underlying inflation use published 12-month change figures and the current annual CPI weights for items that are excluded. The method used by Statistics Sweden is not exactly the same as this.³ For example, Statistics Sweden allows for the fact that all 12-month changes (except the December figures) represent price movements during two consecutive calendar years and therefore incorporates two sets of annual weights, whereas the Riksbank only uses the current year's weights. However, for the period from January 1997 through June 1998 the quantitative consequences of the methodological difference are virtually negligible.

The aim when calculating underlying inflation (UND1) is to present the CPI excluding house mortgage interest expenditure and *changes* in indirect taxes and subsidies that result, for example, from fiscal decisions. When calculating underlying domestic inflation (UNDINH), the price of "goods that are mainly imported" is also excluded.

The Riksbank's' and Statistics Sweden's definitions of house mortgage interest expenditure and goods classified as being "mainly imported" are identical. The indirect taxes and subsidies that Statistics Sweden covers are those which are included in the calculation of the Net Price Index (apart from wage-related indirect taxes); this is largely the same as for the Riksbank's calculations, the main difference being that in the latter, changes in certain charges (for medical consultations, for instance) are treated as changes in subsidies.

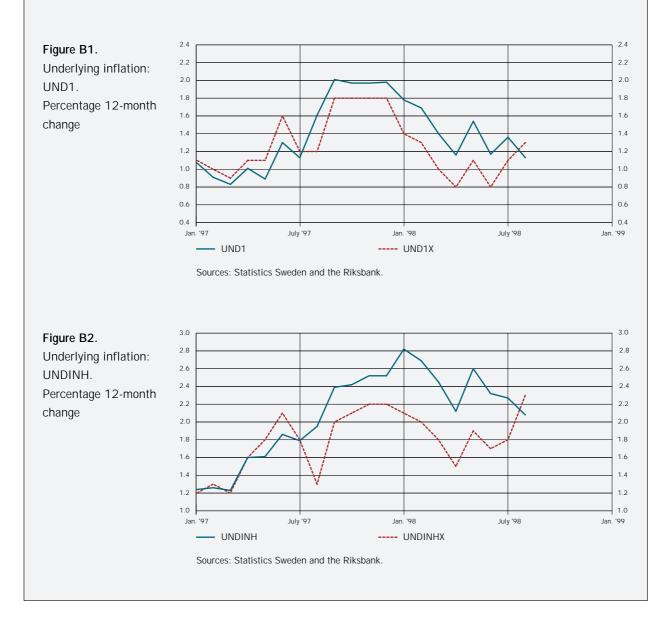
Like the Riksbank, Statistics Sweden limits its calculations to the direct effects which changes in indirect taxes and subsidies may have on consumer prices. Effects of such changes on the price of intermediate goods in the production of consumer goods (and thereby indirectly in time on consumer prices) are accordingly included in the figures for underlying inflation. Statistics Sweden assumes, moreover, that the full impact on consumer prices shows up immediately, which has not always been the case in calculations by the Riksbank.

The indicators calculated by Statistics Sweden and the Riksbank are presented in Figs. B1 and B2. It will be seen that for the first half of 1997 the differences are

¹ UND1 and UND2 both represent the CPI excluding house mortgage interest costs and effects of changes in indirect taxes and subsidies; UND2 also excludes petroleum and petrol prices. UNDINH is calculated as UND1 excluding prices of goods that are mainly imported.

³ A description of the method was published by Statistics Sweden on 15 September 1998: UND1X and UNDINHX: calculations according to a model applied by Statistics Sweden.

small; the same applies to August 1998. In the period from July 1997 through July 1998 the Riksbank's figures are higher than Statistics Sweden's. This is because, unlike Statistics Sweden, the Riksbank assumed that the extensive tax increases which were implemented in July 1997 would not have a full or immediate impact on consumer prices. Moreover, the price effects of the increased tobacco tax from August 1997 were spread over three months by the Riksbank, whereas Statistics Sweden concentrated them to August 1997. The latter explains why the differences between the series narrow so markedly in August 1998.



The price level for "goods that are mainly imported" has fallen in recent months; in August the 12-month change was -1.2 per cent (Annex: Fig. 4). The downward tendency comes mainly from energy-related products and telecommunication products.

The price level for "goods that are mainly imported" has fallen in recent months.

The rate of increase in market prices for goods and services, excluding indirect taxes and subsidies, has been comparatively stable in recent months despite the price fall for imported goods. In August the 12month change was 0.5 per cent. Goods and services for which prices have risen include food, transportation and telecommunication services.

A large proportion of inflation's domestic component is coming from administered prices for goods and services. Since the June Report, the rate of increase for these items, excluding taxes, has decreased, from 2.0 to 1.6 per cent. One reason is that the largest single item, rent increases, shows a steep fall this year, partly on account of lower interest rates. The development of other home-owner expenditures, for gas and electricity for example, has also been subdued.

House mortgage interest expenditure has gone on falling and the impact on inflation is still downward. In August the effect on the 12-month change in the CPI was -0.7 percentage points, which is in line with the assessment in the June Report. Long fixed-interest periods lead to some lag before households' mortgage interest expenditure adjusts to the general level of interest rates.

House mortgage interest expenditure has gone on falling and the impact on inflation is still downward.

Changes in indirect taxes and subsidies have been considerable in the past twelve months. In August 1998 the overall net impact on the rate of inflation was –0.3 percentage points, according to Riksbank calculations.

To sum up, the consumer price tendency in the past quarter has been broadly in line with the main scenario in the June Report.

PRODUCER AND RAW MATERIALS PRICES STILL SUBDUED

The weak tendency in producer prices for imported goods has continued since the June Report. In July the 12-month change figure was –2.3 per cent. Large price reductions for energy-related products are the main explanation, accompanied by lower prices for investment goods and consumer durables. The only category of imported products for which prices have been rising is non-durable consumer goods, with a 12-month increase of 2.4 per cent and a rate of 3.9 per cent since the beginning of 1998.

Export prices have also fallen on average in the past twelve months; in July the 12-month change was -1.4 per cent. The downward tendency applies to all use categories except non-durable consumer goods.

The home market price index, which measures the price of goods produced in Sweden, also shows a weak tendency. The 12-month rate has fallen steeply since the June Report; in July it was -0.3 per cent. Lower prices for intermediate goods and energyrelated products account for this. With the strong growth of domestic demand in the first half of 1998, however, price increases have been obtained for consumer goods and investment goods.

All in all, various indexes for import and producer prices indicate a weak tendency at present for consumer goods with a high import content.

In the past, price movements for consumer goods, as measured in the index for domestic supply,⁴ have been a good indicator of consumer goods prices a couple of months later. In July 1998 the 12-month price increase was 1.8 per cent, an acceleration of 0.1 percentage point since April (Annex: Fig. 5). A breakdown of the price changes over different categories of consumer goods shows a price fall for consumer durables with a sizeable import content. For non-durable goods, on the other hand, the price level has risen in the past twelve months by more than 2 per cent.

4 A weighted index of producers' import and home market prices.

All in all, various indexes for import and producer prices indicate a weak tendency at present for consumer goods with a high import content. Together with low prices for energy-related products, this is tending to keep producer prices down.

Construction firms see possibilities of raising prices.

According to the second-quarter business tendency survey from the National Institute of Economic Research, there was little overall change in the price level for manufacturing and construction. There was some fall in export prices, mainly for telecommunication products. Looking ahead, most industries count on little change or some price fall, although there are some considerable variations. Further price reductions are expected for steel and telecommunications products, whereas construction firms now see a possibility, for the first time in two years, of raising tendered prices. Prices in wholesale trade have tended to fall or be unchanged, while price increases have been reported for various business services. These tendencies are expected to continue.

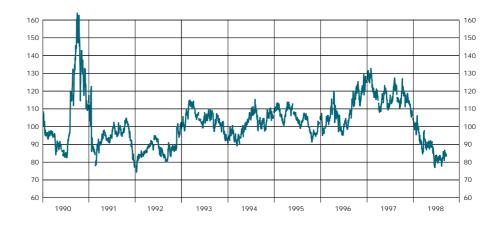
The price fall for raw materials has continued

since the June Report; the tendency during the summer has been somewhat weaker than we assumed at that time. Downward price pressure has come from subdued demand, expectations of an economic slowdown in the United States and the ongoing crisis in Asia, with its secondary effects in Russia and Latin America, for instance.

The barrel price of crude oil fell from August 1997 to August 1998 from USD18.5 to USD12.0; expressed in Swedish kronor, this amounts to a drop of approximately 35 per cent. Prices have been depressed by low demand, which has led to unexpectedly large oil stocks, as well as by uncertainty whether OPEC will achieve the declared cut in output. Excluding crude oil, the price index for raw materials fell in this period by over 25 per cent (Annex: Fig. 9). Recently, however, the price fall for basic metals has been slowed by some increase in demand from manufacturers in Europe and North America.

To sum up, inflationary pressure from producer prices is still low. Prices for raw materials have gone on falling and the tendency has been weaker than was expected in the June Report.

Figure 3. Import-weighted index of raw materials prices. Daily level; index: 1995=100



Note: Constituent items: oil-related products, aluminium, copper, nickel, zinc, gold, lead and tin. Weights: shares of total Swedish imports in each year. Source: The Riksbank.

Interest rates, exchange rate and money supply

LOWER INTEREST RATES AND A WEAKER EXCHANGE RATE

Long bond rates in Sweden have been falling for several years. This mirrors the improvement in government finances and confidence in the lowinflation policy. Low international interest rates have also contributed. In the early summer the long market rates in Sweden went on moving downwards in conjunction with an international fall that was mainly a result of continued turbulence in Asia. Factors behind the tendency were falling inflation expectations, lower international demand and portfolio rearrangements from equity to less risky interest-bearing assets. The market unrest grew towards the end of the summer, particularly in Russia. Sweden has also been affected by problems in the Norwegian economy. The Nordic countries, Sweden included, were hit by sharp fluctuations in bond markets and rising interest rates. Compared with the level at the time of the June Report, however, the Swedish ten-year bond rate has fallen 0.3 percentage points to about 4.8 per cent (Annex: Fig. 10).

Bond rates in Germany have moded down more than in Sweden and the differential has accordingly widened since the June Report by about 0.6 percentage points (Annex: Fig. 11). Domestic factors that might explain this are difficult to find. It is conceivable that, during the election campaign, bond rates have been coloured by some uncertainty about economic policy's long-term direction. However, the wider interest rate differential with Germany can be mainly linked to developments in international financial markets (Russia and Norway, for instance). International investors have withdrawn from bond markets with a relatively high perceived risk and

MONETARY POLICY'S ECONOMIC IMPACT

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

Monetary policy also influences the course of inflation via the exchange rate because exchange rate movements have effects on, for example, demand and investment in the internationally oriented sector of the economy. Under normal conditions a repo rate increase, or expectations of this, leads to a stronger exchange rate because the higher interest rates make Swedish assets more attractive than equivalent investments in other currencies; this attracts foreign capital to Sweden, with an increased demand for Swedish kronor. All else equal, a relatively permanent weakening or strengthening of the exchange rate will affect demand and inflation. An exchange rate movement also has a more direct impact on inflation via changes in import prices. turned instead to German and US treasury paper, with falling interest rates as a result. The implied interest rate differential between Sweden and Germany ten years ahead is still small (Annex: Fig. 34), which supports the impression of continued confidence in Sweden's low-inflation policy.

Continued confidence in Sweden's low-inflation policy.

Interest rate differentials have grown during the summer throughout the European Union. This can be seen in part as a correction of compressed levels that were established in connection with the process of convergence prior to the start of the EMU. It seems that this is now giving way to a new phase in which market agents attach greater weight to factors, such as credit risks, that might warrant interest rate differentials in the monetary union. In the case of noneuro countries, it is conceivable that the recent widening of interest rate differentials also includes increased exchange risk premia.

The short money market rates are at about the same level as after the repo rate cut in June; the three-month rate is currently about 4.2 per cent. In

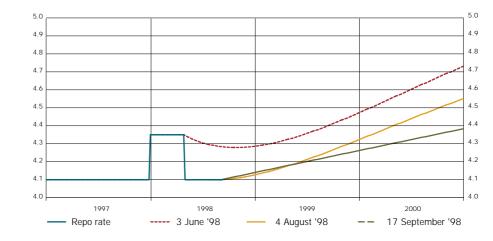
the early summer the repo rate cut contributed to some expectations of a further easing of the monetary stance. The recent market unrest has led to decreased expectations of this (Fig. 4). This view is also supported by survey data showing that, on average, money market agents expect an unchanged repo rate in the coming quarter, though the picture of expectations does not seem to be entirely uniform.⁵ Pricing in financial markets also indicates that market assessments of future monetary policy have quite recently become somewhat more uncertain (see box "Monetary policy expectations" on pp. 15—16).

The money market expects an unchanged repo rate in the rest of 1998.

5 Based on the survey of inflation expectations undertaken by Prospera Research AB on behalf of the Riksbank, including additional questions to money market agents about their interest rate and exchange rate expectations. The survey data, which were collected on 27 August, are to be compared with expectations derived from implied forward interest rates on the same date.

Figure 4.

Actual and expected repo rate indicated by forward interest rates. Per cent



Source: The Riksbank.

MONETARY POLICY EXPECTATIONS

The implied forward interest rate curve provides information about the market's average expectations of future monetary policy and the repo rate. A picture can also be obtained of the uncertainty in the market's assessment of future monetary policy, represented by the spread in repo rate expectations. A suitable model for this purpose is the Longstaff-Schwartz (L-S) equilibrium model,⁶ with which, given current money market rates, one can estimate a distribution of market agents' expectations of the future interest rate.⁷ The parameters of the model are fitted to current market prices to obtain an estimate of the implied distribution of the future interest rate.⁸

The estimated distribution of the future repo rate can be expressed in terms of uncertainties. This is done in Fig B3 for 17 September 1998 with a forecast horizon of one year. The bands represent the intervals within which the repo rate, according to the model, is expected to lie, with probabilities of (from the centre to the periphery) 90, 70, 50, 30, and 10 per cent. In this case, with 90 per cent probability the repo rate one year ahead is expected to be between 3.6 and 4.9 per cent, with a mean of 4.2 per cent.

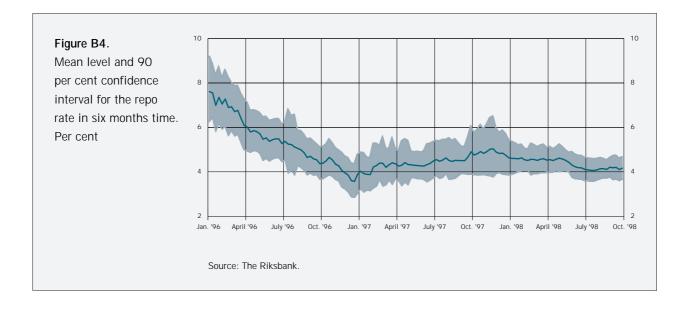
In order to gauge the time path of the uncertainty in the interest rate forecast for a particular horizon, the limits for a specific confidence interval can be presented as a time series. Fig. B4 shows how the six-month horizon's mean value and 90 per cent confidence interval have developed since January 1996. It will be seen that the degree of uncertainty has decreased appreciably in recent years, though quite recently it has tended to grow.

6 The model uses the current level of the short-term interest rate and its volatility; for further details see Longstaff, F.A. & Schwartz, E.S. (1992), Interest rate volatility and the term structure: a two-factor general equilibrium model, *J. of Finance 47*, pp. 1259–1282.

7 For a fuller description of the method see Hördahl, P. (1998), Estimating the implied distribution of future short term interest rates using the Longstaff-Schwartz model, *Sveriges Riksbank Working Paper Series* (forthcoming).

8 It is the risk-neutral distribution that is obtained; in the event of risk aversion among the money and bond investors, the true distribution will differ somewhat from the implied.

5.5 5.5 Figure B3. Repo rate with 5.0 5.0 uncertainty interval, 17 September 1998. 4.5 4.5 Per cent 4.0 4.0 3.5 3.5 3.0 3.0 Oct. '97 April '98 April '99 Oct. '99 July '97 Jan. '98 July '98 Oct. '98 Jan. '99 July '99 Source: The Riksbank



The Swedish krona's nominal TCW exchange rate was judged in the June Report to become somewhat stronger in the forecast period, reaching average levels of just over 117 in the first twelve months and just over 116 in the second. Since then the exchange rate has weakened almost 4 per cent to about 124 (Annex: Fig. 13).

This weakening, which has occurred against most other currencies, seems to be mainly a consequence of the turbulence in international financial markets. Investors have left smaller currencies in favour of major currencies, such as the US dollar and the German mark, that are perceived as more stable. Uncertainty about Sweden's general election towards the end of September may also have contributed to the weaker exchange rate, at least by delaying a return to more reasonable levels. Some effect may have been exerted, moreover, by portfolio rearrangements in connection with the global stock-market unrest. These effects are considered to be of a transitory nature and should recede when the financial turbulence dies down.

The krona has weakened on account of the financial market unrest.

Another factor behind the weaker exchange rate may be the Swedish economy's dependence on

foreign trade and the exposure of Swedish exporters in Asia. Finally, the repo rate cut, which reduced the short-term interest rate differential with the rest of the world, probably accounts for a minor part of the deviation from the June Report's exchange rate assumption, which presupposed an unchanged repo rate.

An explanation that has been put forward for the weak exchange rate tendency in traditional commodity-exporting countries such as Canada and Australia is the sharp price fall for raw materials. Sweden has also been singled out as a country where a large proportion of output is based on raw materials and it has been argued that this may have contributed to the weakening of the krona. However, a look at the composition and price trends of Sweden's foreign trade shows that, if anything, the decline of international raw materials prices should have strengthened, not weakened, the Swedish krona (see box "Raw material prices and exchange rates" on pp. 17–18).

To sum up, the recent weakening of the krona is considered to be mainly a consequence of the financial market unrest and also to some extent of expectations as to how the Asian crisis is likely to affect Sweden's exports and economic activity. Moreover, the repo rate cut early this summer may have led to some weakening of the krona. The exchange rate effects of the financial turbulence should be mainly of a transitory nature and recede as financial markets become more stable.

RAW MATERIALS PRICES AND EXCHANGE RATES

A fall in world market prices for raw materials means that real income decreases in countries that produce these commodities and increases in countries that are net importers. The effect grows with the size of net raw materials exports relative to GDP. As the change in income does not usually result in an immediate adjustment of real demand for goods and services, exporting countries experience a current-account deficit and net importers a surplus. There is thus a time lag before shifts in relative prices affect volume imports and exports. The current-account deficit, or expectations of a deficit, in a country producing raw materials entails

Table B1.

Raw materials, broadly defined, relative to total exports and total imports.

Per cent

	Exports	Imports
Australia	58	12
Canada	31	16
Sweden	29	27

Source: The Riksbank.

Table B2.

Raw materials, broadly defined (foreign trade 1997). SEK billion and per cent

Group	Exports SEK bn	Per cent	Imports SEK bn	Per cent	Net SEK bn
Forest products	91	14	15	3	76
Minerals	58	9	42	8	16
Energy	16	3	39	8	-23
Food	18	3	36	7	-18
Raw materials	183	29	133	27	50
Other goods	448	71	367	73	81
Total	631	100	500	100	131

Note. Due to rounding, columns may not sum to totals.

Source: The Riksbank.

less demand for that country's currency, which then weakens. The depreciation ultimately helps to restore a balanced economy, for example because higher import prices reduce demand for imported goods. Permanent deteriorations in terms of trade result in a stabilisation of the real exchange rate at a weaker level.

Under these circumstances it is reasonable to assume that countries with a sizeable net export of raw materials experience currency depreciation when international raw materials prices fall. Sweden, however, is not such a country.

Raw materials, including processed raw materials,⁹ do indeed account for a considerable proportion of Swedish exports, almost 30 per cent, but their proportion of imports is almost as big. The proportion of raw materials in exports is also high for Australia and Canada but, as will be seen from Table B1, the shares in imports are considerably smaller than for Sweden.

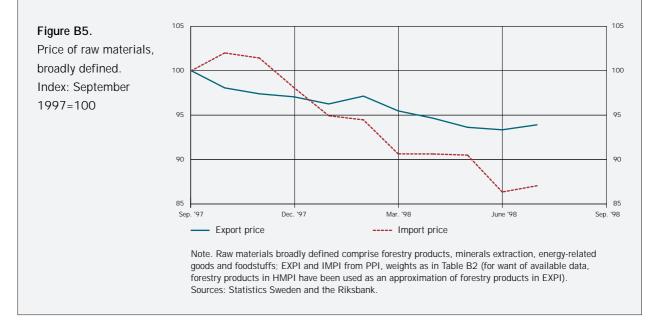
The net export of raw materials from Sweden in 1997 generated a sizeable surplus: over SEK 50 billion at current prices or 3 per cent of GDP (Table B2). Although Sweden is a net exporter of raw materials, broadly defined, we have benefited from the fall in world market prices. This is because the raw materials that Sweden exports are more highly processed than those that are imported, which means that the interna-

> 9 Processed raw materials comprise forest industry products (wood products, pulp and paper), mineral extraction (ore and steel), energyrelated products and food (foodstuffs and processed food).

tional price tendencies have had considerably less impact on Swedish export prices than on the import prices. Moreover, Sweden has benefited from the difference in the composition of raw materials between exports and imports in that world market prices for energy-related raw materials, such as crude oil, have fallen more in the past year than pulp prices, for example.¹⁰

The total price index for the raw materials, broadly defined, that Sweden exports has fallen around 6 per cent since the decline in world market prices began in the autumn of 1997; in the same period, the price for imported raw materials has dropped about 13 per cent, calculated in both cases in Swedish kronor (Fig. B5). All else equal, in the past year the price movements for raw materials have accordingly strengthened the balance of trade by about SEK 10 billion. If anything, therefore, the international price fall for raw materials should have strengthened, not weakened, the krona.

10 Rough estimates indicate that both Canada and Australia are net exporters of all groups of raw materials, which makes them more sensitive to price movements.



EXPANSIONARY EFFECTS OF INTEREST AND EXCHANGE RATES

The overall effect that the level of interest rates and the real exchange rate are judged to exert on total demand has become more expansionary since the June Report. Between May and August the average monthly level of the real short-term interest rate¹¹ has moved down 0.2 percentage points to about 3.1 per cent (Fig. 5). This is because, following the June cut in the repo rate, nominal short-term interest rates have fallen during the summer. In the same period, households' one-year inflation expectations have decreased 0.1 percentage point to 1.1 per cent.

The real long-term interest rate is currently about 2.8 per cent, which is about 0.2 percentage points lower than at the time of the June Report. The five-year Swedish T-bond rate has fallen 0.3 percentage points to about 4.6 per cent and five-year inflation expectations¹² have moved down 0.1 percentage point to 1.8 per cent.

The real effective (TCW) exchange rate depreciated from May to August by about 5 per cent. The demand effect of the real exchange rate is thus more expansionary than before. The real exchange rate's effect on demand is more expansionary than before.

To sum up, the weakening of the krona, together with the somewhat lower interest rates, has made the monetary conditions more expansionary than at the time of the June Report.

STILL LOWER BORROWING RATES FOR HOUSEHOLDS AND FIRMS

Households and most Swedish firms do not operate directly in the money market; they borrow instead from banks and other credit institutions. The margin between the money market rates and the rates offered by credit institutions is a function of credit risks and competitive conditions. Changes in this margin are liable to accentuate or counter the monetary stance. Rates for new loans broadly follow movements in the market rates, while variable rates on existing loans are adjusted after some time lag and the rates on fixed-interest loans are not changed until the interest period is renewed. On account of better collateral, less risk and stronger competition in the market for house mortgage loans, the variable interest rates offered by housing institutions are generally lower than bank rates. In the second quarter of 1998 the difference between variable house mortgage rates and comparable short money market rates was just over 1 percentage point, while the corresponding margins for bank loans to households and firms were approximately 3.9 and 2.0 percentage points, respectively.

Bank lending rates to households and firms did not fall as much as the short money market rates in the second quarter this year, which to some extent holds back the increase in the flow of credit. The money market rate fell 0.5 percentage points as against 0.2 percentage points for the lending rate to households and somewhat more, 0.3 percentage points, for business credits. This fairly normal pattern, with some lag before banks respond to changes in the level of interest rates, tends to delay monetary policy effects on demand and inflation.

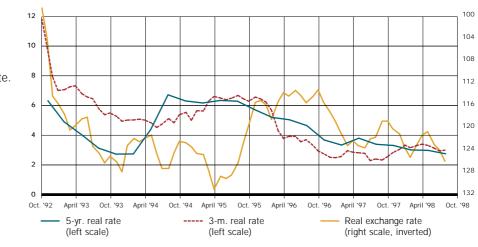
Another matter of importance for the impact of monetary policy is the duration of interest rate peri-

 $11\;$ The nominal three-month T-bill rate adjusted for the CPI change that households expect in the coming twelve months.

12 From Aragon's surveys of financial investors.

Figure 5.

Real three-month and fiveyear interest rates and real effective (TCW) exchange rate. Per cent and index: 18 November 1992=100



Source: The Riksbank.

ods. Between the second quarters of 1997 and 1998 the proportion of loans that have variable interest rates rose from 7 to 9 per cent. Recently, however, there have been indications that households in particular are now choosing to return to fixed interest loans.

CONTINUED EXPANSION OF HOUSEHOLD CREDITS

The picture of consumption and inflation that is provided by the financial aggregates has not changed to any important extent since the June Report. The narrow money supply (M0), defined as the non-bank sector's holdings of notes and coins, has proved to be a good indicator of inflation about six quarters ahead. In August 1998 the 12-month change in M0 was 6.4 per cent, which is somewhat higher than at the time of the June Report (Annex: Fig. 15). The M0 tendency earlier this year was relatively moderate. The relatively sharp increase in August has to do with the upswing in retail trade in that month and indicates that private consumption is still developing strongly.

The picture of consumption and inflation provided by financial aggregates has not changed to any important extent since the June Report.

The broader money supply (M3)¹³ is another useful indicator of inflation but is markedly affected by portfolio adjustments between bank deposits and

alternative assets that are not included in this aggregate. In August the 12-month change in M3 was 3.9 per cent, which is higher than at the time of the June Report (Annex: Fig. 15). The main explanation for the increase is that households are now building up bank deposits.

For total lending by credit institutions to Swedish households, firms and local authorities, the 12month change in July was an increase of almost 6 per cent, which is somewhat higher than at the time of the June Report (Annex: Fig. 17). The increased supply of credit is coming mainly from the banks.

The growth of lending to the household sector is still accelerating; the 12-month change in July was 6.5 per cent (Annex: Fig. 17). The increase is coming mainly from banks and finance companies; loans from these sources are assumed to be used primarily for consumption. Loans for houses and tenantowned dwellings rose almost 4 per cent. The comparatively strong trend is in line with the Riksbank's assessment that the favourable development of private consumption is continuing.

The inflationary pressure discernible in money supply aggregates is judged to be low but growing. The increase in the household sector's liabilities indicates a favourable development of private consumption. This is supported by the growth of MO.

13 Bank deposits and bank certificates, in addition to notes and coins.

Chapter 2

Inflation assessment

This chapter presents the assessment of price tendencies up to and including the third quarter of 2000. International factors are considered first, followed by a survey of demand relative to supply in the Swedish economy. Transitory effects that will be acting on consumer prices in the coming twenty-four months are then discussed, followed by inflation expectations. Finally, a forecast of inflation is presented, together with an assessment of its uncertainties.

The present forecast, like those in earlier Inflation Reports, starts from an unchanged repo rate. This is a technical assumption and its primary purpose is educational—to clarify whether a repo rate adjustment is called for and, if so, in which direction. Thus, an inflation assessment which results in the conclusion that, at the time horizon of twelve to twenty-four months which is the Riksbank's primary concern, inflation will be above (below) the target rate, normally implies that there is reason to raise (lower) the repo rate. Note, however, that the Riksbank supplements its main inflation forecast with a number of risk scenarios for inflation prospects. This assessment of uncertainties is incorporated in the final foundation for monetary policy decisions.

DETERMINANTS OF INFLATION

Monetary policy targets an annual CPI inflation rate of 2 per cent. Due to the time lag before monetary measures affect economic activity and inflation, policy has to be guided by an inflation forecast. With a time horizon of twelve to twenty-four months, the development of inflation is essentially determined by the following factors:

1. International activity and inflation

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

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

2. Demand relative to supply

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

The higher the level of demand relative to capacity, the greater the probability of capacity shortages arising in parts of the economy. The occurrence of bottlenecks can therefore be a sign that production is approaching its potential long-term level. A shortage of a particular category of labour may be such a sign. A complication here, however, is that high demand and high wage increases for a certain category of labour can also result from better productivity and profitability compared with other activities. In that case, such wage increases are not a direct inflationary threat, though they do call for efficient wage formation and labour market flexibility. Assessments must also allow for the fact that, in time, high investment, an increased labour supply or improved technology lead to increased production capacity.

Changes in demand do not, however, exert an influence on all prices through market mechanisms. Some prices are set by administrative decisions, based above all on the cost side or with a sizeable element of subsidy. Examples of administered prices in Sweden are rents and fees for medical care and certain municipal services. One of the consequences for monetary policy is that for certain prices, the impact of interest rate adjustments is subject to particularly long lags. Monetary policy can influence these prices only through effects on the general development of costs, e.g. wages.¹⁴

3. Other cost shocks and transitory effects

Inflationary impulses can also be generated by cost increases that are specific instead of stemming from a general increase in world market prices or strong domestic demand. A price rise for primary products as a consequence of supply-side shocks is one example. Similar inflationary impulses can come from fiscal policy in the form of changes in *indirect taxes and subsidies*. Such inflationary impulses are normally transitory in the sense that they entail an immediate change in the general price level without necessarily affecting inflation's long-term trend. However, they may have a lasting impact on the inflation process if they affect inflation expectations. In order to gauge trend inflation (inflation excluding transitory impulses), the Riksbank uses various indicators, such as different measures of underlying inflation.

4. Inflation expectations

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

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

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

14 For an account of administered prices in the CPI, see *Inflation Report 1997:3*, p. 8.

International activity and inflation

The aggregate annual growth rate for the OECD area is judged to be between 2 and 2.5 per cent. The minor downward revision this represents since the June Report is largely due to the markedly poorer growth prospects in Japan. This entails a moderate slowing of activity in the rest of the world compared with 1997, when GDP growth reached around 3 per cent. The risk of activity being weaker than in this main scenario is quite considerable, as discussed in the section "Uncertainties in the inflation assessment" on pp. 42–45.

At between 2 and 2.5 per cent a year, growth in the OECD area is judged to be lower than expected in the June Report, mainly on account of markedly poorer growth prospects in Japan.

Growth prospects in the Japanese economy have gone on worsening and a contraction of GDP is foreseen this year, followed by a slight increase in the rest of the forecast period. Statistics for the first half of 1998 indicate that the drop in output was considerably sharper than expected. The upturn in Japanese demand that was discernible in 1997 was broken towards the end of the year. One factor behind this was the fiscal restrictions that were introduced in the course of 1997 on account of the long-term need to consolidate public finances. Since then the fiscal stance has been made more expansionary and guidelines have been presented for further stimulatory measures in 1999. As government debt is already relatively high, however, it is uncertain how fiscal measures can serve to stimulate demand. Meanwhile, problems in the financial sector are continuing to have a negative effect on domestic demand, both via their influence on the expectations of households and firms and via an insufficient supply of credit.

In the United States, domestic demand has developed more strongly to date than expected but

there are signs that manufacturing is weakening. Industrial output's annual growth rate has slacked markedly during 1998. Business profits have also been falling in the course of 1998, partly due to weaker productivity and rising wage costs. Part of the recent years' increase in consumption has been based on decreased household saving, probably in view of increments to wealth from rising share prices. The strength of economic activity in the United States may therefore be conditioned by the future development of asset prices. The recent stockexchange turbulence could contribute to a slowdown in consumption coming earlier than previously expected. All in all, activity in the American economy is expected, as in the June Report, to slacken in the forecast period, mainly on account of a slower increase in private consumption. Another factor is weaker net exports, due to the Asian crisis and poorer growth prospects in Latin America.

In the future euro area the trend is expected to remain favourable in the forecast period, with an annual growth rate of about 3 per cent, which is in line with the forecast in the June Report. While European industrial activity was unexpectedly weak in the second quarter this year, the latest indications of domestic demand in the euro area are positive. Consumer confidence is continuing to improve in this area, except in Italy, with particularly good tendencies in Germany and France, and this is accompanied by rising activity in construction and the services sector. Growth is being generated by domestic components to an increasing extent, while the contribution from net exports to non-euro countries has fallen. These tendencies are expected to continue in the forecast period, above all on account of the Asian crisis.

The economic crisis in Russia is not expected to have any sizeable *direct* real effects on the economies in the OECD area.

The economic crisis in Russia is not expected to have any sizeable *direct* real effects on the economies in the OECD area—Russia's GDP is equivalent to only about one per cent of the OECD area's aggregate GDP. But financial shocks and persistently low raw materials prices could have global effects, mainly on countries in Asia, the Middle East and Latin America that have a large proportion of raw materials in their exports and substantial current-account deficits.

Inflation in the OECD area is judged to be somewhat more subdued than foreseen in the June Report.

Inflation in the OECD area as a whole is judged to be somewhat more subdued than foreseen in the June Report, largely because of continued *price falls for oil and other raw materials* that affect consumer price inflation directly and also imply lower production costs. The effects can be expected to show up successively in the future development of consumer prices. OECD area inflation is now expected to average about 1.6 per cent in 1998, about 1.7 per cent in 1999 and almost 2.0 per cent in 2000. This is a small downward revision compared to the June Report. Calculated in national currencies, prices for *manufactured exports* from the rest of the world have also been revised downwards since the June Report and are expected to be more subdued than consumer prices in the coming twenty-four months. A slight price fall is now envisaged for 1998, followed by price increases of about 1 per cent in 1999 and about 1.5 per cent in 2000. Export prices are being held down by increased global competitive pressure in the wake of the slowing of world market growth that results from the drop in demand in South-east Asia and Japan, as well as by the price fall for oil and other raw materials.

To sum up, since the June Report no dramatic reassessments have been made as regards the prospects for international economic activity and inflation in the main scenario. Growth in the OECD area is judged to be somewhat weaker. The development of international export prices also appears to be weaker than expected earlier and the inflationary impulses in the Swedish economy are therefore likely to be small.

HOW IS THE SWEDISH ECONOMY AFFECTED BY INCREASING INTERNATIONAL COMPETITION

During the 1990s inflation has been subdued in almost the whole of the industrialised world. This is notably different from the 1970s and early '80s as regards both the level of inflation and its fluctuations.

A number of interacting factors have contributed to this. Presumably the foremost explanation is that more and more countries have realised that high inflation is economically harmful and have therefore chosen to conduct monetary policies aimed at low, stable inflation. A conceivable additional explanation, the importance of which is less documented, may be a successive increase in international competition, for instance as a result of the growing possibility of locating even comparatively advanced production in countries where the wage level is considerably lower than in the West.¹⁵

While a monetary policy realignment has permanent consequences for inflation, it is reasonable to suppose that increased competition has the primary effect of depressing inflation temporarily. In the latter case it is rather a matter of a one-off effect—albeit a protracted one—on the *price level*, in that firms are obliged to adjust prices downwards as long as competition is intense. In an inflationary environment this shows up as lower inflation.¹⁶

Ways in which growing international competition may affect Sweden's economy can be illustrated with a highly simplified macro model:

$$\pi_t^c = \delta \pi_t + (1 - \delta) (\pi_t^* + s_t - s_{t-1})$$
(1)

$$\pi_t = \pi_t^e + \alpha (y_t - \bar{y}_t) + \beta z_t.$$
 (2)

where π_t^c stands for CPI inflation, π_t for the component of inflation that is determined by domestic

Figure B6.

Inflation: European Union, United States, Japan and Sweden. Percentage 12-month change



Sources: OECD, Bureau of Labour Statistics, Management and Coordination Agency and Statistics Sweden.

conditions, π_t^* for international inflation, s_t for the exchange rate, π_t for the general public's expectations of inflation's long-term domestic component, $(y_t - \bar{y}_t)$ for the domestic demand situation as represented by some measure of capacity utilisation, and z_t for other factors that affect domestic price formation, for example tax changes.

Equation (1) states that CPI inflation consists of one component determined by domestic conditions and another influenced by external inflation adjusted for exchange rate movements. Equation (2) states that inflation's domestic component is determined by expected domestic inflation, the domestic demand situation and various types of shock. The second term in (1) represents prices for imported goods but can also be said to mirror prices for domestic products that are exposed to strong international competition.¹⁷

The model envisages that increased international competition has three main effects on Swedish inflation in the short and medium term, though it should be underscored that both the relative importance of the effects and their aggregate magnitude in practice are highly uncertain.¹⁸

Firstly, international inflation, π_{t}^{*} would fall as a result of global pressure on prices. Imported goods and those that compete with imports would become cheaper. Besides having a direct impact on consumer prices, this would presumably have indirect effects via lower prices for intermediate goods and investment goods.¹⁹

Secondly, more domestic firms than previously would be likely to experience foreign competition, which would contribute to downward pressure on domestic product prices. A simplified illustration of this in the model would be for inflation to be expressed to a growing extent by the second term in (1), that is, the weight δ decreases.²⁰

Thirdly, it seems reasonable that even domestic firms with some room for adapting prices to domestic

¹⁵ It should be noted that a contrary force could arise if mergers between multinational companies result in the global market being dominated by just a few entities. In the longer run, increased internationalisation can also lead to a greater degree of specialisation, in that the production of certain goods is concentrated to certain countries or regions.

¹⁶ A fuller account of, above all, the empirical relationships between competition and inflation is to be presented in an article by Asplund, M. & Friberg, R. in a forthcoming issue of the Riksbank's *Quarterly Review*.

¹⁷ In practice, of course, the goods and services in consumption can hardly be dichotomised into items that are fully subject to external pricing and those that are solely influenced by domestic conditions. It is rather a matter of a sliding scale, with a large proportion of goods and services that are susceptible both to the domestic demand situation and to international prices. Goods manufactured in Sweden, for example, may contain imported components or be produced with imported machinery, just as the pricing of certain imported goods may be affected by the domestic demand situation.

¹⁸ In the long run one can expect inflation, in Sweden as well as elsewhere, to follow the explicit or implicit inflation targets, mainly because deviations from the targets would elicit countermeasures from the central banks.

¹⁹ These effects could be diminished or augmented in practice by exchange rate fluctuations. For the sake of simplicity, a constant nominal exchange rate has been assumed here.

 $^{20\;}$ A contrary effect can arise if lower prices for imported goods and goods that compete with these result in lower relative weights in the CPI basket.

demand would be obliged to make their production more efficient. In the model this would amount to potential output, \bar{y}_t , being higher than would otherwise be the case, that is, higher demand, y_t , can be met without capacity restrictions generating appreciable inflationary pressure.

One implication of a process whereby a growing share of domestic output is exposed to international competition is that conventional measurements of domestic capacity utilisation may become less useful indicators of future inflation.²¹ A situation may arise, for example, where capacity utilisation is very high among firms facing strong international competition but moderate among firms that are in a better position to adapt their pricing to Swedish demand. The measured aggregate capacity utilisation would then indicate a comparatively high level that might be interpreted as a sign of rather high inflationary pressure even though the firms whose capacity is strained have limited possibilities of raising prices. even if increased international competition may lessen the usefulness of the demand situation or capacity utilisation as an indicator of future price tendencies in *product markets*, it is not certain that their informative value as indicators of wage tendencies in the *labour market* would be reduced to the same extent. A situation with high demand, for example, might lead to appreciable wage increases but only moderate price increases. That would ultimately result in a weak development of employment.

21 The possibility that the relationship between the real economy and inflation has changed in recent years has been discussed by the Riksbank in various contexts; see e.g. Berg, C. & Lundkvist, P. (1997), Has the inflation process changed?, *Quarterly Review Na. 2*, Sveriges Riksbank, and Borg. T. & Croneborg, M. (1997), Structural change and price formation, *Quarterly Review Na. 1*, Sveriges Riksbank. However, increased competition is just one of several conceivable explanations; another is that, compared with the fixed exchange rate, the inflation target functions as a more credible and concrete benchmark for price and wage setting.

At the same time it should be born in mind that

Interest rates and exchange rate

The assessment of inflation is highly dependent on the development of interest rates and the exchange rate and this in turn is affected to some extent by the technical assumption that the repo rate is left unchanged in the forecast period—the coming twenty-four months. The effect of this assumption is most evident in short-term interest rates; the three-month rate is presumed to be virtually stationary during the forecast period. The assumption is of less consequence for the development of interest rates with longer maturities. Both international and Swedish long bond rates are assumed to rise somewhat from today's historically low levels.

An appreciation of the Swedish krona is foreseen in the forecast period. This assumption rests on the perception that the real exchange rate is weaker than its long-term equilibrium level.²² With the recent marked weakening of the krona, however, the adjustment towards the equilibrium level is assumed to start from a level that is lower than expected in the June Report. At the same time, the factors which have weakened the krona are considered to be mostly of a rather transitory nature and their importance is therefore assumed to decline relatively quickly. An appreciation of the krona is also indicated by the economic fundamentals, with good growth, low inflation, a growing general government surplus and strong confidence in economic policy.

The economic fundamentals, with good growth, low inflation, a growing general government surplus and strong confidence in economic policy, point to an appreciation of the krona.

22 See box "The krona's long-term path" on p. 27 in this section or "Determinants of the Exchange Rate", *Inflation Report 1997:2*, pp. 21–22.

THE KRONA'S LONG-TERM PATH

The main scenario presupposes that the krona appreciates in the years ahead. This appraisal is based on prospects for costs and prices relative to the rest of the world, together with an assessment of how the real exchange rate will develop in the light of rising capacity utilisation and a trade surplus. The real exchange rate measures the level of costs or prices in that country compared with competitor countries, expressed in a common currency, and can be calculated in various ways that use different indicators of prices or costs.

In terms of relative unit labour costs, the level of the real exchange rate in the second quarter of 1998 was about 27 per cent weaker than after the transition to a flexible exchange rate in November 1992. The improvement in the relative level of wages and productivity has strengthened competitiveness by about 13 per cent and the rest of the weakening comes from the krona's nominal depreciation.²³ The real depreciation is also considerable, around 17 per cent, in terms of relative consumer prices. It is comparatively small, on the other hand, when calculated with relative export prices. This is partly because the nominal depreciation has been used by export firms to improve profit margins. Sweden's competitive position has accordingly undergone a marked improvement in recent years. Wages, prices and productivity have developed favourably to the accompaniment of a weakening nominal exchange rate. These circumstances are mirrored in the trade and current-account surpluses. After two decades with a problematical current account, Sweden has been in a position to start repaying external debt.

The question of whether a currency is over- or under-valued and what this implies for its future development is often discussed in terms of the *real equilibrium exchange rate*, by which is meant the rate that is consistent with both internal and external economic balance.²⁴ Internal balance is represented by full capacity utilisation and price stability, while external balance in this context means an external debt-to-GDP ratio that is stable over time. The comparatively strict definition of external balance presupposes that the economy has reached a state where the stocks of financial debts and assets have stabilised relative to GDP. In that case the

24 For a fuller description of this approach see e.g. *Exchange Rates and Economic Fundamentals: A Framework for Analysis*, International Monetary Fund (1994), Occasional Paper No. 115.

Figure B7.

Real effective exchange rate derived from export prices, consumer prices and unit labour costs. Index: 18 November= 100



Note. The real exchange rate is calculated as foreign prices/costs divided by Swedish prices/costs all expressed in a common currency; an increase in the index accordingly stands for a depreciation of the krona's real exchange rate and thus a strengthened competitive position. Sources: IMF and the Riksbank.

²³ The average level of the nominal TCW exchange rate in the second quarter of 1998 was 119.2; since then the krona has weakened about 4 per cent and on 17 September the TCW index was 124.5.

real exchange rate is considered to have reached *long-term* equilibrium.

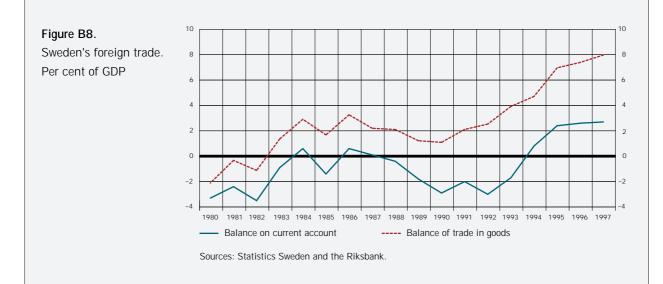
Another, less strict definition of external balance is a path for the current-account balance that brings external debt into equilibrium within a specified time horizon. High external debt, for example, may warrant a weaker exchange rate so that a period with a currentaccount surplus leads to a reduction of the debt until this stabilises at a more normal level. Under such circumstances and provided the economy is in internal balance, the real exchange rate is considered to be in *medium-term* equilibrium.

The concept of equilibrium can also be extended to allow for differences between countries' cyclical positions and monetary policies, with the effects this may have on exchange rates. The *short-run* real equilibrium level can be defined as the exchange rate that is consistent with achieving internal balance within a certain period while the current account is developing so as to ultimately stabilise external debt. Suppose, for instance, that inflation prospects are calm and domestic demand is weak in relation to the rest of the world. This would call for an expansionary monetary stance and low interest rates, which initially would weaken the exchange rate. When the economy subsequently approaches full capacity utilisation with price stability—internal balance—monetary policy would need to become less expansionary and the exchange rate would strengthen.

Calculations of the real equilibrium exchange rate are naturally uncertain and to some extent even subjective because they involve judging a number of structural factors such as long-term saving and potential output. Moreover, structural factors and shifts in terms of trade may mean that the long-term equilibrium level changes over time. Even so, calculations of this type can still provide some indication of how the krona will be valued in the future. As a first step it is then relevant to consider internal and external balance.

As regards *internal balance*, the krona's weak exchange rate has led to a recovery of production and employment in the internationally oriented sector but domestic demand has been subdued. Consequently the output gap is no doubt still negative and the economy will presumably still have some surplus capacity towards the end of 2000 (Annex: Fig. 30). Inflationary pressure is accordingly weak. The monetary stance therefore remains expansionary, which gives an interest rate differential with the rest of the world that is lower than would otherwise be the case. This weakens the exchange rate.

So what about *external balance*? Export growth has been strong in recent years and the current account has shown surpluses of 2 to 3 per cent of GDP. These surpluses seem reasonable in view of the historically high



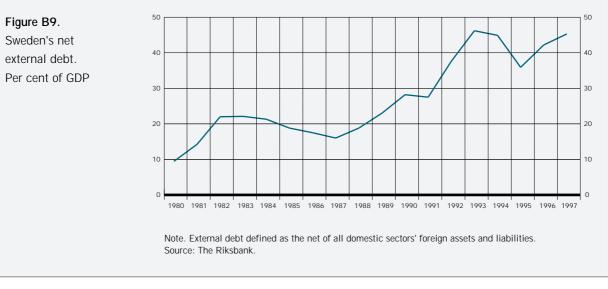
external debt and the fact that the economically active segment of the population will shrink some years after the turn of the century. But current-account surpluses of this magnitude cannot be expected indefinitely. When domestic demand picks up and imports grow, the surpluses will fall. Calculations by the Riksbank indicate, however, that with the prevailing exchange rate the current account would remain in surplus even if a recovery in domestic demand were to lead to full capacity utilisation. Of course the calculations are uncertain but they do support the impression that even when internal balance has been achieved there will be some room for an appreciation.

In the longer run other forces come into play. With the expected surpluses in the coming years, foreign debt will be reduced. This implies lower interest payments, which can be financed with less large trade surpluses. External debt can then be stabilised with a weaker balance of trade. A smaller trade surplus in the long-term equilibrium position would entail a stronger exchange rate. From this point of view, in a long-term perspective the krona is undervalued.

A real appreciation of the krona in the coming years therefore seems reasonable but what about the nominal exchange rate? The real appreciation can, in principle, come about in two ways: either because prices and costs in Sweden rise relative to the rest of the world or because the nominal exchange rate strengthens. Current assessments point unequivocally to a price trend in Sweden that is well in line with that in our main competitor countries. This means that the real appreciation will mainly take the form of a strengthening of the nominal exchange rate.

All in all, the real economic situation, together with the current expansionary monetary stance, suggests that the krona will strengthen in the years ahead. The size of the appreciation is uncertain but some guidance can be derived from calculations the Riksbank presented earlier.²⁵ From time to time, however, the long-term adjustment of the exchange rate is affected by financial market disturbances that weaken the krona temporarily. That has been the case in recent months.

25 See Alexius, A. & Lindberg, H. (1996), The krona's equilibrium exchange rate, *Quarterly Review No. 1*, Sveriges Riksbank.



All in all, an appreciation of the nominal TCW exchange rate is foreseen, to an average level of about 120 in the next twelve months (1998:Q4—1999:Q3) and just over 117 in the twelve months after that (1999:Q4—2000:Q3). This is a somewhat weaker development than was expected in the June Report.²⁶

To sum up, as a direct consequence of the assumption of an unchanged repo rate, short-term interest rates are presumed to be stable in the forecast period. The longer market interest rates, abroad as well as in Sweden, are expected to rise somewhat from the currently low levels. Some appreciation of the Swedish krona is foreseen in the coming twenty-four months.

Import prices

One of the factors that determine the extent to which international inflation shows up in import prices to producers is the exchange rate. The relationship is complicated, however, in that the aggregated passthrough from exchange rate movements to import prices seems to be incomplete.²⁷

In the short run and particularly if the exchange rate movement is judged to be temporary, this is a consequence of price rigidities and other adjustment costs. In the longer run the pass-through is also dependent on other market conditions. Insufficient competition can enable the foreign exporters as well as Swedish importers to control price setting and thereby profit margins. An exchange rate movement normally occasions adjustments to profit margins as well as prices, with a view to achieving what is best for profits in the longer run.

Moreover, effects of exchange rate movements on import prices to producers vary with the category of imports. Primary products with a well-defined world market price contracted in a foreign currency form a homogeneous group for which the passthrough tends to be rapid and complete. In the case of heterogeneous products such as manufactured goods, however, the pass-through is influenced by the state of domestic demand. It therefore tends to be protracted and incomplete even in the long run.

Imported goods make up about a quarter of the CPI, to which should be added import substitutes. Exchange rate movements and their pass-through in import prices are therefore of major importance in the general assessment of inflation.

The international export price tendency is judged to be weak, as mentioned earlier, and an appreciation of the TCW exchange rate is assumed in the coming twenty-four months. Compared with the assessment in the June Report, however, the aver-

Figure 6. Import prices in SEK for manufactured products. Percentage 12-month change





age level of the exchange rate is assumed to be about 1 per cent weaker at the end of the forecast period. Raw materials prices are assumed to remain low in the short run. The tendency after that is difficult to foresee for a number of reasons. Current prices for basic metals do not cover production costs in most cases; a majority of plants are running at a loss. This is not sustainable. Moreover, capacity utilisation is high and stocks are low. The future price of oil is uncertain on account of weak demand, accumulating stocks and declared cuts in output. Aggregated prices for raw materials are assumed to follow the path indicated by forward prices for oil, which points to an increase of just over 10 per cent during 1999 and less than 4 per cent in 2000.

All in all, import prices to producers are judged to fall about 0.5 per cent during 1998, followed by little change in 1999 and an increase of less than 0.5 per cent in 2000; this is in line with the assessment in the June Report. The ultimate impact on consumer prices will depend in turn on pricing rigidities and the development of profit margins in distribution.

To sum up, the lower international inflation is judged to be offset by a weaker exchange rate tendency so that the import price trend remains subdued, in keeping with the assessment in the June Report.

Demand and supply

FOREIGN TRADE SLOWING

A clear fall-off in export growth is evident from the National Accounts for the second quarter of 1998. Between the first halves of 1997 and 1998, total exports rose 6.8 per cent, an outcome that is in line with the assessment in the June Report. The effects of the Asian crisis are now showing up in the trade statistics but the growth of exports to Europe was still strong.

The tendency to date this year agrees with the June Report but there are indications that future export growth may be weaker than expected. The inflow of export orders has slackened, for example, and confidence among purchasing managers has fallen.

26 An appreciation was also assumed in the June Report. According to the survey of exchange rate expectations on 19 May, undertaken by Prospera Research AB on behalf of the Riksbank, an average of private observers' expectations likewise pointed to a strengthening of the krona in the same forecast period.

27 Estimates for Sweden put the long-term pass-through for manufactured goods at 60–80 per cent, which is somewhat higher than international results (about 40 per cent for large countries that are less dependent on foreign trade and 60 per cent for smaller countries), see Alexius, A. (1997), "Import Prices and Nominal Exchange Rates in Sweden," *Finnish Economic Papers 10:2.*

Figure 7.

Market share for Swedish exports of goods and relative price for manufactured exports. Index: 1980=100



Source: OECD.

Export growth is subdued in that prospects in the OECD area are weaker than expected earlier.

Economic activity in the OECD area is judged to be somewhat weaker than earlier assessments indicated. This implies some impairment of market growth for Swedish exports. Swedish relative prices are initially improved, on the other hand, by the weaker exchange rate. With the good profitability in recent years and this summer's weakening of the krona, firms can refrain from letting the envisaged appreciation of the krona show up in appreciable price increases during 1999. During 2000, however, the krona's expected appreciation may lead to some worsening of competitiveness and some loss of market share. Even so, the overall development of exports in the forecast period is expected to remain good. It is conceivable that towards the end of the period the poorer prospects for market growth will render exports somewhat weaker than expected in the June Report.

Total import growth in the first half of 1998 was 10.3 per cent, which is more than expected. The increase came mainly from imported services. The strong growth is expected to continue in the forecast period, partly in view of the shift in the composition of total demand but also because the price rise for imported goods is likely to be slower than for domestic products.

To sum up, compared with assessments in the June Report, the contribution to GDP growth from net exports is judged to be smaller both this year and to some extent in 1999 and 2000.

PRIVATE CONSUMPTION RISING

The trend in private consumption has pointed upwards since the second half of 1996 (Annex: Fig. 21). The upswing has come mainly from consumer durables such as cars, furniture, home appliances, electronics and other leisure products. These items have a large import content. Growth has also been strong for certain categories of services, such as entertainment, restaurants, telecommunications and foreign travel. The consumption of food and housing services has not risen so markedly but these items, which make up over 40 per cent of private consumption, do not normally have a pronounced cyclical pattern. A number of factors lie behind the recovery in consumption; household wealth, expectations and income are now pulling in the same direction.

In the first half of 1998 private consumption rose 2.5 per cent, which somewhat exceeded expectations. The latest statistics indicate that this trend is continuing in the second half-year.

Asset prices mirror households' expectations and

Figure 8.

Price index for owneroccupied housing (1981=100) and Stockholm Stock Exchange share price index* (end 1979=100)



^{*}Latest observation: 31 August 1998

Sources: Statistics Sweden and Stockholm Stock Exchange.

also provide an indication of movements in household wealth. To date in 1998 house prices have risen 8 per cent. Stock exchanges around the world have been marked recently by turbulence and falling prices. In the past three years the Stockholm Exchange has risen very strongly. From the high this July, however, the index has fallen back to its level at the beginning of the year (Fig. 8). Short-run fluctuations in share prices are no doubt of limited importance for the development of consumption but a deeper and more lasting fall could have some negative repercussions, in the first place via expectations. The pricing of OMX options shows that market agents see a further fall in share prices as more probable than a recovery (see box "Implied distributions of the OMX index" below).

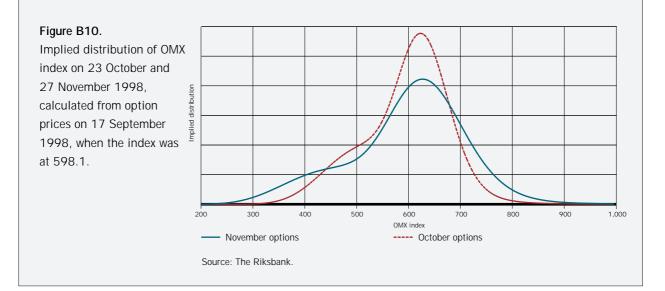
IMPLIED DISTRIBUTIONS OF THE OMX INDEX

Prices of different derivative instruments²⁸ can be used to form a picture of market expectations of share prices. Given a sufficient number of option quotations with the same maturity, the probability distribution of the future share prices expected by market agents can be estimated to determine whether the probability of a price fall exceeds that of a price rise.

Such calculations have been done for the Swedish OMX index. As this index represents the thirty most traded shares (weighted for value) on the Stockholm Exchange, it should serve as a good indicator of market expectations for the Exchange as a whole. The method for estimating the implied distributions rests on an assumed form of the underlying distribution function.²⁹ Symmetric as well as skewed probability distributions can be derived and one can also pick out implied dis-

28 Financial instruments that are value-dependent on the price of one or more underlying assets. One example is options, which entitle but do not oblige the holder to buy or sell a particular asset within a given time period at an agreed price.

29 More specifically, a mixture of weighted log-normal distributions is used; for a fuller description of the method see Hördahl, P. (1998), *Implicita fördelningar för OMX-index* (Implied distributions of the OMX index), Method Memorandum, Sveriges Riksbank. Cf. also Melick, W.R. & Thomas, C.P. (1997), "Recovering an asset's implied PDF from option prices: an application to crude oil during the Gulf crisis", *J. of Financial and Quantitative Analysis, 32*, pp. 91–115.



tributions with a high probability for extreme values (distributions with "thick tails"). A further possibility is implied distributions that show two "peaks"; this can be very useful in situations where the market perceives relatively high probabilities for each of two very different scenarios.

The implied distributions in the OMX index on 23 October and 27 November 1998, estimated from option quotations on 17 September 1998, are shown in Fig. B10.³⁰ It will be seen that the spread of the implied distributions for the November options is greater than for the October options. This is natural in that the more distant the forecast horizon, the greater is the uncertainty about the outcome. Both distributions

display a clearly negative skewedness—the tails to the left are longer and thicker than those to the right. This means that large price falls are judged to have a higher probability than large increases, which indicates that market agents are worried about a further drop in equity prices.

30 Note that the estimated distributions presuppose that the market agents are risk neutral.

The development of households' income, wealth and expectations points to good growth of private consumption in the coming years.

Households' personal economic expectations have continued to rise since the June Report and in spite of the recent turbulence, households are now optimistic in a historic perspective (Annex: Fig. 22).

An appreciable growth of household disposable income is foreseen in the forecast period. A number of factors are contributing to this: rising real wages, increased employment and less restrictive fiscal effects.

The overall assessment is that the upswing in private consumption is coming earlier and will be somewhat stronger than assumed in the June Report. The growth rate is therefore expected to be somewhat stronger in this and the coming year but somewhat weaker in 2000.

The household saving ratio fell in 1997 to 0.8 per cent. With the favourable development that is foreseen for disposable income, some increase in savings during the forecast period should be feasible notwithstanding the strong growth of consumption.

To sum up, compared with the June Report, private consumption is judged to be somewhat stronger in this and the coming year. In the main scenario the growth rate is expected to be almost 3 per cent this year, just over 3 per cent in 1999 and around 2.5 per cent in 2000.

SOME INCREASE IN PUBLIC CONSUMPTION Fiscal policy is important for the construction of monetary policy for a number of reasons. In a cyclical perspective, fiscal policy affects the demand situation and thereby inflationary pressure. In a longer perspective, the fiscal position is of central importance because doubts about the long-term sustainability of government finances can have negative repercussions, for example in the form of a weaker exchange rate, that add to the risk of inflation.

The Spring Bill contained proposals for promoting local government employment that total the equivalent of SEK 4 billion annually in the period 1998—2001. In the June Report it was assumed that these efforts would have some impact before the end of 1998. The National Accounts show that the increase in local government consumption in the first half-year was unexpectedly strong, which suggests that the impact of the increased grants to local governments may be somewhat greater and appear sooner than envisaged in the June Report.

The impact of the increased government grants to the local government sector will be somewhat stronger than expected earlier.

Fiscal policy continues to be restrictive but its tendency to subdue demand will be less marked than in recent years. Still, the effect of altered taxes and transfers is judged to hold back household income both this year and next. With rising employment and real wage increases, however, household disposable income is expected to grow.

Government finances have been markedly improved in recent years. The general government financial surplus that is foreseen this year is the first since 1990. A further reinforcement of government finances is expected in the years ahead.

The consolidation of central government finances has helped to enhance confidence in general economic policy. It is important that the confidence which has been built up is sustained and that some room for manœuvre in fiscal policy is created in the form of general government financial surpluses in the coming years.

Public consumption in the forecast period is judged to show a somewhat stronger trend than expected earlier.

SLOWER INVESTMENT GROWTH

Between the first halves of 1997 and 1998 total gross fixed capital formation rose 10.6 per cent (Annex: Fig. 24). This suggests that the annual volume of investment in 1998 will be larger than foreseen in the June Report. Large volume increases in the first half-year are reported in particular for certain sectors outside manufacturing, such as energy, commerce and rentals/business services. The growth of public investment also exceeded expectations. In the case of manufacturing, the growth of gross investment by 9.0 per cent in the first half-year is in line with the Riksbank's earlier assessment. The May investment survey from Statistics Sweden showed that many of the firms in the sample had revised 1998 investment plans upwards.

In manufacturing, however, the picture of activity varies. According to the National Institute's business tendency surveys, assessments of orderbooks and stocks of finished goods have indicated a good level of activity. Production plans and intended additions to production capacity likewise point to continued optimism. At the same time, however, the inflow of orders seems to have been rather weak. Statistics Sweden's order statistics indicate that the inflow of both domestic and export orders has slackened since the end of 1997. In July as well as August the purchasing managers index was down on the same month a year earlier. This suggests that industrial activity in Sweden may be on the way to weakening.

It is difficult to tell how the now apparent slowing of industrial activity will affect investment. It is considered that the development of investment in manufacturing will be subdued during 1999 and weaker than envisaged in the June Report.

Somewhat weaker manufacturing activity is assumed to subdue investment in 1999 and 2000.

Residential investment in the first half of 1998 was virtually unchanged from the first half of 1997 but there are clear signs of an upturn. Preliminary figures from Statistics Sweden show that in the first half of 1998 the number of new housing starts rose 12 per cent. The June survey from the National Institute likewise showed an improvement in construction activity. In both this and the coming years, residential investment is therefore expected to rise. The stock of vacant dwellings is still very large, particularly outside the metropolitan regions. Construction is therefore expected to be below the long-term level that is needed to balance capital depreciation and population growth.

To sum up, investment growth is judged to be fairly strong this year but somewhat weaker in 1999 and 2000. A weakening of industrial activity may tend to subdue investment there in the coming years. Further support for the prospect of a recovery in residential investment is to be found since the June Report.

GDP GROWTH ALMOST 3 PER CENT Sweden's economy is now in an apparently stable upward phase. The main scenario involves good growth throughout the forecast period. The picture of GDP growth and its composition is broadly the same as in the June Report, though the contribution from net exports is expected to decrease more rapidly, accompanied by a growing importance for domestic demand.

Annual GDP growth in the forecast period is judged to be almost 3 per cent.

To sum up, the annual GDP growth rate in the main scenario is almost 3 per cent. Compared with the June Report, this involves some upward revision for 1998 and a minor downward adjustment for 1999 and 2000.

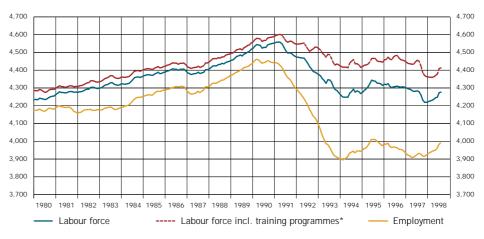
RISING EMPLOYMENT

The situation for employment is continuing to improve throughout the economy. In the period May—August 1998 the number in employment was almost 60,000 higher than a year earlier; one-third of this increase came from public services. Unemployment has gone on falling in 12-month terms, though more slowly than at the beginning of this year. When economic activity turns upwards and labour demand starts to rise, people who for various reasons have been outside the labour market begin to search for jobs again. After contracting towards the end of 1997, the labour force is growing once more (Fig. 9).

There are several signs of rising activity in the labour market. The number of permanent jobs has started to rise and the number of underemployed persons is still falling. But there are still indications of rigidities in recruitment to new job vacancies. Despite a similar level of total unemployment, the number of unfilled vacancies in 1998 has been twice as large as in 1997, which implies that recruitment is now taking longer.

In the coming years employment is expected to go on rising as domestic demand becomes stronger. The combination of good productivity growth and some difficulties in filling job vacancies means that the increase in employment is not likely to be dramatic. The marked reduction of unemployment up to this summer is expected to slacken because it is calculated that the labour force will already be growing next year.

Figure 9. Labour force and employment. 1000s, seasonally-adjusted moving 3-month average



*Training classified as labour market policy measures (which are not included in Statistics Sweden's labour force definition), for example working life development, induction places and labour market training.

Source: Statistics Sweden

MODERATE BUT RISING PRICE PRESSURE FROM WAGES AND PRODUCTIVITY

The rate of wage increases across the economy fell in the first quarter of 1998 but an upward tendency is foreseen in the rest of the year as negotiated increments are included in the figures. The average wage rise to date in 1998 is 2.4 per cent. Private sector white collar employees have obtained this year's largest increase, an average of 4.1 per cent. Most of the agreements are for three years, with a right to renegotiate after two years. The tendency is expected to be in line with the main scenario in the June Report, where annual wage increases in the period 1998—2000 were put at 3.5—4 per cent.

Productivity growth is expected to slacken somewhat but the level will remain relatively high. Wages increases are put at 3.5–4 per cent a year.

Productivity growth has been good in recent years and remained so in the first half of 1998; compared with the first half of 1997, total labour productivity rose 2.6 per cent. Historically, apart from the first half of the 1990s, labour productivity has been procyclical. In an upward phase, production can rise initially without any recourse to additional production resources; when capacity utilisation reaches a higher level, the improvement in labour productivity generally slackens. It is therefore reasonable to expect lower productivity growth in the future as production and employment go on rising; but the rate is still judged to be relatively high.

The appraisal of wages and productivity is more or less unchanged. The annual wage rise in the period 1998-2000is put at 3.5-4 per cent. Together with relatively high productivity growth, this points to a favourable development of unit labour costs.

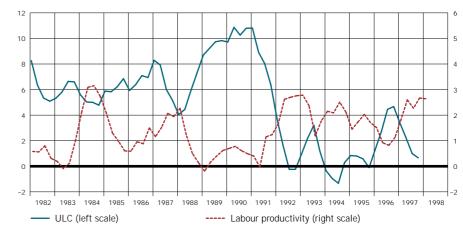
RISING CAPACITY UTILISATION

In the second quarter of 1998, industrial capacity utilisation, as measured by Statistics Sweden, was 90.1 per cent, which is historically high. According to the National Institute's business tendency surveys, in the past five quarters capacity utilisation has fluctuated between 85 and 86 per cent; the June survey reported a level of 86 per cent.³¹ Thus it can be said that capacity utilisation in the Swedish economy is still high.

31 Statistics Sweden's capacity utilisation data refer to the quarterly level, while the National Institute estimates the level at the time of the survey and rounds the figure to the nearest whole number.

Figure 10.

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



Source: Statistics Sweden.

In the June business tendency survey, the supply of machinery and plant capacity was the primary restriction on increased production for 27 per cent of manufacturing firms. This figure is relatively high historically but still considerably below the levels that were reported as recently as in 1995.

Labour supply does not seem to be a major problem for manufacturing firms in general, neither does the situation appear to have changed appreciably since the previous survey. But almost 30 per cent of firms report a shortage of technicians.

In construction, where activity has improved markedly, the proportion of firms for which labour shortages are obstructing increased production has risen sharply, from 2 per cent in the March survey to 17 per cent in June.

Capacity utilisation is high in some parts of the economy. But investment prospects and labour supply are judged to be such that general problems with capacity can be avoided.

In the services sector it is mainly labour supply that may limit capacity. Labour shortages do not seem to be serious in general, though they have grown recently. But they do appear to be more of a problem in certain sectors and occupational categories. In the June survey, a shortage of drivers is reported by 29 per cent of road haulage contractors, the highest figure since the National Institute first covered this sector in 1990. For computer consultants and computer services the survey indicates that, if anything, shortages of skilled personnel have fallen, though the shortage figures are still very high. High labour shortages are also reported for other business services. This suggests that capacity utilisation in the services sector is relatively high at present.

Different econometric estimates put the output gap at between 0.6 and -1.1 per cent in the second quarter of 1998, which is much the same as in the June Report. These figures, however, reflect the strong second quarter outcome; with the current forecast for GDP growth, some widening of the out-

put gap can be expected in the second half of 1998. There are many indications that surplus capacity still exists in the total economy, so the forecast growth of production should be feasible without any appreciable increase in inflationary pressure.

To sum up, survey data on capacity utilisation and the supply of production factors indicate that resource utilisation is high in parts of the economy. But investment prospects and labour supply are judged to be such that general problems with capacity can be avoided. The total economy may therefore still have some surplus capacity in two years time. In some sectors, however, personnel shortages may lead to bottleneck problems.

Transitory effects

The Riksbank's inflation assessment normally allows for known changes in fiscal policy. Since the June Report, no new proposals have been put forward to change indirect taxes or subsidies in 1998, 1999 or 2000.

For 1998, the main effects on consumer prices come from the tax cuts for tobacco and property and the increased subsidy for housing repairs, (the so called ROT subsidy). The combined effect of these measures on the change in the CPI is -0.6 percentage points.

For 1999 the CPI is affected mainly by the termination of both the ROT subsidy and the specific property tax on hydroelectric power stations, a slower phasing out of certain interest subsidies for multifamily housing, the freezing of assessed values of "small" houses and the introduction of a refuse tax. These proposals are calculated to add 0.1 percentage points to the change in the CPI.

For 2000 a return is assumed to the established procedure for indexing the assessed values of residential properties. In the June Report it was envisaged that the taxable values would be adjusted only for the change in house prices from 1998 to 1999, which was estimated to add 0.1 percentage point to the CPI change. Current information indicates, however, that the indexing will be based on the price change from July 1996 to June 1999, which is calculated to raise the CPI by about 0.5 per cent. The altered procedure affects the assessment of CPI inflation but not the picture of underlying inflation. At present, however, it is uncertain whether indexing will be reinstated for 2000.

House mortgage interest expenditure has fallen to date in 1998 by 5.4 per cent. Although some increase in long-term interest rates is foreseen in the forecast period, mortgage interest expenditure will continue to fall and hold back the change in the CPI by between 0.2 and 0.5 percentage points a year. This is a consequence of fixed mortgage rates; the fixed-rate loans that are renewed during the forecast period will result in lower rates than before and thus in lower interest expenditure for those households.

Table 1.

Transitory effects: contribution to the 12-month change in the CPI in December 1998, December 1999 and September 2000

	1998	1999	2000
Changes in indirect taxes and subsidies, excl. indexing of property assessments	-0.6	0.3	0.0
Temporary freeze on property assessments for 1- and 2-family houses	-0.2	-0.2	0.4
Change in interest expenditure	-0.5	-0.2	-0.3
Total transitory effects	-1.3	-0.2	0.1
Indexing of property assessments for 1- and 2-family houses	0.0	0.0	0.1
Total effect on CPI	-1.3	-0.2	0.3

Note. Due to rounding, totals may differ from the sum of the column. Source: The Riksbank.

All in all, the impact of transitory effects on the rate of CPI inflation in 1998 works out at -1.3 percentage points. The only change since the June Report concerns house mortgage

interest costs, which are now judged to fall somewhat more. In 1999 transitory effects are estimated to hold back inflation by about 0.2 percentage points. In the first three quarters of 2000, transitory effects and increased property tax raise the rate of inflation by 0.3 percentage points.

Inflation expectations

LONG-TERM EXPECTATIONS IN LINE WITH INFLATION TARGET

Implied forward interest rates reflect expectations of the future level of short-term interest rates. For the short and medium term, the forward rate tendency is mainly dependent on market expectations of future monetary policy and inflation. The long-term forward interest rates, on the other hand, mainly mirror confidence in general economic policy's commitment to price stability.

The medium-term implied forward interest rates (about one to two years) are conditioned by expectations of future monetary policy as well as by inflation expectations. Since the June Report, inflation expectations have been comparatively stable but the repo rate cut at the beginning of June has caused the medium-term forward rates to fall about 0.2 percentage points (Annex: Fig. 32).

The long-term forward interest rates (ten years), which reflect inflation expectations in the longer run, have moved down about 0.2 percentage points since the June Report. To date in 1998 their level has accordingly dropped approximately 1.2 percentage points (Annex: Fig. 32). Long-term forward interest rates in Sweden are also affected by the international development of long bond rates. Since the June Report the long-term forward rates have fallen about 0.8 percentage points in Germany and about 0.3 percentage points in the United States (Annex: Fig. 33).

A quantitative estimate of the credibility of Swedish economic policy's commitment to price stability can be obtained from the long-term interest rate differential with Germany. This differential, which was negative at the time of the June Report, has risen about 0.6 percentage points and is now about 0.5 percentage points (Annex: Fig. 34). Even with this increase, the credibility of the inflation target still seems to be high.

Despite some increase in the long-term interest rate differential, the credibility of the inflation target still seems to be high.

The high credibility of the inflation target is also evident in long-term inflation expectations derived from the difference between nominal and real long-term forward interest rates (6—16 years).³² Measured in this way, long-term inflation expectations have fallen 0.2 percentage points since the June Report and are currently about 2.4 per cent. As this includes risk premia, it can be said that the long-term inflation expectations are well in line with the 2 per cent inflation target.

SURVEYS INDICATE CONTINUATION OF LOW INFLATION

The inflation expectations of households, which have been a good indicator of the consumer price tendency one year hence, have fluctuated in recent years between 1 and 3 per cent.³³ To date in 1998 the level has been just over 1 per cent.

One-year inflation expectations in manufacturing and the services sector are measured in the National Institute's quarterly business tendency surveys. In the June survey the level in both cases was 1.1 per cent, which is somewhat lower than in March for manufacturing and unchanged for the services sector.

For labour market organisations, purchasing managers and money market agents, expectations of inflation one, two and five years ahead are measured on behalf of the Riksbank by Prospera; the September survey gives a somewhat varied picture. Money market agents have gone on revising their expectations downwards since the May survey, whereas purchasing managers have made upward revisions, mostly for the short run (Annex: Table 2). Expectations among labour market organisations are largely unchanged. For all the surveyed groups, the expected rate of inflation five years ahead is in line with the Riksbank's target.

Expected inflation is low in the short run and in line with the target in the longer run.

Inflation expectations two and five years hence among investors in the Swedish bond market are surveyed each quarter by Aragon. During the summer there has been some fall in these expectations; the levels in August were 1.3 and 1.8 per cent, respectively. The expected rate of inflation three to five years hence, which can be derived implicitly, was 2.2 per cent in August, the same as in May (Annex: Fig. 37).

The inflation forecasts that external observers have presented since the time of the June Report show a further downward revision of inflation prospects, to an average level of somewhat less than 1 per cent for 1998 and somewhat more than 1 per cent for 1999. For 2000 the predictions are approximately in line with the Riksbank's inflation target (Annex: Fig. 39).

To sum up, inflation expectations derived from financial markets and various surveys are still low in the short run. In the longer run inflation is expected to be in line with the Riksbank's inflation target.

Inflation forecast: main scenario

The Riksbank's assessment of inflation starts from the technical assumption of unchanged repo rate in the coming twenty-four months. With the repo rate cut in June and the weakening of the exchange rate during the summer, the monetary conditions have become more expansionary. In the forecast period, however, the krona is assumed to appreciate and some increase is foreseen in long-term interest rates. The combined effect of interest rates and the exchange rate would then become successively less expansionary.

Some downward revision of *international inflation* was made in the June Report and now there are grounds for counting on a path that is even somewhat weaker than seemed likely at that time. The main reasons are the further price fall for oil and other raw materials and the somewhat poorer growth prospects in the OECD area, partly on account of the Asian crisis. This means that international export prices are expected to be weaker than expected in the June Report but that is countered by a weaker krona. All in all, the import price tendency still looks subdued, which is in keeping with the June assessment.

A weak tendency is foreseen for import prices in the forecast period, in keeping with earlier assessments.

The assessment of *economic activity* in Sweden is broadly the same as in June, though with some shift in the composition of demand. Domestic demand—private and public consumption in particular—is expected to be somewhat stronger than foreseen in June, accompanied by a weaker tendency for net exports.

The overall assessment of economic activity in Sweden is broadly unchanged.

Annual GDP growth in the main scenario amounts to almost 3 per cent. This expansion of aggregate demand should be feasible with just a moderate increase in inflationary pressure. The outlook for investment and labour supply is considered to be such that more general capacity problems for the total economy can be avoided. Even in two years time there may therefore still be some surplus capacity. The positive assessment of productivity and wages in this time perspective is unchanged.

Since the June Report there has been no new information about changes in indirect taxes or subsidies that would have *transitory effects* on the CPI. But an upward revision of the calculated impact of reintroducing the indexing of property tax in 2000 adds almost half of a percentage point to the CPI change in that year. If indexing is not reinstated, the development of consumer prices during 2000 would be more subdued. At the same time, the fall in bond rates has occasioned some downward adjustment of the forecast for house mortgage interest expenditure. In the coming twelve months, tax cuts and lower interest expenditure have a downward effect on the CPI change of just over 1 percentage point. However, these effects will become successively smaller.

Short-term inflation expectations are subdued, while for the longer run they are in line with the inflation target.

Inflation expectations are a basic consideration in pricing and wage-setting, which makes them an important component of the inflation process. The overall picture of these expectations, as measured in surveys, bond rates and observers' forecasts, is that market agents expect inflation to remain subdued. The short-term expectations point to inflation below the target, while for the longer run—two years and more—they are more in line with the inflation target.

The Riksbank's assessment of inflation in the main scenario is largely the same as in the June Report. The rate of inflation is expected to reach a low during the second half of 1998 and then move up successively in the forecast period, partly in connection with rising economic activity in Sweden.

The Riksbank's assessment of inflation in the main scenario is largely the same as in the June Report. The rate of inflation is expected to reach a low during the second half of 1998 and then move up successively in the forecast period.

 $^{32\,}$ These nominal and real forward interest rates are the nominal and real tenyear rates in current six-year futures contracts.

³³ See box "Households' Inflation Expectations," *Inflation Report 1997:4*, pp. 28–29.

The Riksbank's assessment is that, given an unchanged repo rate, the 12-month change in CPI inflation will be 0.1 per cent in December 1998, 1.3 per cent in December 1999 and 1.9 per cent in September 2000. Underlying inflation, measured as UND1, is judged to be 1.4 per cent in December 1998, 1.6 per cent in December 1999 and 2.0 per cent in September 2000.

Given an unchanged repo rate, underlying inflation is expected to move up slightly. The 12-month change in CPI inflation is put at 0.1 per cent in December 1998, 1.3 per cent in December 1999 and 1.9 per cent in September 2000. The average annual rate is calculated to be 0.6 per cent in 1998 and 0.8 per cent in 1999.

Uncertainties in the inflation assessment

The inflation assessment in the main scenario is the outcome the Riksbank considers most likely. For various reasons, the forecasts for economic activity and inflation include elements of uncertainty. In the context of monetary policy it is therefore important that alternative paths for inflation are also considered. These alternative paths, together with the general uncertainty that invariably accompanies inflation assessments, can be visualised as intervals of uncertainty around the inflation forecast in the main scenario.³⁴

The main scenario's inflation forecast and the uncertainty interval presume that the monetary stance is unchanged in the coming twenty-four months. In other words, the interval illustrates the uncertainty in the inflation forecast on which monetary policy is based.³⁵ There is less uncertainty, however, about the actual development of inflation because the monetary stance is continuously adapted in order to steer inflation in line with the goal.

Normally, moreover, the forecast and uncertainty interval in the main scenario allow for known changes in fiscal policy. It follows that the interval does not mirror any uncertainty there may be about future changes in indirect taxes and subsidies. The indexing of property tax assessments in 2000 is a case in point; if indexing is not reinstated, CPI inflation would be 0.5 percentage points below the expected level in the main scenario.

One source of uncertainty in the three most recent Inflation Reports has been the Asian crisis and its effects on international economic activity. Since the June Report the crisis has deepened. The price fall for raw materials has had consequences for Russia, Norway and countries in Latin America. This has been accompanied by increased uncertainty about the Japanese economy; domestic demand in Japan has still not picked up despite stimulatory monetary conditions and an expansionary fiscal policy.

Weaker international economic activity and further depreciations of Asian currencies could have appreciable negative effects on Swedish exports.

While the Asian crisis has deepened and elicited consequences in other parts of the world, the magnitude of the downward impact on international activity is still uncertain. The effects may very well be greater than envisaged in the main scenario. Weaker international economic activity and further depreciations of Asian currencies could have appreciable negative effects on Swedish exports.

This means that the gradual slowdown in the US and UK economies that is assumed in the main scenario may be more marked because such a large proportion of US exports go to countries in Asia.³⁶ The risk of this happening is considered to be greater than at the time of the June Report. Moreover, some of the growth of private consumption in the United States has been based on decreased household saving, probably because wealth has been augmented by rising share prices. Lower asset prices in the wake of the Asian crisis could then have a reverse effect and subdue private consumption.

All in all, this means that economic activity in the rest of the world may be weaker than assumed in the main scenario. For Sweden this implies that both imported inflation and inflationary pressure from other factors may be lower than in the main scenario.

The weak exchange rate is an upside risk for inflation.

On the other hand, the weak exchange rate tendency since the June Report is an upside risk for inflation: the nominal TCW exchange rate has weakened almost 4 per cent to about 124 (Annex: Fig. 13). The main scenario presupposes that this depreciation is temporary and mainly a consequence of short-term market reactions generated by the stock-exchange unrest, for example. It is not inconceivable, however, that the krona's exchange rate will remain at the present weak level for a longer period or come under renewed pressure in the future. Import price increases and stimulatory effects from such a development lead by themselves to greater inflationary pressure.

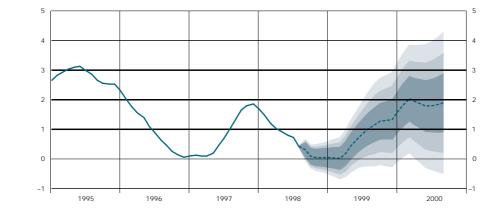
Moreover, the coming upswing in the domestic economy also contains upside risks for inflation. In view of increased lending to the household sector and growing private consumption, for example, there is a risk of future tendencies to overheating that cause inflation to rise more quickly than assumed in the main scenario. Despite persistently high unemployment, there are signs of growing labour shortages in the services sector and construction. The downside risks for inflation in the main scenario are judged to be as large as the upside risks. The uncertainty in the inflation assessment is greater than in the June Report.

Thus, there are still considerable downside risks in the international picture, above all in the form of a weaker outcome than expected in important countries such as Japan and the United States. But there are also upside risks in the form of a permanently weakened exchange rate and the strong upward trend in Sweden's economy. All in all, the downside and upside risks are judged to be equally large. In other words, the probability of inflation one to two

35 An upside interval that is broader (narrower) than the downside indicates a greater perceived risk of inflation being above (below) the target. In other words, the most probable outcome—the mode in the main scenario—is below (above) the mean outcome. What this amounts to is that asymmetries in the picture of uncertainties move the mean away from the mode; in the absence of asymmetry in the picture of risks, the upside and downside intervals are the same width.

 $36\;$ Asia takes around $25\;$ per cent of US exports as against around $10\;$ per cent from the major European countries.

Figure 11. CPI with uncertainty interval. Moving three-month average of percentage 12month changes



Note. The uncertainty intervals show the 50, 75 and 90 per cent chances of CPI inflation being inside the respective range. The horizontal lines at 2 per cent and at 1 and 3 per cent represent, respectively, the Riksbank's inflation target and the tolerance interval for the annual change in the CPI. Sources: Statistics Sweden and the Riksbank.

³⁴ The method, described in the June Report, starts from estimates of the uncertainties in variables that are most important for inflation and the perceived precision of the Riksbank's inflation assessments. The estimates include subjective judgements but are based on historical relationships. For a fuller description, see Blix, M. & Sellin, P. (1998), *Uncertainty Bands for Inflation Forecasts*, Sveriges Riksbank Working Paper No. 65.

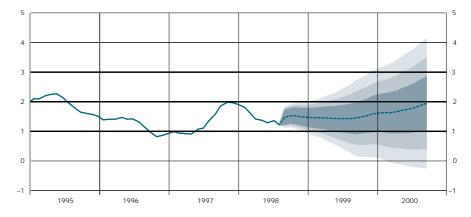
years ahead being lower than in the main scenario is considered to be the same as the probability of an outcome above the main scenario. This is evident from Fig. 10, in which the alternative paths and other risk factors outlined above have been weighted together in the form of an uncertainty interval surrounding the main scenario's inflation forecast. The equal magnitude of the upside and downside risks is represented by the uncertainty interval being symmetric around the main inflation forecast, whereas in the June Report the downside risks were considered to weigh somewhat more heavily. The greater uncertainty in the inflation assessment is reflected in the broader uncertainty interval compared with the June Report.

For underlying inflation, measured by UND1, the uncertainty interval is somewhat narrower than for CPI inflation (Fig. 12). This is mainly because UND1 does not include house mortgage interest expenditure, an item that contributes to the uncertainty in the CPI forecast. Still the spectrum of risks for UND1 one to two years ahead is much the same as for CPI inflation because the uncertainties in the assessment stem mainly from future relationships between demand and supply and their effects on prices.

Monetary policy is guided primarily by an assessment of inflation twelve to twenty-four months ahead. In the main scenario, the 12-month change in CPI inflation is expected to be 1.2 per cent in September 1999 and 1.9 per cent in September 2000.37 The probabilities of inflation at these horizons being inside certain intervals are presented in Table 2. The overall assessment shows a small probability of 12month CPI inflation one year from now-in September 1999-being above 2 per cent, while the risk of the rate being outside the tolerance interval's lower limit is considerable. Towards the end of the forecast period the risks of inflation being below the lower limit and above the upper limit, respectively, are much the same. On this occasion the risks are spread more evenly across the intervals than was the case in the June Report.

37 The annual path (December–December) has been considered in the section "Inflation forecast: main scenario" on pp. 40–42.

Figure 12. UND1 with uncertainty interval. Moving three-month average of percentage 12-month changes



Note. The uncertainty intervals show the 50, 75 and 90 per cent chances of UND1 inflation being inside the respective range. The horizontal lines at 2 per cent and at 1 and 3 per cent represent, respectively, the Riksbank's inflation target and the tolerance interval for the annual change in the CPI. Sources: Statistics Sweden and the Riksbank.

Table 2.

CPI (12-month) inflation in 1999 Q3 and 2000 Q3. Probability in per cent

Probabilities	CPI<1	1 <cpi<2< th=""><th>2<cpi<3< th=""><th>CPI>3</th><th>Total</th></cpi<3<></th></cpi<2<>	2 <cpi<3< th=""><th>CPI>3</th><th>Total</th></cpi<3<>	CPI>3	Total
1999 Q3	39	43	16	2	100
2000 Q3	26	26	25	23	100

Note. The figures denote the probability of inflation being below 1 per cent, between 1 and 2 per cent, between 2 and 3 per cent, and over 3 per cent. Source: The Riksbank.

CHAPTER 3

Monetary policy conclusions

The discussion in this chapter concerns inflation prospects and the ensuing conclusions for monetary policy's construction.

MONETARY POLICY SINCE DECEMBER 1997 In December 1997 the Riksbank considered—in its Inflation Report-that inflation one to two years ahead would exceed the 2 per cent target. This presupposed, for example, that full capacity utilisation would be reached at the end of 1999 and that the annual wage rise in the period 1998-1999 would be 4 per cent. The assessment resulted in a repo rate increase of 0.25 percentage points that was intended to ease future inflationary pressure and subdue inflation expectations, which had moved up earlier in the autumn. The inflation prospects were not unequivocal, however. It was noted that the nascent crisis in Asia could lead to a marked slowdown in international economic activity, with a greater downward effect on price tendencies. At the same time, there was a risk that higher wage increases and weaker productivity growth could result in inflation being higher than in the main scenario.

In March 1998 the inflation prospects pointed to a more subdued tendency, partly because the Asian crisis was now considered to be more extensive and protracted. There had also been a marked price fall for oil and other raw materials. Moreover, wage agreements concluded during the winter indicated a comparatively restrained wage rise in the region of 3.5 to 4 per cent a year in the period 1998–2000; this meant that one of the factors which had caused concern in December was developing relatively well. Inflation expectations had become notably lower and were well in line with the inflation target even in the long term. The domestic economic situation, however, was broadly unchanged, with gradually rising inflationary pressure, but the somewhat weaker growth prospects on account of the international outlook meant that full capacity utilisation was not expected until some way into 2000. In the main scenario it was foreseen that inflation one to years ahead would be marginally above the target, which spoke for some tightening of the monetary stance in the coming year. But as it was conceivable that the Asian crisis could continue to worsen, the Riksbank left the repo rate unchanged for the time being.

In the rest of the spring, prices were more subdued than the Riksbank had expected. The tendency was particularly weak for goods and services that are imported or compete with imports, partly because international prices for oil and other raw materials went on falling. This was partly due to the weak growth in Asia, which was now beginning to have some effects in other parts of the global economy. Meanwhile, the low inflation expectations led to continued restraint in the ongoing series of wage agreements. The Riksbank's appraisal of economic activity was unchanged but the strong productivity growth indicated that the economy would still have some surplus capacity in two years time. All in all, therefore, the inflation prospects pointed to a more subdued tendency than earlier; it was considered that inflation in the main scenario would be below the 2 per cent target in one to two years time. The assess-

ment of uncertainties—with the risk of a more substantial international economic slowdown—supported the picture of more subdued inflation. Against this background, on 4 June the repo rate was lowered 0.25 percentage points.

INFLATION RATES CLOSE TO LOWER TOLERANCE LIMIT

The tolerance interval that surrounds the Riksbank's inflation target signifies that monetary policy neither can nor should try to control inflation in the short term. Even inflation rates outside this tolerance interval cannot be ruled out in the event of unforeseen price movements for raw materials or tax changes, for example. Monetary policy and the degree of inflation target fulfilment should be evaluated in a somewhat longer, annual perspective, not from isolated monthly figures. This is because it takes time for monetary policy to counter an unexpected development of inflation and transitory effects should be regarded as of secondary importance in an evaluation.

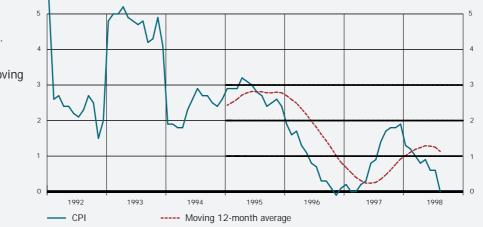
Since the inflation target came into force at the beginning of 1995, the annual increase in consumer prices has averaged 1.4 per cent. This average outcome is below the targeted figure but inside the tolerance interval. In the same period the average underlying rate of inflation, measured in various ways, has been almost

2 per cent. This shows that in these three and more years, the transitory downward effects on inflation have been stronger on the whole than the upward effects.

In August this year the 12-month change in the CPI was 0.0 per cent and thus outside the lower tolerance limit. This was largely because falling house mortgage interest costs had a downward CPI effect of 0.7 percentage points. Transitory effects from altered indirect taxes and subsidies pulled in the same direction and amounted to 0.3 percentage points, of which the major part came from the cut in tobacco tax in August. The average of the 12-month CPI change figures over the last year up to August was 1.1 per cent and thus inside the tolerance interval. Earlier in 1998, the net impact of transitory effects on the 12-month CPI changes has been less marked because the effects of falling interest expenditure were then countered by tax increases and decreased subsidies.

Figure B11.

Consumer price index. Percentage 12-month changes (CPI) and moving 12-month average of these changes



Note. The horizontal lines from 1995 onwards represent the Riksbank's annual target and tolerance interval for the CPI. Sources: Statistics Sweden and the Riksbank.

INFLATION PROSPECTS

During the summer consumer prices have largely followed the path expected by the Riksbank. However, the Asian crisis has contributed to continued price falls for oil and other raw materials. Moreover. the international economic outlook is now somewhat weaker, partly on account of the widespread financial unrest. The equity price fall in the United States and effects this may have there on economic activity, which up to now has been supported by rising asset prices, also point to a weaker tendency. International inflation is therefore judged to be somewhat lower than envisaged earlier. Against this, however, the Swedish krona-notwithstanding the assumed appreciation-is expected to be somewhat weaker in the forecast period compared with the June assessment. All in all, it is considered that inflationary pressure from the rest of the world will remain low.

With the repo rate cut, somewhat lower long bond rates and the weaker exchange rate, the monetary conditions have become more expansionary. This counters the real effects of the Asian crisis on Sweden' economy. Domestic demand is still expected to pick up successively in the years ahead, accompanied by a decreasing contribution to growth from exports. The main scenario gives good GDP growth, almost 3 per cent a year. The time profile differs somewhat from the June Report in that growth is now expected to be strongest in 1998, followed by some fall-off. Partly in view of a favourable development of productivity, the comparatively high growth need to lead to troublesome inflationary pressure. The importance of fiscal policy in this context should underscored. Government finances have be improved markedly in recent years and it is assumed that the approved consolidation process continues. At the same time, the fiscal effect on domestic demand is expected to be less restrictive than in the past.

Three-year wage agreements have now been concluded for the great majority of employees, with a right to renegotiate after two years. A central component of efficient wage formation—low inflation expectations—is now in place. This may also mean that wage drift will be historically low. The total annual wage rise in the coming years is expected to be 3.5—4 per cent, which need not conflict with the Riksbank's inflation target. However, economic policy may need to be supplemented with reforms of wage formation in order to promote a more favourable development of employment.

To sum up, domestic demand is expected to grow in the years ahead, largely in line with earlier assessments. The background to this is weak international inflationary pressure, low inflation expectations, comparatively restrained wage agreements and improved government finances. The exchange rate has weakened on account of the Asian crisis and financial market unrest but the causes are such that a recovery is foreseen in the main scenario. The economic fundamentals are favourable, with good economic growth, low inflation and a rising surplus on government finances. If this is combined with continued confidence in economic policy, most things suggest that in time the krona will appreciate.

Inflation at the end of period under review is relatively well in line with the Riksbank's target.

In the main scenario the growth of domestic demand is expected to generate a relatively limited increase in inflation's underlying rate. From 1.1 per cent in August 1998, underlying inflation, measured as UND1, rises to 1.6 per cent in December 1999 and to 2.0 per cent in the third quarter of 2000. The 12month rate of CPI inflation one to two years ahead is expected to be somewhat below the targeted figure but at the end of the period it is judged to be approximately 2 per cent. All this means that at the end of period under review, inflation would be relatively well in line with the Riksbank's target.

The uncertainty in the inflation assessment is appreciably greater than usual on account of the financial market unrest.

The spectrum of risks is also important for the construction of monetary policy. On this occasion the uncertainty in the inflation assessment is appreciably greater than usual on account of the financial market unrest and the consequences it and other factors may have for international economic development. During September, moreover, some uncertainty about political developments in Sweden seems to have left its mark on price setting, particularly in the currency market.

There is now a greater risk of an international economic slowdown which, if it were to occur, would lead to a lower inflation trend than in the main scenario; in time, that would affect the construction of monetary policy. But there is also an upward inflation risk in the weak exchange rate. The assumed appreciation in the main scenario may come later, which could give somewhat stronger inflationary pressure; considering the weak price tendencies in other respects, however, that would probably not lead to the inflation target being exceeded in the short run. At the same time, a longer period with a weak exchange rate is not entirely inconceivable and could result in inflationary impulses that are undesirable. Furthermore, there is still uncertainty about how well the Swedish economy can cope—as regards inflation—with high growth over a series of years. All in all, therefore, the upside risks in the inflation assessment seem to approximately balance the downside risks.

INFLATION ASSESSMENTS AND MONETARY POLICY

Monetary policy is constructed in the light of an assessment of price developments in the coming twelve to twenty-four months. In each Report the time perspective is shifted approximately one quarter into the future. This means that even if the Riksbank's appraisal of future economic activity and inflation is unchanged, different monetary policy conclusions may be called for because the period being assessed has shifted ahead. For the time being, monetary policy will be based primarily on an assessment of consumer price tendencies from the fourth quarter of 1999 up to and including the third quarter of 2000.

Monetary policy is sometimes described with a simple rule of thumb: if the inflation forecast in the main scenario (based on an unchanged instrumental rate) indicates that inflation will deviate from the target in twenty-four months time, then the instrumental rate should be adjusted accordingly. However, predicting future inflation is not straightforward. The Riksbank therefore also assesses the uncertainties in inflation's future path.

The overall picture of inflation prospects consists in practice of an assessment of probabilities. Together with a main scenario—the most probable outcome—a number of risk scenarios are weighted into the final assessment on which the construction of monetary policy is based. The uncertainty surrounding the main scenario is not necessarily symmetric. Upside risks predominate at times, while on other occasions it can seem more probable that inflation may be lower than in the main scenario.

The assessment in the main scenario is supplemented by the appraisal of the risk spectrum, which can constitute an important argument for tightening or easing the monetary stance. Another matter than may be worth mentioning here is that the construction of monetary policy can be influenced by the inflation assessment's uncertainty as such. A high degree of uncertainty can be a reason for a more cautious construction, thereby avoiding excessively large shifts in the formation of interest rates and expectations. Furthermore, it should be underscored than in its construction of monetary policy the Riksbank also considers various indicators of underlying inflation and the information they provide about the path of inflation and transitory effects.

MONETARY POLICY S CONSTRUCTION

The inflation assessment in the main scenario presupposes a successive appreciation of the krona in the years ahead. Even so, economic development would still be stimulated both by low interest rates and, for much of the period, by a relatively low exchange rate.

The Riksbank continues to analyse the course of events and undertakes an ongoing appraisal of monetary policy's construction in the light of new information.

CPI inflation in the main scenario is judged to be somewhat below the 2 per cent target in the time horizon of twelve to twenty-four months that is most relevant for the construction of monetary policy. Underlying inflation (UND1) rises successively to around 2 per cent. As things stand at present, it seems that inflation prospects and the future construction of monetary policy hinge on two counterbalancing factors. International activity may prove to be weaker than in the main scenario, which may lead to low inflation, at the same time as elements of uncertainty have grown, for example about the exchange rate. A more permanently weak exchange rate that is not accompanied by a weaker real economic trend can generate increased inflationary pressure. The situation is also complicated by the financial turbulence in the global economy and the sudden shifts this entails. Against this background, the Riksbank continues to analyse the course of events and undertakes an ongoing appraisal of monetary policy's construction in the light of new information.

Figure 1.

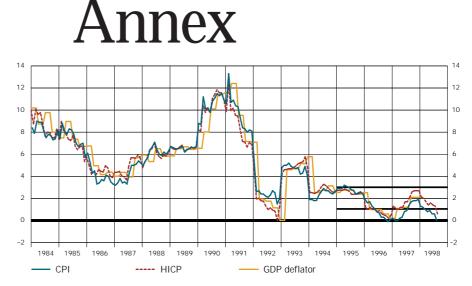
Figure 2.

change

CPI components.

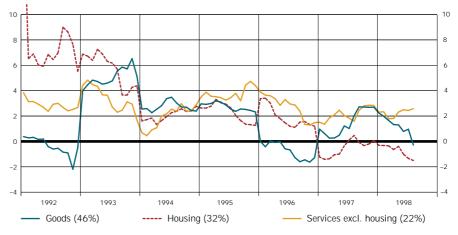
Percentage 12-month

CPI, HICP* and GDP deflator. Percentage 12-month change



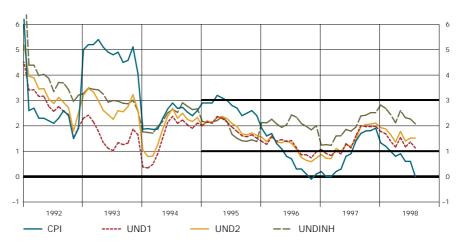
*Harmonised index for international comparisons of consumer prices. Approximate data before 1996. Note. The horizontal lines from 1995 onwards represent the Riksbank's tolerance interval for the annual change in the CPI.

Sources: Statistics Sweden and the Riksbank.



Note. The figures in parentheses are the component's CPI weight in 1998. Sources: Statistics Sweden and the Riksbank.

Figure 3. CPI and underlying inflation. Percentage 12-month change



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

Sources: Statistics Sweden and the Riksbank.

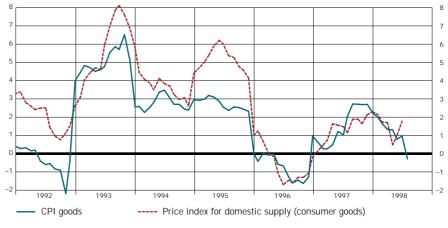
Figure 4.

Consumer prices for imported and domestic products and mortgage interest costs. Percentage 12-month change

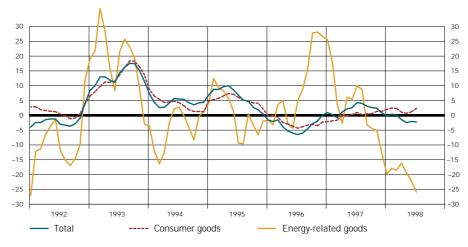


Note. The figures in parentheses are the component's CPI weight in 1998. Sources: Statistics Sweden and the Riksbank.

Figure 5. Producer and consumer prices for goods. Percentage 12-month change





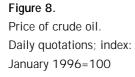


Sources: Statistics Sweden and the Riksbank.

Figure 6. Producers' import prices. Percentage 12-month change Figure 7. CPI, market prices and administered prices. Percentage 12-month change



*Excl. taxes and subsidies. The figures in parentheses are the component's CPI weight in 1998. Sources: Statistics Sweden and the Riksbank.



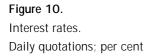


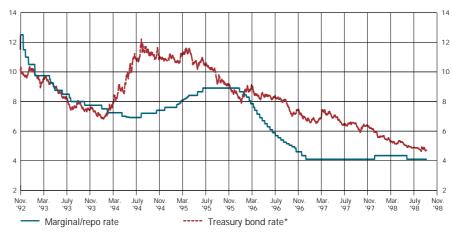


Note: Constituent items: aluminium, copper, nickel, zinc, gold, silver, lead and tin. Weight: share of total Swedish imports in each year. The combined weight for these items is about 2 per cent. Source: The Riksbank.

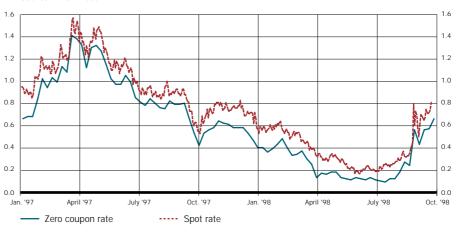
Figure 9.

Import-weighted index of raw materials prices (excl. crude oil). Daily quotations; index: January 1996=100





*The ten-year T-bond rate refers for 1992 to the Swedish issue no. 1030, maturing on 15 June 2001, for 1993 to issue no. 1033, maturing on 5 May 2003, for 1994, 1995 and 1996 to issue no. 1035, maturing on 9 February 2005 (from end October 1996 to end 1996 to issue no. 1038, maturing on 25 October 2006), for 1997 to issue no. 1037, maturing on 15 August 2007, and for 1998 to issue no. 1040, maturing on 5 May 2008. Source: The Riksbank.





Long-term (10-year) interest rate differential with

Germany.

Figure 12.

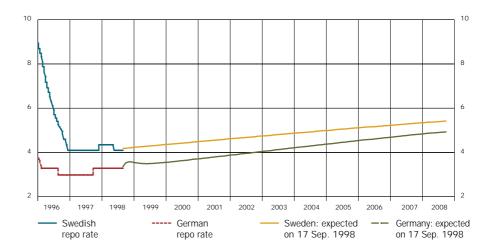
rates.

Actual and expected Swedish and German repo

Daily quotations, per cent

Daily and weekly quotations, respectively; percentage points





Source: The Riksbank

Figure 13.

Effective (TCW and importweighted) nominal exchange rate.

Daily and monthly quotations, respectively; index:

18 November 1992=100



Source: The Riksbank.

Figure 14.

Figure 15. Money supply.

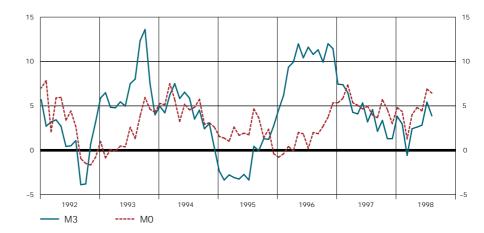
change

Percentage 12-month

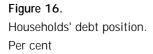
Real effective exchange rate derived from export prices, consumer prices and unit labour costs. Index: 18 November=100

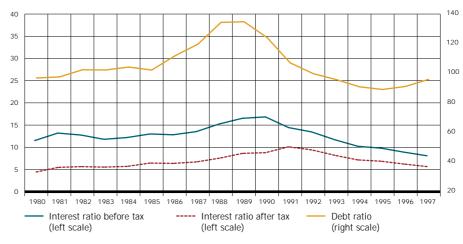


Note. The real exchange rate is calculated as foreign prices/costs divided by Swedish prices/costs all expressed in a common currency; an increase in the index accordingly stands for a depreciation of the krona's real exchange rate and thus a strengthened competitive position. Sources: IMF and the Riksbank.



Source: The Riksbank





Note. The interest ratios show household interest expenditure relative to disposable income before and after tax relief; the debt ratio shows household debt relative to disposable income. Sources: Statistics Sweden and the Riksbank.

20

15

10

5

0

-5

-10

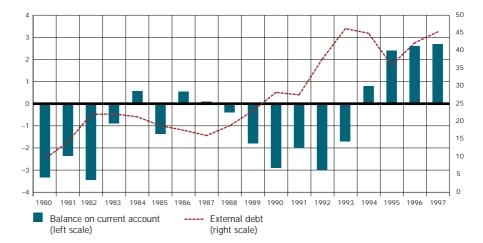
-15

-20

-25

20 15 10 5 0 -5 -10 -15 -20 -25 1992 1993 1994 1995 1996 1997 1998 Credit institutions to - Banks to Credit institutions non-bank sector non-bank sector to households

Note. From January 1995 onwards the figures include banks' repos with the non-bank sector. Lending by housing institutions has been adjusted for the transfer of state housing loans to this category in July 1995. Source: The Riksbank.



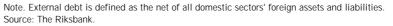


Figure 17. Lending by credit institutions to resident nonbank and household sectors; bank lending to resident non-bank sector. Percentage 12-month change

Figure 18.

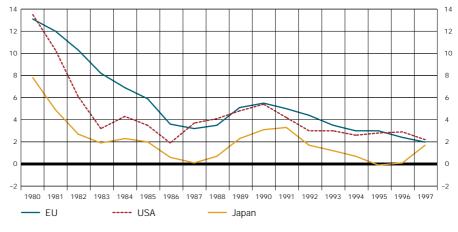
Balance on current account and external debt. Per cent of GDP

Figure 19.

Government borrowing requirement: total and excluding interest expenditure. Moving 12-month total; SEK billion



Figure 20. Inflation: European Union, United States and Japan. Annual rate; per cent





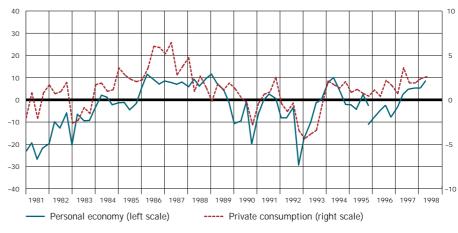


Retail trade
Private consumption

Source: Statistics Sweden.

Figure 22.

Households' personal economic expectations* and private consumption. Net figure and percentage 12-month change



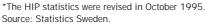
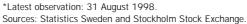


Figure 23. Price index for owneroccupied housing (1981=100) and Stockholm Stock Exchange share price index* (end 1979=100)





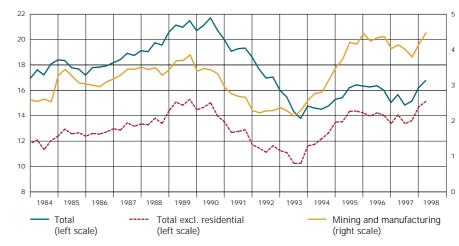




Figure 24.

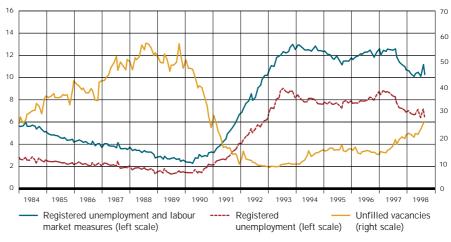
Gross fixed capital

Seasonally-adjusted

volume; per cent

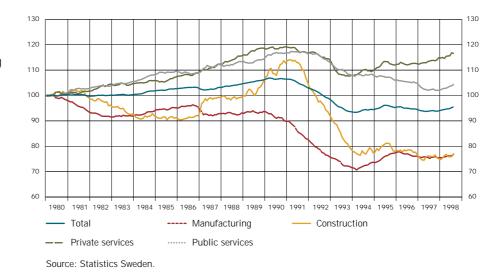
formation relative to GDP.

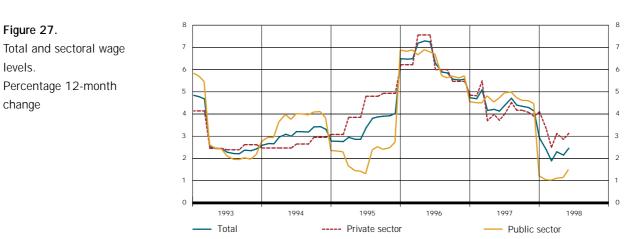
Figure 25. Unemployment and job vacancies. Seasonally-adjusted data; per cent and thousands, respectively



Sources: Statistics Sweden and National Labour Market Board.

Figure 26. Employment (persons). Seasonally-adjusted moving 3-month average; index: 1980 Q3=100





Sources: Statistics Sweden, Association of Local Authorities, Federation of County Councils and Riksbank calculations.

Table 1.

Sectorwise wage formation. Annual percentage change

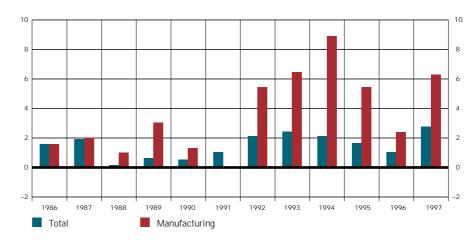
	Outcome 1995	1996	1997	1998 Jan.–June
Private sector	4.2	6.3	4.3	3.2
manufacturing	4.8	7.5	4.5	3.0
trade	3.9	5.2	4.3	3.3
construction	4.1	4.0	3.0	2.3
Public sector	2.1	6.3	4.7	1.2
Central government	3.9	7.0	4.1	1.0
Municipalities	1.0	5.3	4.3	0.9
County councils	2.7	7.8	6.0	1.8
Total economy	3.3	6.3	4.4	2.4

Sources: Statistics Sweden, Association of Local Authorities, Federation of County Councils and Riksbank calculations.

Figure 28. Unit labour costs (ULC) and labour productivity. Moving four-quarter average; percentage 12-month change







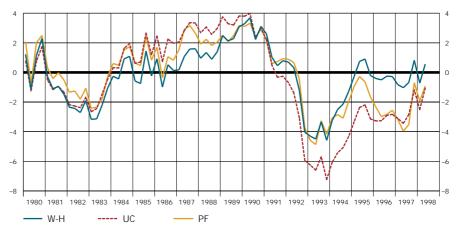
Sources: Statistics Sweden and the Riksbank.

Figure 29. Productivity: total economy and manufacturing.

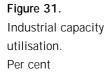
Annual percentage changes

Figure 30.

Output gap calculated with three alternatives: Whittaker-Henderson filter (W-H),* Unobserved Component method (UC) and production function approach (PF). Per cent

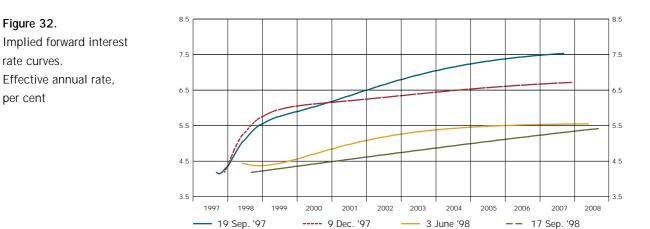


*The W-H filter is based on a projection of GDP, using the Riksbank's' forecast for 1998–2000. Source: The Riksbank.





Sources: Statistics Sweden and National Institute of Economic Research.



Source: The Riksbank.

Figure 33.

Implied forward interest rates in the United States and Germany. Effective annual rate, per cent

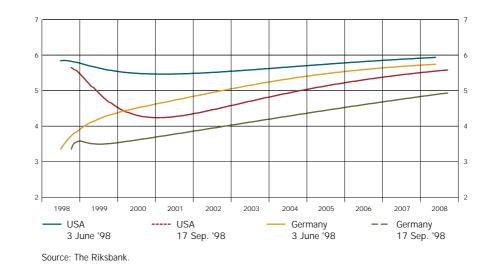
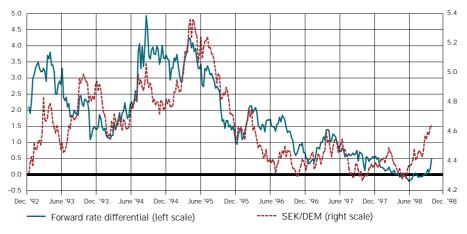
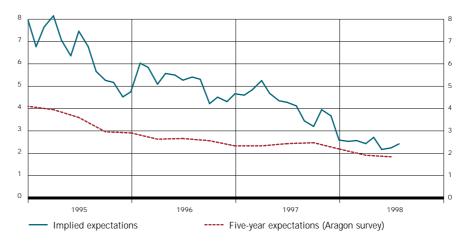


Figure 34.

Forward ten-year interest rate differential with Germany and SEK/DEM exchange rate. Weekly quotations; percentage points and SEK/DEM



Source: The Riksbank.



Inflation expectations. Per cent

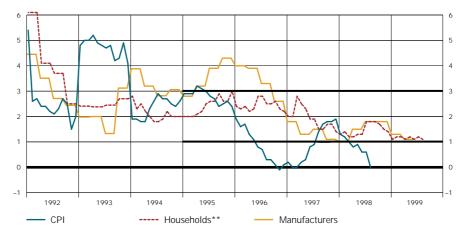
Figure 35.

Note. Implied inflation expectations are derived from the difference between implied 6—16-year real and nominal bond rates.

Sources: Aragon Fondkommission and the Riksbank.

Figure 36.

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



*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 the ten most extreme responses at either end are excluded; prior to 1996 the curve shows responses in the range 0-15 per cent.

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

Sources: Statistics Sweden and National Institute of Economic Research.

Figure 37.

Bond investors' expectations of inflation two and five years ahead.

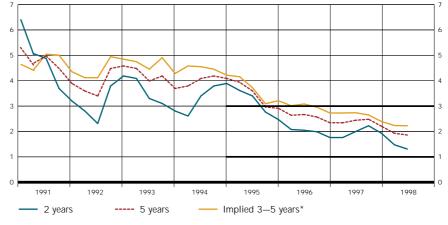
Per cent

Table 2.

parentheses.

Inflation expectations in September 1998 with the change from May 1998 in

Average figures, per cent and percentage points



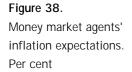
*The implied expected average inflation rate in the period from three to five years ahead, calculated by the Riksbank.

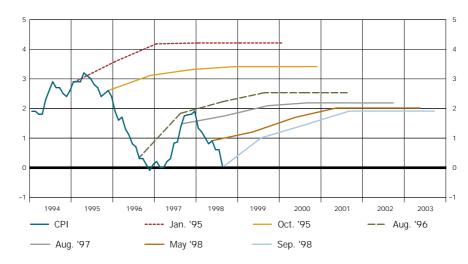
Note. The horizontal lines from 1995 onwards represent the Riksbank's tolerance limits for the annual change in the CPI.

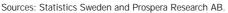
Source: Aragon Fondkommission.

	Annual change in CPI in:		
	1 year	2 years	5 years
Employer organisations	1.4 (±0.0)	1.5 (-0.1)	1.8 (+0.1)
Employee organisations	1.6 (+0.1)	1.7 (-0.1)	1.9 (±0.0
Purchasing managers, industry	1.9 (+0.2)	1.9 (+0.1)	2.1 (+0.1
Purchasing managers, trade	1.8 (+0.2)	1.8 (+0.1)	1.9 (-0.1
Money market agents	1.0 (-0.2)	1.2 (-0.3)	1.6 (-0.2

Source: Prospera Research AB.

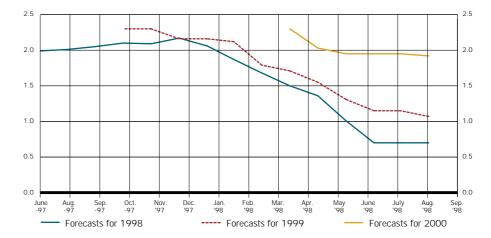






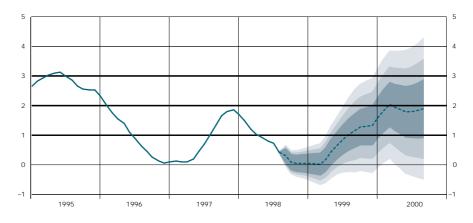


Average of CPI forecasts from selected forecasters. Annual percentage change



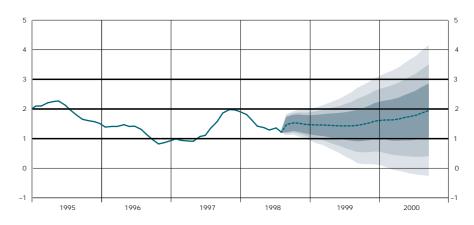
Note. The time axis denotes the date of the forecast.

Sources: Föreningssparbanken, Handelsbanken, Nordbanken, S-E-Banken, Unibank, Aragon, Hagströmer & Oviberg, Matteus Fondkommission, Ministry of Finance, National Institute of Economic Research, Swedish Post, Confederation of Professional Employees, Trade Union Confederation, and Wholesale & Resale Research Institute.



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 and 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 40. CPI with uncertainty intervals. 3-month moving average; per cent Figure 41. UND1 with uncertainty intervals. 3-month moving average; per cent



Note. The uncertainty intervals show the 50, 75 and 90 per cent chances of UND1 inflation being within the respective range. The broken line represents the main scenario's forecast and 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.

Table 3.CPI (12-month) inflation in1999 Q3 and 2000 Q3.Probability in per cent

Probabilities	CPI<1	1 <cpi<2< th=""><th>2<cpi<3< th=""><th>CPI>3</th><th>Total</th></cpi<3<></th></cpi<2<>	2 <cpi<3< th=""><th>CPI>3</th><th>Total</th></cpi<3<>	CPI>3	Total
1999 Q3	39	43	16	2	100
2000 Q3	26	26	25	23	100

Note. The figures denote the probability of inflation being below 1 per cent, between 1 and 2 per cent, between 2 and 3 per cent, and over 3 per cent. Source: The Riksbank.

Table 4.		UND1<1	1 <und1<2< th=""><th>2<und1<3< th=""><th>UND1>3</th><th>Total</th></und1<3<></th></und1<2<>	2 <und1<3< th=""><th>UND1>3</th><th>Total</th></und1<3<>	UND1>3	Total
12-month UND1 inflation	1999 Q4	27	49	22	2	100
in 1998 Q4, 1999 Q4 and 2000 Q3.	2000 Q3	22	28	28	22	100
Percentage probability	Note. The figures she Source: The Riksban	ow the probability of L k.	JND1 inflation bein	ng in the column's i	interval.	